

Native Vegetation and Weed Action Plan 2015-2020

GREAT OCEAN ROAD COAST COMMITTEE



April 2015



BeaconEcological

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However the author takes no responsibility for any loss, injury or financial damage resulting from the reliance and/or application of management advice provided in the report.

FOREWORD

The land and its natural and cultural resources referred to in this document have long been cared for by its original Indigenous custodians the Wada wurrung and Gadubanud communities. The Great Ocean Road Coast Committee (GORCC) acknowledges this relationship and pays respect to the past and present Indigenous people for their ongoing nurturing of this land.

The GORCC initial Native Vegetation and Weed Action Plan was developed in 2009 as a strategic environmental management plan to specifically address weed invasion on the GORCC managed coast. Our conservation team has implemented the Plan over the past 5 years to rehabilitate, maintain and improve native vegetation through targeted weed removal works.

Beacon Ecological conducted a review of the Plan on our behalf to ensure effective weed control continues to be implemented. The review was also important to evaluate the effectiveness of the original Plan, reassess priorities, and determine which elements remain relevant for future implementation.

The review has shown that our conservation team has had significant success in reducing the spread of weeds on the GORCC managed coast. It has also highlighted the strong relationships developed between GORCC staff and coastal volunteer groups through the Plan's work. These relationships are highly valued by our staff and committee members, and will be further built on through continued implementation of the revised Plan. The revised Plan ensures that identified works complement those carried out by volunteers to achieve the best environmental outcomes possible.

Richard Davies
Chief Executive Officer
Great Ocean Road Coast Committee



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SUMMARY

The Great Ocean Road Coast Committee (GORCC) Native Vegetation and Weed Action Plan 2015 – 2020 guides on-ground management to protect and enhance ecological values within GORCC managed land over the next five years. This plan updates and builds on the previous GORCC 2009 Native Vegetation and Weed Action Plan.

Methodology

Great Ocean Road Coast Committee managed land was traversed to review 2009 weed mapping, re-map weed infestations, assess the condition of ecological values, and identify challenges or threats to ecological values.

Local community environmental groups that work within Great Ocean Road Coast Committee managed land were consulted to determine the effectiveness of the 2009 plan, discuss mapping results and contribute to management objectives. Other relevant stakeholders were consulted to investigate cross tenure approaches to managing ecological values.

Results

Consultation revealed that local community environmental groups have a good working relationship with GORCC and feel the NVWAP plan is an important and integral document.

GORCC is responsible for four *management areas*: Torquay, Anglesea, Aireys Inlet and Lorne. These areas were split into 41 *management zones* to identify and set objectives at a suitable scale. Management zones have been prioritised using ecological values and community group input to allow for accurate allocation of resources.

Key Recommendations

Recommendations for general ecological issues are provided in this document and include the following issues:

- Marram Grass, Sea Wheat Grass
- Sea Spurge
- Climate Change
- Changes in Community Structure
- Fauna Surveys
- Fire
- Detailed recommendations for each of the 41 management zones are provided in a separate technical document for ease of use.
- Domestic Dogs
- Domestic and Feral cats
- Litter
- Illegal Rubbish Dumping
- Garden Escapees

Monitoring and Evaluation

- This plan is to be reviewed in 2020 to ensure objectives are completed and new objectives set.

- Management Zone prioritisation is to be reviewed in 2020 to ensure that resources are allocated effectively.
- Works plans are to be reviewed annually to ensure that estimated resources are sufficient to achieve objectives.
- Transect and photopoint monitoring were developed in several locations as part of the 2014 surveys. Follow up monitoring should be undertaken bi-annually to capture change in vegetation communities.



1 INTRODUCTION

The Great Ocean Road Coast Committee (GORCC) manages 37 kilometres of coastline between Torquay and Lorne. This area supports significant native vegetation with high social, biodiversity and economic value. GORCC has committed to protecting these values in the *Great Ocean Road Coast Committee Coastal Management Plan* (GORCC 2013).

The GORCC Native Vegetation and Weed Action Plan 2015 – 2020 guides on-ground management to protect and enhance ecological values over the next five years. This plan reviews and builds on the first GORCC Native Vegetation and Weed Action Plan prepared in 2009 (Coomes 2009).

1.1 VISION

The vision of the plan is to:

Protect and enhance ecological values within GORCC managed land through effective resource management, particularly relating to weeds.

This sits within the GORCC Coastal Management Plan vision:

'Protect and enhance the breathtaking and iconic coastline with its diverse community, natural environment and rich social and cultural history as custodians for current and future generations' (GORCC 2013).

1.2 GREAT OCEAN ROAD COAST COMMITTEE

GORCC is a Crown Land Committee of Management established under the *Crown Land (Reserves) Act, 1978*. Land managed by GORCC comprises four linear foreshore management areas, within the townships of Torquay, Anglesea, Aireys Inlet and Lorne (see Figure 1). These management areas cover approximately 450 hectares and support significant landscapes such as sandy beaches, dune systems, cliffs, heathlands, shore platforms and estuaries. GORCC also manages the Torquay Foreshore Caravan Park, Lorne Foreshore Caravan Park, and leases the Anglesea Beachfront Caravan Park and Cumberland River Holiday Park to third parties.

GORCC managed land plays a critical role in providing opportunities for recreational and social activities containing many highly valued community buildings and facilities, such as boat ramps, sailing clubs, fishing clubs and five Surf Life Saving Clubs (GORCC 2013).

Roles and Responsibilities

GORCC manages Crown Land reserves and the values within these reserves on behalf of the State Government, for the use and enjoyment of the community, including future generations. In fulfilling this role, GORCC has a variety of responsibilities through the *Crown Land (Reserves) Act 1978*. GORCC must:

- Manage, improve, maintain and control the land for the purposes for which it is reserved.
- Report on finances and other issues as directed by State Government.

- Maintain records and administer affairs as a public body.
- Exercise all such powers, functions and authorities and carry out all such duties as are conferred or imposed on by any regulations.
- Carry out works and improvements on the land.

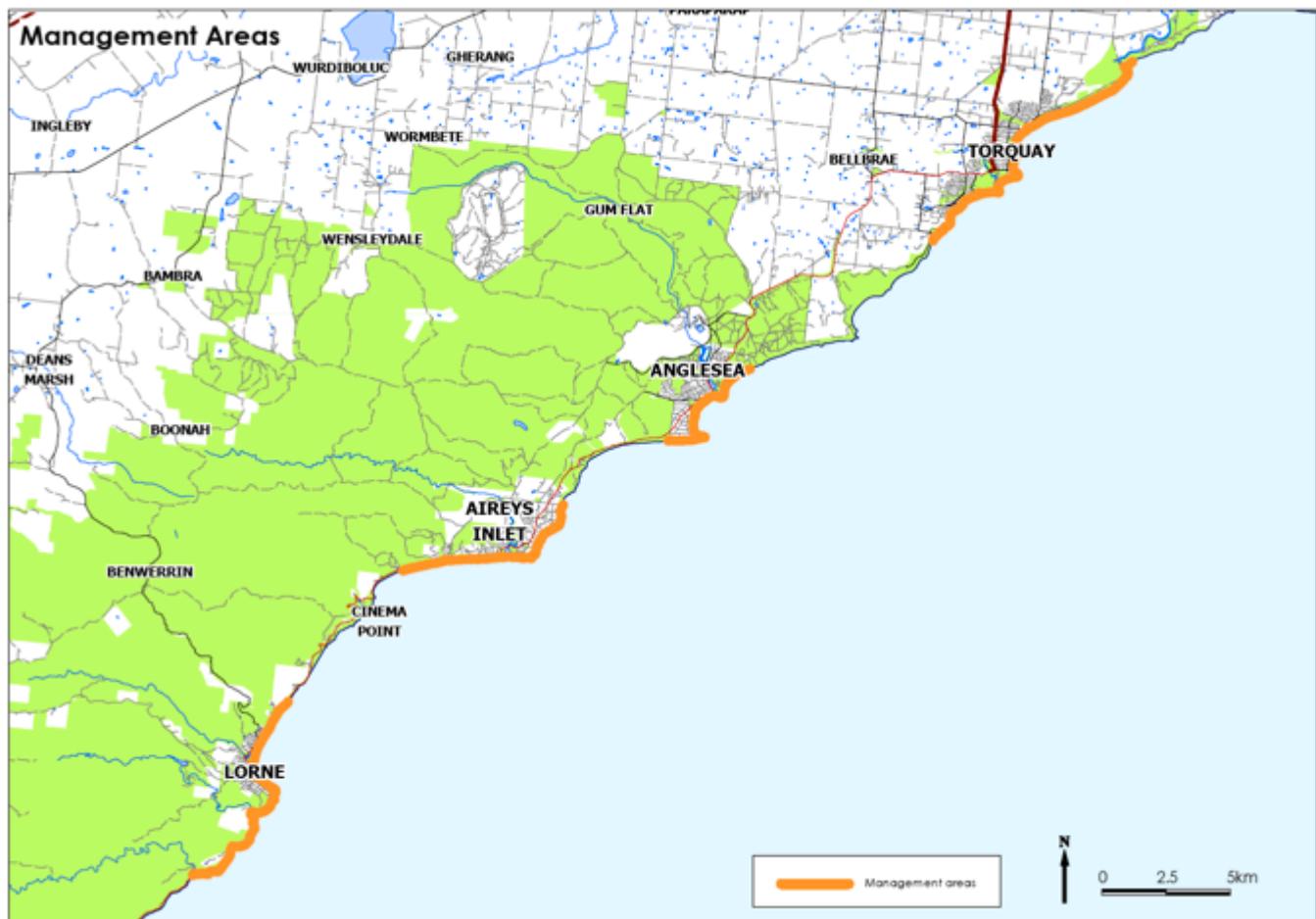


Figure 1. GORCC management Areas

2 PLAN CONTEXT AND GUIDING PRINCIPLES

Weeds are plants that occur beyond their natural range and have the potential to cause significant adverse economic, environmental and social impacts.

