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Native Vegetation and Weed Action Plan Great Ocean Road Coast Committee

April 8th 2009

Prepared by Coomes Consulting Group in association with
Mark Trengove Ecological Services



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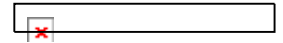
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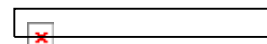
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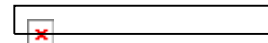


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1 Executive Summary

This Native Vegetation and Weed Action Plan builds on information collected in the Great Ocean Road Coast Committee (GORCC) Environment and Land Management Plan to address the GORCC managed native vegetation's greatest threat: invasion and expansion of weeds.

This Action Plan enhances GORCC knowledge by providing more information on:

- The condition of Ecological Vegetation Classes (EVCs) throughout the management areas.
- The location and extent of significant indigenous plant species and populations.
- The extent and severity of weed infestations and threats.
- The distribution and severity of other threats to vegetation from recreation, fire, pest animals, erosion etc.

Bringing together this information on native vegetation and weeds establishes a baseline of data to monitor the success resulting from weed control and vegetation management activities.

The knowledge of the quality and condition of native vegetation along with knowledge on the extent and severity of weed infestation enables this Action Plan to make prioritised management action recommendations for GORCC to undertake in the short, medium and long term.

The priority for managing the environmental impact of weeds is based on the following hierarchy:

1. Highest priority: prevention of new and emerging weeds.
2. Next priority: for all established weeds, an approach based on asset protection.

This is consistent with State Government policy for managing the environmental impacts of weeds on public land in Victoria as outlined in DSE's *Guidelines and procedures for managing the environmental impacts of weeds on public land in Victoria 2007*.

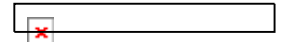
The high priority recommendations are to eradicate Weeds of National Significance (WONS) such as Serrated Tussock (*Nassella trichotoma*) (A1)* and Bridal Creeper (*Asparagus asparagoides*) (A1, A2, A3) where ever they occur.

*Note: eg:(A1) refers to the management area and section in which the weed occurs.

Eradication of the following serious weeds while they are still localised, emerging populations in the following sections is also a high priority consistent with the assets-based protection:

- Bluebell Creeper (*Billardiera fusiformis*) (B2, C1, D3)
- Mirror Bush (*Coprosma repens*) (B2, D2, D3, D4)
- Sea Spurge (*Euphorbia paralias*) (C2, C3)
- Sweet Pittosporum (*Pittosporum undulatum*) (A1, D2, D3, D4)
- Myrtle-leaf Milkwort (*Polygala myrtifolia*) (A1, C1, C2, C3, D3, D4)
- Italian Buckthorn (*Rhamnus alaternus*) (A2, A3, A4)

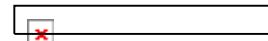
It is also important that GORCC remain vigilant and keep these weeds out of areas that are currently free of them.



Boneseed (*Chrysanthemoides monilifera ssp monilifera*), a Weed of National Significance (WONS), and Coast Tea-tree (*Leptospermum laevigatum*) are more widespread and occur in most sections, but with a concerted effort in conjunction with volunteers and neighbours over the short, medium and long term both of these weeds can be eliminated from most sections.

Implementation of the short term actions will ensure the highest value indigenous vegetation is protected. For example the Heathlands of Anglesea and Jun Juc will continued to be protected and the estuary of Painkalac Creek will have a reduced weed load, enabling the indigenous vegetation to be more resilient to the impacts of climate change.

The quality of the native vegetation and the low weed cover in many of the sections is due to the previous management actions of the GORCC, volunteers and partner agencies. The Great Ocean Road Coast Committee will continue to work together with volunteers and partner agencies to reduce the impact of weeds on the native vegetation of the Great Ocean Road.



2 Introduction

The Great Ocean Road Coast Committee (GORCC) is a Crown Land Committee of Management established under the *Crown Land (Reserves) Act, 1978* which is administered by the Minister for Planning. The Act provides the Committee with broad powers to manage land reserved for public purposes on behalf of the Crown. The management of this land is also consistent with the Coastal Management Act (1995) and the Victorian Coastal Strategy (VCS)(2008). In line with the hierarchy of principles in the VCS, GORCC's primary focus is the conservation of natural and cultural heritage on behalf of all Victorians.

The coastal reserves managed by GORCC include a diverse array of physical and ecological systems, located within the Surf Coast Shire. These reserves are comprised of four linear areas which occur along the foreshore in conjunction with the four main townships of the study area, Torquay, Anglesea, Aireys Inlet and Lorne. In addition to the 37 kilometres of coastal reserve ranging from Point Impossible in the north to St Georges River in the south, GORCC is responsible for bushland reserves at Taylor Park in Torquay, Queens Park and Erskine River in Lorne and at Cumberland River. GORCC also manages the Torquay Foreshore Caravan Park and Lorne Foreshore Caravan Park and leases out the Anglesea Beachfront Caravan Park and Cumberland River Holiday Park. In total GORCC manages 450 ha of public land.

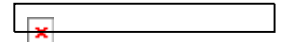
Figure 1: GORCC Managed Land.



These stretches of coastline are world renowned. They have very high recreational and ecological values which make developing and implementing a comprehensive, constructive Native Vegetation and Weed Action Plan imperative.

GORCC's primary focus on the conservation of natural heritage obligates GORCC to retain existing native vegetation and, in areas of high conservation value, work towards restoring vegetation to as close as possible to its 'natural' or pre-1750 state.

In addition to high value natural areas, GORCC manages several, highly modified coastal recreation areas. These 'parkland' areas, including Taylor Park in Torquay and Lorne's central coastal reserve feature exotic grassy open space and a variety of non-indigenous trees and shrubs. In parkland areas GORCC's management emphasis is on recreational and landscape values, rather than ecological values. Exotic and non-indigenous plant species are generally



tolerated in parkland areas, as long as they are not environmental weeds that pose a threat to higher value vegetation communities.

GORCC's Environment and Land Management Plan (ELMP) (2006) provides strategic guidance for GORCC's management of natural and cultural values. The ELMP outlines a range of direct conservation activities plus a range of strategies for pursuing conservation outcomes through the provision of recreational infrastructure, community involvement, interpretation, education and business initiatives.

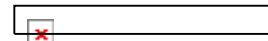
In particular the ELMP has established that the most significant threat to indigenous vegetation is weed invasion. Other threats are from recreation, wild fire and climate change (ELMP 2006). These areas of public land are utilised for a range of purposes and are bound by a range of land uses, both public and private, which provides potential for exposure to environmental degradation through processes such as new weed infestations and disturbance.

This Action Plan builds on the work undertaken by the ELMP in relation to the threat weeds pose for the conservation and restoration of native vegetation communities. This Action Plan uses the same land management units and titles. It specifically aims to provide detailed knowledge of the existing extent and condition of native vegetation and the extent and severity of weed infestations as compared with the assumed vegetation cover before 1750 (European settlement). Providing accurate technical information about the present state of native and weedy vegetation will assist GORCC to make informed planning and management decisions.

This Native Vegetation and Weed Action Plan aims to enhance GORCC knowledge by providing more information on the following five points:

- The condition of Ecological Vegetation Classes (EVCs) throughout the management areas.
- The location and extent of significant indigenous plant species and populations.
- The extent and severity of weed infestations and threats.
- The distribution and severity of other threats to vegetation from recreation, fire, pest animals, erosion etc.
- Changes over time resulting from weed control and vegetation management activities.

This Action plan achieves the first four points and provides the baseline data and an objective process to monitor changes over time resulting from weed control and other activities.



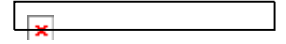
GORCC Land Management Areas

The four management areas are based around the four main townships. These management areas, named A, B, C and D, are further split into 13 smaller sections. **Refer to Figure 2: GORCC Land Management Areas A, B, C & D and the 13 sections.**

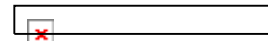
The areas are as follows:

- A Torquay (Point Impossible – Bones Rd) (11 km, 230 Ha)
 - Area A is divided into four sections:
 - A1 Point Impossible – Whites Beach
 - A2 Whites Beach – Jan Juc Creek
 - A3 Taylor Park
 - A4 Jan Juc Creek – Bones Road
- B Anglesea (Inverlochy Street – O’Donohue Road) (5 km, 99 Ha)
 - Area B is divided into 2 sections:
 - B1 Inverlochy Street – Anglesea River
 - B2 Anglesea River – O’Donohue Road
- C Aireys Inlet (Boundary Road – Eastern View) (12 km, 96 Ha)
 - Area C is divided into 3 sections:
 - C1 Boundary Road – Split Point Lighthouse
 - C2 Split Point Lighthouse – Mogg’s Creek
 - C3 Mogg’s Creek – Eastern View
- D Lorne (Reedy Creek – Queens Park and Cumberland River) (8km, 113 Ha)
 - Area D is divided into 4 sections:
 - D1 Reedy Creek – Erskine River
 - D2 Erskine River – St George River
 - D3 Queens Park
 - D4 Cumberland River

Figure 2: GORCC Land Management Areas A, B, C & D and the 13 sections.



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3 Policy Framework and Guiding Principles

This chapter sets out the framework for the prioritisation of native vegetation and weed management actions. It also addresses the impact of climate change on the implementation of those management actions.

The native vegetation and weed management priorities in this plan have been developed utilising an 'asset-based' approach. This approach balances the ecological value of the asset with any potential threats and gains.

The asset-based approach is intended to:

- Identify high value assets and their environmental condition.
- Identify current and future degradation (threats) of high value assets.
- Highlight assets where there are the highest environmental, social and economic gains for investment.

Source: DSE Project 202164: The Land based NRM asset-based approach

The asset-based approach offers flexibility to prioritise the highest quality vegetation for protection and appropriate management.

This Action Plan is also consistent with State Government's Weeds and Pests on Public Land (WPPL) initiative which aims to:

- Protect large areas of high value natural assets through preventing and reducing the impact of weeds and pests.
- Improve public land stewardship through a collaborative partnership approach at the landscape level.
- Minimise the movement of weeds and pests across the public/private land interface.
- Engage the community in the management of public lands.

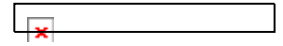
An output of the WPPL initiative is the State Government guidelines for managing the environmental impacts of weeds on public land in Victoria: *Guidelines and procedures for managing the environmental impacts of weeds on public land in Victoria 2007*.

The objectives of the guidelines are to:

- Maintain indigenous biodiversity, particularly ecosystems of high conservation value.
- Maintain the viability of threatened species and communities.
- Promote ecological sustainability and the provision of ecosystem services.
- Prevent adverse social or economic impacts by taking an integrated approach to management.

These objectives provide a priority-setting framework for managing the environmental impact of weeds based on:

1. Highest priority: prevention of new and emerging weeds.
2. Next priority: for all established weeds, an approach based on asset protection.



This Action Plan acknowledges the information on native vegetation and weeds presented in the ELMP. The ELMP has established a comprehensive list of significant species and priority weeds with which this Action Plan generally concurs. This Action Plan builds on the knowledge captured through the ELMP by mapping the location and extent of priority weeds across the study area.

This Action Plan is also consistent with the four guiding principles of the Victorian Coastal Strategy (2008) which are to:

- Provide for the protection of significant environmental and cultural values.
- Undertake integrated planning and provide clear direction for the future.
- Ensure the sustainable use of natural coastal resources.
- Ensure development on the coast is located within existing modified and resilient environments where the demand for development is evident and the impact can be managed.

3.1 Victorian Native Vegetation Framework

Net Gain is the Victorian Government's framework for achieving native vegetation gains across the state. The framework is defined in the document: *Victorian Native Vegetation Management - A Framework for Action (DNRE 2002)* and is achieved in conjunction with Regional Native Vegetation Plans, prepared by the local Catchment Management Authorities.

Net Gain is described as the outcome for native vegetation and habitat where overall gains are greater than overall losses and where individual losses are avoided where possible. Losses and gains are determined by a combined quality/quantity measure and over a specified period of time. Gains may be either required offsets for permitted clearing actions or as a result of land holder and Government assisted efforts that are not associated with clearing= (DNRE 2002).

The stated goal of the framework is to achieve:

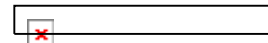
A reversal, across the whole landscape, of the long-term decline in the extent and quality of native vegetation, leading to a Net Gain (DNRE 2002).

The three-step approach to net gain is to:

- Avoid adverse impacts, particularly through vegetation clearance
- If impacts cannot be avoided, minimise impacts through appropriate consideration in the planning process
- Identify appropriate offset options (DNRE 2002).

3.1.1 Corangamite Native Vegetation Plan

The Corangamite Native Vegetation Plan (CNVP) 2006 aims to strategically direct future action in the protection, enhancement and restoration of the region's native vegetation. The Plan has been guided by the State-wide policy that outlines a consistent approach to management of native vegetation as found in 'Victoria's Native Vegetation Management – A Framework for Action' (2002) The CNVP reflects the values that the community places on native vegetation as a key asset and part of a long term, sustainable landscape, as expressed in the Corangamite Regional Catchment Strategy (2003) (CNVP 2006).



Native vegetation in the Corangamite region has undergone a major change since European settlement, with less than 25% of the region's original vegetation remaining. Native grasslands and grassy woodlands in particular have been reduced to an estimated 1% of their former extent.

The CNVP identifies three broad goals to achieve the vision of Net Gain:

- **Protect** – To maintain the extent of all native vegetation types to at least 2002 levels.
- **Enhance** – To enhance the quality of existing native vegetation by managing 90% of native vegetation cover on both public and private land to Best Management Practices by 2010.
- **Restore** – To strategically increase overall cover of each Ecological Vegetation Class (EVC) to at least 10% of pre-1750 levels by 2020.

The CNVP places additional importance on the protection and enhancement of the Grassy ecosystems within the study area.

3.1.2 Ecological Vegetation Classes

Under the Framework, vegetation communities are referred to as Ecological Vegetation Classes (EVCs). EVC=s is the primary level of classification of vegetation communities within Victoria. An EVC contains one or more plant (floristic) community, and represents a grouping of vegetation communities with broadly similar ecological attributes. Classification of EVC's in this Action Plan follows Oates and Toranto (2002).

The Framework also provides benchmarks for each EVC, which lists a range of plant forms; which are common to that EVC. Appendix 9: Ecological Vegetation Class Benchmarks contains a list of the EVC Benchmarks assessed in the study area. Appendix 10: Ecological Vegetation Class Maps contains the extent of native vegetation present and the EVC's in the study area. These maps are created utilizing modelled dataset generated by combining a number of DSE source datasets including: Tree cover – (Tree25), Grass cover, Water – Hydropoly25 and Hydro25 (rivers, streams wetlands, dams) and Plantations – manually created from Aerial Photo interpretation, State Forest Resource Inventory data and LANDSAT (satellite) image analysis (Biodiversity Interactive Map, DSE 2009).

This data set is designed for use at a large scale (1:25 000 to 1:100 000) and is not definitive at the site or property scale (Biodiversity Interactive Map, DSE 2009). The EVC maps in Appendix 10 are at a scale of 1:10 000.

Bioregions are classified as biogeographic areas that capture the patterns of ecological characteristics in the landscape, providing a natural framework for recognising and responding to biodiversity values (DNRE 2002). All of the lands managed by GORCC occur within the Otway Plain and Otway Ranges bioregions.

The following table is a summary of the EVCs present across the study area, the bioregion in which they occur and the conservation status of the EVC within the bioregion.

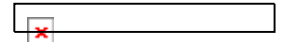


Table 1: Ecological Vegetation Classes recorded and conservation status in each bioregion between Point Impossible and Cumberland River according to management areas. (ELMP 2006 and Sutter 2007).

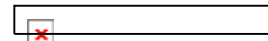
EVC no.	EVC name	Area A	Area B	Area C*	Area D
		Otway Plain Bioregion			Otway Ranges Bioregion
858	Coastal Alkaline Scrub	E	E	E	
1	Coastal Dune Scrub/Coastal Dune Grassland Mosaic	D	D	D	D D
161	Coastal Headland Scrub	V	V	V	D D
9	Coastal Saltmarsh	E		E	
163	Coastal Tussock Grassland	V		V	
3	Damp Sands Herb-rich Woodland				V
175	Grassy Woodland	E			
48	Heathy Woodland		LC		
23	Herb-Rich Foothill Forest				D
16	Lowland Forest				D
10	Estuarine Wetland			E	E
18	Riparian Forest				LC
6	Sand Heathland		R		
7	Clay Heathland		V		
198	Sedgy Riparian Woodland			LC	V
45	Shrubby Foothill Forest				LC

Conservation status: (E – Endangered, V – Vulnerable, D- Depleted, R – Rare, LC – Least concern)

* Note: Area C- Aireys Inlet has its northern sections C1 & C2 in the Otway Plain bioregion and its southern section C3, (west of Mogg's Creek) in the Otway Ranges bioregion.

3.1.3 Conservation Significance

Under the Framework a combination of the quality of the EVC and the conservation status of the EVC in the bioregion enables conservation significance to be determined. Table 2: Estimating Conservation Significance illustrates the relationship between conservation status and habitat condition score. For each of the native vegetation assessments referred to in this Action Plan the conservation significance has been calculated and reported within each section. For a summary of the conservation significance of each of the assessed EVC's refer to Appendix 1: Native Vegetation Habitat Condition Assessment

**Table 2: Estimating Conservation Significance.**

Conservation Status*	Habitat Score (h)									
	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
Endangered	HIGH			VERY HIGH**						
Vulnerable	MEDIUM		HIGH		VERY HIGH					
Rare	MEDIUM		HIGH			VERY HIGH				
Depleted	LOW		MEDIUM			HIGH				
Least Concern	LOW					MEDIUM				

* As determined by reference to relevant bioregional plan / EVC database

** Other attributes (such as population size of a threatened taxon) may over-ride condition score alone.

Note: This table is a summary of Appendix 3: Table 5 (DNRE 2002)

3.1.4 Habitat Condition Scores

Habitat condition scores are determined for discrete areas of relatively homogeneous vegetation within an EVC. The habitat assessment uses site based calculations to contribute to a possible score up to 100. There are two major components to the assessment:

- Site Condition (7 components totalling a maximum 75 points).
- Landscape Context (3 components totalling a maximum 25 points).

The site condition considers the number of large trees, the tree canopy cover, the type of understorey, the level or recruitment (range of ages of plants), organic litter, logs and the presence of weeds. Landscape components include patch size, quantity of neighbourhood vegetation at (100m, 1km, 5km) and distance to core area (a 50ha patch of native vegetation). For EVCs that do not contain all seven of the site condition components (eg; large trees), the Site condition scores are modified. Almost all of the assessments along this coastal environment were modified as large mature trees generally do not occur in coastal locations.

Other elements which relate to the value of native vegetation include: significant species, vegetation conservation significance, threatened fauna habitat and threatened plant distribution.

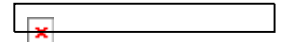
3.2 Weed Assessment

The need to undertake a comprehensive weed assessment is the primary recommendation of the ELMP. To have an asset-based approach to native vegetation management the threat of weeds needs to be fully understood.

The State Government policy for managing the environmental impacts of weeds on public land in Victoria as outlined in DSE's *Guidelines and procedures for managing the environmental impacts of weeds on public land in Victoria 2007*.

The objectives of the DSE Guidelines are to:

- Maintain indigenous biodiversity, particularly ecosystems of high conservation value.
- Maintain the viability of threatened species and communities.



- Promote ecological sustainability and the provision of ecosystem services.
- Prevent adverse social or economic impacts by taking an integrated approach to management.

These objectives provide a priority-setting framework for managing the environmental impact of weeds based on:

1. Highest priority: prevention of new and emerging weeds.
2. Next priority: for all established weeds, an approach based on asset protection.

This Action Plan is also consistent with the Otways Eden Project (DSE 2004) which aims to reduce the impact of weeds on environmental values and natural assets on public land throughout the Otways region. The project targets new and emerging weed infestations in State Forest and National Parks, and also undertakes general weed control at a number of identified high value sites.

The project extends from Torquay to Port Campbell along the coast, and inland towards the Princes Highway. It covers 150,000 hectares of public land across several tenures. The Otways Eden Project began in 2004. DSE and Parks lead this project; GORCC will continue to work with its partner agencies to implement the initiatives of the Otway Eden project and this Action Plan.

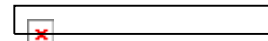
3.2.1 Weed Species Selection Criteria

Priorities for management are based on consideration of each species' level of threat as well as the feasibility of management for each species. The weed species requiring management are listed under three levels of priority, consistent with the ELMP. Species that are determined to have the highest priority for management fulfil one or all of the following criteria:

- Species listed as Weeds of National Significance (WONS) (Thorp and Lynch 2004). For a full list of WONS refer to Appendix 3: Australian List of Weeds of National Significance.
- Species listed under the Catchment and Land Protection Act 1994 (CaLP) for the Corangamite Catchment Management Region. Refer to Appendix 4: Corangamite Catchment Management Authority Priority Weeds (2004).
- Species known in Victoria to be highly invasive and destructive in indigenous vegetation (listed by Carr et al. 1992).
- Species that form part of a threatening process listed on the Flora and Fauna Guarantee Act 1999.

A further detailed selection criterion follows the ELMP's order of priority of weeds. Selection criteria are as follows:

- Species which are rapidly invasive and pose a major threat.
- Robust species that are capable (as invaders) of impacting upon the indigenous vegetation, these plants have the potential to become dominant in the structure of the vegetation at various time scales.
- Species whose current populations are so small that their elimination is feasible.



- Species with high visual impact because of their size, and discordance with the indigenous vegetation in terms of form, texture or colour of foliage, and species with showy floral displays.
- Generally excluded are numerous species that are ubiquitous or locally abundant members of the ambient weed flora with vast populations, high seed or propagule production, and very effective dispersal; these are all herbaceous species. Effective control of these species is generally not feasible except at localised scales.

This Action Plan, as cited above accepts the broad listing of first, second and third priority set out in the ELMP's Table 8 (refer to Appendix 5: Priority Weeds).

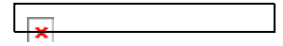
This Action Plan also utilised the prioritised weed listings for each of the management areas as given in the ELMP Table 13 (refer to Appendix 6: Highest Priority Weeds within each Section) and concluded that the highest priority weeds were generally accurate. Where the findings of this Action Plan differ from the priority of the ELMP it is specified within the section description. This Action Plan has also added a number of weeds that were recorded through the field work that conform to the above criteria.

3.2.2 Weed Control Priority

To be able to develop weed control priorities an understanding of the balance between the distribution, population and invasiveness of the weed species and the ecological value of the native vegetation is required. The following table provides a qualitative and quantitative assessment tool for distribution, population and invasiveness and thus generates a risk rating. This Action Plan aims to use qualitative terms to provide a consistent terminology for describing the distribution, population, invasiveness and therefore the risk each weed presents.