For the purposes of this plan, the definition of a weed is taken from the *National Weed Strategy* (NRMMC 2007):

A weed is considered as a plant that requires some form of action to reduce its harmful effects on the economy, the environment, human health and/or amenity.

2.1 PLAN CONTEXT

This plan applies to GORCC managed land, and is in accordance with relevant federal and state legislation and policy (Table 1).

Table 1. Relevant legislation and policy applicable to the GORCC Native Vegetation and Weed Action Plan Review 2015 - 2020

Level	Legislation	Strategies, plans and policies
Federal: Australian Government	• Environment Protection and Biodiversity Conservation Act 1999	<ul style="list-style-type: none"> • Australia's Biodiversity Strategy 2010 - 2030 • The Australian Weeds Strategy 2007 • The Australian Pest Animal Strategy 2007 • Weeds of National Significance National Alert List for Environmental Weeds
State: Victorian Government	<ul style="list-style-type: none"> • Catchment and Land Protection Act 1994 • Flora and Fauna Guarantee Act 1988 • Planning and Environment Act 1987 • Local Government Act 1989 • Environment Protection Act 1970 • Coastal Management Act 1995 	<ul style="list-style-type: none"> • Environmental Partnerships 2012 • Biosecurity Strategy for Victoria 2009 • Victorian Pest Management: A Framework for Action 2002 • Victorian Pest Management: Weed Management Strategy 2002 • Permitted clearing of native vegetation. Biodiversity assessment guidelines • Victorian Coastal Strategy 2014
Regional: Corangamite Catchment Management Authority		<ul style="list-style-type: none"> • Corangamite Catchment Regional Catchment Strategy 2013 - 2020 • Corangamite Invasive Plant and Animal Strategy 2010
GORCC: Great Ocean Road Coast Committee		<p>GORCC Coastal Management Plan 2013 GORCC Environment and Land Management Plan 2006 GORCC Native Vegetation And Weed Action Plan Review 2015 – 2020 Individual GORCC management plans</p>

Notes: Legislation refers to laws, which serve to legally prohibit certain actions and ensure others are carried out. Strategies are plans of action, which acts as a guide towards making sure legislation is complied with.

2.2 MANAGEMENT PRINCIPLES

The following management principle were developed and adapted from the relevant strategies, plans and polices detailed in Table 1. These principles guide the management actions developed in this plan, particularly with regard to prioritisation of weed control at a management zone scale.

1. Biosecurity Approach

Australia's federal and Victoria's state government have adopted a biosecurity approach to pest plant and animal management. Informed by the pest invasion curve (Figure 2), this approach adopts a risk-based strategy to intervention featuring four key responses: prevention, eradication, containment and asset protection.

Invasion curve – Understanding the costs and benefits of intervention

The figure below, which shows the return on investment for different phases of weed control activity, highlights that the greatest return on investment is achieved through investing in prevention and early intervention, compared to investing in weed management once weeds are

widespread and established. This principle can be applied to most biosecurity issues and provides an indication of where the highest return on government investment is achieved.

Generalised Invasion Curve Showing Actions Appropriate To Each Stage

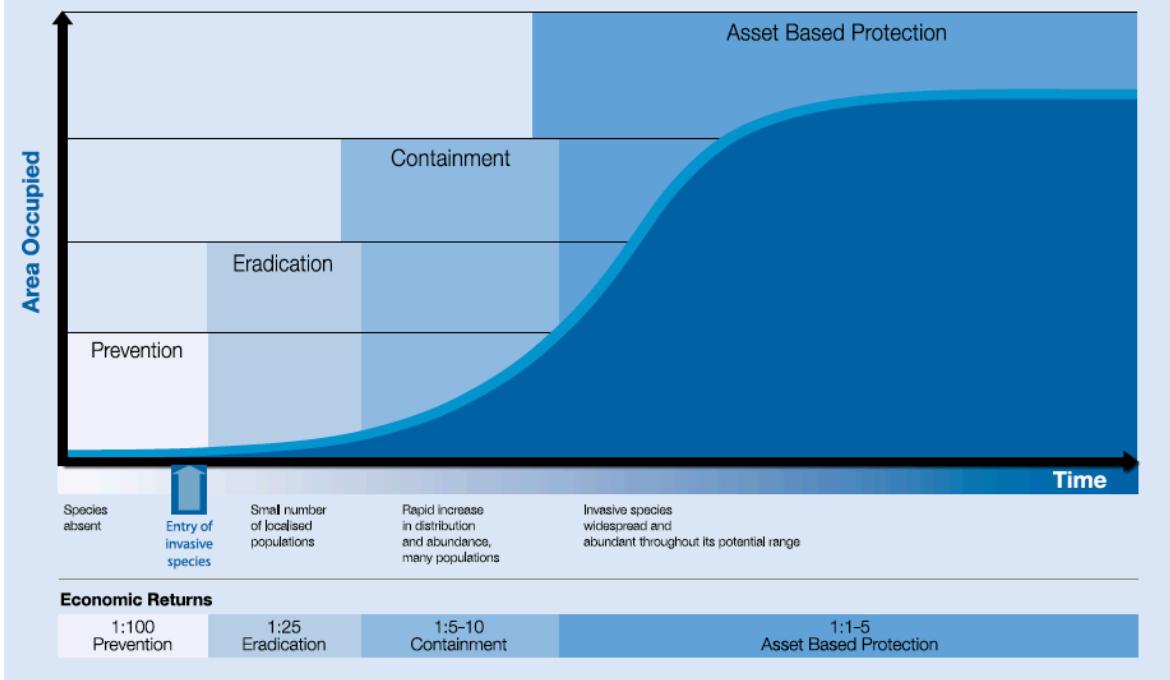


Figure 2. Invasion curve (DPI 2009)

Using this approach, higher priority is directed to prevention of any new pest species, then new and emerging species and small infestations before moving onto more established and widespread species. Once a pest becomes so widespread that their containment is no longer possible, the management approach focuses on protecting strategically identified assets. Assets may have an environmental, economic and /or social value to the region. The biosecurity approach can be applied at local to regional scales.



2. Transparent Strategic Approach: Transparent, scientific, evidence-based decision-making tools for setting priorities must be employed to ensure the most efficient use of resources. Management actions will be directed by adequate levels of information to make informed decisions. When necessary, additional data collection may be required. In this case a prioritization matrix was developed to prioritise management zones using desktop analysis and field work data (Section 3.4).

3. Cross Tenure Landscape Approach: The ability to foster effective partnerships and implement projects across all land tenures results in efficient use of resources, successful outcomes, and increases success. GORCC should integrate works with adjacent land managers such as the Surf Coast Shire, Parks Victoria and the Department of Environment, Water, Land and Planning.

4. Integrated Land Management: Integrate pest plant and animal management actions into other broader management activities where possible such as fuel load management, recreation, amenity and capital works.

5. Address Cause: Effective solutions must address the cause of pest invasion, not just the symptoms. This may require developing an understanding of local pest pathways and dispersal mechanisms. In the case of many GORCC weed infestations this may mean implementing community awareness programs to prevent garden escapees entering GORCC managed land.

6. Ongoing Commitment: Pest plant and animal control programs are generally only effective if sustained resources are available over a prolonged period. When investing in programs and control activities it is essential to ensure as best possible that ongoing resources will be available for follow up work.

7. Community Engagement: Active involvement by the community is one of the greatest resources available in managing pest plants and animals across landscapes. GORCC has a great working relationship with the community environmental volunteer groups active within GORCC managed land. Weed control programs should increase community awareness and capacity of community groups where possible.

8. Monitoring and Review: An outcomes-based approach to monitoring, evaluation and reporting should be adopted. Monitoring and review are to be undertaken regularly and assessed against pre determined measurable objectives (Section 9).

3 METHODOLOGY

3.1 LITERATURE REVIEW

The following documents and databases were reviewed as part of the investigation:

- GORCC Native Vegetation and Weed Action Plan (Coomes 2009).
- GORCC Coastal Management Plan 2013 (GORCC 2013).
- GORCC Environment and Land Management Plan (Ecology Australia 2006).
- Vegetation Quality Assessment. Point Impossible to Lorne, Surf Coast, Victoria (Beacon Ecological 2013).
- Soapy Rocks, Anglesea, Victoria. Environmental Management Plan (Beacon Ecological 2013).
- Coastal Moonah Management Plans for Whites Beach, Jan Juc Clifftops, Point Roadknight and Aireys Inlet. (Surf Coast and Inland Plains Network and Beacon Ecological 2013).
- Queens Park, Lorne. Weed Management Plan (Beacon Ecological 2012).
- Biodiversity Interactive Mapping Tool for native vegetation modelling and previous rare or threatened flora and fauna records within the local area (DEPI 2014).

3.2 FIELD ASSESSMENT

Native vegetation and weeds within GORCC managed land were assessed on foot, and mapped between 3 November 2014 and 5 January 2015. A GIS mapping layer of transects traversed during the mapping is available from GORCC.

Native Vegetation Assessment

A rapid condition assessment of native vegetation was undertaken using criteria based on Keighery (1994). This is a six-point scale with vegetation ranked from near pristine to completely degraded (Table 2).