Table 2a: Qualitative terms and Quantitative values for distribution, population, and invasiveness and risk rating. (ELMP 2006)

	Distribution and population status		Invasiveness and risk rating
1	Widespread, medium to large populations	1	Highly invasive and a very serious threat to indigenous vegetation <i>or</i> its recruitment
2	Widespread, small populations	2	Moderately invasive and a serious threat to indigenous vegetation <i>or</i> its recruitment
3	Limited distribution, medium to large populations	3	Weakly invasive or a slow invader; a minor threat to indigenous vegetation <i>or</i> its recruitment
4	Limited distribution, small populations	4	A minor or moderate threat to indigenous vegetation but a species with moderate to high visual impacts (life form, foliage and/or flowers)
5	Rare or localised, medium to large populations		
6	Rare or localised, small populations		



3.2.3 Origins of Weeds

The origins (directly and indirectly) of the weed flora along the Great Ocean Road generally fall into one of the following categories:

- Ubiquitous and common species in the local and regional weed flora, mostly introduced during early post-European settlement.
- Species that have been dumped as garden rubbish.
- Species which have 'escaped' from local gardens (public or private) or plantations.
- Species that have naturalised from plantings (trees or shrubs) within the study area.

A local exception to these general categories is Sea Spurge (*Euphorbia paralias*) which has drifted to Victorian shores by sea from Western and South Australia over the last century. It originates from the Mediterranean and was first record in Western Australia in the 1920's.

Having an understanding of where weeds originate will assist with managing weeds. It can also assist with understanding some of the community awareness, education and behavioural change activities needed to achieve better management of weeds.

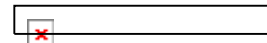
3.3 Climate Change

Over the medium to long term, climate change poses real and serious threats to our coast. By understanding the threats we are better able to manage the potential impacts on coastal assets including native vegetation. During this century, it is likely the Victorian coastline will be impacted by sea level rise and increased frequency and severity of storm events leading to inundation and erosion. It is also predicted that higher temperatures will increase bushfire risk along the coast, and increased sea temperatures, changing sea currents and further acidification of the ocean will affect the marine environment (Victorian Coastal Strategy (VCS) 2008).

There have been a number of studies conducted at an international, national and state level. The Intergovernmental Panel on Climate Change (IPCC) is the authoritative international scientific advisory body on human-induced climate change science. The IPCC projected sea level rise of between 0.18–0.59 metres by 2090–2099. However, the upper values of sea level rise (e.g. 0.59 metres) projected by the models were not considered to be upper bounds of possible sea level rise by 2099 (VCS 2008).

While there is uncertainty about the quantum of the sea level rise, the data provided in the IPCC report shows the sea level is rising and will continue to rise in the 21st century. Recent observations show the observed sea levels from tide gauges and satellites are tracking near the upper bound of the IPCC 2001 projections, since the start of the projections in 1990 (Rahmstorf *et al.* 2007).

On the basis of the IPCC report and until national benchmarks for coastal vulnerability are established, The VCS recommends a policy of planning for sea level rise of not less than 0.8 metres by 2100 should be implemented (VCS 2008).



A recent report for the Glenelg-Hopkins CMA, *Climate change and natural resource management scoping study* (SKM 2005) indicates that 10-90 cm rise in sea level could lead to a 10m to 100m change in beach line.

Low-lying estuaries and coastal wetlands are particularly susceptible to any acceleration in the rate of sea level rise and storm frequency and intensity. Historically, such systems have been able to keep pace with submergence through a process known as *progradation* (i.e. moving landward and upward) through the deposition of sediment on the fringes of the estuarine system. However, where there are significant changes to the quantities of sediment reaching the estuaries (through upstream dams, for instance) and development of the estuarine fringes, the system is less able naturally deal with such changes in water level (a process often referred to as 'coastal squeeze'). In these cases, increased frequency of inundation, loss of coastal wetlands and ecosystems and increased reliance on hard engineering measures to control bank erosion would all be expected (SKM 2005).

These measures, in turn, lead to increased flow velocities, increased tidal prisms (both volume and range), increased saline intrusion (into both estuary and coastal aquifers) and changed circulation patterns that will modify sedimentation processes (SKM 2005).

In addition to increases in water levels due to sea level rise and increased storm surges, increased upstream run-off (during extreme rainfall events) and higher tailwater levels may add to an increased severity and/or frequency of inundation of estuaries (SKM 2005).

Managing and adapting to these impacts and risks will pose challenges in the short, medium and long-term, depending on the events that arise and the life of the buildings and infrastructure and other assets. For a detailed list of potential climate change impacts and the implications for coastal communities refer to Appendix 8: Potential Climate Change Impacts and Implications for Coastal Areas

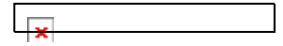
The VCS (2008) suggests there are three adaptation options, protect, accommodate or retreat. Adaptation strategies should be precautionary, that is, planning for likely future circumstances even if full scientific certainty is not possible.

There are three adaptation options:

- Protect:-protection of beaches, dunes and infrastructure; land use and development.
- Accommodate:-planning and building policies and provisions, redesign and rebuild.
- Retreat:-relocation of infrastructure, land use and development.

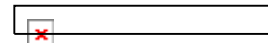
The impact of climate change and global warming on the regions significant natural assets is not fully understood at a local level. However climate change is likely to affect the viability of some species and ecosystems. Enhancing ecosystems robustness by enhancing their size, connectivity and quality will be critical. Conserving and enhancing the quality and connectivity of estuary vegetation is an important way to increase the robustness of habitats to buffer against the threat of climate change. Weed management is potentially a practical way to achieve improved climate change resilience in coastal native vegetation.

As the primary dune zone is likely to suffer severe impacts from predicted sea level rise, the role of weeds as primary colonizers may require careful consideration, as these weeds may play a role in stabilising dunes. It is important to undertake actions to remove weeds on the



primary dune at times which minimise the risk of temporarily destabilising the dune by weed removal, thereby threatening remaining indigenous revegetation.

The recent extended dry period has created consequences for the management of coastal vegetation. For example, during field work it was observed that the introduced Marram Grass (*Ammophila arenaria*) has died back on some steep areas in section A1 Point Impossible. Thus climate change may provide opportunities to manage weeds by exposing weaknesses in the physiology of weed species which has not been apparent in the past.



4 Methodology

4.1 Literature Review

A review of the ELMP (2006), DSE EVC benchmarks, rare and threatened species lists and National, State and regional priority weeds listings and the *Victorian Coastal Strategy* (2008) was undertaken. A review of relevant local reports including the Stockton Report: *Flora Survey and Management Recommendations for the Point Impossible Dunes* (2006) and Sutter Report: *Habitat Condition Assessment for 35 Priority areas* (2007) (refer below 4.4) and the *Weed Action Plan for Aireys Inlet Coastal Reserve* (2008) was also undertaken.

4.2 Consultation

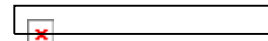
Four community meetings with key volunteers, in each of the four townships, were held prior to commencement of the fieldwork. Items discussed in detail included location of significant native vegetation, location of weed populations, current and historical weed management activities and general concerns. A list of the community volunteers consulted is in the Acknowledgements and also in Appendix 7: Summary of Community Consultation.

4.3 Fieldwork

The Native Vegetation and Weed mapping field work was conducted over a period of six weeks in spring 2008 from mid-September to early November. This was an ideal time to locate significant herbaceous species and flowering weed species. Each of the 13 sections was traversed on foot to ensure all of the section was observed. Weeds were mapped using hand-held Geographical Information Systems (GIS) equipment. This equipment was generally accurate to 5-10 metres. The locations (in Eastings and Northings) have been recorded for future implementation and monitoring activities. Significant indigenous species were also mapped utilising the same methods. All of the GIS data has been digitally mapped and is presented at the end of each of the four Recommendations chapters. **Refer to Figures 3-13 (at ends of Chapters 6-9).**

These Figures utilise a base aerial photograph and depict GORCC managed land as a red solid line. EVC identifiers and approximate boundaries are also illustrated. Individual weeds or small populations are represented by a point and a number. The botanical names of the weeds which appear in that section are listed on the Figure. Larger populations are identified as polygons. Significant indigenous species have been allocated a letter and are represented in the same manner. In some sections if a weed or indigenous plant like Moonah (*Melaleuca lanceolata*) is widespread or dominant individual plants are not mapped but are referred to in the appropriate section of this Action Plan.

Observations of the general landscape and levels of weediness were also recorded. The exact locations of the Sutter Report Native Vegetation Habitat Condition Assessments referred to below were surveyed and pegged with an accuracy of 5-10 metres. At the time of placing the assessment location pegs, a series of photographs capturing a 360 degree view were taken. These are included in the CD of digital information.



The GIS data has also been presented in an AutoCad compatible digital format on the CD to enable interactive data management.

4.4 Native Vegetation Assessment incorporating the Sutter Report

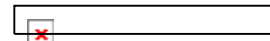
A key component of this project is to establish the extent and condition of native vegetation across the management areas. The project incorporates the findings of the DSE's Arthur Rylah Institute *Native Vegetation Habitat Condition Assessment for the Surf Coast Shire* undertaken in June 2007 by Geoff Sutter (Sutter 2007). The Sutter Report includes assessments of Native Vegetation across all GORCC managed land reserves. It uses the DSE Native Vegetation Quality Field Assessment method known as the habitat hectare assessment (DSE 2004). The existence of the Sutter Report made more habitat hectare assessments unnecessary for this project. However in order to assist with future monitoring and evaluation of these sites the exact location of these assessments has been surveyed, pegged, labelled, photographed and mapped. **Refer to Figures 3-13 (at ends of Chapters 6-9).**

Sutter undertook 40 native vegetation habitat condition assessments for specific 40m x 40m quadrats (and for some aspects of the condition assessment within 50m radius). These assessments provide adequate coverage of the range of EVC's within the study area. Sutter's field notes and assessment data has also been obtained and are included in the CD of digital information

A review of the Sutter Report in conjunction with the fieldwork confirms that the assessments accurately represent the Ecological Vegetation Classes of the study area. The assessments also generally provide an accurate assessment of the condition of the vegetation. However in some locations the modelled EVC differs to the actual EVC Sutter determined to be present and subsequently assessed. It is accepted that an actual assessment is more accurate than the modelled EVC and where these discrepancies occurs the modelled EVC is deemed to be incorrect. Where these discrepancies occur it is specified in the relevant sections of the Recommendations chapters. The modelled EVC data is DSE 2005 EVC extent developed from a composite of data sources and best viewed at a scale of 1:25000- 1:100000. The EVC extent Maps in Appendix 10 are at a scale of 1:10 000.

Further detailed analysis of the site assessments indicates that in 12 cases Sutter has incorrectly assessed Coast Tea-tree (*Leptospermum laevigatum*) as an indigenous medium shrub rather than as a weed as is its status in the study area. (See 5.1.1.) (This was confirmed with Sutter, Kate Lockhart *pers comm* 2009) This is a reasonable mistake as Coast Tea-tree (*Leptospermum laevigatum*) is listed as an indigenous species in the EVC Benchmarks for Coastal Alkaline Scrub in the Otway Plain bioregion and also for the Coastal Dune Mosaic in both the Otway Plain and Otway Ranges bioregions. Consequently the habitat condition scores for some of those EVC assessments are higher than would be the case if Coast Tea-tree (*Leptospermum laevigatum*) was recorded as a weed.

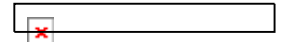
The review of the raw data of the 12 assessments indicates that of the 7 aspects of site condition score (75 points), this error affects the 'Lack of weeds' score most significantly. 'Lack of Weeds' can contribute (0-15 points). In all 12 assessments the lack of weed cover was assessed by Sutter as being within a range of 11-15. This has been reassessed (conservatively) to 0-2. 'Organic matter' can contribute (0-5 points), this has been adjusted one point from a range of 3-5 down to 2-4 and 'Recruitment' of species can contribute (0-10 points),



this has been adjusted down 1-3 points. This has led to the 12 assessment being lowered by 10 - 15 points. Adjusting the site condition score has in 3 of the 12 assessments lowered the conservation significance of the EVC at that site.

However it is important to note that these adjustments are conservative and that the actual score may well be within the range of the original Sutter assessment and the adjusted score. Future assessments will be required to determine the actual cover abundance of Coast Tree-tree (*Leptospermum laevigatum*) within the assessment sites.

A summary of the modified assessments is contained in Appendix 1A: Modified Native Vegetation Habitat Condition Assessment (Sutter 2007) and is reported within the relevant sections of the Recommendations chapters.



5 General Issues and Management Implications

This chapter outlines a number of key issues which are relevant across the study area. In particular it relates to weeds and significant species, but it also discusses implications in relation to management actions and monitoring.

5.1 Priority Weeds

This Action Plan defines a weed as any plant which is not indigenous to the local area. Many of the priority weeds are native Australian plants; some are even indigenous to parts of these bioregions. However, with the exception of Coast Wattle (*Acacia longifolia* ssp *sophorae*) (refer below 5.1.1) unless they are indigenous to the local area then they are regarded as weeds.

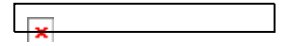
The highest risk weeds are mostly those that are well adapted to the local coastal environment and which, once established, are difficult to eradicate and have the potential to out compete local indigenous species.

This study recommends the following species (listed alphabetically by botanical name) should be the focus of widespread elimination or long term containment as they are highly invasive in this coastal environment and pose a significant threat to the study area and the adjacent Great Otway National Park:

- Bridal Creeper (*Asparagus asparagoides*)
- Bluebell Creeper (*Billardiera fusiformis* [syn. *Sollya heterophylla*])
- Boneseed (*Chrysanthemoides monilifera* ssp *monilifera*),
- Mirror Bush (*Coprosma repens*)
- Sea Spurge (*Euphorbia paralias*)
- Coast Tea-tree (*Leptospermum laevigatum*)
- Sweet Pittosporum (*Pittosporum undulatum*)
- Myrtle-leaf Milkwort (*Polygala myrtifolia*)
- Italian Buckthorn (*Rhamnus alaternus*)

The distribution of these nine weeds has been comprehensively mapped across the study area. For isolated individual plants a single point is mapped and when the weed is more frequent (more than one plant every five metres); small polygons and written notes identifying the weeds as common; scattered; widespread; dominant are provided within the relevant section.

This Action Plan follows the ELMP's list of first, second and third priority of weed species. These are identified and labelled in alphabetical botanical name order on the maps as first priority – (1 to 89), second priority – (201-226) and third priority – (301-340). This Action Plan has added a fourth priority (401-421) of localised weeds not previously listed by the ELMP, occasionally by genus name only as species identification was not possible. Refer to Appendix 5: Priority Weeds.



5.1.1 Specific Weed Issues

Coast Wattle/Sallow Wattle

Coast Wattle (*Acacia longifolia* ssp *sophorae*) is considered to be a species that can become ecologically 'out of balance' (Carr *et al* 1992). In addition, both Sallow Wattle (*Acacia longifolia* ssp *longifolia*) and Sallow Wattle hybrids (*Acacia longifolia* ssp *longifolia* / *Acacia longifolia* ssp *sophorae*) are considered to be serious environmental weeds (within the context of this study area) (Carr *et al* 1992).

Coast Wattle (*Acacia longifolia* ssp *sophorae*) is an indigenous species which occurs naturally on the primary dune system. When this species appears to occur in relative ecological balance, it should be considered an appropriate component of that ecosystem. For example: Point Impossible dunes are an area where Coast Wattle (*Acacia longifolia* ssp *sophorae*) currently appears to be in ecological balance with the indigenous shrubs like Coast Beard-heath (*Leucopogon parviflorus*) with little evidence of seedling recruitment.

The identification of these Wattle species is often difficult, as there can be a large variation in the expression of habit. Also the feasibility of attempting to control it across the study area is complicated, in part due to the long viability of soil stored seed.

The following recommendations are made:

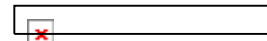
- *Acacia longifolia* ssp *longifolia* and the *Acacia longifolia* ssp. *longifolia*/*Acacia longifolia* ssp *sophorae* hybrid should be removed where possible.
- *Acacia longifolia* ssp *sophorae* should be removed from areas where it is not considered to be indigenous. (i.e. all ecosystems apart from the primary dune.)
- Populations of *Acacia longifolia* ssp *sophorae* that occur within the primary dune system should be monitored for 'out of balance' invasiveness and managed as required.

Coast Tea-tree

Coast Tea-tree (*Leptospermum laevigatum*) is not considered to be indigenous to the study area. The current ecological opinion (Carr *et al* 1992, Mark Trengove *pers obs*, Geoff Carr *pers comm*) is that the natural distribution of this plant is the coast east from Barwon Heads. Regardless of its pre-1750 distribution, it is known to be a species that can become 'out of balance' and be invasive. It is accepted as such and managed accordingly by local management authorities and local groups. The management aim should be to eradicate it where ever possible in the short to medium term and to contain larger populations in the short to medium term with the long term aim of eradication.

Panic Veldt-grass

The ELMP has cited Panic Veldt-grass (*Ehrata erecta* var. *erecta*) as a high priority weed in all sections except section C3. (See ELMP Table 8). However it is only listed as a highest priority weed in A4 (See Appendix 6: Highest Priority Weeds within each Section). Thus if any control activity needs to undertaken it could be considered in section A4. However this Action Plan did not map the distribution of Panic Veldt-grass (*Ehrata erecta* var. *erecta*) as it is considered a



part of the ambient weed cover and impractical to map and control with the current resource constraints.

Marram Grass and Sea Wheat-grass

There are a number of weed species which were very widespread (and intractable) which were not mapped as it is perceived that attempting to control them is currently not practical. Two such weeds are Marram Grass (*Ammophila arenaria*) and Sea Wheat-grass (*Thinopyrum junceiforme*). These species occur along the primary dune, and are likely to re-infest the primary dune environment. However where these weeds are not currently present it has been noted in the relevant sections. (Refer to 8.2 Section C2 Split Point Lighthouse – Mogg’s Creek). Where possible, it is considered appropriate to manage these two weed species to maintain weed-free areas.

Buffalo Grass and Kikuyu

Buffalo Grass (*Stenotaphrum secundatum*) and Kikuyu (*Pennisetum clandestinum*) are common weeds which regularly invade from disturbed roadsides and other areas which are modified and regularly mown such as golf courses, nature strips and parklands. A cooperative approach is required to be further developed and maintained with Vic Roads and other neighbours to address the on-going threat of these weed invading from road sides and other areas. This Action Plan did not comprehensively map these weeds as it was impractical. However in some sections specific action is recommended. (Refer to Section C3 Mogg’s Creek – Eastern View).

5.2 Significant Species

The following plant species, recorded during this study, are listed as being of State conservation significance:

- Coast Wirilda (*Acacia uncifolia*) – rare - (Ross & Walsh, 2003)
- Sun Orchid (*Diuris palustris*) – vulnerable - (DSE 2005)
- Bellarine Yellow Gum (*Eucalyptus leucoxydon* ssp. *bellarinensis*) – endangered (DSE 2005), listed - (FFG Act 1988)
- Otway Grey Gum (*Eucalyptus littoralis*) – vulnerable - (DSE 2005)
- Coast Twin-leaf (*Zygophyllum billardierei*) – rare (DSE 2005).

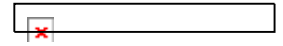
References: - Advisory List of Rare and Threatened Plants in Victoria (DSE 2005).

- Flora & Fauna Guarantee Act 1988 Threatened list November 2008 (FFG Act 1988).

- A Census of the Vascular Plants of Victoria. 7th Edition (Ross & Walsh, 2003).

A number of locally conservation significant species are listed in the following chapters within the Tables at the start of every section. All significant species surveyed and mapped have been allocated a letter for reference within the Figures 3 to 13 which appear at the end of each of the management area Recommendation chapters (6-9). For a full list of the mapped significant indigenous species please refer to Appendix 2: Significant Indigenous Species.

For a list of all flora species recorded by previous studies (and expected to be in the study area) see ELMP 4.2 Table 1 Significant Plant Species (page 30).



The three nationally conservation significant fauna species (Endangered or Conservation dependant) (EPBC Act 1999) recorded in the study area are:

- Swift Parrot (*Lathamus discolor*) Endangered - EPBC Act 1999, Listed - FFG Act 1988, endangered - DSE (2003). Swift Parrot was recorded twice in 1999 at Anglesea, once along the foreshore area (DSE 2003).
- Common Bent-wing Bat (*southern subspecies*) (*Miniopterus schreibersii*) Conservation dependent - EPBC Act 1999, Listed - FFG Act 1988, Duncan *et al.* (1999), endangered – DSE (2003). The Cumberland Cave (near mouth of the Cumberland River) is an important winter roost site for the Common Bent-wing Bat.
- Southern Brown Bandicoot (*Isodon obesulus obesulus*) Endangered - EPBC Act 1999, lower risk – near threatened, Maxwell *et al.* (1996), near threatened – DSE (2003). Numerous records of the Southern Brown Bandicoot occur in Heathy Woodland and Heathland areas within 1-2 km of land managed by the GORCC (i.e. north-east of Aireys Inlet, and Anglesea, and west of Lorne) (DSE 2005b).

There are numerous State conservation significant fauna species which have been recorded in and around the study area. Two high profiles species are:

- The Rufous Bristlebird (*Dasyornis broadbenti*) is of State significance: Listed (FFG Act 1988), near threatened (DSE 2003).
- Swamp Antechinus (*Antechinus minimus maritimus*) is of State significance: Listed (FFG Act 1988), near threatened (DSE 2003).

For detailed descriptions on the National and State significant fauna of the study area, see ELMP 4.4 (pages 42-61).

Also for fauna species recorded in and around the study area in previous studies see ELMP Appendix 4 (pg 133-145).

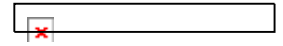
For detailed descriptions of the fauna habitats, distribution and threats, see ELMP 4.4 (pg 62-65).

5.3 Management Actions

In most instances this Action Plan recommends the eradication of all new and emerging weeds as a high priority.

In some areas eradication of established high priority weeds does not appear to be achievable within the current policy, human and financial constraints. In these instances a containment approach is recommended. A containment approach involves accepting that a weed species is well established in a location and that eradication is not currently feasible. However restricting spread beyond the current distribution is feasible. Undertaking action to remove isolated outliers and establishing a weed free buffer zone around the perimeter of the containment zone are the key steps to a containment approach.

The containment approach is also recommended for weed species which are widely distributed and for which eradication across the study area is not feasible, i.e. they should be kept out of areas they have not yet invaded.



Additionally the management of some ubiquitous weed species is recommended in connection with protection of populations of significant indigenous species and for areas which have high to very high conservation significance.

Weed removal works, particularly over large areas of established weeds will often result in major weed regrowth. These instances will require follow up control action to eradicate the weed and avoid reinfestation.

The recommended actions to manage weeds at the end of each section relate to the high priority weeds and are listed in order of high, medium and low priority for management action.

Time frames for the implementation of the recommended actions are indicated by the following terms:

- Short term –immediate – 0-2 years
- Medium term – 0-5 years
- Long term – 0-10 years

Abbreviations: (S), (M) & (L) for the above terms are used at the end of each management action to indicate the recommended time frame.