Table 2. Summary of vegetation condition scale adapted from Keighery (1994).

Condition Scale	Description
Near Pristine (6)	Pristine or nearly so, no obvious signs of disturbance.
Excellent (5)	Vegetation structure intact, disturbance affecting individual species and weeds are isolated infestations, relatively easy to control.
Very Good (4)	Vegetation structure altered, obvious signs of disturbance. Weed cover is up to 25% but capable of being controlled.
Good (3)	Vegetation structure significantly altered, obvious signs of multiple disturbance. Generally greater than 25% weed cover and difficult to control.
Degraded (2)	Basic vegetation structure severely impacted by disturbance. Scope for rehabilitation but not to a state approaching good condition without intensive management. Examples may include greater than 50% weed cover or basic overstorey species remaining with little to no remnant understorey.
Completely Degraded (1)	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species.



Ecological Vegetation Classes (EVC) for the areas of native vegetation within the study area were also mapped. EVCs are the standard unit developed by the Department of Environment and Primary Industries (DEPI) for classifying vegetation types in Victoria. EVCs are described through a combination of floristics, lifeforms and ecological characteristics as per benchmarks provided on the DEPI website. Each EVC has been assigned a Bioregional Conservation Status (endangered, vulnerable, depleted, least concern or rare) that reflects the current extent and quality when compared to the original (pre-1750) extent and condition modelling.

While in the field the potential presence of national and state significant species was also assessed using observed habitat, previous records from the DEPI Biodiversity Interactive Map (DEPI 2014) and previous reports.

Weed Mapping

Weeds were mapped with handheld Geographical Information Systems (GIS) equipment and aerial photography using a methodology developed by the Nillumbik Shire Council, Parks Victoria, Melbourne Water and the Department of Environment and Primary Industries as detailed in *Warrandyte to Kinglake Habitat Corridor Network. Environmental Works Toolkit. Contractor Reporting Procedure* (Nillumbik Shire et al 2014). Waypoints were taken at the centre of infestations with the radius of infestation, infestation level and life form collected (See Table 3 for data collected for each infestation). Larger infestations were mapped by drawing polygons on aerial photography where appropriate.

Table 3. Weed mapping data collected.

Field	Field Options	Field Description
Location/GPS point		Waypoint data collected from the GPS
Date		Date of weed mapping
Assessor		Name of person collecting the data
Organisation		Name of the organisation collecting the data
Common Name		Common name of weed
Scientific Name		Scientific name of weed
Extent Radius	<1 metre 1-5 metres 6 – 10 metres 11 – 25 metres Polygon	The average radius of the infestation in metres. For data points the infestation waypoint is in the centre of the infestation.
Infestation cover	<1 % Trace 1 – 10% Light 11 – 50% Medium 50% Dense	Estimate of the projective foliage cover of the weed infestation. Projective foliage cover is an estimation of the percentage of the ground that would be covered by the shadow of the weed's leaves if the sun was directly overhead.
Age Class	Seedling Juvenile Mature Resprout	Age class of the weed infestation. A resprout is a plant that has been previously treated that is showing regrowth



Weeds considered to be part of the common ambient weed cover were generally not mapped. These are weed species that are common across the landscape and are considered too resource intensive to control. Herbaceous weeds considered part of this group include species such as Ribwort *Plantago lanceolata*, Buckshorn Plantain *Plantago coronopus*, Catsear *Hypochoeris radicata*, Red Pimpernel *Anagallis arvensis*, Clovers *Trifolium* spp, and Ox-tongue *Helminthotheca echioides*. Grasses considered part of this group include Cocksfoot *Dactylis glomerata*, Vulpia *Vulpia* spp., Rats-tail Fescue *Sporobolus africanus*, Hares Tail grass *Lagurus ovatus*, Marram Grass *Ammophila arenaria*, Sea Wheat Grass *Thinopyrum junceiforme*. Many of these species are present along the edges of tracks and in disturbed areas.

3.3 CONSULTATION PROCESS

Consultation was undertaken with community environmental volunteer groups to ensure an integrated approach to objectives was achieved. Consultation was also carried out with significant adjacent land managers including the Surf Coast Shire, Parks Victoria and The Sands Golf Course to investigate cross tenure approaches to controlling pest plants and animals in strategic locations.

Community Environmental Volunteer Groups

Meetings with representatives from eight community environmental volunteer groups from the GORCC management area were facilitated once weed mapping had been completed for each group area. Consultation with each group focused on:

- Group experience and use of the 2009 Native Vegetation and Weed Action Plan
- Pros and cons of the previous versions.
- Weeds that the group has targeted over the past five years.
- Current group relationship with GORCC and how to improve this.
- Discussion of weed mapping results.
- Aims for the group over the next 5 years.

Meetings with group representatives were held once draft weed maps had been produced for discussion. A list of the community volunteers consulted is listed in the acknowledgements. Summarised results of the community group consultation are detailed in Section 4. Previous weed control is detailed in each management zone description (Section 5 to 8).



3.4 MANAGEMENT ZONE PRIORITISATION AND LEVEL OF SERVICE

To effectively allocate resources and protect highest value environmental assets, management zones were ranked by priority using a methodology based on the Nillumbik Shire Council *Environmental Works, Bushland & Wetland Reserves Prioritisation & Planning Guidelines* (Nillumbik Shire Council 2013). Prioritising management zones ensures strategic management focuses first in areas that have the greatest biodiversity and community values and the best long term chance of retaining high biodiversity values.

Management Zone Prioritisation

Management zones were ranked by using a prioritisation matrix (Table 4), allocating scores based on ecological values, width of zone and level of community input.

Table 4 GORCC Prioritisation Matrix Data

Criteria	Data Source	Categories	Scores
Vegetation Values	Vegetation Condition Score	Pristine	24
		Excellent	20
		Very Good	16
		Good	12
		Modified/Revegetation	8
		Degraded	4
	EVC Bioregional Conservation Significance*	Endangered	5
		Rare	4
		Vulnerable	3
		Depleted	2
		Least Concern	1
Significant Species/Communities**	Victorian Biodiversity Atlas (DEPI 2014)	EPBC Listed Flora	4
		EPBC Listed Fauna	4
		VROT Flora	2
		VROT Fauna	2
		Wide –80+ metres	6
Reserve Width	Aerial photography	Medium – 20 – 80 metres	3
		Thin – 5 to 20 metres	0
		Active community or community group within reserve	10
Community Involvement	To be collated from community groups and local community input	No active community or community group within reserve or adjacent to site	0

Notes:

*Note that for EVC scores, scores are cumulative for each EVC present within the management zone.

**Note that for EPBC and VROT listed flora scores are cumulative for each species either recorded or with potential habitat.

Each zone is ranked against other zones based on score and allocated one of three levels of service:

1. Conserve and Enhance (Higher Ranking zones)
2. Conserve and Rehabilitate (Moderate Ranking zones)
3. Monitor and Maintain (Lower Ranking Zones)



Management Zone Levels of Service

Table 5 below provides broad objectives for each of the levels of service. These levels of service are used to set the five year objectives and subsequent annual works plans. Specific management zone objectives may differ to those outlined in Table 5 depending on:

- Biodiversity assets to be protected
- Level of threat
- Feasibility of weed control
- Weed species ecology
- Accessibility
- Environmental Community Group activities

Table 5. Levels of Service objectives

Level of Service	Conserve and Enhance	Conserve and Rehabilitate	Monitor and Maintain
Monitoring Objectives	• Inspect site at least three times per year	• Inspect site at least twice per year	• Inspect site at least once per year
Weed Control Objectives	<ul style="list-style-type: none"> • Treat all new and emerging weeds immediately. • Remove all mature plants from isolated infestations. • Eliminate all mature woody weeds within 5 years. • Reduce infestations of non-woody weeds appropriately. 	<ul style="list-style-type: none"> • Treat all new and emerging weeds immediately. • Remove all mature plants from isolated infestations. • Reduce cover of core weed infestations. 	<ul style="list-style-type: none"> • Eliminate high threat emerging weeds. • Reduce infestations where they may impact on nearby values.
Pest Animal Control Objectives	<ul style="list-style-type: none"> • Where appropriate, implement integrated pest animal management with adjacent landholders. 	<ul style="list-style-type: none"> • Implement pest animal management in locations where pest animals are impacting biodiversity values. • Manage pest animals as part of any coordinated programs. 	<ul style="list-style-type: none"> • Manage pest animals as part of any coordinated programs.
Volunteer Environmental Groups Objectives	<ul style="list-style-type: none"> • Support the efforts of volunteer environmental groups. • Encourage and assist with the planning of new projects by volunteer environmental groups as appropriate. 		<ul style="list-style-type: none"> • Support the efforts of volunteer environmental groups.
Revegetation Objectives	<ul style="list-style-type: none"> • Generally supplementary planting only where required. • Revegetation sites are generally small enough 	<ul style="list-style-type: none"> • Revegetation to connect and buffer high value areas. • Generally requires active participation by 	<ul style="list-style-type: none"> • Revegetating large areas for amenity and biodiversity. • Likely to require larger amounts of labour such as



Level of Service	Conserve and Enhance	Conserve and Rehabilitate	Monitor and Maintain
	that planting can be carried out by GORCC staff	community environment groups	school and community environmental groups.
Other Threats Objectives	<ul style="list-style-type: none"> • Minimise impacts on biodiversity values through the prevention of: <ul style="list-style-type: none"> • Inappropriate human access. • Campfires • Illegal camping. 		

*Prioritise threat control at higher ranked sites over lower ranked sites.