5.4 Changes in Vegetation Community Structure

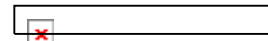
Within the study area, and in particular within the heathland vegetation communities (eg Anglesea Hill area C2), a vegetation succession from low heathland to closed shrubland has been observed (Mike Bodsworth *pers comm*, this study, ELMP). The large shrub species implicated are typically either indigenous 'out of balance' species such as Prickly Tea-tree (*Leptospermum continentale*) and Coast Wattle (*Acacia longifolia* ssp *sophorae*) or environmental weed species such as Hakea spp, Coast Tea-tree (*Leptospermum laevigatum*) and Sallow Wattle (*Acacia longifolia* ssp *longifolia*).

The succession from species rich low heathland to species poor closed shrubland is related to the frequency of fire events within the heathland communities (Specht 1981, Cheal 1996).

Within the study area the management aim is to maintain, and where possible, enhance ecosystem health. Within the heathland communities this equates to preserving species diversity. Recent works to remove large shrubby species from heathland have been undertaken in the Anglesea Hill area to achieve this aim.

It is fair to assume that the heathland vegetation is the climax vegetation and that the change to large shrubby vegetation is a response to inappropriate fire regimes (i.e. infrequent fire), rather than change from low heathland to closed shrubland being inevitable. While past information (such as pre 1750 EVC data) is potentially unreliable it nonetheless supports this position.

Consequently the recommendation is to adopt a management regime that maintains heathland health by allowing natural regeneration. The literature suggests that a burning frequency of once every 10 to 20 years is appropriate for the conservation of both floral and faunal biota and to maintain heathland as the climax vegetation community (Gill et al 1999, Cheal 1996). In addition to burning specific management actions such as post fire manual removal of weed species may be required.



5.5 Monitoring

Implementing actions is central to reducing the weed threat to native vegetation. Monitoring the effectiveness of these actions is also important to improve weed management practices and ensure the native vegetation is benefiting from the actions. There are a number of possible approaches to undertaking monitoring. Monitoring should be conducted in line with DSE document: *A Method for Monitoring Biodiversity for Changes Associated with Invasive Plants* (DSE 2008). Developing a series of habitat condition assessments would enable GORCC to follow changes in vegetation quality. It is worthwhile continuing to monitor the 40 habitat assessment sites already assessed every five years as they act as 'control' sites.

It would also be valuable to undertake targeted monitoring in areas which are scheduled for weed removal. Habitat condition assessments could be taken initially and repeated every 2 years over a 10 year period to monitor the success of the initial and any subsequent management actions.

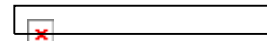
Monitoring of management area activities could also occur annually utilising the data presented in this Action Plan. An effective way to track progress would be to record the reduction in weed species and occurrences of weeds within each section.

A comprehensive Monitoring Plan should be developed which includes:

- The purpose(s) of the monitoring.
- The location of sites and the basis for their selection.
- Number of plots at each site and how arranged.
- What monitoring actions are to be undertaken and how frequently.

5.6 Management Areas

The following four chapters contain specific information about the native vegetation within each of the four management areas. It begins with an introduction of the management area and then provides a list of the sections within the area. This is followed by information about each section. The section descriptions contain an overview of the section qualities, summary tables of the habitat condition score by Sutter and other key values and threats. These tables are followed by a description of the priority weed threats and other threats. Each section finishes with a list of prioritised management actions. At the end of the chapter is a summary indicating the most important area to protect within the management area. The summary is followed by the relevant Figures illustrating the location of indigenous plants and weed species within the management area.



6 Recommendations: Management Area A: Torquay (Point Impossible – Bones Road)

Management Area A is the largest of the four management areas. It extends along 11 km of coast and is 230 hectares in size. It begins in the north east at Point Impossible and finishes in the south west at Bones Road, adjacent to the eastern end of Bells Beach Surfing Reserve. **Refer to Figures 3, 4 & 5 at end of Chapter 6**). The native vegetation is of very high value in the northern and southern sections and is fragmented by intensive recreational use at Torquay, Whites Beach and Jan Juc main beaches. All of Area A is located within the Otway Plain bioregion.

The four sections in Management Area A are:

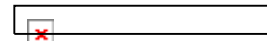
- A1 Point Impossible – Whites Beach
- A2 Whites Beach – Jan Juc Creek
- A3 Taylor Park
- A4 Jan Juc Creek – Bones Road

In the development of this section of the Action Plan, *Flora Survey and Management Recommendations for the Point Impossible Dunes* (Stockton 2006) was also reviewed. This Action Plan concurs with all that was reported in the Stockton Report and notes that significant progress has been made in the control of numerous weeds.

Members of the following groups were consulted: Jan Juc Coast Action – Ian and Roma Edwards, Torquay Coast Action - Glenda Shomally and Surfers Appreciating the Natural Environment - Graeme Stockton. Notes from the consultation meeting are contained in Appendix 7: Summary of Community Consultation. The Jan Juc Coast Action Group provided a detailed list of weed occurrences, weed control activities and issues along discrete areas from Rocky Point (within A2) to Bones Road (A4) which is also contained in Appendix 7: Summary of Community Consultation.

6.1 Section A1 Point Impossible – Whites Beach

This is the largest section in the study area. The dune system contains extensive areas of relatively intact indigenous vegetation. This is confirmed by the relatively high habitat condition score. The EVC is Coastal Dune Scrubland/ Coastal Dune Grassland Mosaic. For comprehensive information on EVC Benchmarks refer to Appendix 9: Ecological Vegetation Class Benchmarks. The dune system varies from low vegetation on the primary dune to vegetation more than 4 m tall in the rear dunes. The distribution of the rare Coast Wirilda (*Acacia uncifolia*) is extensive, with a healthy large population along the rear dunes as well as some smaller populations amongst the middle dunes. There are also some stands of Moonah (*Melaleuca lanceolata*). The weed cover is generally low. There are large areas that have no or few weeds. **Refer to Figure 3: Torquay A1 Point Impossible – Whites Beach Species Locations**

**Table 4: Ecological Vegetation Class, Status, Score and Significance**

EVC Number	EVC	Conservation Status	Habitat Score	Conservation Significance
1	A1.1 Coastal Dune Scrub/Grassland Mosaic	Depleted	66	High
1	A1.2 Coastal Dune Scrub/Grassland Mosaic*	Depleted	54(41)	Medium(Med)

* Sutter assessment includes Coast Tea-tree (*Leptospermum laevigatum*) as an indigenous species

Table 5: Summary of Values and Threats

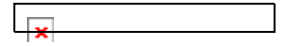
Value / Threat	Details	Status
Threatened fauna habitat/species	Moonah woodland -potential bristlebird	
Threatened indigenous plant species distribution	<i>Acacia uncifolia</i>	Rare (VROT)
Locally significant indigenous plant species	<i>Austrofestuca littoralis</i> <i>Melaleuca lanceolata</i> <i>Adriana quadripartita</i> <i>Dianella brevicaulis x revoluta</i>	
Significant weeds species	<i>Nassella trichotoma</i> <i>Chrysanthemoides monilifera ssp. monilifera</i> <i>Leptospermum laevigatum</i> <i>Asparagus asparagoides</i>	WONS WONS WONS WONS

The high habitat score for A.1.1 is indicative of the quality of the vegetation and although the classification of this EVC is depleted the conservation significance is high. This illustrates the local and regional importance of protecting this section. However the habitat condition assessment A1.2 includes Coast Tea-tree (*Leptospermum laevigatum*) as an indigenous species, therefore the Sutter assessment has been adjusted from 54 down to 41 but retains its medium conservation significance. It is also important to note that neither of the habitat condition assessments were undertaken within the vicinity of the populations of the Coast Wirilda (*Acacia uncifolia*). A further habitat condition assessment would be worthwhile to establish a more accurate baseline for this species.

Specific Weeds

Boneseed (*Chrysanthemoides monilifera ssp monilifera*) and Coast Tea-tree (*Leptospermum laevigatum*) are the two major weed problems. As **Figure 3** indicates Boneseed (*Chrysanthemoides monilifera ssp monilifera*), is widespread across the Point Impossible dunes but as individual plants or small, localised populations which indicates eradicate is possible.

Coast Tea-tree (*Leptospermum laevigatum*) occur as sporadic populations, as identified on **Figure 3**, that seem to have spread from a few initial sources. This may be due to the use of brush matting to stabilise the dunes. Staged removal is recommended to prohibit invasion into the areas of high quality vegetation that are currently free of Coast Tea-tree (*Leptospermum laevigatum*).



Serrated Tussock (*Nassella trichotoma*) was found at one location in the north-west corner of section A1 and should be eradicated as soon as possible and checked annually when it is most easily recognised in early spring.

Bridal Creeper (*Asparagus asparagoides*) currently has a limited distribution of small populations. Eradication is a priority.

Coast Wattle (*Acacia longifolia* ssp *sophorae*) currently appears to be in ecological balance with little evidence of seedling recruitment. At this stage there does not appear to be a need to manage Coast Wattle (*Acacia longifolia* ssp *sophorae*) in this section. However the population needs to be monitored. Sallow Wattle (*Acacia longifolia* ssp *longifolia*) and Coast Wattle/Sallow Wattle (*Acacia longifolia* ssp. *longifolia*/*Acacia longifolia* ssp *sophorae*) hybrids should be eradicated where possible, in line with the discussion in 5.1.1.

There is some high weed cover areas located along the north side of the section, near the road which appear to have resulted from soil disturbance related to road works. The recommendation is to establish containment zones around these areas in the short term, by eliminating outliers and reducing the distribution of the weeds, this would assist in limiting the weeds invading further into the section. Then, in the medium term eliminate the weeds in these containment zones, followed by long term revegetation with indigenous species.

The ELMP and the Stockton Report has listed African Box-thorn (*Lycium ferocissimum*) as a high priority weed. It appears to be largely under control as numerous treated dead Boxthorns were noted. All African Box-thorn in the section were mapped and it is recommended to continue management activities towards its elimination.

The field survey did not sight any Travellers Joy (*Clematis vitalba*) cited by Stockton and ELMP as a threat, however the indigenous Small-leafed Clematis (*Clematis microphylla*) appears to be widespread. This Action Plan notes that progress has been made in the control of weeds including African Box-thorn (*Lycium ferocissimum*), Boneseed (*Chrysanthemoides monilifera* ssp *monilifera*) and Cape Leeuwin Wattle (*Paraserianthes lophantha* ssp *lophantha*).

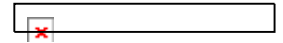
Other Threats

There were occasional signs of Rabbits (*Oryctolagus cuniculus*), mostly at the rear of the dunes near the road. In some locations where vegetation was protected by small rabbit-proof cages there was no obvious difference in the quality (or percentage) of ground cover within the cages, indicating that the rabbits are not currently having a significant impact. The low population of rabbits is a result of extensive baiting and fumigating by GORCC. This action appears to be having a positive impact on the quality of the dune vegetation with Swainson's Pea (*Swainsonia lessertiifolia*) common across the section (Stockton 2006). Monitoring of rabbit populations should be continued.

There is significant pedestrian activity and consequential erosion in the primary dune areas near the Nudist beach.

This Action Plan concurs with the Stockton Report on the value of Coast Fescue (*Austrofestuca littoralis*) which should be protected. The management actions suggested in the Stockton Report for pedestrian control though the use of fencing and warning signs at the Point Impossible car park and along the fore dune are reasonable and should be undertaken.

The field survey also recorded some Coast Beard-heath (*Leucopogon parviflorus*) which had been pruned with the dried clippings being quite conspicuous. This pruning occurred in two



locations and appears to be aimed at preserving or enhancing the sight lines of one to three specific dwellings on The Esplanade, west of Whites Cutting.

One fox (*Vulpes vulpes*) burrow was also noted close to clipped Coast Beard-heath (*Leucopogon parviflorus*) site near Whites Cutting.

Management Actions A1

High Priority Actions

- Remove Serrated Tussock (*Nassella trichotoma*) as soon as possible. (S)
- Remove all Boneseed (*Chrysanthemoides monilifera* ssp *monilifera*) on an annual basis. (S)
- Remove all Bridal Creeper (*Asparagus asparagoides*) on an annual basis. (S)
- Removing Coast Tea-tree (*Leptospermum laevigatum*) outliers and reducing population distribution and node size. (S)
- Remove isolated occurrences of Sweet Pittosporum (*Pittosporum undulatum*), Myrtle-leaf Milkwort (*Polygala myrtifolia*), African Box-thorn (*Lycium ferocissimum*) and Cape Leeuwin Wattle (*Paraserianthes lophantha* ssp *lophantha*) and False Capers (*Euphorbia terracina*). (M)
- Remove outliers of weeds emanating from disturbed roads side infestations (S)
- Conduct habitat condition assessment of a representative area of *Coast Wirilda* (*Acacia uncifolia*) vegetation. (M)

Medium Priority Actions

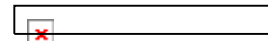
- Maintain or reduce size of containment zones for Coast Tea-tree (*Leptospermum laevigatum*) (M)
- Develop and maintain containment zones for the weedy road side disturbance sites. (M)
- Remove all priority one weeds as they occur in isolated areas on an annual basis (L)
- Monitor populations of Coast Wattle (*Acacia longifolia* ssp *sophorae*). (L)
- Control and monitor populations of Rabbits (*Oryctolagus cuniculus*) and Foxes (*Vulpes vulpes*). (M)
- Maintain and enhance pedestrian controls in dunes adjacent to Nudist beach. (M)

Low Priority Actions

- Eradicate weeds from containment zones (L)
- Revegetate weed road side containment zones and other areas of extensive weed removal. (L)
- Eradicate Sallow Wattle (*Acacia longifolia* ssp *longifolia*) and Coast Wattle/Sallow Wattle hybrids (*Acacia longifolia* ssp. *longifolia*/*Acacia longifolia* ssp *sophorae*) (L)

6.2 Section A2 Whites Beach – Jan Juc Creek

The quality of native vegetation in this stretch of coastline is variable. The narrow section of vegetation just east of Whites Cutting to Deep Creek is relatively intact; it is dominated by



Coast Beard-heath (*Leucopogon parviflorus*). The high recreational values of Fisherman's Beach and Torquay main beach have led to the loss of most native vegetation. Rocky Point and the associated cliffs have some isolated native vegetation, mostly where the cliffs provide some protection from human activity. The Torquay Caravan Park and Spring Creek have some small areas of native vegetation. The area immediately around the Jan Juc Surf Lifesaving Club has some small areas of native vegetation that are very weedy. **Refer to Figure 4: Torquay A2 Whites Beach – Jan Juc Creek & A3 Taylor Park Species Locations**

Table 6: Ecological Vegetation Class, Status, Score and Significance

EVC Number	EVC	Conservation Status	Habitat Score	Conservation Significance
858	A2.1 Coastal Alkaline Scrub	Endangered	38	High
161	A2.2 Coastal Headland Scrub*	Vulnerable	42(31)	High (High)

* Sutter assessment includes Coast Tea-tree (*Leptospermum laevigatum*) as an indigenous species

Table 7: Summary of Values and Threats

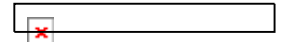
Value / Threat	Details	Status
Threatened fauna habitat/species		
Threatened indigenous plant species distribution		
Locally significant indigenous plant species	<i>Melaleuca lanceolata</i>	
Significant weeds species	<i>Chrysanthemoides monilifera ssp. monilifera</i> <i>Leptospermum laevigatum</i> <i>Rhamnus alaternus</i> <i>Asparagus asparagoides</i>	WONS WONS

Specific Weeds

The major weed threat in the vicinity of Deep Creek mouth is Coast Tea-tree (*Leptospermum laevigatum*). It is invading Deep Creek mouth from the west, from the mature trees at the rear of the beach in front of Taylor Park. It is recommended to remove all Coast Tea-tree (*Leptospermum laevigatum*) starting from the east (Whites cutting), removing outliers and reducing the distribution of the population back towards the mature trees. A revegetation plan to plant Moonah (*Melaleuca lanceolata*) as a replacement species for Coast Tea-tree (*Leptospermum laevigatum*) along the foreshore is also recommended.

Italian Buckthorn (*Rhamnus alaternus*) is also invading from the west; there are no large specimens so it is an emerging weed which should be eradicated as a high priority.

There are small populations of Bridal Creeper (*Asparagus asparagoides*) sometimes emerging from weedy disturbed patches (possible old domestic rubbish dump sites), which should also be controlled as a high priority.



There are a number of small occurrences of mostly woody weeds around Deep Creek mouth which should be removed as a high priority. These include Red-eyed Wattle (*Acacia cyclops*), Coast Banksia (*Banksia integrifolia ssp integrifolia*), Sea Spurge (*Euphorbia paralias*), Common Dipogon (*Dipogon lignosus*), and Cotoneaster (*Cotoneaster lacteus*).

The patch of vegetation in front and to the south west of Taylor Park is weedy, populated with the 10 most common large woody weeds of the study area. The spread of weeds from this site into the nearby Deep Creek should be avoided.

The Coastal Headland Scrub at Rocky Point is good quality vegetation despite its isolation and associated high recreation activity. Removal of African Box-thorn (*Lycium ferocissimum*) and Italian Buckthorn (*Rhamnus alaternus*) should be undertaken as a high priority as they are small populations.

The Torquay Caravan Park and surrounds has a range of weeds for which a medium term strategy to reduce the outliers and less common weeds is recommended. Containment for many of the common weeds is the most reasonable action given the lower quality of the native vegetation.

The area around the Jan Juc Surf Life-saving Club south of the Golf Course is heavily infested with numerous weeds. Containment of these weeds and limiting their spread to the west of Jan Juc Creek is important.

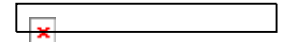
Management Action A2

High Priority Actions

- Remove all Italian Buckthorn (*Rhamnus alaternus*), Bridal Creeper (*Asparagus asparagoides*) and Boneseed (*Chrysanthemoides monilifera ssp monilifera*), in the eastern part of this section around Deep Creek to Whites Cutting. (S)
- Remove Red-eyed Wattle (*Acacia cyclops*), Coast Banksia (*Banksia integrifolia ssp integrifolia*), Sea Spurge (*Euphorbia paralias*), Common Dipogon (*Dipogon lignosus*) and Cotoneaster (*Cotoneaster lacteus*) in the eastern part of this section around Deep Creek. (S)
- Staged removal of Coast Tea-tree (*Leptospermum laevigatum*) over the medium term, removing outliers and reducing nodes, primarily in the eastern part of this section around Deep Creek to Whites Cutting. (M)
- Remove African Box-thorn (*Lycium ferocissimum*) and Italian Buckthorn (*Rhamnus alaternus*) at Rocky Point. This should be undertaken as soon as possible as they are small populations. (S)

Medium Priority Actions

- Revegetation with Moonah (*Melaleuca lanceolata*) to replace Coast Tea-tree (*Leptospermum laevigatum*) as it is removed around Deep Creek. (M)
- Remove all highest priority weeds as listed in ELMP Table 13 as they occur as isolated plants. (M) Appendix 6: Highest Priority Weeds within each Section



Low Priority Actions

- Develop and maintain containment zones for the weedy sites in front of Taylor Park and around Jan Juc SLSC. (L)
- Continue to replace Coast Tea-tree (*Leptospermum laevigatum*) with Moonah (*Melaleuca lanceolata*). (L)

6.3 Section A3 Taylor Park

Taylor Park is of historical and cultural importance to the community. This importance includes the existing large native but non-indigenous trees including the Sugar Gum (*Eucalyptus cladocaylx*) avenues and some exotic species. The indigenous vegetation of Taylor Park is generally of poor quality. However some small areas of relatively intact understorey vegetation representative of Grassy Woodlands (an endangered EVC) remain. Species identified include Chocolate Lily (*Arthropodium strictum*), Milkmaids (*Burchardia umbellata*), Greenhood Orchids (*Pterostylis* ssp), Wallaby Grass (*Austrodanthonia* spp) and Kangaroo Grass (*Themeda triandra*). Refer to **Figure 4: Torquay A2 Whites Beach – Jan Juc Creek & A3 Taylor Park Species Locations**

Table 8: Ecological Vegetation Class, Status, Score and Significance

EVC Number	EVC	Conservation Status	Habitat Score	Conservation Significance
175	A3.1 Grassy Woodland	Endangered	31	High

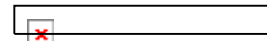
Table 9: Summary of Values and Threats

Value / Threat	Details	Status
Threatened fauna habitat/species	Potential Swift Parrot (<i>Lathamus dicolor</i>)	National Endangered
Threatened indigenous plant species distribution		
Locally significant indigenous plant species	<i>Melaleuca lanceolata</i>	
Significant weeds species	<i>Chrysanthemoides monilifera</i> ssp. <i>monilifera</i>	WONS
	<i>Leptospermum laevigatum</i>	
	<i>Rhamnus alaternus</i>	
	<i>Asparagus asparagoides</i>	WONS

This Action Plan has not mapped the locality of weeds within the relatively small Taylor Park, as the weeds are widespread. It is assumed that knowledgeable contractors and volunteers will be able to locate them. The removal of all weeds across all of Taylor Park is not currently feasible as it is dominated by non indigenous species and has a low indigenous vegetation cover.

A habitat condition assessment conducted by Sutter for remnant Grassy Woodland near the western boundary achieved a relatively low score. There may be a medium term opportunity to enhance the quality of the Grassy Woodland through the removal of weeds.

The ELMP suggests removal of all non-indigenous Yellow Gum (*Eucalyptus leucoxydon*) and Ironbark (*Eucalyptus tricarpa*) from Taylor Park as a means of protecting the gene pool of the



nationally endangered Bellarine Yellow Gum (*Eucalyptus leucoxydon* ssp *bellarinensis*) that are present in surrounding properties.

Specific Weeds

The two most notable weeds are Crassula (*Crassula tetragona*) and Galenia or Blanket Weed (*Galenia pubescens*) which occur in large swathes amongst the Sugar Gum (*Eucalyptus cladocaylx*) avenues on the north and west boundary. Intensive removal of these two weeds and the revegetation (possibly through direct seeding) of the area with indigenous grass species could significantly enhance the amenity and ecological value of Taylor Park. An action of this scale needs to be done as a component of the Landscape and Recreation Master Plan for the Park.

A review of the ELMP indicates an extensive list of common weeds present in Taylor Park. This site inspection also recorded other aggressive weeds including Cootamundra Wattle (*Acacia baileyana*) and Bushy Yate (*Eucalyptus lehmannii*).

Any weed removal should be consistent with the management action priorities in nearby sections, in particular around Deep Creek.

Management Action A3

High Priority Actions

- Remove all Italian Buckthorn (*Rhamnus alaternus*), Bridal Creeper (*Asparagus asparagoides*) and Boneseed (*Chrysanthemoides monilifera* ssp *monilifera*). (S) (To be consistent with the management action in A2 around Deep Creek.)