3.5 OBJECTIVE SETTING

When setting five year objectives for each management zone, care was taken when selecting the language of each objective. Objectives need to be clear on what is intended to be achieved and where. Some example wordings and why they were used are listed below:

Eliminate all mature plants: This wording is generally used for woody weeds. Many woody weeds have persistent seed banks and to use terms such as total eradication or elimination are not suitable as these seedlings are likely to continue to appear many years after all mature plants have been removed. If the objective of removal of mature plants is continuously achieved, the seed bank will gradually be diminished.

Control Annually: Herbicide treatment is not always successful for some species. Weeds such as Gazania and Bridal Creeper may require several treatments to achieve varied success. For many herbaceous and grassy weeds the objectives are related to controlling plants. Control means the target infestations are treated using approved control methods each year, trialing different methods to see which is most effective.

Contain: Some infestations require more resources than are likely to be available or may be difficult to treat. For these large infestations containment lines have been drawn around core infestations or current infestation levels. Infestations outside this containment area are to be controlled and the core infestation reduced over time as resources allow.

Reduce: Where appropriate, an objective related to the reduction of the cover or number of infestations for a target weed.

Monitor: For some high threat weed species that are noticeably absent from a management zone there may be a need to monitor the site for new incursions.



3.6 ANNUAL WORKS PLANS

Annual works plans are to be developed to define annual management zone goals and actions related to the five year objectives. Planning out when and where resources are to be spent ensures that highest priority objectives can be met and shortfalls in resources can be identified.

Works plans also allow for monitoring and evaluation to determine if the estimated resources are adequate and achieving objectives. See Table 6 for an example section of the works plan and Section 8 for monitoring recommendations related to works plans.

Table 6. Example Works Plan

Management Zone (ID)	Weed Threat/Issue	5 Year Objective	Estimated time (days/\$\$)	Timing	Actual Time/resources	Comments
Jan Juc Heath (A5.2)	Woody Weeds: Coast Tea-tree (and hybrids), Italian Buckthorn, Myrtle-leaf Milkwort, Boneseed, African Boxthorn, Sallow Wattle, Sweet Pittosporum,	Eliminate all mature plants.	4	May and Sept		
	Bridal Creeper	Control annually. Reduction of infestations by 50%.	0.5	Augus †		
	Serrated Tussock	Control annually. Reduction of infestations by 50%.	0.5	Augus †		
	Non-woody weeds: Toowoomba Canary-grass, Cocksfoot, Panic Veldt-grass, Sweet Vernal-grass	Control annually to prevent spread along tracks.	1	June		

3.7 LIMITATIONS

Field surveys provide an indication of what is present at the time of survey (i.e. a 'snapshot') and as such may not include species that may be dormant or absent due to seasonal or climatic conditions. The weed mapping was undertaken during late spring to early summer, generally a satisfactory time to



undertake flora surveys. However, some species may be dormant or not displaying adequate diagnostic characteristics at the time of survey. Additional weed species and infestations may be recorded within the study area during assessments undertaken at alternative times of the year or during a prolonged time in the field.

In some instances access was difficult due to steep terrain or dense vegetation. These areas were trafficked as best as possible. GPS tracking and aerial photography was used to ensure that sites were covered as systematically as possible.

Caravan parks within GORCC management (Torquay, Anglesea, Lorne) were generally not assessed. These areas generally support highly modified vegetation and are often planted out with environmental weeds. Control of weed infestations in these areas should be detailed in park management plans.

The survey effort and review of existing relevant information is considered sufficient to provide native vegetation and weed management recommendations within GORCC managed land.



4 CONSULTATION RESULTS

The GORCC Coastal Management Plan (GORCC 2014) identifies that the GORCC managed coast should be managed in a transparent and collaborative way on behalf of and in partnership with all stakeholders. Consultation with local environmental groups and other stakeholders as part of the plan development was undertaken to promote and foster collaboration where possible.

A summary of discussions is included below. Details on works completed by groups over the past five years are included in *Native Vegetation and Weed Management Plan. Management Zone Recommendations* (Beacon Ecological 2015a). Group goals were built into the management zone objectives where possible.

4.1 ENVIRONMENTAL COMMUNITY GROUP CONSULTATION RESULTS

Representatives from all community environmental groups who work on GORCC managed land were consulted during the development of the current plan, and for comments and assessment of the 2009 plan:

- Torquay Coast Action
- Jan Juc Coast Action
- ANGAIR
- Friends of the Anglesea Coast
- Friends of Aireys Inlet Coastal Reserve
- Friends of Moggs Creek
- LorneCare
- Friends of Queens Park

2009 GORCC Native Vegetation and Weed Action Plan

- The majority of groups saw the 2009 NVWAP as an important document.
- They agreed that it is something that GORCC needs to be able to assist with planning and justification of conservation works.
- Torquay Coast Action were happy that it clarified issues relating to how Coast Wattle and Coast Tea-tree should be dealt with.
- Most groups did not use the plan often nor thought that it needed to be tailored to them. Most groups have a good understanding of weed infestations and issues within their working area and are able to plan working bees accordingly.

2015 GORCC Native Vegetation and Weed Action Plan

- It was felt that there was no need to have specific weed control objectives for groups. Groups were happy to work together with GORCC to achieve overarching objectives for management zones.
- Input from groups assisted with the determination of five year objectives for each management zone.
- Need to be able to easily use the plan as a support document for grant applications.



- The plan needed to reflect values of community environmental groups where possible.

Group relationships with GORCC.

- All groups overwhelmingly reported they had a great working relationship with GORCC staff, particularly the Conservation Team.
- Communication levels were considered to be good with groups feeling that needs and concerns were heard and acted on where possible by GORCC staff.
- Groups were appreciative of GORCC Conservation Team staff attendance at working bees when possible.
- While acknowledging that the GORCC Conservation Team were working at capacity some groups mentioned that more resources were required to effectively tackle weed issues on GORCC managed land.

General Comments

- One group (Jan Juc Coast Action) based in a more populated area stated that fences were important to keep people out of areas of native vegetation while another group (Friends of Moggs Creek) in less populated areas felt that fences were not always required.
- Jan Juc Coast Action noted that illegal campers were damaging native vegetation and concerned that GORCC staff were at risk if they tried to move these people on.
- Torquay Coast Action reiterated that it is important to ensure that follow up work is always completed to keep areas clean.
- Fauna surveys would be welcomed. The purchase of remote sensor cameras by GORCC to be loaned out to groups was an idea that some groups came up with.



5 FIELD RESULTS

The field surveys collected information on vegetation quality, weed infestation levels and general management issues. Results of the field surveys are summarised below.

Vegetation Condition

Vegetation condition varies greatly across GORCC managed land from near pristine environments such as the Jan Juc Heath, Anglesea Coastal Heath and Anglesea Saltmarsh to highly modified areas dominated by weeds such as Soapy Rocks and areas used for recreation such as the Torquay Foreshore and Spring Creek.

Vegetation that meets the condition thresholds for the *Environment Protection and Biodiversity Conservation Act 1999* listed community *Subtropical and Temperate Coastal Saltmarsh* was observed in saltmarsh areas to the west of the Anglesea Caravan Park.

Vegetation conserved to be part of the *Flora and Fauna Guarantee Act 1988* community *Coastal Moonah Woodland* was observed in numerous locations within the Torquay, Anglesea and Aireys Inlet management areas.

Weeds

Weed infestations of varying levels were mapped in all management zones managed by GORCC. Ninety-nine species were mapped with some species widespread while others considered new and emerging. The most widespread species include the woody weeds Coast Tea-tree and Sallow Wattle. These species have the ability to dominate coastal vegetation, radically altering community structure and decreasing biodiversity.

Numerous other species capable of becoming widespread are common in local areas but considered new and emerging across the GORCC management area. Monitoring for these species and taking immediate control is imperative to stop species becoming established in new areas. These species include:

- Asparagus Fern
- Bluebell Creeper
- Boneseed
- Bridal Creeper
- Cape Broom
- Cape Wattle
- Flax-leaf Broom
- Gazania
- Italian Buckthorn
- Mirror Bush
- Myrtle-leaf Milkwort
- Purple Groundsel
- Serrated Tussock
- Sweet Pittosporum

Management Zone

Management Zones were developed using zones previously developed in the GORCC NVWAP 2009 and the GORCC Coastal Management Plan. Some of these original zones have been divided into smaller



units to more effectively set objectives and allocate resources. Management zone boundaries were determined due to different management requirements related to:

- Changes in weed level,
- Environmental community group effort,
- Changing vegetation communities,
- Differing land uses.

Management Zone Prioritisation

The management zone prioritisation process identified the following number of management zones for each level of service:

- *Conserve and Enhance*: 16 management zones.
- *Conserve and Rehabilitate*: 12 management zones.
- *Maintain and Monitor*: 13 management zones.

The three levels of service are spread across all management areas. Higher scoring management zones supported relatively intact native vegetation that has generally not been previously modified.



6 WEED ACTION PLAN 2009 REVIEW

Comparison of weed mapping between the current assessment and the 2009 GORCC NVWAP mapping was difficult due to the resolution of the 2009 mapping. Some statements can be made about changes in weed distribution as are detailed in the notes for each management zone. See *Native Vegetation and Weed Management Plan. Management Zone Recommendations* (Beacon Ecological 2015a) for more details.

The 2009 NVWAP set out high, medium and low priorities for each management area. These actions have been reviewed in conjunction with the 2014 weed mapping to determine if actions have been completed. See Appendix 2 for responses to each action. A summary of these results is detailed in Table 7.