Medium Priority Actions

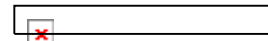
- Staged removal of Crassula (*Crassula tetragona*) and Blanket Weed (*Galenia pubescens*) and revegetation with grassland species. (M)

Low Priority Actions

- Remove all 16 highest priority weeds as listed in ELMP Table 13 as they occur as isolated plants. (M) Appendix 6: Highest Priority Weeds within each Section
- Integrate the above actions with the Landscape and Recreation Master Plan. (L)

6.4 Section A4 Jan Juc Creek – Bones Road

Section A4 Jan Juc Creek to Bones Road is mostly in good condition. The quality of vegetation improves, with fewer weeds, towards the west. The Heathland has a high diversity of species and numerous stands of mature Moonah (*Melaleuca lanceolata*) including prostrate Moonah at the cliff edge. This Coastal Heathland vegetation is generally very exposed offering limited protection for large vertebrate fauna from severe weather conditions (strong winds). However areas of dense Coastal Heathland provides more cover and is potential habitat for some small ground-dwelling species and foraging habitat for some birds. This habitat is important for many species such as Honeyeaters, Rufous Bristlebird (*Dasyornis broadbenti*) and Swamp Antechinus (*Antechinus minimus maritimus*) (ELMP 2006).



The Coastal Headland Scrub vegetation provides habitat for Honeyeaters, Thornbills and other small bird species which prefer foraging on shrubby substrates. The Rufous Bristlebird (*Dasyornis broadbenti*) is also commonly recorded from this habitat type (ELMP 2006). This section contains vegetation that is of relatively high quality of vulnerable EVC's. It also contains two threatened plant species. It is therefore worthy of increased management effort, and in particular weed control.

Localised areas of grassland vegetation occur adjacent to Bird Rock. This vegetation has been subjected to protection and management actions by Jan Juc Coast Action. **Refer to Torquay A4 Jan Juc Creek – Bones Rd Species Locations**

Table 10: Ecological Vegetation Class, Status, Score and Significance

EVC Number	EVC	Conservation Status	Habitat Score	Conservation Significance
161	A4.1 Coastal Headland Scrub	Vulnerable	54	Very High
161	A4.2 Coastal Headland Scrub	Vulnerable	58	Very High
7	A4.3 Clay Heathland	Vulnerable	54	Very High
161	A4.4 Coastal Headland Scrub	Vulnerable	59	Very High

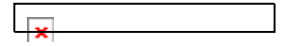
Table 11: Summary of Values and Threats

Value / Threat	Details	Status
Threatened fauna species	Rufous Bristlebird (<i>Dasyornis broadbenti</i>) Swamp Antechinus (<i>Antechinus minimus maritimus</i>).	State Near threatened State Listed
Threatened indigenous plant species	<i>Diuris palustris</i> <i>Eucalyptus leucoxylon</i> ssp. <i>bellarinensis</i>	Rare (VROT) Rare (VROT)
Locally significant indigenous plant species	<i>Melaleuca lanceolata</i>	
Significant weed species	<i>Chrysanthemoides monilifera</i> ssp. <i>monilifera</i> <i>Leptospermum laevigatum</i> <i>Rhamnus alaternus</i> <i>Asparagus asparagoides</i>	WONS WONS

Specific Weeds

As **Figure 6** indicates Boneseed (*Chrysanthemoides monilifera* ssp. *monilifera*), is widespread across this section but as individual plants or small localised populations.

Coast Tea-tree (*Leptospermum laevigatum*) is also widespread but in populations that seem to have spread from a few initial sources. This is possibly due to the use of brush matting to stabilise the cliff tops and old access routes. The indigenous Prickly Tea-tree (*Leptospermum continentale*) is present in the Heathland and is hybridising with Coast Tea-tree (*Leptospermum laevigatum*) which elevates the need to remove Coast Tea-tree (*Leptospermum laevigatum*) and the resultant hybrids from this area.



Italian Buckthorn (*Rhamnus alaternus*) is appearing at the eastern end of the section as seedlings and should be removed as soon as possible before becoming established.

Removal of African Box-thorn (*Lycium ferocissimum*) should also be undertaken as soon as possible as significant control actions have already occurred and there are only small populations remaining.

The area immediately west of Jan Juc Creek around the car park is very heavily infested with a range of common weeds. As it is a key entry point to the local area it is worthwhile undertaking weed control. Zones of containment should be a medium term action.

Numerous environmental weeds are present as individual or very small localised populations scattered across the section and warrant immediate eradication. For example: *Disoma* spp and *Crassula* spp on the cliff-top west of Bird Rock lookout.

Gazania (*Gazania linearis*) is conspicuous at Jan Juc and is threatening both the headland scrub and grassland. It is relatively localised and should be removed as a priority.

The diverse and significant Jan Juc Grassland vegetation has been protected by low fencing for decades. It would be worthwhile undertaking a habitat condition assessment for this area. There are also some smaller patches of grassland which warrant similar fencing. Pedestrian and car access appears to be somewhat uncontrolled particularly around the grassy areas in front of Ocean Boulevard. Fencing would reduce access, protect vulnerable areas and enhance conservation efforts.

Greater community awareness of the erosion and vegetation damage created by unauthorised access to the Jan Juc cliff tops is required.

There is also a node of weeds spreading from disturbed bare ground northeast of the Bones Rd car park spreading from brush matting; these include *Hakea* spp. and Coast Tea-tree (*Leptospermum laevigatum*).

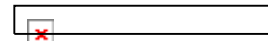
The range of highly invasive weeds present in neighbouring residents' front and back gardens and nature strips is a major threat to the area. In particular Gazania (*Gazania linearis*), Giant Honey-myrtle (*Melaleuca armillaris* ssp *armillaris*) and Cape Leeuwin Wattle (*Paraserianthes lophantha* ssp *lophantha*) are of concern. A major effort is required to engage the local communities in support for weed management as weeds directly affects the amenity of the adjacent public space.

The ELMP has cited Panic Veldt-grass (*Ehrata erecta* var. *erecta*) as a high priority weed to be controlled in this section. This Action Plan didn't map the distribution of Panic Veldt-grass (*Ehrata erecta* var. *erecta*) as it does not consider it a high threat weed across the study area. (See 5.1.1 Specific Weed Issues). However this is the one section which may warrant localised weed management action for Panic Veldt-grass.

Management Action A4

High Priority Actions

- Remove all Boneseed (*Chrysanthemoides monilifera* ssp *monilifera*), Italian Buckthorn (*Rhamnus alaternus*), African Box-thorn (*Lycium ferocissimum*) and Bridal Creeper (*Asparagus asparagoides*). (S)



- Staged Coast Tea-tree (*Leptospermum laevigatum*) and hybrids (with Prickly Tea-tree (*Leptospermum continentale*)), remove over 3- 5 years, starting from Bones Rd, removing outliers and reducing nodes. (M)

Medium Priority Actions

- Remove localised patches of *Hakea* spp (at Bones Rd) and Cape Leeuwin Wattle (*Paraserianthes lophantha* ssp *lophantha*) (car park west of Jan Juc Creek). (S)
- Remove isolated and uncommon weeds across the area such as *Diosma* and *Crassula*. (S)
- Expand the protective fencing around the diverse patches of Grassland. (M)
- Control vehicle and pedestrian access across Grassland area. (M)
- Conduct habitat condition assessment for a representative Grassland patch to establish baseline data for future monitoring.(M)
- Establish zones of containment around the car park west of Jan Juc Creek. (M)
- Remove of *Gazania* (*Gazania linearis*) in stages over 3-5 years, removing outliers and reducing nodes. (M)

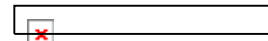
Low Priority Actions

- Conduct a localised environmental weeds awareness campaign and front yard and nature strip weed removal along Ocean Boulevard as well as along the fence line and in the large back yards which adjoin the Heathland. (M)
- Remove all 7 highest priority weeds as listed in ELMP Table 13 as they occur as isolated plants. (L) Appendix 6: Highest Priority Weeds within each Section

6.5 Management Area A: Torquay Summary

The native vegetation of the Point Impossible dunes, Bones Rd Heathland and Jan Juc Grassland are of high to very high State conservation significance. These three areas should be the focus of efforts to control environmental weeds in the Torquay area.

- **Figure 3: Torquay A1 Point Impossible – Whites Beach**
- **Figure 4: Torquay A2 Whites Beach – Jan Juc Creek & A3 Taylor Park**
- **Figure 5: Torquay A4 Jan Juc Creek – Bones Rd**



7 Recommendations: Management Area B: Anglesea (Inverloch Street – O’Donohue Road)

Management Area B has two sections stretching 5 km along the coast and is 99 Hectares in size. It begins in the north east at Inverloch St at the boundary of the Barwon Water treatment plant and finishes in the south west at O’Donohue Rd. **Refer to Figures 6 & 7 (at end of Chapter 7).** All of Area B is located within the Otway Plains bioregion.

The two sections in Management Area B are:

B1 Inverloch Street – Anglesea River

B2 Anglesea River – O’Donohue Road

Members of the following groups were consulted ANGAIR – Margaret MacDonald and Evelyn Jones and Anglesea Coast Action – Neil Tucker. Notes from the consultation meeting are contained in Appendix 7: Summary of Community Consultation.

7.1 Section B1 Inverloch Street – Anglesea River

The vegetation of section B1 is highly valuable, in particular the Anglesea Heathland to the east of the township. The Coastal Alkaline Scrub fronting the river contains some relatively intact stands of Moonah (*Melaleuca lanceolata*). **Refer to Figure 6: Anglesea B1 Inverloch Street – Anglesea River Species Locations**

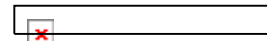
Table 12: Ecological Vegetation Class, Status, Score and Significance

EVC Number	EVC	Conservation Status	Habitat Score	Conservation Significance
858	B1.1 Coastal Alkaline Scrub	Endangered	64	Very high
7	B1.2 Clay Heathland	Vulnerable	71	Very high
7	B1.3 Clay Heathland	Vulnerable	64	Very high
48	Heathy Woodland#	Least Concern	58	Low

This assessment is actually outside the most recent GORCC boundary alignment but is pegged and labelled.

Table 13: Summary of Values and Threats

Value / Threat	Details	Status
Threatened fauna habitat/species	Swift Parrot (<i>Lathamus discolor</i>) Rufous Bristlebird (<i>Dasyornis broadbenti</i>) Swamp Antechinus (<i>Antechinus minimus maritimus</i>).	National Endangered State Listed State Near Threatened
Threatened indigenous plant species distribution		
Locally Significant indigenous species	<i>Melaleuca lanceolata</i>	
Significant weeds species	<i>Chrysanthemoides monilifera ssp. monilifera</i>	WONS



	<i>Leptospermum laevigatum</i> <i>Rhamnus alaternus</i> <i>Asparagus asparagoides</i>	WONS
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The Anglesea Heathland is part of an area which has been listed on the Register of the National Estate by the Australian Heritage Commission recognising the high habitat and biodiversity value (ELMP 2006). The quality of the Heathland is confirmed with the high habitat score of 71, this is the highest score across the study area. This vegetation type is generally very exposed offering limited protection for large vertebrate fauna from severe weather conditions (strong winds). This habitat is important for many faunal species such as Honeyeaters, Rufous Bristlebird (*Dasyornis broadbenti*) and Swamp Antechinus (*Antechinus minimus maritimus*) (ELMP 2006).

It should be noted that Sutter assessed this area as a Clay Heathland which is different to the Sand Heathland identified in the DSE modelled maps. This is significant as a Sand Heathland is listed as rare and Clay Heathland is listed as vulnerable conservation status for this bioregion. This change in EVC changes the conservation significance for the area assessed at B1.2 from high to very high.

Towards the south west the Coastal Alkaline scrub is also in good condition with a score of 64. It is important to note that the habitat condition assessments were not done with in 50 metres of Coast Tea-tree (*Leptospermum laevigatum*) populations and is amongst mature stands of Moonah (*Melaleuca lanceolata*) is accurate.

There are extensive patches of Moonah (*Melaleuca lanceolata*), both on the cliff top and north and west of the caravan park. However the vegetation is undermined by maze of paths and access tracks. A rationalisation of paths and fencing to protect and reconnect patches, along with revegetation and restoration works as required, is recommended.

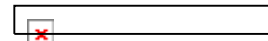
Specific Weeds

The weed cover is very low across the Heathland however it is under threat from public (Barwon Water) and private neighbours' properties which harbour non-indigenous plants which infest the Heathland. Evidence of weed removal of both Sallow Wattle (*Acacia longifolia* ssp *longifolia*) and Green Honey-myrtle (*Melaleuca diosmifolia*) was found during the field survey.

Continued removal of Boneseed (*Chrysanthemoides monilifera* ssp *monilifera*), Coast Tea-tree (*Leptospermum laevigatum*), Green Honey-myrtle (*Melaleuca diosmifolia*), Watsonia (*Watsonia meriana* var. *bulbillifera*) and Sallow Wattle (*Acacia longifolia* ssp *longifolia*) is recommended.

Rehabilitation and revegetation of the gravel pit and old roads needs to be continued.

Removal of isolated and localised occurrences of Boneseed (*Chrysanthemoides monilifera* ssp *monilifera*), Coast Tea-tree (*Leptospermum laevigatum*), Green Honey-myrtle (*Melaleuca diosmifolia*), Mirror Bush (*Coprosma repens*), Myrtle-leaf Milkwort (*Polygala myrtifolia*) and Sallow Wattle (*Acacia longifolia* ssp *longifolia*) before they become widespread is recommended in both the Heathland and the Scrub east of Anglesea River to maintain its high ecological value.



Management Actions B1

High Priority Actions

- Remove all Boneseed (*Chrysanthemoides monilifera* ssp *monilifera*), Coast Tea-tree (*Leptospermum laevigatum*), Green Honey-myrtle (*Melaleuca diosmifolia*), Mirror Bush (*Coprosma repens*), Myrtle-leaf Milkwort (*Polygala myrtifolia*) and Sallow Wattle (*Acacia longifolia* ssp *longifolia*) across Heathland. (S)
- Rationalise paths and fencing and revegetate to protect and reconnect patches of Moonah (*Melaleuca lanceolata*). (M)

Medium Priority Actions

- Remove isolated and uncommon weeds. (M)
- Continued rehabilitation and revegetation and weed removal of the gravel pit and along the old roads. (M)

Low Priority Actions

- Localised environmental weeds awareness campaign and front/back yard weed removal around the perimeter of the Heathland. (M)
- Remove all 12 highest priority weeds as listed in ELMP Table 13 as they occur as isolated plants. (L) Appendix 6: Highest Priority Weeds within each Section

7.2 Section B2 Anglesea River – O’Donohue Road

This area of Anglesea (B2) stretches west of the river through Point Road Knight to O’Donohue Rd. It has diverse native vegetation values which improve in quality towards the south west.

Refer to Figure 7: Anglesea B2 Anglesea River – O’Donohue Road Species Locations

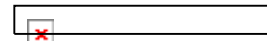
Table 14: Ecological Vegetation Class, Status, Score and Significance

EVC Number	EVC	Conservation Status	Habitat Score	Conservation Significance
1	B2.1 Coastal Dune Scrub/Grassland Mosaic*	Depleted	66(52)	High (Medium)
858	B2.2 Coastal Alkaline Scrub	Endangered	48	High
161	B2.3 Coastal Headland Scrub*	Vulnerable	49(33)	High (High)

* Sutter assessment includes Coast Tea-tree (*Leptospermum laevigatum*) as an indigenous species

Table 15: Summary of Values and Threats

Value / Threat	Details	Status
Threatened fauna habitat/species	Swift Parrot (<i>Lathamus discolor</i>) Swamp Antechinus (<i>Antechinus minimus maritimus</i>). Rufous Bristlebird (<i>Dasyornis broadbenti</i>)	National Endangered State Near threatened State Listed
Threatened indigenous plant species distribution		
Locally significant indigenous species	<i>Melaleuca lanceolata</i>	



Significant weeds species	<i>Billardiera fusiformis</i> <i>Chrysanthemoides monilifera ssp. monilifera</i> <i>Leptospermum laevigatum</i> <i>Pittosporum undulatum</i> <i>Polygala myrtifolia</i>	WONS
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The vegetation west of the Anglesea River, along the dunes and the cliff tops and slumped cliffs to Point Roadknight is mostly very dense. However, it is of limited value as indicated by the habitat condition score 49 of B2.3 Coastal Headland Scrub which is adjusted to potentially 33 to take into account Sutter error. The area is heavily infested with a numerous of weed species. The small exception to this is the recently cleared area of Coastal Headland, just west of the Anglesea Surf Life Saving Club. It appears to be returning to a diverse headland scrub with numerous herbs present.

The vegetation from Point Roadknight west to O'Donohue Road is in good condition with Moonah (*Melaleuca lanceolata*) being dominant. The habitat score of 66 for B2.1 Coastal Dune Scrub/Grassland Mosaic is also adjusted (to potentially 52), consequently, as a Depleted EVC the conservation significance is changed from high to potentially medium.

Specific Weeds

The most common weeds are all present in this western section but in limited distribution and small populations which warrant action. These are: Boneseed (*Chrysanthemoides monilifera ssp monilifera*), Mirror Bush (*Coprosma repens*), Coast Tea-tree (*Leptospermum laevigatum*) and Sallow Wattle (*Acacia longifolia ssp longifolia*). As **Figure 7** indicates, the distribution of these weeds is less at the western end. Thus starting weed removal from the west will protect a larger area more rapidly.

Myrtle-leaf Milkwort (*Polygala myrtifolia*) is widespread across this area. Action to remove the outliers annually and reduce its distribution would be an effective way to bring it under control over a five year period.

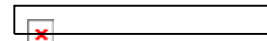
Purple Groundsel (*Senecio elegans*) is also present in two small populations in the southern area, action to eradicate it is recommended as a high priority before it becomes established.

Bluebell Creeper (*Billardiera fusiformis*) is also present in a localised area in the vicinity of Sixth Ave. Although this area is weedy, eradication of Bluebell Creeper (*Billardiera fusiformis*) is recommended as a high priority before it becomes more widespread.

Management Action B2

High Priority Actions

- Remove Purple Groundsel (*Senecio elegans*) before it becomes an established weed. (S)
- Remove Bluebell Creeper (*Billardiera fusiformis*) in the vicinity of Sixth Ave. (S)
- Remove Boneseed (*Chrysanthemoides monilifera ssp monilifera*), Mirror Bush (*Coprosma repens*), Coast Tea-tree (*Leptospermum laevigatum*) and Sallow Wattle (*Acacia longifolia ssp longifolia*) from the Moonah woodlands starting at O'Donohue Rd and working to the east. (M)



- Monitor and eliminate all priority weeds as they re-emerge in the rejuvenated Headland scrub west of the Anglesea Surf Life-Saving Club. (M)

Medium Priority Actions

- Staged control of Myrtle-leaf Milkwort (*Polygala myrtifolia*) to remove the outliers and reduce its distribution. (M)
- Localised environmental weeds awareness campaign and front/back yard weed removal along Melba Parade to protect Moonah woodland. (M)

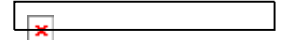
Low Priority Actions

- Remove all 12 highest priority weeds as listed in ELMP Table 13 as they occur as isolated plants.(L) Appendix 6: Highest Priority Weeds within each Section

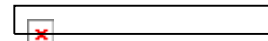
7.3 Management Area B: Anglesea Summary

The quality of native vegetation of the Anglesea Heathland in B1 is of very high State conservation significance. Efforts to keep it weed-free should continue with additional effort to reduce the weed load on the Heathland boundaries. The conservation of Moonah (*Melaleuca lanceolata*) woodland should also be the focus of action in the areas around the Anglesea Caravan Park and between Point Roadknight and O'Donohue Road.

- **Figure 6: Anglesea B1 Inverlochy Street – Anglesea River**
- **Figure 7: Anglesea B2 Anglesea River – O'Donohue Road**



Knowledge Creativity Performance
Engineering Surveying Planning Urban Design Landscape Architecture
Sustainability and Environment Agribusiness Project Management Strategic Consulting



8 Recommendations: Management Area C: Aireys Inlet (Boundary Road– Eastern View)

Management Area C has three sections across 12 km that is 96 Hectares in size. It has significant values with a range of EVC's present in the Painkalac Creek area as well as extensive areas of Coast Dune vegetation. Aireys Inlet east of Mogg's Creek (C1 and C2) is located within the Otway Plain bioregion, while the area west of Mogg's Creek (C3) is located within in the Otway Ranges bioregion. **Refer to Figures 8, 9 & 10 (at end of Chapter 8).**

The three sections in Management Area C are:

- C1 Boundary Road – Split Point Lighthouse
- C2 Split Point Lighthouse – Mogg's Creek
- C3 Mogg's Creek – Eastern View

Members of the following groups were consulted: ANGAIR – Margaret MacDonald and Evelyn Jones, Friends of Aireys Inlet Coastal Reserves – Dennis Leaversley & Garry Johnson, Friends of Fairhaven Foreshore – Gary Donaldson & Friends of Mogg's Creek – Margaret MacDonald. Friends of Aireys Inlet Coastal Reserves - Dennis Leaversley and Garry Johnson provided detailed information in the from the *Aireys Inlet Coastal Reserve Weed Action Plan* Notes from the consultation meetings are contained in Appendix 7: Summary of Community Consultation.

8.1 Section C1 Boundary Rd – Split Point Lighthouse

The Coastal Headland Scrub is in relatively good health across this northern section as indicated by the habitat score of 61. Moonah (*Melaleuca lanceolata*) is scattered to dominant across the cliff top. As EVC Coastal Headland Scrub has a vulnerable conservation status, the conservation significance is high to very high. **Refer to Figure 8: Aireys Inlet C1 Boundary Road – Split Point Lighthouse Species Locations**

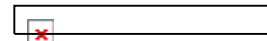
Table 16: Ecological Vegetation Class, Status, Score and Significance

EVC Number	EVC	Conservation Status	Habitat Score	Conservation Significance
161	C1.1 Coastal Headland Scrub*	Vulnerable	63 (49)	Very High (High)
161	C1.2 Coastal Headland Scrub	Vulnerable	47	High
161	C1.3 Coastal Headland Scrub	Vulnerable	61	Very High

* Sutter assessment includes Coast Tea-tree (*Leptospermum laevigatum*) as an indigenous species

Table 17: Summary of Values and Threats

Value / Threat	Details	Status
Threatened fauna habitat/species	Swamp Antechinus (<i>Antechinus minimus maritimus</i>) Rufous Bristlebird (<i>Dasyornis broadbenti</i>)	State Near threatened State Listed
Threatened indigenous plant species distribution		
Locally significant	<i>Melaleuca lanceolata</i>	



indigenous species		
Significant weeds species	<i>Chrysanthemoides monilifera ssp. monilifera</i> <i>Leptospermum laevigatum</i> <i>Pittosporum undulatum</i> <i>Polygala myrtifolia</i> <i>Billardiera fusiformis</i>	WONS

The assessment of C1.1 Coastal Headland Scrub just to the north of Split Point Lighthouse is adjusted from 63 to potentially 49 due the presence of Coast Tea-tree (*Leptospermum laevigatum*) this affects its conservation significance from very high to potentially high. The lower habitat score of C1.2. Coastal Headland Scrub (47) is due to having a high cover of weeds as illustrated in **Figure 8**.