Table 7. Review of 2009 GORCC NVWAP Management Actions

Management Zones	High Priority				Medium Priority				Low Priority			
	Total Actions	Completed	Part Completed	Not completed	Total Actions	Completed	Part Completed	Not completed	Total Actions	Completed	Part Completed	Not completed
Point Impossible to Whites Beach	7	5	1	1	6	4	1	1	3	0	1	2
Whites Beach to Jan Juc Creek	4	3	1	0	2	1	1	0	2	2	0	0
Taylor Park	1	1	0	0	1	0		1	2	0	0	2
Jan Juc Creek to Bones Road	2	2	0	0	7	6	1	0	2	0	2	0
Inverlochy St to Anglesea River	2	2	0	0	2	2	0	0	2	0	1	1
Anglesea River to O'Donohues Road	4	0	3	1	2	1	0	1	1	0	1	0
Boundary Road to Split Point Lighthouse	2	1	1	0	1	1	0	0	2	2	0	0
Split Point to Moggs	3	3		0	1	1	0	0	2	2	0	0
Moggs to Easternview	2	1	1	0	1	0	0	1	1	0	1	0
Reedy Creek to Erskine River	1	0	0	1	1	0	0	1	3	0	0	3
Erskine River to St George River	2	2	0	0	2	0	0	2	1	0	0	1
Queens Park	2	0	2	0	1	0	0	1	1	1	0	0
Cumberland River	2	0		2	2	0	0	2	1	0	0	1
TOTALS	34	20	9	5	29	16	3	10	23	7	6	10
PERCENTAGES		59%	27%	15%		55%	10%	35%		30%	26%	44%



Table 7 shows that the 59% of the high priority actions were completed and 27% partly completed. This is higher than the medium priority actions (55% completed and 10% partly completed) which was higher than the low priority actions (30% completed and 26% partly completed). The higher completion rate of high priority actions suggests that GORCC resources have been successfully directed at the more important actions with lesser amounts of resources directed to medium and low priority actions. Note that some low priority actions were identified as potentially occurring over a 10 year period in the 2009 GORCC NVWAP.

Alarmingly, many of the high and medium priority actions that were recommended to be completed within a five year period are partly completed or not completed (high priority 41% partly or not completed, medium priority 45% partly or not completed). Increasing conservation team resources to is vital to ensure high value biodiversity assets are protected and enhanced.

Habitat Hectares

As described and ground truthed in the 2009 GORCC NVWAP (Coomes 2009), 42 sites of ecological significance within GORCC managed land were assessed using the DEPI Vegetation Quality Assessment (VQA) methodology in the 2007. These assessments were undertaken to assist with monitoring changes in vegetation condition as a result of GORCC management actions. Beacon Ecological was engaged by GORCC to revisit the 42 sites in December 2012 to monitor vegetation change and assess the effectiveness of on-ground management actions undertaken by GORCC during the past 5 years (Beacon Ecological 2012).

The assessment revealed that habitat component scores were on average higher in 2012 than in 2007, except for Tree Canopy Cover (Table 8).

While the habitat component scores were on average higher in 2012 than in 2007, care must be taken to interpret these positive results. Changes in component scores may be due not only to successful on-ground natural resource management. Other contributing factors may include assessment methodology flaws such as high-threat weed species subjectivity, vegetation cover estimation subjectivity, incorrect site relocation due to poor GPS resolution or external factors such as changes in climatic conditions (i.e.: end of a 10 year drought).

Table 8. Average score difference between the 2007 and 2012 assessment

Habitat Component	Average Score difference between 2007 and 2012
Large Trees	+2.4 (5 sites only)
Tree Canopy Cover	-1.2 (6 sites only)
Logs	+1.9 (6 sites only)
Organic Litter	+0.9
Weeds	+0.2
Understorey	+2.6
Recruitment	+3.3
Total Site Score	+8.2



7 GENERAL RECOMMENDATIONS

While the majority of ecological issues are dealt with in *Native Vegetation and Weed Management Plan. Management Zone Recommendations* (Beacon Ecological 2015a), some general issues should be specifically addressed. These are discussed below and summarised in Table 8.

Primary Dune Introduced Grass, Marram Grass, Sea Wheat Grass: There are a number of weed species which were very widespread (and intractable) at the time of survey. These species 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 in many locations and widespread removal would require vast resources and potentially contribute to unstable dune systems. However where these weeds are not currently present it has been noted in the relevant sections. Where possible, it is considered appropriate to manage these two weed species to maintain weed-free areas.

Primary Dune Introduced Herb, Sea Spurge: Sea Spurge *Euphorbia paralias* is a highly invasive, toxic weed of primary dunes noted as very isolated infestations along GORCC managed land. This is due to annual control of this species by GORCC staff and community environmental groups over several years. This species has the capacity to dominate primary dunes, altering sand movement and outcompeting native species. While not mentioned in recommendations for individual management zones, sweeping the primary dunes of all management zones annually is highly recommended to be continued.

Climate Change: Evidence suggests that climate change will cause more extreme weather events with greater stresses on native species and ecosystems (ISC 2009). These changes and follow on effects may lead to negative impacts to native vegetation and increased weed infestation. Weed related climate change issues include:

- Extreme Weather Events: May stress or destroy native vegetation communities opening up new opportunities for weed species to invade. Storm surges, increased bushfire events and sea level rise are examples of potential events in GORCC managed areas (VCS 2014).
- Species Distribution Shifts: Changes in rainfall and temperature may allow some weed species to expand their range into new areas.
- Increased CO₂: Increased CO₂ may provide some weeds to grow more rapidly and become more competitive.
- Human Climate Change Reponses: Hardier pasture and garden plants developed to handle drier conditions are likely to become high weed risks.

Increases in resources for natural resource management of GORCC managed areas are likely to be required as climate change impacts become more apparent.

Coastal Moonah Woodland: There is no formal definition with condition thresholds provided for the Flora and Fauna Guarantee Act 1988 listed Coastal Moonah Woodland within the Otway Plain Bioregion. The



Coastal Moonah Woodland Action Statement (DSE 2003) identifies this issue and the first management action listed in the statement is to:

Refine the description of Coastal Moonah Woodland and determine its relationship to similar communities, in particular Moonah dominated coastal communities occurring on soils other than calcareous sands.

The *Field guide to Coastal Moonah Woodland in Victoria* (DSE 2010) states that:

The vegetation structure and species composition of Coastal Moonah Woodland vary in relation to the landscape position (e.g. dune crest or swale), exposure to coastal influences, and disturbance history. Although the name of the community suggests that Moonah is the dominant canopy component of the community this is misleading as Coast Wirilda, Coast Tea-tree and Coast Beard-heath can also be dominant or co-dominant. The community name suggests that structurally it is woodland, however, the community generally forms a low open-forest and it also may be considered an open or closed shrubland, woodland, open woodland and open-forest depending on its location in the landscape and exposure to coastal influences.

Moxham et al. (2009) provide a description and key for Coastal Moonah Woodland in the Gippsland Plain bioregion however they state that the key is not definitive for Coastal Moonah Woodland in other bioregions (e.g. Otway Plain). Further the key provided defines vegetation occurring on coastal headland systems as Coastal Headland Scrub (EVC 161) and not Coastal Moonah Woodland. Both DSE (2010) and Moxham et al. (2009) identify Coastal Moonah Woodland occurring predominantly in Coastal Alkaline Scrub (EVC 858) vegetation. Note that these definitions do not take into account Moonah dominated Coastal Headland Scrub (EVC 161) vegetation such as noted within the study area,

For the purposes of this assessment, Coastal Moonah Woodland is defined as:

*Vegetation where Moonah *Melaleuca lanceolata* is the dominant or co-dominant overstorey species. Note that for the Jan Juc Clifftops this includes a variety of vegetation structures from low, exposed scrub on cliffs to sheltered gullies where Moonah trees can be several metres high.*

Changes in Vegetation Community Structure: Within the study area, and in particular within the coastal heathland and grassland vegetation communities (e.g. Anglesea Heathland and Jan Juc Clifftops), a vegetation succession from low heathland or grassland to closed shrubland has been observed (Coomes 2009, ELMP). The indigenous shrub species implicated include species such as Coast Beard Heath *Leucopogon parviflorus*, Prickly Tea-tree *Leptospermum continentale* and Coast Wattle *Acacia longifolia* subsp. *sophorae*.

The succession from species rich low heathland or grassland to species poor closed shrubland is related to the frequency of fire events within the heathland communities. Within the study area the vision is to maintain, and enhance ecosystem health. Within these communities this equates to preserving species



diversity. 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).

Consequently the recommendation is to adopt a management regime that maintains health and grassland communities by allowing natural regeneration through either periodic burning or manual removal of any indigenous shrub species that may be becoming dominant.

Fire: Fire is an important part of ecological processes in Australia. Prescribed burning is important to allow regeneration of plant species and communities that are reliant on fire. This is particularly pertinent for some communities where native shrubs are becoming dominant to the detriment of local biodiversity values. Investigation of appropriate prescribed burn regimes should be undertaken where possible within GORCC managed land.

Fire can also promote germination of weed seed banks and any prescribed burn or wildfire must allow for adequate resources for follow up weed control.

Fauna Surveys: Detailed fauna surveys were not undertaken as part of this survey. Minimal levels of fauna assessments were undertaken as part of the *Environment and Land Management Plan for Coastal Crown land Reserves Between Torquay and Lorne* (Ecology Australia et al 2006). Additional fauna surveys could include active searches, spotlighting, Elliot trapping, tiling and remote sensor cameras.

Further, ongoing monitoring of fauna populations could be initiated to evaluate population health and impacts of management actions.

Domestic Dogs: Domestic dogs may cause injury and death to native fauna if allowed to roam freely. For some species, such as the nationally significant Hooded Plover the scent or presence of dogs may disrupt natural fauna activities putting species at risk.

Further dog faeces can increase soil nutrient levels creating conditions more suitable for introduced species. Community engagement to ensure dogs are under effective control at all times and faeces are removed should be encouraged.

Cats: Predation of native fauna by domestic and feral cats can impact on local populations. Control of feral cats can be difficult, particularly adjacent to residential areas. Cat traps should be utilised when cats are reported within native vegetation. Community engagement programs communicating the risks to local fauna of uncontrolled domestic cats should also be implemented.

Litter: Litter levels were generally noted as low throughout GORCC managed land. Litter impacts the amenity of the area but can also pose a risk to fauna species through ingestion or entrapment. Litter is also a direct risk to marine life if it makes its way to the ocean. GORCC currently supplies bins in high visitation areas and it is considered important to continue this practice.

Illegal rubbish dumping: Illegal dumping poses a direct threat to the surrounding environment and to human health. Illegally dumped materials can be hazardous, for example asbestos and chemicals create a risk of soil and water contamination, fire and toxicity. Dumping of weeds & garden waste can also introduce new garden escapee weeds. While this is not an issue for the majority of the GORCC



managed land any dumped rubbish should be reported and removed immediately. Signage indicating applicable fines should be installed in locations where rubbish is regularly dumped.

Garden Escapees: Residential areas abut GORCC managed land in many areas. Some residential gardens support environmental weeds that are spreading into GORCC managed areas. Weed control should look at controlling infestation sources where possible. Community awareness campaigns to reduce environmental weeds in local gardens should be implemented in sensitive areas.

Table 8. General Objectives

Weed Threat/Management Action	5 Year Objectives
Marram Grass, Sea Wheat Grass	Monitor and contain to current infestations.
Sea Spurge	Control annually. Reduce infestations by 50%.
Climate Change	Monitor impacts of climate change within GORCC managed land including extreme weather events and changes in vegetation distribution. Increase conservation team resources as required.
Changes in Community Structure	Set up monitoring transects in locations where native species may become out of balance (Jan Juc Heath, Anglesea Coast Heath). Implement prescribed burn or manual removal of species as appropriate.
Fauna Surveys	Implement annual mammal trapping surveys through the schools education program and encourage environmental volunteer community groups to implement remote camera monitoring using GORCC equipment.
Fire	Facilitate prescribed burns where appropriate. Ensure that adequate resources are available for follow weed control post planned or natural fire.
Domestic Dogs	Continued community engagement program to ensure dogs are under effective control and dog faeces collection bags are regularly available. Liaise with the Surf Coast Shire local laws to enforce dog faeces littering.
Domestic and Feral cats	Undertake cat trapping whenever cats are reported in native vegetation. Implement community education program on the risks of uncontrolled domestic cats.
Litter	Continue the provision of bins at high visitation sites. Implement community engagement program relating to the risks of litter to the environment and fauna.
Illegal Rubbish Dumping	Any dumped rubbish should be reported and removed immediately. Signage indicating applicable fines should be installed in locations where rubbish is regularly dumped
Garden Escapees	Implement community awareness campaigns to reduce environmental weeds in local gardens adjacent to GORCC managed land.



8 MONITORING AND REVIEW

Native Vegetation and Weed Action Plan 2014 – 2020 Review

This plan has set five year objectives and should be reviewed at the end of this period. The review should determine how effectively objectives have been met and set new objectives as required. Remapping of weed infestations is recommended at this time to assist with evaluation of works as well as mapping any new and emerging species.

Review of Management Zone Prioritisation

Management zone prioritisation should be repeated every five years to account for improvements in zone quality and any changes in environmental community group focus. New records of significant species may also impact on management zone prioritisation.

Annual Works Plan Review

The works plan is to be reviewed annually to determine:

- More accurate estimations of costs and hours.
- If actions have been completed as planned.
- A potential reduction in costs over time and a reduction in time spent on managing threatening processes.
- If a reduction in weed cover and abundance is occurring.
- If objectives have been achieved or exceeded.

Based on the outcomes of the annual works review, the following actions may be considered:

- Change resource allocations (money and time)
- Change methods of addressing threatening processes
- Change objectives or actions

Weed Control Effectiveness Monitoring

See the Great Ocean Road Coast Committee. *Vegetation Transect Monitoring* (Beacon Ecological 2015) for details on monitoring for change in cover of woody weeds due to management actions. This method can also be used for native species becoming out of balance. Photopoints of each transect are also recommended. This document includes 2015 baseline data from several sites on GORCC managed land selected to best monitor change.



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APPENDICES

APPENDIX 1. GORCC MANAGEMENT ZONES RANKED BY PRIORITY**Table A.2.** GORCC Management Zones ranked by priority

Ranking	Site Name	Site ID	Score	Level of Service
1	Jan Juc Heath	A5.2	61	Conserve and Enhance
2	Queens Park Townside	D4.1	61	Conserve and Enhance
3	Queens Park St George Side	D4.2	61	Conserve and Enhance
4	Jan Juc Clifftops	A5.1	57	Conserve and Enhance
5	Point Impossible	A1.1	53	Conserve and Enhance
6	Anglesea Coastal Heath	B1.1	52	Conserve and Enhance
7	Anglesea Saltmarsh	B1.4	51	Conserve and Enhance
8	Anglesea Woodland	B3.3	50	Conserve and Enhance
9	Anglesea SLSC Heath	B3.2	46	Conserve and Enhance
10	Boundary Road Clifftops	C1.1	45	Conserve and Enhance
11	Fairhaven	C2.3	45	Conserve and Enhance
12	Moggs Creek	C2.4	45	Conserve and Enhance
13	Cumberland River	D5	45	Conserve and Enhance
14	Whites Beach	A1.2	41	Conserve and Enhance
15	Point Roadknight	B3.5	41	Conserve and Enhance
16	Painkalac Dunes	C2.2	39	Conserve and Enhance
17	Four Kings Dunes	B3.1	37	Conserve and Rehabilitate
18	Melba Parade	B3.6	36	Conserve and Rehabilitate
19	Eaglerock Parade	C1.2	35	Conserve and Rehabilitate
20	Easternview	C2.5	35	Conserve and Rehabilitate
21	Lorne Point	D2.2	32	Conserve and Rehabilitate
22	Spring Creek	A2.5	31	Conserve and Rehabilitate
23	Soapy Rocks	B3.4	31	Conserve and Rehabilitate
24	Fat Ladies Carpark	D1.2	31	Conserve and Rehabilitate
25	Rocky Point	A2.6	29	Conserve and Rehabilitate
26	Anglesea Caravan Park Clifftops	B1.2	28	Conserve and Rehabilitate
27	Yellow Bluff	A2.3	25	Conserve and Rehabilitate
28	Split Point East	C1.3	25	Conserve and Rehabilitate
29	Torquay Foreshore	A2.4	24	Maintain and Monitor
30	Split Point West	C2.1	24	Maintain and Monitor
31	Queens Park Oceanside	D4.3	21	Maintain and Monitor
32	Taylor Park	A3	20	Maintain and Monitor
33	Jan Juc Dunes	A2.7	18	Maintain and Monitor
34	Zeally Bay	A2.2	14	Maintain and Monitor
35	Lorne Backbeaches	D2.3	14	Maintain and Monitor
36	Anglesea Caravan Park Dunes	B1.3	13	Maintain and Monitor
37	Stony Creek to Fat Ladies Carpark	D1.1	12	Maintain and Monitor
39	Lorne Foreshore	D2.1	9	Maintain and Monitor
40	Erskine Estuary	D3	9	Maintain and Monitor
41	Slaughterhouse	D4.4	4	Maintain and Monitor

APPENDIX 2. REVIEW OF 2009 GORCC NATIVE VEGETATION AND WEED ACTION PLAN MANAGEMENT ACTIONS

Actions	Response
A1 Point Impossible to Whites Beach	
High Priority Actions	
Remove Serrated Tussock (<i>Nassella trichotoma</i>) as soon as possible. (S)	Part completed. While initial populations have received control, new infestations have occurred.
Remove all Boneseed (<i>Chrysanthemoides monilifera</i> ssp <i>monilifera</i>) on an annual basis. (S)	Completed. Significant reduction in Boneseed populations
Remove all Bridal Creeper (<i>Asparagus asparagoides</i>) on an annual basis. (S)	Completed: Bridal Creeper has been controlled on an annual basis however this species continues to persist.
Removing Coast Tea-tree (<i>Leptospermum laevigatum</i>) outliers and reducing population distribution and node size. (S)	Not completed: This species appears to have increased in distribution despite control efforts.
Remove isolated occurrences of Sweet Pittosporum (<i>Pittosporum undulatum</i>), Myrtle-leaf Milkwort (<i>Polygala myrtifolia</i>), African Box-thorn (<i>Lycium ferocissimum</i>) and Cape Leeuwin Wattle (<i>Paraserianthes lophantha</i> ssp <i>lophantha</i>) and False Capers (<i>Euphorbia terracina</i>). (M)	Completed: The majority of these species have received control and exist as isolated infestations.
Remove outliers of weeds emanating from disturbed roads side infestations (S)	Completed: While infestations persist on disturbed roadsides this is an ongoing action.
Conduct habitat condition assessment of a representative area of Coast Wirilda (<i>Acacia uncifolia</i>) vegetation. (M)	Completed: Coastal Moonah Woodland report covered this area
Medium Priority Actions	
Maintain or reduce size of containment zones for Coast Tea-tree (<i>Leptospermum laevigatum</i>) (M)	Not completed. This species appears to have increased in distribution despite control efforts.
Develop and maintain containment zones for the weedy road side disturbance sites. (M)	Completed: Woody weed control of roadside disturbance areas has occurred regularly.
Remove all priority one weeds as they occur in isolated areas on an annual basis (L)	Completed: This action has mostly been completed.
Monitor populations of Coast Wattle (<i>Acacia longifolia</i> ssp <i>sophorae</i>). (L)	Completed: Anecdotal monitoring of this species has occurred during field visits by conservation staff.
Control and monitor populations of Rabbits (<i>Oryctolagus cuniculus</i>) and Foxes (<i>Vulpes vulpes</i>). (M)	Completed: Rabbit warrens are fumigated twice annually. Fox dens fumigated once annually.