The Aireys Inlet Coastal Reserve Weed Action Plan states that this section is important habitat for Rufous Bristlebird (*Dasyornis broadbenti*). Consequently weed removal is undertaken in small irregular patches leaving vegetated corridors to retain habitat connectivity. Weedy vegetation adjoining the previously cleared patches is not removed until the regrowth of indigenous vegetation provides suitable habitat.

Specific Weeds

The weed population is generally low along the cliff top. However along the steep, inaccessible cliff face there are the common weeds of Coast Tea-tree (*Leptospermum laevigatum*) and Boneseed (*Chrysanthemoides monilifera ssp monilifera*) as well as several others.

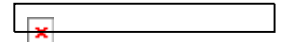
Immediate action to remove the isolated occurrences along the cliff top of Myrtle-leaf Milkwort (*Polygala myrtifolia*), Sallow Wattle (*Acacia longifolia ssp longifolia*), Blue-bell Creeper (*Billardiera fusiformis*) and weedy *Melaleuca* spp while they are still in small isolated populations, as well as any emerging weeds, is a high priority.

A medium term plan to reduce the occurrence of Coast Tea-tree (*Leptospermum laevigatum*) would benefit the conservation of Moonah (*Melaleuca lanceolata*). Removing outliers from the northern and southern parts of this section and then reducing the size of the population is recommended.

Management Action C1

High Priority Actions

- Remove the isolated occurrences of Myrtle-leaf Milkwort (*Polygala myrtifolia*), Blue-bell Creeper (*Billardiera fusiformis*), Sallow Wattle (*Acacia longifolia ssp longifolia*) and weedy *Melaleuca* spp along the cliff top. (S)
- Remove all Boneseed (*Chrysanthemoides monilifera ssp monilifera*), on the cliff top. (S)



Medium Priority Actions

- Remove outliers and reducing population nodes of Coast Tea-tree (*Leptospermum laevigatum*), starting from both Boundary Rd and the Lighthouse, removing outliers and reducing size of population nodes. (M)

Low Priority Actions

- Maintain (reduce size of) containment zones for Coast Tea-tree (*Leptospermum laevigatum*) (L)
- Remove all 19 highest priority weeds as listed in ELMP Table 13 as they occur as isolated plants. (L) Appendix 6: Highest Priority Weeds within each Section

8.2 Section C2 Split Point Lighthouse – Mogg’s Creek

This stretch of coast, including the Painkalac Creek estuary has the largest range of EVC’s in the study area. Moonah (*Melaleuca lanceolata*) is scattered to dominant across the section.

The Friends of Fairhaven Foreshore cite the following weeds as the most serious in the area between Grassy Creek and the mouth of the Painkalac Creek:

- Bluebell Creeper (*Billardiera fusiformis*)
- Mirror Bush (*Coprosma repens*)
- Sea Spurge (*Euphorbia paralias*)
- Coast Tea-tree (*Leptospermum laevigatum*)
- Myrtle-leaf Milkwort (*Polygala myrtifolia*)
- Sallow Wattle/Coast Wattle (*Acacia longifolia* var *longifolia*/ *Acacia longifolia* var *sophorae*) hybrids
- Dolichos Pea (*Dipogon lignosus*)
- Cape Leeuwin Wattle (*Paraserianthes lophantha* ssp *lophantha*)

Refer to Figure 9: Aireys Inlet C2 Split Point Lighthouse – Mogg’s Creek Species Locations

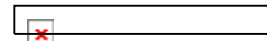
Table 18: Ecological Vegetation Class, Status, Score and Significance

EVC Number	EVC	Conservation Status	Habitat Score	Conservation Significance
1	C2.1 Coastal Dune Scrub/Grassland Mosaic*	Depleted	57 (45)	Medium (Medium)
858	C2.2 Coastal Alkaline Scrub	Endangered	36	High
161	C2.3 Coastal Headland Scrub	Vulnerable	51	Very High
858	C2.4 Coastal Alkaline Scrub	Endangered	50	Very High
9	C2.5 Coastal Saltmarsh	Endangered	54	Very High
10	C2.6 Estuarine Wetland	Endangered	58	Very High

* Sutter assessment includes Coast Tea-tree (*Leptospermum laevigatum*) as an indigenous species

Table 19: Summary of Values and Threats

Value / Threat	Details	Status
Threatened fauna habitat/species	Swamp Antechinus (<i>Antechinus minimus maritimus</i>)	State Near Threatened



	Rufous Bristlebird (<i>Dasyornis broadbenti</i>)	State Listed
Threatened indigenous plant species distribution		
Locally significant indigenous species	<i>Melaleuca lanceolata</i> <i>Gahina filum</i>	
Significant weeds species	<i>Chrysanthemoides monilifera</i> ssp. <i>monilifera</i> <i>Euphorbia paralias</i> <i>Polygala myrtifolia</i> <i>Leptospermum laevigatum</i>	WONS

Conserving and enhancing the quality and connectivity of estuary vegetation is an important way to build robustness to buffer the threat of climate change. The endangered conservation status of the Estuarine EVC's and good habitat condition scores highlights the importance of undertaking weed management activities in this section.

There is also a small foreshore area east of Fairhaven Surf Life-Saving Club which has relatively intact Hairy Spinifex (*Spinifex sericeus*) and no Marram Grass (*Ammophila arenaria*) or Sea Wheat-grass (*Thinopyrum junceiforme*). It is worthwhile keeping this area free of those introduced species.

The habitat condition score assessment for C2.1 Coastal Dune Scrub/Grassland Mosaic of 57 is adjusted to potentially 45, due the inclusion of Coast Tea-tree (*Leptospermum laevigatum*) as an indigenous species; this does not affect the conservation significance.

Specific Weeds

The three main weeds across the section are Myrtle-leaf Milkwort (*Polygala myrtifolia*), Sea Spurge (*Euphorbia paralias*) and Boneseed (*Chrysanthemoides monilifera* ssp. *monilifera*).

The high value of the estuarine area means that removing the isolated populations of Myrtle-leaf Milkwort (*Polygala myrtifolia*), Sea Spurge (*Euphorbia paralias*) and Boneseed (*Chrysanthemoides monilifera* ssp. *monilifera*) on the dunes between the beach and the estuary is a high priority.

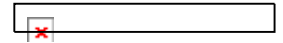
Coast Tea-tree (*Leptospermum laevigatum*) and Sallow Wattle (*Acacia longifolia* ssp. *longifolia*) are also scattered across this section. However this is a section where Coast Wattle (*Acacia longifolia* ssp. *sophorae*) appears to be in balance with the existing vegetation and therefore requires no immediate control but will require monitoring.

Staged removal of Myrtle-leaf Milkwort (*Polygala myrtifolia*) from the eastern half of this section while it is still limited to five separate populations is a high priority.

Past efforts to remove Sea Spurge (*Euphorbia paralias*) from the primary dune appear to have been effective however this activity will need to be continued as local soil stored seed will be present and will continue to arrive by sea.

Management Action C2

High Priority Actions



- Remove Myrtle-leaf Milkwort (*Polygala myrtifolia*), Sea Spurge (*Euphorbia paralias*) and Boneseed (*Chrysanthemoides monilifera* ssp *monilifera*) from the Painkalac Creek area. (S)
- Remove Myrtle-leaf Milkwort (*Polygala myrtifolia*) while it is still an emerging weed occurring in five separate populations from the eastern half of this section. (S)
- Maintain efforts to remove Sea Spurge (*Euphorbia paralias*) from the primary dune. (S)

Medium Priority Actions

- Remove outliers and reduce populations of Coast Tea-tree (*Leptospermum laevigatum*). (M)

Low Priority Actions

- Reduce the size of containment zones for (or eliminate) Coast Tea-tree (*Leptospermum laevigatum*) (L)
- Remove all 11 of the highest priority weeds as listed in ELMP Table 13 as they occur as isolated plants.(L) Appendix 6: Highest Priority Weeds within each Section

8.3 Section C3 Mogg's Creek – Eastern View

The Coastal Dune Scrub/Coastal Dune Grassland Mosaic from Mogg's Creek to Eastern View is in moderate condition. It suffers from pedestrian traffic which impacts upon vegetation quality and causes erosion. **Refer Figure 10: Aireys Inlet C3 Mogg's Creek – Eastern View Species Locations**

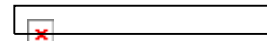
Table 20: Ecological Vegetation Class, Status, Score and Significance

EVC Number	EVC	Conservation Status	Habitat Score	Conservation Significance
1	C3.1 Coastal Dune Scrub/Grassland Mosaic*	Depleted	50(38)	Medium (Medium)
1	C3.2 Coastal Dune Scrub/ Grassland Mosaic	Depleted	62	High

* Sutter assessment includes Coast Tea-tree (*Leptospermum laevigatum*) as an indigenous species

Table 21: Summary of Values and Threats

Value / Threat	Details	Status
Threatened fauna habitat/species	Swamp Antechinus (<i>Antechinus minimus maritimus</i>) Rufous Bristlebird (<i>Dasyornis broadbenti</i>)	State Near Threatened State Listed
Threatened indigenous plant species distribution		
Locally significant indigenous species	<i>Melaleuca lanceolata</i>	
Significant weeds species	<i>Chrysanthemoides monilifera</i> ssp. <i>monilifera</i> <i>Leptospermum laevigatum</i> <i>Dipogon lignosus</i>	WONS



	<i>Polygala myrtifolia</i> <i>Paraserianthes lophantha ssp. lophantha</i> <i>Euphorbia paralias</i> <i>Stenotaphrum secundatum</i> <i>Pennisetum clandestinum</i>	
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The habitat score for C3.1 Coastal Dune Scrub/Grassland Mosaic of 50 is adjusted to potentially 38, due the inclusion of Coast Tea-tree (*Leptospermum laevigatum*) as an indigenous species; this does not affect the conservation significance.

Specific Weeds

Coast Tea-tree (*Leptospermum laevigatum*) is scattered to dominant across this section. Sallow Wattle (*Acacia longifolia ssp longifolia*) also scattered across this section.

This section is under constant threat from Buffalo Grass (*Stenotaphrum secundatum*) and Kikuyu (*Pennisetum clandestinum*) which invades from the adjacent Great Ocean Road disturbed road side. A cooperative approach is required to be further developed and maintained with Vic Roads to address the on-going threat of weed invasion from road sides.

Boneseed (*Chrysanthemoides monilifera ssp monilifera*), Myrtle-leaf Milkwort (*Polygala myrtifolia*) and Sea Spurge (*Euphorbia paralias*) are only present as a few isolated plants or small populations and should be eradicated from this section.

Management Action C3

High Priority Actions

- Remove all Boneseed (*Chrysanthemoides monilifera ssp monilifera*), Myrtle-leaf Milkwort (*Polygala myrtifolia*) and Sea Spurge (*Euphorbia paralias*). (S)
- Remove isolated and uncommon weeds across the area.(S)

Medium Priority Actions

- Develop and maintain a cooperative approach with Vic Roads to address the on-going threat of weed invasion from the roadsides.(M)

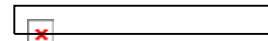
Low Priority Actions

- Remove all 20 highest priority weeds as listed in ELMP Table 13 as they occur as isolated plants. (L) Appendix 6: Highest Priority Weeds within each Section

8.4 Management Area C: Aireys Inlet Summary

The diversity of high conservation significance EVC's located at Painkalac Creek is indicative of high ecological value. Weed removal and revegetation of this estuarine zone is recommended as a high priority. The Coastal Headland Scrub in section C1 also has high quality vegetation and relatively low weed cover, consequently weed management is also a high priority.

- **Figure 8: Aireys Inlet C1 Boundary Road – Split Point Lighthouse**
- **Figure 9: Aireys Inlet C2 Split Point Lighthouse – Mogg's Creek**
- **Figure 10: Aireys Inlet C3 Mogg's Creek – Eastern View**



9 Recommendations: Management Area D: Lorne – (Reedy Creek – Queens Park and Cumberland River)

Management Area D covers 8km of coast as well as Queens Park and the Cumberland River Caravan Park Reserve: it is 113 Hectares in size. These areas are highly valued for recreation and are often highly modified and weedy in section D1 and D2. However this area does contain some significant indigenous vegetation and in some sections is adjacent to high value vegetation located within the Great Otway National Park. **Refer to Figures 11, 12 & 13 (at the end of chapter 9).** All of Management Area D is located within the Otway Ranges bioregion.

The four sections in Management Area D are:

- D1 Reedy Creek – Erskine River
- D2 Erskine River – St George River
- D3 Queens Park
- D4 Cumberland River

Members of the following groups were consulted: Friends of Queens Park – John Wilson and LorneCare – Michael Callanan. Notes from the consultation meeting are contained in Appendix 7: Summary of Community Consultation.

9.1 Section D1 Reedy Creek – Erskine River

This strip of Coastal Dune Scrub/Grassland Mosaic and Coastal Headland Scrub is very weedy with a plethora of garden escapes and many of the most common coastal weeds. It is located adjacent to large areas of indigenous vegetation (north of the Great Ocean Road) near Reedy Creek. **Refer to Figure 11: Lorne D1 Reedy Creek – Erskine River Species Locations**

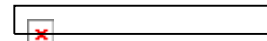
Table 22: Ecological Vegetation Class, Status, Score and Significance

EVC Number	EVC	Conservation Status	Habitat Score	Conservation Significance
161	D1.1 Coastal Headland Scrub*	Depleted	48(34)	Medium(Medium)
1	D1.2 Coastal Dune Scrub/Grassland Mosaic*	Depleted	65(53)	High (Medium)
1	D1.3 Coastal Dune Scrub/Grassland Mosaic*	Depleted	52(38)	Medium (Medium)
1	D1.4 Coastal Dune Scrub/Grassland Mosaic*	Depleted	55(43)	Medium (Medium)
161	D1.5 Coastal Headland Scrub	Depleted	43	Medium

* Sutter assessment includes Coast Tea-tree (*Leptospermum laevigatum*) as an indigenous species

Table 23: Summary of Values and Threats

Value / Threat	Details	Status
Threatened fauna	Swamp Antechinus (<i>Antechinus minimus maritimus</i>).	State



habitat/species	Rufous Bristlebird (<i>Dasyornis broadbenti</i>)	Near threatened State Listed
Threatened indigenous plant species distribution	<i>Eucalyptus littoralis</i>	Vulnerable (VROT)
Locally significant indigenous species		
Significant weeds species	<i>Leptospermum laevigatum</i> <i>Chrysanthemoides monilifera</i> ssp. <i>monilifera</i> <i>Pittosporum undulatum</i> <i>Coprosma repens</i>	WONS

The habitat condition score assessment for D1.1 Coastal Headland Scrub of 48 is adjusted to potentially 33, due the inclusion of Coast Tea-tree (*Leptospermum laevigatum*) as an indigenous species; this does not affect the conservation significance.

The habitat condition score assessment for D1.2 Coastal Dune Scrub/Grassland Mosaic of 65 is adjusted to potentially 53, due the inclusion of Coast Tea-tree (*Leptospermum laevigatum*) as an indigenous species; this alters the conservation significance from high to potentially medium.

The habitat condition score assessment for D1.3 Coastal Dune Scrub/Grassland Mosaic of 52 is adjusted to potentially 38, due the inclusion of Coast Tea-tree (*Leptospermum laevigatum*) as an indigenous species; this does not affect the conservation significance.

The habitat condition score assessment for D1.4 Coastal Dune Scrub/Grassland Mosaic of 55 is adjusted to potentially 43, due the inclusion of Coast Tea-tree (*Leptospermum laevigatum*) as an indigenous species; this does not affect the conservation significance.

The State listed vulnerable species: Anglesea Grey Gum (*Eucalyptus littoralis*) (ELMP 2006) occurs in this section. Localised efforts to remove aggressive weeds in the immediate vicinity of Anglesea Grey Gum (*Eucalyptus littoralis*) are recommended, to minimise competition and optimise possible regeneration.

Although the values of this section are relatively low, it should be noted that there are areas of significant vegetation in the adjacent Great Otway National Park. Removing weeds in this section will assist in limiting weed invasion into the National Park.

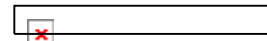
Management Action D1

High Priority Actions

- Remove the most aggressive weed species such as Coast Tea-tree (*Leptospermum laevigatum*) as they occur with in 10 metres of Anglesea Grey Gum (*Eucalyptus littoralis*).(S)

Medium Priority Actions

- Remove isolated and uncommon weeds across the area. (M)



Low Priority Actions

- Remove Sweet Pittosporum (*Pittosporum undulatum*) as they occur as isolated plants to reduce it invasion into the adjacent Great Otway National Park. (L)
- Localised environmental weeds awareness campaign and front/back yard weed removal along Great Ocean Road. (L)
- Remove all highest priority weeds as listed in ELMP Table 13 as they occur as isolated plants. (L) Appendix 6: Highest Priority Weeds within each Section

9.2 Section D2 Erskine River – St George River

This area in the centre of Lorne township is of very high recreational value and consequently, the quality of native vegetation is generally low. However at the southern end on the north facing beach are some small patches of high value vegetation. **Refer Figure 12: Lorne D2 Erskine River – St George River & D3 Queens Park Species Locations**

Table 24: Ecological Vegetation Class, Status, Score and Significance

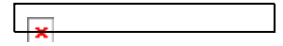
EVC Number	EVC	Conservation Status	Habitat Score	Conservation Significance
1	D2.1 Coastal Dune Scrub/Grassland Mosaic*	Depleted	47(37)	Medium (Medium)
161	D2.2 Coastal Headland Scrub	Depleted	33	Medium
23	D2.3 Herb-rich Foothill Forest	Depleted	40	Medium

* Sutter assessment includes Coast Tea-tree (*Leptospermum laevigatum*) as an indigenous species

Table 25: Summary of Values and Threats

Value / Threat	Details	Status
Threatened fauna habitat/species	Swamp Antechinus (<i>Antechinus minimus maritimus</i>) Rufous Bristlebird (<i>Dasyornis broadbenti</i>)	State Near Threatened State Listed
Threatened indigenous plant species distribution		
Locally significant indigenous species	<i>Melaleuca lanceolata</i> <i>Themeda triandra</i>	
Significant weeds species	<i>Leptospermum laevigatum</i> <i>Pittosporum undulatum</i> <i>Coprosma repens</i>	

The Estuarine Wetland at the northern half of this section near the Erskine River mouth in good health despite the presence of numerous weeds and mowing occurring to the water line (ELMP, 2006). Lorne Parkland and beach is subject to heavy recreational use and is highly modified, it has little or no indigenous vegetation.



D2.1 Coastal Dune Scrub/Grassland Mosaic's score of 47 is adjusted to potentially 37 to reflect the inclusion of Coast Tea-tree (*Leptospermum laevigatum*) as an indigenous species. The conservation significance remains medium.

The northeast facing, near coastal slope contains several mature, apparently indigenous Moonah (*Melaleuca lanceolata*). This isolated population is considered to be a potential extension of the known geographic range of the species distribution. This finding is significant so it is important to conserve this Moonah by removing woody weeds such as Mirror Bush (*Coprosma repens*), Coast Tea-tree (*Leptospermum laevigatum*) and Montpellier Broom (*Genista monspessulana*).

Below the Moonah (*Melaleuca lanceolata*), towards the shore is a relatively small area of remnant grassland dominated by Kangaroo Grass (*Themeda triandra*) with associated species such as Sweet Bursaria (*Bursaria spinosa*) and Drooping She-oak (*Allocasuarina verticillata*). This Grassland and Moonah occur on a relatively dry north facing slope. This vegetation is unusual in the study area and has a possible affinity with EVC 22 Dry Grassy Forest which has a bioregional conservation status of depleted. Consequently, efforts to remove herbaceous weeds such as Watsonia (*Watsonia meriana* var. *bulbillifera*) is recommended to be undertaken in the short term (early spring) with care not to damage the indigenous grasses.

Management Action D2

High Priority Actions

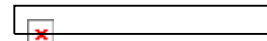
- Remove herbaceous weeds such as Watsonia (*Watsonia meriana* var. *bulbillifera*) from indigenous grassland. Undertake measures to restore and expand the grassland. (S)
- Remove all Sweet Pittosporum (*Pittosporum undulatum*), Coast Tea-tree (*Leptospermum laevigatum*), Mirror Bush (*Coprosma repens*), Montpellier Broom (*Genista monspessulana*) and Boneseed (*Chrysanthemoides monilifera* ssp. *monilifera*) from Moonah (*Melaleuca lanceolata*) woodland and adjacent grassland. (S)

Medium Priority Actions

- Remove isolated and conspicuous weeds across the area such as White Arum Lily (*Zantedeschia aethiopica*) and Agapanthus (*Agapanthus praecox* ssp. *orientalis*). (M)
- Localised environmental weeds awareness campaign and front/back yard weed removal along Great Ocean Road from Lorne Surf Life-Saving Club to the pier. (M)

Low Priority Actions

- Remove all highest priority weeds as listed in ELMP Table 13 as they occur as isolated plants. (L) Appendix 6: Highest Priority Weeds within each Section.



9.3 Section D3 Queens Park

Queens Park is an area of mostly relatively intact vegetation; it is comprised of Herb-rich Foothill and Lowland Forest vegetation. Refer to Figure 12: Lorne D2 Erskine River – St George River & D3 Queens Park Species Locations

Table 26: Ecological Vegetation Class, Status, Score and Significance

EVC Number	EVC	Conservation Status	Habitat Score	Conservation Significance
23	D3.1 Herb-rich Foothill Forest	Depleted	55	Medium
16	D3.2 Lowland Forest	Depleted	63	High
16	D3.3 Lowland Forest	Depleted	63	High
23	D3.4 Herb-rich Foothill Forest	Depleted	62	High

Table 27: Summary of Values and Threats

Value / Threat	Details	Status
Threatened fauna habitat/species	Swift Parrot (<i>Lathamus dicolor</i>) Swamp Antechinus (<i>Antechinus minimus maritimus</i>) Rufous Bristlebird (<i>Dasyornis broadbenti</i>)	National Endangered State Near threatened State Listed
Threatened indigenous plant species distribution		
Locally significant indigenous species		
Significant weeds species	<i>Chrysanthemoides monilifera ssp. monilifera</i> <i>Leptospermum laevigatum</i> <i>Pittosporum undulatum</i> <i>Genista monspessulana</i>	WONS

In some areas of Queens Park the weed population is quite low, consequently, efforts to eradicate weeds should continue. It is also evident in other areas that activities to remove weeds have been undertaken but success will depend on continued action. However, some parts are relatively weedy and a concerted approach is required in the medium term.