Actions	Response
Maintain and enhance pedestrian controls in dunes adjacent to Nudist beach. (M)	Part completed: Illegal campers are moved on regularly although informal access tracks are still being used.
Low Priority Actions	
Eradicate weeds from containment zones (L)	Not completed:
Revegetate weed road side containment zones and other areas of extensive weed removal. (L)	Part completed: Some revegetation areas have been implemented on the Point Impossible access track
Eradicate Sallow Wattle (<i>Acacia longifolia</i> ssp <i>longifolia</i>) and Coast Wattle/Sallow Wattle hybrids (<i>Acacia longifolia</i> ssp. <i>longifolia</i> / <i>Acacia longifolia</i> ssp <i>sophorae</i>) (L)	Not completed: Sallow Wattle infestations persist within this zone.
A2 Whites Beach to Jan Juc Creek	
High Priority Actions	
Remove all Italian Buckthorn (<i>Rhamnus alaternus</i>), Bridal Creeper (<i>Asparagus asparagoides</i>) and Boneseed (<i>Chrysanthemoides monilifera</i> ssp <i>monilifera</i>), in the eastern part of this section around Deep Creek to Whites Cutting. (S)	Completed: Significant decrease in these woody weed species.
Remove Red-eyed Wattle (<i>Acacia cyclops</i>), Coast Banksia (<i>Banksia integrifolia</i> ssp <i>integrifolia</i>), Sea Spurge (<i>Euphorbia paralias</i>), Common Dipogon (<i>Dipogon lignosus</i>) and Cotoneaster (<i>Cotoneaster lacteus</i>) in the eastern part of this section around Deep Creek. (S)	Completed: Significant decrease in these weed species.
Staged removal of Coast Tea-tree (<i>Leptospermum laevigatum</i>) over the medium term, removing outliers and reducing nodes, primarily in the eastern part of this section around Deep Creek to Whites Cutting. (M)	Part completed: Some control of Coast Tea-tree. Significant populations remaining.
Remove African Box-thorn (<i>Lycium ferocissimum</i>) and Italian Buckthorn (<i>Rhamnus alaternus</i>) at Rocky Point. This should be undertaken as soon as possible as they are small populations. (S)	Completed: Only isolated juvenile specimens of these weeds noted in 2014.
Medium Priority Actions	
Revegetation with Moonah (<i>Melaleuca lanceolata</i>) to replace Coast Tea-tree (<i>Leptospermum laevigatum</i>) as it is removed around Deep Creek. (M)	Completed: Successful revegetation at Deep Creek outflow.
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	Part completed: While some of these species have been targeted for control, not all infestations have been treated.
Low Priority Actions	
Develop and maintain containment zones for the	Completed: Weed control has occurred opposite

Actions	Response
weedy sites in front of Taylor Park and around Jan Juc SLSC. (L)	Taylors Park as well as west of the Jan Juc SLSC.
Continue to replace Coast Tea-tree (<i>Leptospermum laevigatum</i>) with Moonah (<i>Melaleuca lanceolata</i>). (L)	Completed: This is a slow process which has been occurring and with no measurable goal it is fair to say that this action is completed.
A3 Taylors Park	
High Priority Actions	
Remove all Italian Buckthorn (<i>Rhamnus alaternus</i>), Bridal Creeper (<i>Asparagus asparagoides</i>) and Boneseed (<i>Chrysanthemoides monilifera</i> ssp <i>monilifera</i>). (S) (To be consistent with the management action in A2 around Deep Creek.)	Completed: No Boneseed plants noted in 2014. No Bridal Creeper noted in 2014. Small infestation of Italian Buckthorn Seedlings noted.
Medium Priority Actions	
Staged removal of Crassula (<i>Crassula tetragona</i>) and Blanket Weed (<i>Galenia pubescens</i>) and revegetation with grassland species. (M)	Not completed: These species were noted as significant infestations.
Low Priority Actions	
Remove all 16 highest priority weeds as listed in LMP Table 13 as they occur as isolated plants. (M) Appendix 6: Highest Priority Weeds within each Section	Not completed: Significant infestation of these species persist within the park.
Integrate the above actions with the Landscape and Recreation Master Plan. (L)	Not completed: This plan does not appear to have been updated to include the above actions.
A4 Jan Juc Creek to Bones Road	
High Priority Actions	
Remove all Boneseed (<i>Chrysanthemoides monilifera</i> ssp <i>monilifera</i>), Italian Buckthorn (<i>Rhamnus alaternus</i>), African Box-thorn (<i>Lycium ferocissimum</i>) and Bridal Creeper (<i>Asparagus asparagoides</i>). (S)	Completed: The 2014 mapping identified Boneseed and African Boxthorn plants as juvenile plants only. A small infestation of Bridal Creeper was noted within the Jan Juc Heath.
Staged Coast Tea-tree (<i>Leptospermum laevigatum</i>) and hybrids (with Prickly Tea-tree (<i>Leptospermum continentale</i>)), remove over 3- 5 years, starting from Bones Rd, removing outliers and reducing nodes. (M)	Completed: All mature Coast Tea-tree and hybrids have been removed. Only juveniles and hybrids were noted.
Medium Priority Actions	
Remove localised patches of Hakea spp (at Bones Rd) and Cape Leeuwin Wattle (<i>Paraserianthes lophantha</i> ssp <i>lophantha</i>) (car park west of Jan Juc Creek). (S)	Completed: These species have been removed.
Remove isolated and uncommon weeds across the area such as Diosma and Crassula. (S)	Completed: These species were not noted in 2014.
Expand the protective fencing around the diverse patches of Grassland. (M)	Completed: Fencing has been erected around

Actions	Response
	the grassland area.
Control vehicle and pedestrian access across Grassland area. (M)	Completed: Fencing of grassland area has prevented inappropriate access.
Conduct habitat condition assessment for a representative Grassland patch to establish baseline data for future monitoring.(M)	Completed: Quadrat data has been collected from grassland areas by Geoff Carr (Ecology Australia 2013)
Establish zones of containment around the car park west of Jan Juc Creek. (M)	Completed: Active woody weed control is being undertaken up to the Jan Juc Beach carpark.
Remove Gazania (<i>Gazania linearis</i>) in stages over 3-5 years, removing outliers and reducing nodes. (M)	Part completed: Despite ongoing control Gazania persists.
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)	Part completed: This was completed for Gazania but not other environmental weed species.
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	Part completed: The majority of these species have been controlled excepting Panic Veldt Grass
B1 Inverlochy Street to Anglesea River	
High Priority Actions	
Remove all Boneseed (<i>Chrysanthemoides monilifera</i> ssp <i>monilifera</i>), Coast Tea-tree (<i>Leptospermum laevigatum</i>), Green Honey-myrtle (<i>Melaleuca diosmifolia</i>), Mirror Bush (<i>Coprosma repens</i>), Myrtle-leaf Milkwort (<i>Polygala myrtifolia</i>) and Sallow Wattle (<i>Acacia longifolia</i> ssp <i>longifolia</i>) across Heathland. (S)	Completed: The majority of mapped infestations of these species were juvenile plants.
Rationalise paths and fencing and revegetate to protect and reconnect patches of Moonah (<i>Melaleuca lanceolata</i>). (M)	Completed: Paths have been rationalised using gravel.
Medium Priority Actions	
Remove isolated and uncommon weeds. (M)	Completed: This action is difficult to assess but considered completed considering the evidence of control of other species.
Continued rehabilitation and revegetation and weed removal of the gravel pit and along the old roads. (M)	Completed: The 2014 site assessment and comparison of historical aerial photos noted that this area has improved in condition.
Low Priority Actions	



Actions	Response
Localised environmental weeds awareness campaign and front/back yard weed removal around the perimeter of the Heathland. (M)	Not completed: This campaign has not been undertaken.
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	Part completed: While the majority of these species are adequately controlled notable exceptions include Bridal Creeper and Coast Tea-tree.
B2 Anglesea River to O'Donohue Road	
High Priority Actions	
Remove Purple Groundsel (<i>Senecio elegans</i>) before it becomes an established weed. (S)	Not completed: This species has become established at the Melba Street dunes.
Remove Bluebell Creeper (<i>Billardiera fusiformis</i>) in the vicinity of Sixth Ave. (S)	Part completed: While control has been implemented this spies is persisting.
Remove Boneseed (<i>Chrysanthemoides monilifera</i> ssp <i>monilifera</i>), Mirror Bush (<i>Coprosma repens</i>), Coast Tea-tree (<i>Leptospermum laevigatum</i>) and Sallow Wattle (<i>Acacia longifolia</i> ssp <i>longifolia</i>) from the Moonah woodlands starting at O'Donohue Rd and working to the east. (M)	Part completed: Substantial control works have occurred in this area however significant Coast Tea-tree infestations persist.
Monitor and eliminate all priority weeds as they re-emerge in the rejuvenated Headland scrub west of the Anglesea Surf Life-Saving Club. (M)	Part completed: While the majority of priority weeds are being removed as they germinate, Bluebell Creeper infestations appear to have increased in this area.
Medium Priority Actions	
Staged control of Myrtle-leaf Milkwort (<i>Polygala myrtifolia</i>) to remove the outliers and reduce its distribution. (M)	Completed: The majority of 2014 mapped infestations for this species were juveniles or seedlings.
Localised environmental weeds awareness campaign and front/back yard weed removal along Melba Parade to protect Moonah woodland. (M)	Not completed: This campaign has not been undertaken.
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	Part completed: Some of these species have been controlled but not all.
C1 Boundary Road to Split Point Lighthouse	
High Priority Actions	
Remove the isolated occurrences of Myrtle-leaf Milkwort (<i>Polygala myrtifolia</i>), Blue-bell Creeper (<i>Billardiera fusiformis</i>), Sallow Wattle (<i>Acacia longifolia</i> ssp <i>longifolia</i>) and weedy Melaleuca	Part completed: While Sallow Wattle, weedy Melaleucas and Myrtle-leaf Milkwort have been controlled adequately where possible, Bluebell

Actions	Response
spp along the cliff top. (S)	Creeper is persisting in moderate infestations.
Remove all Boneseed (<i>Chrysanthemoides monilifera</i> ssp <i>monilifera</i>), on the cliff top. (S)	Completed: Only scattered plants were noted during the 2014 mapping.
Medium Priority Actions	
Remove outliers and reducing population nodes of Coast Tea-tree (<i>Leptospermum laevigatum</i>), starting from both Boundary Rd and the Lighthouse, removing outliers and reducing size of population nodes. (M)	Completed: Significant decrease in Coast Tea-tree infestations.
Low Priority Actions	
Maintain (reduce size of) containment zones for Coast Tea-tree (<i>Leptospermum laevigatum</i>) (L)	Completed: Significant decrease in Coast Tea-tree infestations.
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	Completed: The majority of these species have been controlled where accessible. One notable exception is Sweet Violet which despite various control methods being applied is still persisting.
C2 Split Point Lighthouse to Moggs Creek	
High Priority Actions	
Remove Myrtle-leaf Milkwort (<i>Polygala myrtifolia</i>), Sea Spurge (<i>Euphorbia paralias</i>) and Boneseed (<i>Chrysanthemoides monilifera</i> ssp <i>monilifera</i>) from the Painkalac Creek area. (S)	Completed: Boneseed and Sea Spurge have been significantly reduced. Myrtle-leaf Milkwort is present as large seedling and juvenile infestations in the Painkalac Dunes but under control in most other areas.
Remove Myrtle-leaf Milkwort (<i>Polygala myrtifolia</i>) while it is still an emerging weed occurring in five separate populations from the eastern half of this section. (S)	Completed: Mature plants have generally been removed. Significant follow up work is required.
Maintain efforts to remove Sea Spurge (<i>Euphorbia paralias</i>) from the primary dune. (S)	Completed: This species has been controlled annually with very few infestations noted.
Medium Priority Actions	
Remove outliers and reduce populations of Coast Tea-tree (<i>Leptospermum laevigatum</i>). (M)	Completed: Outliers of this species are gradually being removed.
Low Priority Actions	
Reduce the size of containment zones for (or eliminate) Coast Tea-tree (<i>Leptospermum laevigatum</i>) (L)	Completed: Containment zones have been reduced, particularly in the Moggs Creek area
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	Completed: Generally these species have been controlled with juveniles and seedlings mostly present.
C3 Moggs Creek to Eastern View	

Actions	Response
High Priority Actions	
Remove all Boneseed (<i>Chrysanthemoides monilifera</i> ssp <i>monilifera</i>), Myrtleleaf Milkwort (<i>Polygala myrtifolia</i>) and Sea Spurge (<i>Euphorbia paralias</i>). (S)	Completed: Boneseed and Sea Spurge have been significantly reduced. Myrtle-lead Milkwort is present as juvenile or seedlings generally.
Remove isolated and uncommon weeds across the area (S).	Part completed: Several uncommon weeds were present within this area.
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)	Not completed: There has been no discussions with VicRoads relating to a cooperative approach for weed control of roadsides.
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	Part completed: Some of the species from this list have been controlled but some species are still persisting.
D1 Reedy Creek to Erskine River	
High Priority Actions	
Remove the most aggressive weed species such as Coast Tea-tree (<i>Leptospermum laevigatum</i>) as they occur within 10 metres of Anglesea Grey Gum (<i>Eucalyptus litoralis</i>). (S)	Not completed: This action has not been completed.
Medium Priority Actions	
Remove isolated and uncommon weeds across the area. (M)	Not completed: Considering the highly weedy nature of this site this action has not been completed.
Low Priority Actions	
Remove Sweet Pittosporum (<i>Pittosporum undulatum</i>) as they occur as isolated plants to reduce its invasion into the adjacent Great Otway National Park. (L)	Not completed: Considering the highly weedy nature of this site this action has not been completed.
Localised environmental weeds awareness campaign and front/back yard weed removal along Great Ocean Road. (L)	Not completed: A community garden escapee engagement and awareness program has not been run in this area.
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	Not completed: Considering the highly weedy nature of this site this action has not been completed.
D2 Erskine River to St George River	
High Priority Actions	

Actions	Response
Remove herbaceous weeds such as Watsonia (<i>Watsonia meriana</i> var. <i>bulbillifera</i>) from indigenous grassland. Undertake measures to restore and expand the grassland. (S)	Part completed: Despite annual control populations of this species are persisting.
Remove all Sweet Pittosporum (<i>Pittosporum undulatum</i>), Coast Tea-tree (<i>Leptospermum laevigatum</i>), Mirror Bush (<i>Coprosma repens</i>), Montpellier Broom (<i>Genista monspessulana</i>) and Boneseed (<i>Chrysanthemoides monilifera</i> ssp <i>monilifera</i>) from Moonah (<i>Melaleuca lanceolata</i>) woodland and adjacent grassland. (S)	Completed: These species were largely under control within this area. Some juvenile specimens were observed.
Medium Priority Actions	
Remove isolated and conspicuous weeds across the area such as White Arum Lily (<i>Zantedeschia aethiopica</i>) and Agapanthus (<i>Agapanthus praecox</i> ssp <i>orientalis</i>). (M)	Part completed: While White Arum Lily populations had decreased Agapanthus populations had not.
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)	Not completed: A community garden escapee engagement and awareness program has not been run in this area.
Low Priority Actions	
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.	Not completed: While effective control has been implemented in some locations large infestations continue to persist.
D3 Queens Park	
High Priority Actions	
Remove all Myrtle-leaf Milkwort (<i>Polygala myrtifolia</i>), Blue-bell Creeper (<i>Billardiera fusiformis</i>) and Spanish Heath (<i>Erica lusitanica</i>) as soon as possible and follow up annually. (S)	Part completed: Myrtle-leaf Milkwort and Spanish Heath populations have been controlled however there appears to be an increase in Bluebell Creeper infestations.
Remove all Sweet Pittosporum (<i>Pittosporum undulatum</i>), Montpellier Broom (<i>Genista monspessulana</i>), Coast Tea-tree (<i>Leptospermum laevigatum</i>), Boneseed (<i>Chrysanthemoides monilifera</i> ssp <i>monilifera</i>) and Mirror Bush (<i>Coprosma repens</i>). (M)	Part completed: Effective control of Sweet Pittosporum, Coast Tea-tree, Mirror Bush and Montpellier Broom has occurred in areas of Queens Park with higher quality native vegetation. Large infestations of these species persist in weedy areas.
Medium Priority Actions	
Localised environmental weeds awareness campaign and front/back yard weed removal around the perimeter of the park. (M)	Not completed: A community garden escapee engagement and awareness program has not been run in this area.
Low Priority Actions	
Remove all isolated plants and small populations of the 13 high priority weeds as listed in ELMP	Part completed: Effective control of these species has occurred in areas of Queens Park with higher

Actions	Response
Table 13. (L) Appendix 6: Highest Priority Weeds within each Section	quality native vegetation. Large infestations persist in weedy areas.
D4 Cumberland River	
High Priority Actions	
Remove isolated and conspicuous weeds across the area such as White Arum Lily (<i>Zantedeschia aethiopica</i>), Agapanthus (<i>Agapanthus praecox</i> ssp <i>orientalis</i>) Fennel (<i>Foeniculum vulgare</i>) and Crassula (<i>Crassula multicava</i> ssp <i>multicava</i>). (S)	Not completed: Infestations of these species persist within the park.
Remove all Sweet Pittosporum (<i>Pittosporum undulatum</i>), Boneseed (<i>Chrysanthemoides monilifera</i> ssp <i>monilifera</i>), Coast Tea-tree (<i>Leptospermum laevigatum</i>), Mirror Bush (<i>Coprosma repens</i>), Myrtle-leaf Milkwort (<i>Polygala myrtifolia</i>) and Sallow Wattle (<i>Acacia longifolia</i> ssp <i>longifolia</i>) over the short to medium term in cooperation with Parks Victoria. (S - M)	Not completed: Infestations of these species persist within the park.
Medium Priority Actions	
Develop a Landscape, Recreation and Revegetation plan for the Caravan Park. (M)	Not completed: This plan is not yet complete
Investigate potential for localised environmental weeds awareness campaign annual campers summertime weed working bees. (M)	Not completed: This action has not been implemented.
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	Not completed: Infestations of these species persist within the park.