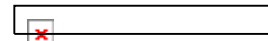
Specific Weeds

Special effort to remove Myrtle-leaf Milkwort (*Polygala myrtifolia*) and Blue-bell Creeper (*Billardiera fusiformis*) while they are still emerging weeds is a high priority.

There are also significant populations of Sweet Pittosporum (*Pittosporum undulatum*) in the gullies and Coast Tea-tree (*Leptospermum laevigatum*) near the coast which require removal.

Montpellier Broom (*Genista monspessulana*) is well established in sections of the Park. Continuation of the ongoing control works including outliers is recommended as a high priority.

Sweet Pittosporum (*Pittosporum undulatum*) and Boneseed (*Chrysanthemoides monilifera ssp. monilifera*) are dominant on the cliffs adjacent to the Park. Montpellier Broom (*Genista monspessulana*) is also scattered across these cliffs.



There are two recorded occurrences of Spanish Heath (*Erica lusitanica*) which should be eradicated as soon as possible.

Management Action D3

High Priority Actions

- Remove all Myrtle-leaf Milkwort (*Polygala myrtifolia*), Blue-bell Creeper (*Billardiera fusiformis*) and Spanish Heath (*Erica lusitanica*) as soon as possible and follow up an annually. (S)
- Remove all Sweet Pittosporum (*Pittosporum undulatum*), Montpellier Broom (*Genista monspessulana*), Coast Tea-tree (*Leptospermum laevigatum*), Boneseed (*Chrysanthemoides monilifera* ssp *monilifera*) and Mirror Bush (*Coprosma repens*). (M)

Medium Priority Actions

- Localised environmental weeds awareness campaign and front/back yard weed removal around the perimeter of the park. (M)

Low Priority Actions

- Remove all isolated plants and small populations of the 13 high priority weeds as listed in ELMP Table 13. (L) Appendix 6: Highest Priority Weeds within each Section

9.4 Section D4 Cumberland River

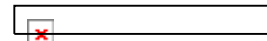
Cumberland River is a separate parcel of land approximately 8 km south west of Lorne. It contains a long established Caravan Park and is surrounded by the Great Otway National Park. Refer Figure 13: Lorne D4 Cumberland River Species Locations

Table 28: Ecological Vegetation Class, Status, Score and Significance

EVC Number	EVC	Conservation Status	Habitat Score	Conservation Significance
10	D4.1 Estuarine Wetland	Endangered	50	Very High
1	D4.2 Coastal Dune Scrub/Grassland Mosaic	Depleted	62	High
161	D4.3 Coastal Headland Scrub	Depleted	57	Medium

Table 29: Summary of Values and Threats

Value / Threat	Details	Status
Threatened fauna habitat/species	Common Bent-wing Bat (southern subspecies)	National Conservation-dependent
	Swamp Antechinus (<i>Antechinus minimus maritimus</i>).	State Near Threatened
	Rufous Bristlebird (<i>Dasyornis broadbenti</i>)	State Listed
Threatened		



indigenous plant species distribution		
Locally significant indigenous species	<i>Zostera tasmanica</i> <i>Dianella brevicaulis</i> x <i>sp.aff.revoluta</i> (coastal)	
Significant weeds species	<i>Chrysanthemoides monilifera</i> ssp. <i>monilifera</i> <i>Coprosma repens</i> <i>Leptospermum laevigatum</i> <i>Pittosporum undulatum</i> <i>Polygala myrtifolia</i>	WONS

The Caravan Park is situated on the river flats adjacent to the mouth of the Cumberland River. The camping ground is highly modified and contains 25 of the most common weeds. A co-ordinated effort is required to reduce the weeds in this area given its proximity to the National Park into which several of the worst weed species have already invaded. There is the potential for some of these species to spread throughout the Otway Ranges.

A Landscape, Recreation and Revegetation plan should be developed and implemented over the medium term. This plan would enable better management of pedestrian traffic along the river and enhance the conservation value of the significant Estuarine Wetland. It should recommend the planting of indigenous species to replace the exotic species. Weekly 'camper' working bees throughout the summer time could be run to raise awareness, skills and build ownership of the more natural environment. Targeted removal of the highly conspicuous and incongruous weeds such as White Arum Lily (*Zantedeschia aethiopica*) could be the focus of the summertime weed working bees.

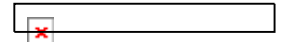
The exact locations of the weeds were not mapped. As with Taylor Park, the weed load is very high and mapping in such a small area is futile. It is recommended that action start at the upstream reach to remove all 25 species of weeds recorded in the area, particularly the large woody weeds such as Sweet Pittosporum (*Pittosporum undulatum*) and Mirror Bush (*Coprosma repens*),. This intensive task may need to be staged over the medium term.

Management Action D4

High Priority Actions

- Remove isolated and conspicuous weeds across the area such as White Arum Lily (*Zantedeschia aethiopica*), Agapanthus (*Agapanthus praecox* ssp. *orientalis*) Fennel (*Foeniculum vulgare*) and Crassula (*Crassula multicava* ssp. *multicava*). (S)
- Remove all Sweet Pittosporum (*Pittosporum undulatum*), Boneseed (*Chrysanthemoides monilifera* ssp. *monilifera*), Coast Tea-tree (*Leptospermum laevigatum*), Mirror Bush (*Coprosma repens*), Myrtle-leaf Milkwort (*Polygala myrtifolia*) and Sallow Wattle (*Acacia longifolia* ssp. *longifolia*) over the short to medium term in cooperation with Parks Victoria. (S - M)

Medium Priority Actions



- Develop a Landscape, Recreation and Revegetation plan for the Caravan Park. (M)
- Investigate potential for localised environmental weeds awareness campaign annual campers summertime weed working bees. (M)

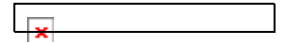
Low Priority Actions

- Remove all highest priority weeds as listed in ELMP Table 13 as they occur as isolated plants. (L) Appendix 6: Highest Priority Weeds within each Section

9.5 Management Area D: Lorne Summary

The areas of Moonah (*Melaleuca lanceolata*) woodland and Grassland on the northeast facing coast at Lorne are significant and worthy of management. Due to the vegetation quality, size and the proximity of Queens Park and Cumberland River to the Great Otway National Park both areas are a high priority for weed management.

- **Figure 11: Lorne D1 Reedy Creek – Erskine River**
- **Figure 12: Lorne D2 Erskine River – St George River & D3 Queens Park**
- **Figure 13: Lorne D4 Cumberland River**



10 Conclusion

The areas of native vegetation within the area of management responsibility of the Great Ocean Coast Committee are diverse, in terms of vegetation type and quality. Some areas are highly modified and denuded of indigenous vegetation. However there are several areas, often of significant patch size, that are relatively healthy and that have high to very high ecological value.

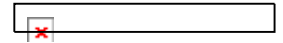
By applying the asset-based approach to vegetation management, GORCC can protect and enhance these valuable assets.

The most valuable ecological assets, as assessed by habitat score, conservation significance, the presence of rare or threatened species and local landscape value are listed below:

- Point Impossible dunes (and woodlands) (A1)
- Jan Juc (Bones Rd) Heathland (A4)
- Jan Juc Grassland (A4)
- Anglesea Heathland (B1)
- Moonah woodlands:
 - Point Impossible (A1)
 - Around the Anglesea Caravan Park (B1),
 - Point Roadknight and O'Donohue Road (B2) and
 - Lorne and neighbouring Grassland on the northeast facing coast (D2)
- Aireys Inlet Coastal Headland Scrub (C1)
- Painkalac Creek Dune system, Estuarine Wetland and Saltmarsh (C2)
- Queens Park (D3)
- Cumberland River Estuarine Wetland (D4).

GORCC can take steps to significantly reducing the threat weeds pose to the study area and to the adjacent Great Otway National Park by undertaking the high priority recommendations to eradicate the following serious weeds while they are still localised, emerging populations.

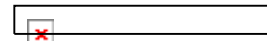
- Bridal Creeper (*Asparagus asparagoides*) (A1, A2, A3)
- Bluebell Creeper (*Billardiera fusiformis*) (B2, C1, D3)
- Mirror Bush (*Coprosma repens*) (B2, D2, D3, D4)
- Sea Spurge (*Euphorbia paralias*) (C2, C3)
- Sweet Pittosporum (*Pittosporum undulatum*) (A1, D2, D3, D4)
- Myrtle-leaf Milkwort (*Polygala myrtifolia*) (A1, C1, C2, C3, D3, D4)
- Italian Buckthorn (*Rhamnus alaternus*) (A2, A3, A4)



It is also important that GORCC remains vigilant to keep these weeds out of areas that are currently free of them.

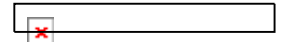
Boneseed (*Chrysanthemoides monilifera ssp monilifera*), and Coast Tea-tree (*Leptospermum laevigatum*) are more widespread and occur in most sections, but with a concerted effort in conjunction with volunteers, neighbours and partner agencies over the short, medium and long term both of these weeds can be eliminated from the specified sections.

- Boneseed (*Chrysanthemoides monilifera ssp monilifera*) (A1, A2, A3, A4, B1, B2, C1, C2, C3, D2, D3, D4)
- Coast Tea-tree (*Leptospermum laevigatum*) (A1, A2, A4, B1, B2, D1, D2, D3, D4)



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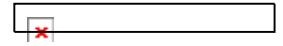
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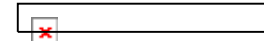
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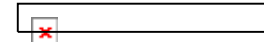
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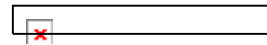
Appendix 1: Native Vegetation Habitat Condition Assessment (Sutter 2007)

(*) Bracketed data in Conservation Significance and Total Site Score are the adjusted score as affected by Coast Tea-tree (See 4.4)

Management unit	Site	Location	EVC Name	Conservation Significance	Total Site Score (*)	Site Condition Score (if Treeless or no large trees for EVC, score adjusted in brackets)	Landscape context score
A1	1	Point Impossible to White's Beach	1. Coastal Dune Scrub/Coastal Dune Grassland Mosaic	High	66	39(53)	13
A1	2	Point Impossible to White's Beach	1. Coastal Dune Scrub/Coastal Dune Grassland Mosaic	Medium	54 (41)	30(41)	13
A2	1	White's Beach to Rocky Point	858. Coastal Alkaline Scrub	High	38	25(29)	9
A2	2	White's Beach to Rocky Point	161. Coastal Headland Scrub	High	42 (30)	24(33)	9
A3	1	Taylor Park	175. Grassy Woodland	High	31	24	7
A4a	1	Rocky Pt to Jan Juc (Little Rock carpark)	161. Coastal Headland Scrub	Very High	54	31(42)	12
A4a	2	Rocky Pt to Jan Juc (Little Rock carpark)	161. Coastal Headland Scrub	Very High	58	34(46)	12
A4b	1	Little Rock carpark to Bones Rd boundary	7. Clay Heathland	Very High	54	31(42)	12
A4b	2	Little Rock carpark to Bones Rd boundary	161. Coastal Headland Scrub	Very High	59	34(46)	13
B1	1	Anglesea Heath east of river	858. Coastal Alkaline Scrub	Very High	64	39(45)	19
B1	2	Anglesea Heath east of river	7. Clay Heathland	Very High	71	38(52)	19
B1	3	Anglesea Heath east of river	7. Clay Heathland	Very High	64	33(45)	19
B1	4	Anglesea Heath east of river	48. Heathy Woodland	Low	58	39	19
B2	1	Anglesea River to O'Donohue Rd	1. Coastal Dune Scrub/Coastal Dune Grassland Mosaic	High (Medium)	66 (52)	36(49)	17
B2	2	Anglesea River to O'Donohue Rd	858. Coastal Alkaline Scrub	Very High	48	28(32)	16
B2	3	Anglesea River to O'Donohue Rd	161. Coastal Headland Scrub	High	49 (33)	28(32)	17
C1	1	East of Split Point Lighthouse	161. Coastal Headland Scrub	Very High (High)	63 (49)	36(49)	14



C1	2	East of Split Point Lighthouse	161. Coastal Headland Scrub	High	47	24(33)	14
C1	3	East of Split Point Lighthouse	161. Coastal Headland Scrub	Very High	61	34(46)	15
C2	1	Split Point to Mogg's Creek	1. Coastal Dune Scrub/Coastal Dune Grassland Mosaic	Medium	57 (45)	29(39)	18
C2	2	Split Point to Mogg's Creek	858. Coastal Alkaline Scrub	High	36	16(18)	18
C2	3	Split Point to Mogg's Creek	161. Coastal Headland Scrub	Very High	51	25(34)	17
C2	4	Split Point to Mogg's Creek	858. Coastal Alkaline Scrub	Very High	50	28(32)	18
C2	5	Split Point to Mogg's Creek	9. Coastal Saltmarsh	Very High	54	25(36)	18
C2	6	Split Point to Mogg's Creek	10. Estuarine Wetland	Very High	58	31(42)	16
C3	1	Mogg's Creek to Eastern View	1. Coastal Dune Scrub/Coastal Dune Grassland Mosaic	Medium	50(38)	22(30)	20
C3	2	Mogg's Creek to Eastern View	1. Coastal Dune Scrub/Coastal Dune Grassland Mosaic	High	62	32(43)	19
D1	1	Stony Creek to Erskine River	161. Coastal Headland Scrub	Medium	48 (34)	23(29)	19
D1	2	Stony Creek to Erskine River	1. Coastal Dune Scrub/Coastal Dune Grassland Mosaic	High	65 (53)	34(46)	19
D1	3	Stony Creek to Erskine River	1. Coastal Dune Scrub/Coastal Dune Grassland Mosaic	(Medium)	52 (38)	24(33)	19
D1	4	Stony Creek to Erskine River	1. Coastal Dune Scrub/Coastal Dune Grassland Mosaic	Medium	55 (43)	27(37)	18
D1	5	Stony Creek to Erskine River	161. Coastal Headland Scrub	Medium	43	21(26)	17
D2	1	Erskine River to pier	1. Coastal Dune Scrub/Coastal Dune Grassland Mosaic	Medium	47 (37)	22(30)	17
D2	2	Erskine River to pier	161. Coastal Headland Scrub	Medium	33	12(15)	18
D2	3	Erskine River to pier	23. Herb-rich Foothill Forest	Medium	40	22	18
D3	1	Queens Park	23. Herb-rich Foothill Forest	Medium	55	36	19
D3	2	Queens Park	16. Lowland Forest	High	63	44	19
D3	3	Queens Park	16. Lowland Forest	High	63	44	19
D3	4	Queens Park	23. Herb-rich Foothill Forest	High	62	43	19
D4	1	Cumberland River	10. Estuarine Wetland	Very High	50	21(29)	21
D4	2	Cumberland River	1. Coastal Dune Scrub/Coastal Dune Grassland Mosaic	High	62	30(41)	21
D4	3	Cumberland River	1. Coastal Headland Scrub	Medium	57	29(36)	21



Appendix 1A: Modified Native Vegetation Habitat Condition Assessment (Sutter 2007)

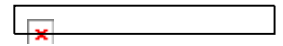
Man't unit	Location	Site	EVC Name	Large Trees	Tree Canopy Cover	Logs	Organic Litter	Organic litter modified weed	Weeds	Weeds modified weed	U'storey	U'storey modified weed	Recruit	Recruit modified weed	Site Condition Score (if Treeless or no large trees for EVC, score adjusted in brackets)	SCS modified weed	Landsc ape context score	Total Site Score	TSS modified weed
A1	Point Impossible to White's Beach	1	Coastal Dune Scrub/Coastal Dune Grassland Mosaic	N/A	N/A	N/A	3		15		15		6		39(53)		13	66	
A1	Point Impossible to White's Beach	2	Coastal Dune Scrub/Coastal Dune Grassland Mosaic	N/A	N/A	N/A	3	2	11	2	10	10	6	3	30(41)	28	13	54	41
A2	White's Beach to Rocky Point	1	Coastal Alkaline Scrub	N/A	5	0	3		11		5		1		25(29)		9	38	
A2	White's Beach to Rocky Point	2	Coastal Headland Scrub	N/A	N/A	N/A	5	4	11	2	5	5	3	1	24(33)	21	9	42	30
A3	Taylor Park		Grassy Woodland	0	5	0	3		11		5		0		24		7	31	
A4a	Rocky Pt to Jan Juc (Little Rock carpark)	1	Coastal Headland Scrub	N/A	N/A	N/A	5		15		5		6		31(42)		12	54	
A4a	Rocky Pt to Jan Juc (Little Rock carpark)	2	Coastal Headland Scrub	N/A	N/A	N/A	3		15		15		1		34(46)		12	58	
A4b	Little Rock carpark to Bones Rd boundary	1	Clay Heathland	N/A	N/A	N/A	5		15		10		1		31(42)		12	54	
A4b	Little Rock carpark to Bones Rd boundary	2	Coastal Headland Scrub	N/A	N/A	N/A	5		11		15		3		34(46)		13	59	
B1	Anglesea Heath east of River	1	Coastal Alkaline Scrub	N/A	5	0	5		11		15		3		39(45)		19	64	
B1	Anglesea Heath east of River	2	Clay Heathland	N/A	N/A	N/A	5		15		15		3		38(52)		19	71	
B1	Anglesea Heath east of River	3	Clay Heathland	N/A	N/A	N/A	5		15		10		3		33(45)		19	64	
B1	Anglesea Heath east of River	4	Heathy Woodland	0	5	0	3		15		15		1		39		19	58	
B2	Anglesea R to O'Donohue Rd	1	Coastal Dune Scrub/Coastal Dune Grassland Mosaic	N/A	N/A	N/A	5	4	11	2	10	10	10	6	36(49)	35	17	66	52
B2	Anglesea R to O'Donohue Rd	2	Coastal Alkaline Scrub	N/A	3	0	3		11		10		1		28(32)		16	48	
B2	Anglesea R to O'Donohue Rd	3	Coastal Headland Scrub	N/A	N/A	N/A	5	4	15	2	5	5	3	1	28(32)	16	17	49	33
C1	East of Split point Lighthouse	1	Coastal Headland Scrub	N/A	N/A	N/A	5	4	15	2	15	15	1	1	36(49)	35	14	63	49
C1	East of Split point Lighthouse	2	Coastal Headland Scrub	N/A	N/A	N/A	5		11		5		3		24(33)		14	47	
C1	East of Split point Lighthouse	3	Coastal Headland Scrub	N/A	N/A	N/A	3		15		15		1		34(46)		15	61	
C2	Split Point to Mogg's Creek	1	Coastal Dune Scrub/Coastal Dune Grassland Mosaic	N/A	N/A	N/A	5	4	11	2	10	10	3	1	29(39)	27	18	57	45
C2	Split Point to Mogg's Creek	2	Coastal Alkaline Scrub	N/A	3	0	3		4		5		1		16(18)		18	36	
C2	Split Point to Mogg's Creek	3	Coastal Headland Scrub	N/A	N/A	N/A	3		11		10		1		25(34)		17	51	
C2	Split Point to Mogg's Creek	4	Coastal Alkaline Scrub	N/A	5	0	3		15		5		0		28(32)		18	50	
C2	Split Point to Mogg's Creek	5	Coastal Saltmarsh	N/A	N/A	N/A	5		15		5		N/A		25(36)		18	54	
C2	Split Point to Mogg's Creek	6	Estuarine Wetland	N/A	N/A	N/A	5		11		15		0		31(42)		16	58	
C3	Mogg's Creek to Eastern View	1	Coastal Dune Scrub/Coastal Dune Grassland Mosaic	N/A	N/A	N/A	3	2	11	2	5	5	3	1	22(30)	18	20	50	38
C3	Mogg's Creek to Eastern View	2	Coastal Dune Scrub/Coastal Dune Grassland Mosaic	N/A	N/A	N/A	5		11		10		6		32(43)		19	62	
D1	Stony Creek to Erskine River	1	Coastal Headland Scrub	N/A	N/A	0	3	2	15	2	5	5	0	0	23(29)	15	19	48	34
D1	Stony Creek to Erskine River	2	Coastal Dune Scrub/Coastal Dune Grassland Mosaic	N/A	N/A	N/A	5	4	11	2	15	15	3	1	34(46)	34	19	65	53
D1	Stony Creek to Erskine River	3	Coastal Dune Scrub/Coastal Dune Grassland Mosaic	N/A	N/A	N/A	5	4	11	0	5	5	3	1	24(33)	19	19	52	38
D1	Stony Creek to Erskine River	4	Coastal Dune Scrub/Coastal Dune Grassland Mosaic	N/A	N/A	N/A	5	4	11	0	10	10	1	1	27(37)	25	18	55	43
D1	Stony Creek to Erskine River	5	Coastal Headland Scrub	N/A	N/A	0	5		11		5		0		21(26)		17	43	
D2	Erskine River to Pier	1	Coastal Dune Scrub/Coastal Dune Grassland Mosaic	N/A	N/A	N/A	5	4	11	2	5	5	1	1	22(30)	20	17	47	37
D2	Erskine River to Pier	2	Coastal Headland Scrub	N/A	N/A	0	3		4		5		0		12(15)		18	33	
D2	Erskine River to Pier	3	Herb-rich Foothill forest	3	5	0	5		4		5		0		22		18	40	
D3	Queens Park	1	Herb-rich Foothill forest	3	5	4	3		11		10		0		36		19	55	
D3	Queens Park	2	Lowland Forest	3	5	4	5		11		15		1		44		19	63	
D3	Queens Park	3	Lowland Forest	3	5	4	5		11		15		1		44		19	63	
D3	Queens Park	4	Herb-rich Foothill forest	3	5	4	5		11		15		0		43		19	62	
D4	Cumberland River	1	Estuarine Wetland	N/A	N/A	N/A	5		11		5		0		21(29)		21	50	
D4	Cumberland River	2	Coastal Dune Scrub/Coastal Dune Grassland Mosaic	N/A	N/A	N/A	3		11		15		1		30(41)		21	62	
D4	Cumberland River	3	Coastal Headland Scrub	N/A	N/A	0	5		11		10		3		29(36)		21	57	

Appendix 2: Significant Indigenous Species

Id. letter.	Botanical Name	Common Name
A	<i>Austrofestuca littoralis</i>	Coast Fescue
B	<i>Carex pumila</i>	Strand Sedge
C	<i>Dianella brevicalis x revoluta</i>	Spreading Coast Flax-lily
D	<i>Eucalyptus leucoxylon spp bellarinensis</i>	Bellarine Yellow Gum
E	<i>Melaleuca lanceolata</i>	Moonah
F	<i>Olearia glutinosa</i>	Sticky Daisy-bush
G	<i>Diuris palustris</i>	Swamp Diuris
H	<i>Thelymitra aristata</i>	Great Sun-orchid
J	<i>Thelymitra antennifera</i>	Rabbit Ears
K	<i>Acacia sophorae</i>	Coast Wattle
L	<i>Acacia uncifolia</i>	Coast Wirilda
M	<i>Adriana quadripartita</i>	Rare Bitter-bush
N	<i>Gahina filum</i>	Chaffy Saw-sedge
P	<i>Lepidosperma gladiatum</i>	Coast Sword-sedge
Q	<i>Lepidosperma congestum</i>	Clustered Sword-sedge
R	<i>Alyxia buxifolia</i>	Sea Box

Appendix 3: Australian List of Weeds of National Significance

Common Name	Scientific Name
Alligator Weed	<i>Alternanthera philoxeroides</i>
Athel Pine	<i>Tamarix aphyllia</i>
Bitou Bush / Boneseed	<i>Chrysanthemoides monilifera</i>
Blackberry	<i>Rubus fruticosus agg.</i>
Bridal Creeper	<i>Asparagus asparagoides</i>
Cabomba	<i>Cabomba caroliniana</i>
Chilean Needle Grass	<i>Nassella neesiana</i>
Gorse	<i>Ulex europaeus</i>
Hymenachne	<i>Hymenachne amplexicaulis</i>
Lantana	<i>Lantana camara</i>
Mesquite	<i>Prosopis ssp.</i>
Mimosa	<i>Mimosa pigra</i>
Parkinsonia	<i>Parkinsonia aculeata</i>
Parthenium Weed	<i>Parthenium hysterophorus</i>
Pond Apple	<i>Annona glabra</i>
Prickly Acacia	<i>Acacia nilotica ssp. indica</i>
Rubber Vine	<i>Cryptostegia grandiflora</i>
Salvinia	<i>Salvinia molesta</i>
Serrated tussock	<i>Nassella trichotoma</i>
Willows except Weeping Willows, Pussy Willows and Sterile Pussy Willow	<i>Salix spp. Except S.babylonica, S.X calodenron and S.X reichardtii</i>



Appendix 4: Corangamite Catchment Management Authority Priority Weeds (2004)

Emerging

Bridal Creeper (WONS)
Chilean Needle Grass (WONS)

State Priority

Ragwort
Serrated Tussock (WONS)

Regional Priority

Blackberry (WONS)
Cape Tulip
Gorse (WONS)
Ox Eye Daisy
Patersons Curse
St John's Wort
Wild Garlic

State Prohibited

Alligator weed
Black Knapweed
Camel Thorn
Ivy Leaf Sida
Marijuana
Mesquite,
Nodding Thistle
Poverty weed
Salvinia
Water Hyacinth

Appendix 5: Priority Weeds

Id. no.	Botanical Name	Common Name
1	<i>Acacia elata</i>	Cedar Wattle
2	<i>Acacia floribunda</i>	White Sallow-wattle
3	<i>Acacia longifolia</i> s.l. (including hybrids)	Coast/Sallow Wattle
4	<i>Acacia longifolia</i> ssp <i>longifolia</i>	Sallow Wattle
5	<i>Acacia longifolia</i> ssp <i>sophorae</i>	Coast Wattle
6	<i>Acacia retinoides</i> var. <i>retinoides</i>	Wirilda
7	<i>Acacia saligna</i>	Golden Wreath Wattle
8	<i>Agapanthus praecox</i> ssp <i>orientalis</i>	Agapanthus
9	<i>Allium triquetrum</i>	Three-corner Garlic
10	<i>Aponogeton distachyos</i>	Cape Pond-lily
11	<i>Asparagus asparagoides</i> <i>Billardiera fusiformis</i> (syn. <i>Sollya heterophylla</i>)	Bridal Creeper
12	<i>Centranthus ruber</i> ssp <i>ruber</i>	Bluebell Creeper
13	<i>Chamaecytisus palmensis</i>	Red Valerian
14	<i>Chasmanthe floribunda</i>	Tree Lucerne
15	<i>Chrysanthemoides monilifera</i> ssp <i>monilifera</i>	African Boneseed
16	<i>Clematis vitalba</i>	Traveller's Joy
17	<i>Coprosma repens</i>	Mirror Bush
18	<i>Cortaderia selloana</i> /C. <i>jubata</i>	Pampas Grass
19	<i>Cotoneaster lacteus</i>	Cotoneaster
20	<i>Cotoneaster pannosus</i>	Velvet Cotoneaster
21	<i>Cratageous monogyna</i>	Hawthorn
22	<i>Crocsmia x crocosmiiflora</i>	Montbretia
23	<i>Cytisus scoparius</i>	English Broom
24	<i>Delairea odorata</i>	Cape Ivy
25	<i>Dipogon lignosus</i>	Common Dipogon
26	<i>Ehrharta erecta</i> var. <i>erecta</i>	Panic Veldt-grass
27	<i>Erica arborea</i>	Tree Heath
28	<i>Erica lusitanica</i>	Spanish Heath
29	<i>Eucalyptus cladocalyx</i>	Sugar Gum
30	<i>Eucalyptus leucoxylon</i> ssp <i>megalocarpa</i>	Large-fruit Yellow-gum
31	<i>Fraxinus angustifolia</i> ssp <i>angustifolia</i>	Desert Ash
32	<i>Freesia alba</i> x <i>Freesia leichtlinii</i>	Freesia
33	<i>Gazania linearis</i>	Gazania
34	<i>Gazania rigens</i>	Trailing Gazania
35	<i>Genista linifolia</i>	Flax-leaf Broom
36	<i>Genista monspessulana</i>	Montpellier Broom
37	<i>Genista x spachiana</i>	Madeira Broom
38	<i>Gladiolus undulatus</i>	Wild Gladiolus
39	<i>Hakea drupacea</i>	Sweet Hakea
40	<i>Hakea laurina</i>	Pincushion Hakea
41	<i>Hakea salicifolia</i> ssp <i>salicifolia</i>	Willow-leaf Hakea
42	<i>Hedera helix</i>	English Ivy
43	<i>Ilex aquifolium</i>	English Holly
44	<i>Iris foetidissima</i>	Stinking Iris
45	<i>Ixia</i> spp.	Ixia
46	<i>Kennedia nigricans</i>	Black Coral-pea

48	<i>Kniphofia uvaria</i>	Red-hot Poker
49	<i>Kunzea ericoides s.l.</i>	Burgan
50	<i>Leptospermum laevigatum</i>	Coast Tea-tree
51	<i>Leucanthemum x superbum</i>	Shasta Daisy
52	<i>Lonicera japonica</i>	Japanese Honeysuckle
53	<i>Lotus creticus</i>	Dune Lotus
54	<i>Lycium ferocissimum</i>	African Box-thorn
55	<i>Melaleuca armillaris ssp armillaris</i>	Giant Honey-myrtle
56	<i>Melaleuca diosmifolia</i>	Green Honey-myrtle
57	<i>Melaleuca hypericifolia</i>	Hillock Bush
58	<i>Melaleuca nesophila</i>	Showy Honey-myrtle
		Rough-barked Honey-myrtle
59	<i>Melaleuca parvistaminea</i>	
60	<i>Mentha pulegium</i>	Pennyroyal
61	<i>Moraea flaccida</i>	One-leaf Cape-tulip
62	<i>Nassella trichotoma</i>	Serrated Tussock
63	<i>Oxalis incarnata</i>	Pale Wood-sorrel
64	<i>Oxalis pes-caprae</i>	Soursob
65	<i>Oxalis purpurea</i>	Large-flower Wood-sorrel
66	<i>Pandorea pandorana</i>	Wonga Vine
67	<i>Paraserianthes lophantha ssp lophantha</i>	Cape Wattle
68	<i>Pennisetum clandestinum</i>	Kikuyu
		Toowoomba Canary-grass
69	<i>Phalaris aquatica</i>	
70	<i>Pinus radiata ssp radiata</i>	Radiata Pine
71	<i>Pittosporum crassifolium</i>	Karo
72	<i>Pittosporum tenuifolium</i>	Kohuhu
73	<i>Pittosporum undulatum</i>	Sweet Pittosporum
74	<i>Podalyria sericea</i>	Silky Podalyria
75	<i>Polygala myrtifolia</i>	Myrtle-leaf Milkwort
76	<i>Prunus cerasifera</i>	Cherry Plum
77	<i>Rhamnus alaternus</i>	Italian Buckthorn
78	<i>Rubus anglocandicans</i>	Blackberry
79	<i>Rubus fruticosus spp. agg.</i>	Blackberry
80	<i>Salix cinerea</i>	Grey Sallow
81	<i>Senecio angulatus</i>	Climbing Groundsel
82	<i>Sparaxis bulbifera</i>	Harlequin Flower
83	<i>Stenotaphrum secundatum</i>	Buffalo Grass
84	<i>Vinca major</i>	Blue Periwinkle
85	<i>Viola odorata</i>	Common Violet
86	<i>Viola odorata (white flowers)</i>	Common Violet
87	<i>Watsonia borbonica</i>	Rosy Watsonia
88	<i>Watsonia meriana var. bulbifera</i>	Bulbil Watsonia
89	<i>Zantedeschia aethiopica</i>	White Arum-lily
	Priority 2 species	
201	<i>Acacia baileyana</i>	Cootamundra Wattle
202	<i>Acetosa sagittata</i>	Climbing Dock
203	<i>Astartea heterathera</i>	Astartea
204	<i>Banksia integrifolia ssp integrifolia</i>	Coast Banksia

205	<i>Callistachys lanceolata</i>	Greenbush
206	<i>Callistemon rigidus</i>	Stiff Bottlebrush
207	<i>Calystegia marginata</i>	Forest Bindweed
208	<i>Carpobrotus aequilaterus</i>	Angled Pigface
209	<i>Carpobrotus edulis</i>	Hottentot Fig
210	<i>Cirsium vulgare</i>	Spear Thistle
211	<i>Crassula multicava ssp multicava</i>	Shade Crassula
212	<i>Crassula tetragona ssp robusta</i>	Shrubby Crassula
213	<i>Cupressus macrocarpa</i>	Monterey Cypress
214	<i>Erigeron karvinskianus</i>	Seaside Daisy
215	<i>Eucalyptus botryoides</i>	Southern Mahogany
216	<i>Eucalyptus conferruminata</i>	Bald Island Marlock
217	<i>Eucalyptus cornuta</i>	Yate
218	<i>Eucalyptus gomphocephala</i>	Tuart
219	<i>Kennedia rubicunda</i>	Dusky Coral-pea
220	<i>Malva arborea</i>	Tree Mallow
221	<i>Physalis peruviana</i>	Cape Gooseberry
222	<i>Prunus cerasifera 'Atropurpurea'</i>	Purple-leaf Cherry-plum
223	<i>Prunus cerasifera 'Nigra'</i>	Purple-leaf Cherry-plum
224	<i>Rosa rubiginosa</i>	Sweet Briar
225	<i>Salpichroa origanifoli</i>	Pampas Lily-of-the-valley
226	<i>Tropaeolum majus</i>	Nasturtium

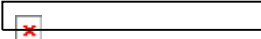
Priority 3 species

301	<i>Agonis flexuosa</i>	Willow Myrtle
302	<i>Aloe arborescens</i>	Tree Aloe
303	<i>Aloe maculata</i>	Common Soap Aloe
304	<i>Amaryllis belladonna</i>	Belladonna Lily
305	<i>Briza maxima</i>	Large Quaking-grass
306	<i>Casuarina glauca</i>	Swamp Oak
307	<i>Corymbia calophylla</i>	
308	<i>Cotoneaster franchetii</i>	Grey Cotoneaster
309	<i>Crassula sp. aff. sarmentosa</i>	Crassula
310	<i>Eucalyptus globulus ssp globulus</i>	Tasmania Blue-gum
311	<i>Euphorbia paralias</i>	Sea Spurge
312	<i>Foeniculum vulgare</i>	Fennel
313	<i>Galenia pubescens var. pubescens</i>	Galenia
314	<i>Grevillia rosmarinifolia</i>	Rosemary Grevillia
315	<i>Hardenbergia violacea</i>	Purple Coral-pea
316	<i>Hyacinthoides hispanica</i>	Spanish Bluebell
317	<i>Leptospermum scoparium</i>	Manuka
318	<i>Leucojum aestivum</i>	Snowflake
319	<i>Malus pumila</i>	Apple
320	<i>Narcissus tazetta ssp tazetta</i>	Tazetta
321	<i>Nymphaea hybrid</i>	Water Lily
322	<i>Osteospermum fruticosum</i>	Dimorphotheca
323	<i>Pelargonium cucullatum</i>	Pelargonium
324	<i>Pelargonium peltatum</i>	Climbing Pelargonium
325	<i>Pelargonium quercifolium</i>	Oak-leaf Pelargonium
326	<i>Pelargonium x domesticum</i>	Royal Pelargonium

327	<i>Pelargonium x hortorum</i>	Zonal Pelargonium
328	<i>Pinus pinaster</i>	Cluster Pine
329	<i>Rosa wichuraiana</i>	Memorial Rose
330	<i>Salix alba var. vitellina</i>	Golden Willow
331	<i>Salix fragilis var. fragilis</i>	Crack Willow
332	<i>Salix matsudana 'Tortuosa'</i>	Tortured Willow
333	<i>Salix x reichardtii</i>	Pussy Willow
334	<i>Salix x sepulcralis var. chrysocoma</i>	Golden Weeping Willow
335	<i>Salix x sepulcralis var. sepulcralis</i>	Weeping Willow
336	<i>Senecio jacobaea</i>	Ragwort
337	<i>Sizygium paniculatum</i>	Lilly-pilly
338	<i>Tritonia lineata</i>	Lined Tritonia
339	<i>Verbascum virgatum</i>	Twiggy Mullein
340	<i>Yucca gloriosa</i>	Yucca

Additional Weed Species

401	<i>Acacia cyclops</i>	Red eyed wattle
402	<i>Arctosis stoechadifolia</i>	White (arctosis) daisy
403	<i>Callitris sp</i>	Native Cypress-pine
404	<i>Diosma spp.</i>	
405	<i>Echium</i>	
406	<i>Erica spp.</i>	
407	<i>Eucalyptus spp</i>	
408	<i>Euphorbia terracina</i>	dune spurge/false capers
409	<i>genista spp</i>	
410	<i>Gladiolus spp.</i>	Sad gladi
411	<i>Grevillia spp</i>	
413	<i>Hakea spp.</i>	
414	<i>Melaleuca spp.</i>	
415	<i>Metrosideros excelsa</i>	N.Z. Christmas bush
416	<i>Oxalis obt</i>	
417	<i>Rosea spp</i>	
418	<i>Senecio elegans</i>	
419	<i>Sonn meg</i>	
420	<i>Tradescantia fluminensis</i>	Wandering Jew
421	<i>Watsonia spp.</i>	

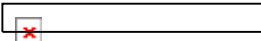


Appendix 6: Highest Priority Weeds within each Section

(ELMP Table 13) Prioritisation of the most serious environmental weeds and other management recommendations within each section for each Management Area. Note – Species are given in alphabetical order, and this does not convey priority.

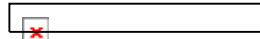
Management Area A

Section 1 Point Impossible – Whites Beach		Section 2 Whites Beach – Jan Juc SLSC		Section 3 Taylor Park		Section 4 Jan Juc SLSC – Bells Beach (eastern end)	
Environmental Weeds							
<i>Acacia longifolia ssp. sophorae</i>	Coast Wattle	<i>Acacia longifolia ssp. sophorae</i>	Coast Wattle	<i>Acacia longifolia ssp. sophorae</i>	Coast Wattle	<i>Acacia longifolia ssp. sophorae</i>	Coast Wattle
<i>Acacia saligna</i>	Western Wreath Wattle	<i>Asparagus asparagoides</i>	Bridal Creeper	<i>Asparagus asparagoides</i>	Bridal Creeper	<i>Chrysanthemoides monilifera</i>	African Boneseed
<i>Chrysanthemoides monilifera</i>	African Boneseed	<i>Billardiera heterophylla</i>	Bluebell Creeper	<i>Billardiera heterophylla</i>	Bluebell Creeper	<i>Ehrharta erecta var. erecta</i>	Panic Veldt-grass
<i>Clematis vitalba</i>	Travellers Joy	<i>Chrysanthemoides monilifera</i>	African Boneseed	<i>Chrysanthemoides monilifera</i>	African Boneseed	<i>Eucalyptus leucoxydon ssp. megalocarpa</i>	Large-fruit Yellow-gum
<i>Leptospermum laevigatum</i>	Coast Tea- tree	<i>Coprosma repens</i>	Mirror Bush	<i>Coprosma repens</i>	Mirror Bush	<i>Gazania spp</i>	Gazania
<i>Lycium ferocissimum</i>	African Boxthorn	<i>Cortaderia selloana/C. jubata</i>	Pampas Grass	<i>Cotoneaster spp.</i>	Cotoneaster spp.	<i>Leptospermum laevigatum</i>	Coast Tea-tree
		<i>Cotoneaster glaucophyllus var. serotinus</i>	Large-leaf Cotoneaster	<i>Delairea odorata</i>	Cape Ivy	<i>Rhamnus alaternus</i>	Italian Buckthorn
		<i>Cotoneaster pannosus</i>	Velvet Cotoneaster	<i>Fraxinus angustifolia ssp. angustifolia</i>	Desert Ash		
		<i>Gazania spp.</i>	Gazania spp.	<i>Ixia spp.</i>	Ixia		
		<i>Genista linifolia</i>	Flax-leaf Broom	<i>Oxalis pes-caprae</i>	Soursob		
		<i>Leptospermum laevigatum</i>	Coast Tea- tree	<i>Oxalis purpurea</i>	Large-flower Wood-sorrel		
		<i>Lycium ferocissimum</i>	African Box-thorn	<i>Pinus radiata</i>	Radiata Pine		
		<i>Pittosporum undulatum</i>	Sweet Pittosporum	<i>Pittosporum undulatum</i>	Sweet Pittosporum		
		<i>Polygala myrtifolia</i>	Myrtle-leaf Milkwort	<i>Polygala myrtifolia</i>	Myrtle-leaf Milkwort		
		<i>Rhamnus alaternus</i>	Italian Buckthorn	<i>Sparaxis bulbifera</i>	Harlequin Flower		
				<i>Watsonia meriana var. bulbifera</i>	Bulbil Watsonia		



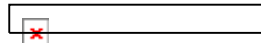
Management Area B

Section 1 East of Anglesea River		Section 2 Anglesea River to O'Donohue Parade	
Environmental Weeds			
<i>Acacia longifolia s.l.</i>	Coast/Sallow Wattle	<i>Acacia longifolia ss. sophorae</i>	Coast Wattle
<i>Asparagus asparagoides</i>	Bridal Creeper	<i>Acacia longifolia s.longifolia</i>	Coast/Sallow Wattle
<i>Coprosma repens</i>	Mirror Bush	<i>Asparagus asparagoides</i>	Bridal Creeper
<i>Cortaderia selloana/C. jubata</i>	Pampas Grass	<i>Billardiera heterophylla</i>	Bluebell Creeper
<i>Erica lusitanica</i>	Spanish Heath	<i>Chrysanthemoides monilifera</i>	African Boneseed
<i>Gladiolus undulatus</i>	Wild Gladiolus	<i>Coprosma repens</i>	Mirror Bush
<i>Hedera helix</i>	English Ivy	<i>Cortaderia selloana/C. jubata</i>	Pampas Grass
<i>Leptospermum laevigatum</i>	Coast Tea-tree	<i>Cotoneaster glaucophyllus var. serotinus</i>	Large-leaf Cotoneaster
<i>Pittosporum undulatum</i>	Sweet Pittosporum	<i>Delairea odorata</i>	Cape Ivy
<i>Rubus spp/</i>	Blackberry	<i>Dipogon lignosus</i>	Common Dipogon
<i>Sparaxis bulbilifera</i>	Harlequin Flower	<i>Erica lusitanica</i>	Spanish Heath
<i>Watsonia meriana var. bulbilifera</i>	Bulbil Watsonia	<i>Genista linifolia</i>	Flax-leaf Broom
		<i>Gladiolus undulatus</i>	Wild Gladiolus
		<i>Hakea drupacea</i>	Sweet Hakea
		<i>Hedera helix</i>	English Ivy
		<i>Leptospermum laevigatum</i>	Coast Tea-tree
		<i>Lotus creticus</i>	Dune Lotus
		<i>Lycium ferocissimum</i>	African Boxthorn
		<i>Melaleuca armillaris ssp. armillaris</i>	Giant Honey-myrtle
		<i>Melaleuca diosmifolia</i>	Green Honey-Myrtle
		<i>Melaleuca hypericifolia</i>	Hillock Bush
		<i>Pinus radiata</i>	Radiata Pine
		<i>Pittosporum undulatum</i>	Sweet Pittosporum
		<i>Polygala myrtifolia</i>	Myrtle-leaf Milkwort
		<i>Rhamnus alaternus</i>	Italian Buckthorn
		<i>Rubus spp</i>	Blackberry
		<i>Senecio angulatus</i>	Climbing Groundsel
		<i>Sparaxis bulbilifera</i>	Harlequin Flower
		<i>Watsonia meriana var. bulbilifera</i>	Bulbil Watsonia



Management Area C

Section 1 East of Split Point Lighthouse		Section 2 Split Point Lighthouse – Mogg’s Creek		Section 3 Mogg’s Creek – Eastern View	
Environmental Weeds					
<i>Acacia longifolia</i> ssp. <i>longifolia</i>	Sallow wattle	<i>Acacia longifolia</i> ssp. <i>sophorae</i>	Coast Wattle	<i>Acacia longifolia</i> ssp. <i>sophorae</i>	Coast Wattle
<i>Acacia longifolia</i> ssp. <i>sophorae</i>	Coast Wattle	<i>Cortaderia selloana</i> / <i>C. jubata</i>	Pampas Grass	<i>Asparagus asparagoides</i>	Bridal Creeper
<i>Asparagus asparagoides</i>	Bridal Creeper	<i>Eucalyptus leucoxylon</i> ssp. <i>megalocarpa</i>	Large-Fruit Yellow Gum	<i>Billardiera heterophylla</i>	Bluebell Creeper
<i>Billardiera heterophylla</i>	Bluebell Creeper	<i>Freesia alba</i> X <i>Freesia leichtlinii</i>	Freesia	<i>Chrysanthemoides monilifera</i>	African Boneseed
<i>Chrysanthemoides monilifera</i> ssp. <i>monilifera</i>	African Boneseed	<i>Gazania</i> spp.	<i>Gazania</i> spp.	<i>Coprosma repens</i>	Mirror Bush
<i>Eucalyptus leucoxylon</i> ssp. <i>megalocarpa</i>	Large-Fruit Yellow-gum	<i>Hakea drupacea</i>	Sweet Hakea	<i>Cortaderia selloana</i> / <i>C. jubata</i>	Pampas Grass
<i>Genista linifolia</i>	Flax-leaf Broom	<i>Leptospermum laevigatum</i>	Coast Tea-tree	<i>Dipogon lignosus</i>	Common Dipogon
<i>Hakea drupacea</i>	Sweet Hakea	<i>Lycium ferocissimum</i>	African Boxthorn	<i>Gazania</i> spp	<i>Gazania</i>
<i>Hakea laurina</i>	Pincushion Hakea	<i>Melaleuca armillaris</i> ssp. <i>armillaris</i>	Giant Honey-myrtle	<i>Hakea drupacea</i>	Sweet Hakea
<i>Leptospermum laevigatum</i>	Coast Tea-tree	<i>Pittosporum undulatum</i>	Sweet Pittosporum	<i>Hakea laurina</i>	Pincushion Hakea
<i>Lycium ferocissimum</i>	African Boxthorn	<i>Polygala myrtifolia</i>	Myrtle-leaf Milkwort	<i>Leptospermum laevigatum</i>	Coast Tea-tree
<i>Melaleuca armillaris</i> ssp. <i>armillaris</i>	Giant Honey-myrtle			<i>Lycium ferocissimum</i>	African Boxthorn
<i>Melaleuca diosmifolia</i>	Green Honey-myrtle			<i>Melaleuca armillaris</i> ssp. <i>armillaris</i>	Giant Honey-myrtle
<i>Melaleuca hypericifolia</i>	Hillock Bush			<i>Melaleuca diosmifolia</i>	Green Honey-myrtle
<i>Melaleuca nesophila</i>	Showy Honey-myrtle			<i>Melaleuca nesophila</i>	Showy Honey-myrtle
<i>Melaleuca parvistaminea</i>	Rough-barked Honey-myrtle			<i>Pittosporum undulatum</i>	Sweet Pittosporum
<i>Pittosporum undulatum</i>	Sweet Pittosporum			<i>Polygala myrtifolia</i>	Myrtle-leaf Milkwort
<i>Rubus</i> spp.	Blackberry			<i>Senecio angulatus</i>	Climbing Groundsel
<i>Viola odorata</i> (white flowers)	Common Violet (white flowers)			<i>Vinca major</i>	Blue Periwinkle



Management Area D

Section 1 Stony Creek – Erskine River		Section 2 Erskine River – St George River		Section 3 Queens Park		Section 4 Cumberland River	
Environmental Weeds							
<i>Acacia longifolia</i> ssp. <i>longifolia</i>	Sallow Wattle	<i>Acacia longifolia</i> ssp. <i>sophorae</i>	Coast Wattle	<i>Acacia floribunda</i>	White Sallow-wattle	<i>Acacia floribunda</i>	White Sallow Wattle
<i>Acacia longifolia</i> ssp. <i>sophorae</i>	Coast Wattle	<i>Allium triquetrum</i>	Three-corner Garlic	<i>Agapanthus praecox</i> ssp. <i>orientalis</i>	Agapanthus	<i>Acacia longifolia</i> ssp. <i>longifolia</i>	Sallow Wattle
<i>Acacia longifolia</i> ssp. <i>Sophorae</i> x <i>Acacia longifolia</i> ssp. <i>longifolia</i> hybrid	Coast/Sallow Wattle hybrid	<i>Asparagus asparagoides</i>	Bridal Creeper	<i>Chrysanthemoides monilifera</i>	African Boneseed	<i>Acacia longifolia</i> ssp. <i>sophorae</i>	Coast Wattle
<i>Agapanthus praecox</i> ssp. <i>orientalis</i>	Agapanthus	<i>Chrysanthemoides monilifera</i>	African Boneseed	<i>Coprosma repens</i>	Mirror Bush	<i>Acacia longifolia</i> ssp. <i>Sophorae</i> x <i>Acacia longifolia</i> ssp. <i>longifolia</i> hybrid	Coast/Sallow Wattle hybrid
<i>Allium triquetrum</i>	Three-corner Garlic	<i>Coprosma repens</i>	Mirror Bush	<i>Cotoneaster</i> spp.	Cotoneaster spp.	<i>Allium triquetrum</i>	Three-corner Garlic
<i>Aponogeton distachyos</i>	Cape Pond-lily	<i>Cortaderia selloana</i> /C. <i>jubata</i>	Pampas Grass	<i>Erica lusitancica</i>	Spanish Heath	<i>Banksia integrifolia</i> ssp. <i>integrifolia</i>	Coast Banksia
<i>Billardiera heterophylla</i>	Bluebell Creeper	<i>Cotoneaster</i> spp.	Conotneasterspp.	<i>Genista monspessulana</i>	Montpelier Broom	<i>Chrysanthemoides monilifera</i>	African Bonesesd
<i>Centranthus ruber</i> spp. <i>ruber</i>	Red Valerian	<i>Delairea odorata</i>	Cape Ivy	<i>Pandorea pandorana</i>	Wonga Vine	<i>Coprosma repens</i>	Mirror Bush
<i>Chrysanthemoides monilifera</i> ssp. <i>monilifera</i>	African Boneseed	<i>Erica lusitancica</i>	Spanish Heath	<i>Pittosporum undulatum</i>	Sweet Pittosporum	<i>Cotoneaster</i> spp.	Cotoneaster spp.
<i>Coprosma repens</i>	Mirror Bush	<i>Gazania</i> spp.	Gazania spp.	<i>Podalyria sericea</i>	Silky Podalyria	<i>Cupressus macrocarpa</i>	Monterey Cypress
<i>Cotoneaster</i> spp.	Cotoneaster spp.	<i>Genista monspessulana</i>	Montpelier Broom	<i>Polygala myrtifolia</i>	Myrtle-leaf Milkwort	<i>Cytisus scoparius</i>	English Broom
<i>Cratageous monogyna</i>	Hawthorn	<i>Gladiolus undulatus</i>	Wild Gladiolus	<i>Rubus</i> spp.	Blackberry	<i>Gazania</i> spp.	Gazania spp.
<i>Crocosmia</i> x <i>crocosmiiflora</i>	Montbretia	<i>Hakea drupacea</i>	Sweet Hakea	<i>Watsonia meriana</i> var. <i>bulbillifera</i>	Bulbil watsonia	<i>Genista monspessulana</i>	Montpelier Brrom
<i>Delairea odorata</i>	Cape Ivy	<i>Hedera helix</i>	English Ivy			<i>Hakea drupacea</i>	Sweet Hakea
<i>Erica arborea</i>	Tree Heath	<i>Leptospermum laevigatum</i>	Coast Tea-tree			<i>Hakea laurina</i>	Pincushion Hakea
<i>Erica lusitancica</i>	Spanish Heath	<i>Lonicera japonica</i>	Japanese Honeysuckle			<i>Hakea salicifolia</i> ssp. <i>salicifolia</i>	Willow-leaf Hakea
<i>Fraxinus angustifolia</i> ssp. <i>angustifolia</i>	Desert Ash	<i>Melaleuca armillaris</i> ssp. <i>armillaris</i>	Giant Honey-myrtle			<i>Hedera helix</i>	English Ivy
<i>Gazania</i> spp.	Gazania spp.	<i>Melaleuca hypericifolia</i>	Hillock Bush			<i>Ilex aquifolium</i>	English Holly
<i>Genista linifolia</i>	Flax-leaf Broom	<i>Melaleuca nesophila</i>	Showy Honey-myrtle			<i>Iris foetidissima</i>	Stinking Iris
<i>Genista monspessulana</i>	Montpelier Broom	<i>Pinus radiata</i>	Radiata Pine			<i>Leptospermum laevigatum</i>	Coast Tea-tree
<i>Hakea drupacea</i>	Sweet Hakea	<i>Pittosporum undulatum</i>	Sweet Pittosporum			<i>Lycium ferocissimum</i>	African Boxthorn
<i>Hedera helix</i>	English Ivy	<i>Rubus</i> spp	Blackberry			<i>Melaleuca armillaris</i> ssp. <i>armillaris</i>	Giant Honey-myrtle
<i>Kniphofia uvaria</i>	Red-hot Poker	<i>Vinca major</i>	Blue Periwinkle			<i>Mentha pulegium</i>	Pennyroyal
<i>Leptospermum laevigatum</i>	Coast Tea-tree	<i>Watsonia meriana</i> var. <i>bulbillifera</i>	Bulbil Watsonia			<i>Oxalis incarnata</i>	Pale Wood-sorrel
<i>Leucanthemum x superbum</i>	Shasta Daisy	<i>Zantedeschia aethiopica</i>	White Arum-lily			<i>Pinus radiata</i>	Radiata Pine
<i>Lonicera japonica</i>	Japanese Honeysuckle					<i>Pittosporum tenuifolium</i>	Kohuhu
<i>Melaleuca armillaris</i> ssp. <i>armillaris</i>	Giant Honey-myrtle					<i>Pittosporum undulatum</i>	Sweet Pittosporum
<i>Melaleuca diosmifolia</i>	Green Honey-myrtle					<i>Polygala myrtifolia</i>	Myrtle Leaf-milkwort
<i>Melaleuca hypericifolia</i>	Hillock Bush					<i>Rubus</i> spp.	Blackberry
<i>Melaleuca nesophila</i>	Showy Honey-myrtle					<i>Viola odorata</i>	Common Violet
<i>Oxalis incarnata</i>	Pale Wood-sorrel					<i>Watsonia meriana</i> var. <i>bulbillifera</i>	Bulbil Watsonia
<i>Oxalis pes-caprae</i>	Soursob					<i>Zantedeschia aethiopica</i>	White Arum-lily
<i>Pinus radiata</i>	Radiata Pine						
<i>Pittosporum undulatum</i>	Sweet Pittosporum						
<i>Prunus cerasifera</i>	Cherry Plum						
<i>Rubus</i> spp.	Blackberry						
<i>Salix cinerea</i>	Grey Sallow						
<i>Watsonia meriana</i> var. <i>bulbillifera</i>	Bulbil Watsonia						
<i>Zantedeschia aethiopica</i>	White Arum-lily						
<i>Acacia longifolia</i> ssp. <i>longifolia</i>	Sallow Wattle						

Appendix 7: Summary of Community Consultation

Kate Lockhart Notes (Incorporating Mark. Trengove notes)

Please note these notes are translations of short hand notes and there are numerous plant species names that are abbreviated and possibly misspelt or inaccurate.

Airey's Inlet (Fairhaven)

Land Management Area C2 & C3 Airey's Inlet to Eastern View

13- August 2008 9:00am ANGAIR office

ANGAIR – Margaret MacDonald and Evelyn Jones

Friends of Mogg's Creek – Margaret MacDonald

Friends of Fairhaven Foreshore – Gary Donaldson

Coast Tea Tree managing it for 20 years.

1983 Bush fires introduced boneseed and then came the Coast tea tree (through brush matting used to reduce erosion).

Good habitat for Rufus Bristlebird and Swamp Antechinus

Good Revegetation – Moonah is looking good

Gary Donaldson – Friends of the Fairhaven foreshore developed Weed plan for area between Split point and Grassy Creek. Good plan, great detail and record of works with space to update annually.

Mogg's creek – Sprout Rd.

1998 funding for Tea tree removal – returning to healthy heathland hillside.

Very healthy dune – Moonah Woodland "rare protected community" (although no longer a EVC, just a part of the Coastal Dune Mosaic).

Weeds include Coast Tea-tree and also pelargonium.

Section C3

Robert Adair wrote a good report on the area.

Boneseed on inland side of road

Coast wattle (*Acacia sophorae* /x *longifolia*) keep off coastal side of road.

True Acacia sop – has four veins (slightly curve boat end leaf tip and spiralling seed pod)

Sea spurge *Euphorbia paralias* and *Eup. terracina*

Mary White did a lot of work over a long period of time. (before 1996)

David Cameron has seen Sea Spurge for 15 years

Sea rocket is another weed which is common (but harmless) (fauna management)??

Kikuyu around Mogg's Creek inlet, very bad – hotspot for numerous weeds.

??Periwinkle patch @ Eastern View

Climbing Groundsel (*Senecio angulatus*)

Bluebell (creeper) at Airey's – Garry Donaldson is the best person to speak to.

Cape wattle (*Paraserianthes lophantha*) upstream/inland of Mogg's Creek – some works have been done in the past up the creek.

Dolichos pea.

Swainson pea Hillside west of Mogg's Creek:

Marram Grass (varies), Spinifex doing well.

Cliffs and beaches eroding from ebbs and flows.

Mogg's Creek – upstream- Land ownership confused and complicated.
Management only done on sea side of road.

Boneseed – leaf buckle mite, ready for release.

Extract from letter to CCMA April 2007.....

The Friends of Fairhaven Foreshore have been active for 30 years in the area between Grassy Creek and the mouth of the Painkalac Creek. They cite the following weeds as the most serious and persistent:

- Bluebell Creeper (*Billardiera fusiformis*)
- Mirror Bush (*Coprosma repens*)
- Sea Spurge (*Euphorbia paralias*)
- Coast Tea-tree (*Leptospermum laevigatum*)
- Myrtle-leaf Milkwort (*Polygala myrtifolia*)
- Sallow/Coast Wattle (*Acacia longifolia* var. *longifolia* & *hybrids*)
- Dolichos Pea (*Dipogon lignosus*)
- Cape Wattle (*Paraserianthes lophantha*)

Lorne

Land Management Area D1, D2, D3, D4 Lorne
13th August 2008 10:30 am ANGAIR office

Friends of Queens Park – John Wilson
LorneCare – Michael Callanan

Pittosporum:

- Up Cherry Tree Creek
- Out of Queens Park
- Quite tall
- Both sides of ridge: DSE, Parks Victoria and Barwon Water all working on area
- Need mechanical removal of mature reproductive trees
- May have originated out of Charles St and Caravan Park.

Broom Montpellier

- Nuisance, difficult to eradicate. Currently spraying

Boneseed:

- Mouth of St George, private land, good managers
 - Eastern Beach managing Bone seed
 - MC suggests Possible control method (MC): handpull outliers, then burn more dense infestation
- Down from look-out – very steep abseiling (MC)

Pitt. undulatum/bi-colour

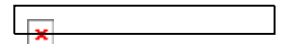
Sea Spurge – St George R and Eastern Beach

Bay of Lorne – good progress (LorneCare)

Spanish Heath (Erica): - Cut and paste – working on for 5 years? Now just odd plants

- New track tramway → spot spray 5yrs odd plants
- Enjoys slashing and open space

Grasses – Poa and Kangaroo reveg is good



Watsonia – spray with Round Up (tongs and sponge in June)

Garden weeds:

- Cape Ivy
- Agapanthus
- Pampas grass on slaughterhouse side
- Periwinkle (blue)

Dumping of garden weeds – GORCC needs signage, locally relevant, maps/posters (fade)

Bridal Creeper

Dolichos pea on creek line

Pier to Town:

Kikuyu:

- previously removed, needs follow up
- Under blue gum; re-planting, work together with adjoining house owners
- Coast Tea Tree?? Debate: long-term policy for gradual removal and replacement

Acacia longifolia

North Lorne Carpark:

Isopogon could grow and replace- Lept lae

Erskine River:

- Cypress
- Tea Tree

Unhealthy – need to consider management eg buffer zone.

Defined zone/edge. Walking track, defined boundary.

Up river:

Quarry – source of “unspecified weeds”, interface with town. Some work with Parks Victoria.

Pampas, blackberries not a threat.

Stony Creek (Lorne Area):

Blackberries

- contractors
- cut and paint
- good progress

Boneseed

- Coming in off private land

Pampas Grass

- (planted in ?) New estate not good
- East of Stony ck Council slashing During flower- spreading it

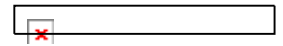
Acacia longifolia – along foreshore back towards Erskine River

Sea Spurge (tap root) – best to weed after rain

Indigenous Allocasuarina – on coast, killed by new homeowner!!

Beyond rapids – first bridge (GORCC) -No need to assess

- Take wallaby track to view Weeds



Airey's Inlet

Land Management Area C1

17th September 2008 3:00 pm ANGAIR office

Friends of Aireys Inlet Coastal Reserves – Dennis Leaversley, Garry Johnson

Weeds contractor managing Spanish heath

Tea Tree – Coast } 14/15 near Alice Road – to clean up

Coastal Wattle A. sophorae longif }

Polygala,

Flax leaf Broom

Volunteers weed inland of path – coast side source of infestation (too dangerous to control?)

- Garden escapees
- Up to 22 people volunteering

Roadknight Road

- Marram grass
- Spanish heath

Sandy Gully - kikuyu – watsonia

On (cliff?) top of Hakea laurina

Operate from cliff → towards road

Boundary Road (DSE neighbour) – Sunnymede

Bridal creeper and other bulbs

Anglesea

Land Management Area B

17th September 2008 3:00 pm ANGAIR office

Anglesea Coast Action – Neil Tucker

O. Donohue Rd DSE land – slashed as firebreak (spreading weeds?)

Watsonia

Cape Wattle

Coast Wattle

Boneseed (DSE)

Blackberry

M. am

Lotus cretinous – very close to P. Roadknight @ around head

Tea Tree

Polygala – weeding (Bill McKellar weeding 20 years)

Banksia integrifolia

Buckthorn

Tuarts

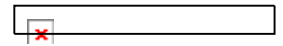
Cypress seedlings

Motor yacht to

Very weed section – Soapy Rocks – Melba Parade

Near SLC

Coast patch of Bridal Creeper, 1st avenue. Eng Ivy,.



Boneseed and Coast TT
Pine Trees – radiata
Gazanias

SLC – Anglesea River
Some Good quality Native Vegetation

Bridal Creeper
Dolichos and @ Mogg's Creek
Boxthorn
Coprosma
Mel. diosmifolia
Mel. amillaris

Weeds near street clearing
Boneseed
Watsonia

??Angled Onion @ Bird Juc
Sporacus ?(Sparaxis bulbiera) Harlequin Flower
Bluebell creeper

Torquay
Land Management Area A1, A2, A3, A4 Point Impossible to Bones Rd
17th September 2008 4:30 pm GORCC office

Jan Juc Coast Action – Ian Edwards, Roma Edwards
Torquay Coast Action – Glenda Shomally
Surfers Appreciating the Natural Environment – Graeme Stockton

Coast Tea Tree Hybrid with prickly tea tree (Lept continentale) – Heath Tea tree (Lept myrsinoides)

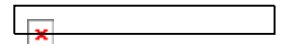
Bones Rd- Cantala Rd
Garden Escapees- Hakea, Acacia sal, Mel amillaris
Acacia sophorae, Lept. laevigatum
Aca. longifolia

Bridal Creeper
Serrated Tussock

Track – boneseed, panic veldt grass – dog poo
cocksfoots, phalaris – trackside spray

E. Bell
Pomaderris macarocelphatis
Tall moonahs – camp sites
Woodland / Heathland as soil varies
Coastal Scrubland

Cantala Rd– Bird Rock



Second tier cliff
Crassula, polygala, Aloe
Genista
Multicarpa robusta
Boxthorn
Boneseed
Gazanias
Buckthorn
Acacia Boneseed
Mirror bush
Mel. amirllaris

Leucopogon, Acacia

Ian and Roma have weeded Grassland in the past 30/40 years – orchid diuris

Rebecca Thompson- DSE
Ken Forrester

 Microrhizal fungi – reduce spray zone

Bird Rock –JJ creek

Grassland triangle

Weeds:

Gazania

Onion Grass

Agapanthus

Cocksfoot

Yorkshire fog grass

Rat Tail fescue

Masi oxides posi

Geoff Carr

Volunteer time and maintenance

Critical timing of post spring rain spraying of weeds

Moonah headland scrub on cliff top

Pomaderris scrub

JJC – swampy to Spring Creek

– Genista linifolia and polygala

Orchid – k stylus

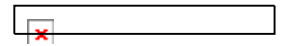
Olearia b

O.lepophila

Sea Spurge – getting under control

Coast Wattle – tolerated

Coast Tea Tree – tolerated (overwhelmed)



Some Moonah woodlands

Golf club

Boneseed, Dolichos pea, creek, golf course, Olexia
Bucksthorn, Cape Ivy

Need to improve Connectivity for mammals – in caravan park

Boatshed/ramp

Sea Spurge – constant monitoring

Deep Creek mouth – buckthorn, remaining tea tree- remove

Carax pumila present

Hairy Spinifex – Boat shed Deep Creek

Point Danger – Cypress

Moonah

- A. sophorae → coming back in after drought
- A. pync

Echium

Marram grass – died in drought

Leucopogons and Olearias

Acacia (Cyclops) – removed

- A. rostilifa

Kikuyu

Boneseed patches – better than (it was in the past. Many removed)

Point impossible

Euphorbia terracina (spurge) ((false capers) – (Came in with Golf club earth works (Sands Golf club have been good in working with GORCC to remove it)

Mustard – giant, chaff sword sedge

Thistle

Annul beard grass, polypogon

Bridal Creeper 57W

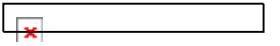
Moonah

Aca. Unc

Carparks

Austro stipa – expand range and manage

Marram grass



Knowledge Creativity Performance
Engineering Surveying Planning Urban Design Landscape Architecture
Sustainability and Environment Agribusiness Project Management Strategic Consulting

Appendix 8: Potential Climate Change Impacts and Implications for Coastal Areas (VCS 2008)

Sea level rise

Coastal erosion

- Loss of beaches
- Loss of Crown land
- Migration of sand dunes
- Infrastructure threat or damage
- Adverse impact on lifestyle or amenity values
- Loss of habitat and biodiversity loss
- Declining tourism values (especially iconic beaches)
- Rising water tables close to the coast
- Loss of, or threat to private property
- Insurance issues

Frequent storm events

More intense storm events

Decreased rainfall

Flooding and inundation

- Damage to infrastructure (energy, water, roads, buildings, telecommunications, coastal ports, jetties, seawalls and access)
- Damage to marine and shoreline ecosystems from storm water and agricultural runoff
- Water shortages (during drought) and contamination (storm events, inundation, flooding, ground water salination or contamination)
- Agricultural industry impacts – sudden weather events and long-term events (e.g. drought)
- Tourism impacts (damage to tourism infrastructure, visitor perception of risk)
- Recreation impacts
- Public safety and evacuation capacity
- Capacity of emergency services – volunteers, infrastructure (hospitals, shelters, supplies)

Warming sea temperatures

Ocean acidification

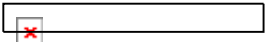
- Threats to marine biodiversity (mangroves, saltmarshes, sea grass)
- Damage to estuaries – biodiversity, tourism and economic values
- Threat to fisheries and recreational fishing
- Threats to port functions
- Damage to reefs

Increased temperatures

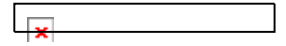
Increased humidity

- Increased bushfire frequency and intensity
- Public health, especially aged community
- Disease vectors (insects)
- Food spoilage
- Capacity of health services
- Economic impacts of disease
- Rural industry readjustments
- Peak energy demand increases

Source: Adapted from Planning for climate change, National Sea Change Taskforce, 2008 – www.seachangetaskforce.org.au

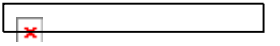


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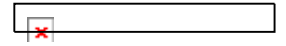


Appendix 9: Ecological Vegetation Class Benchmarks

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Engineering Surveying Planning Urban Design Landscape Architecture
Sustainability and Environment Agribusiness Project Management Strategic Consulting

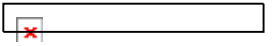


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Appendix 10: Ecological Vegetation Class Maps

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