

9 WEED MANAGEMENT STRATEGY 2019-29

FILE REFERENCE INT1939206

RESPONSIBLE GENERAL MANAGER Peter Benazic

AUTHOR Marianne Sawyer

RECOMMENDATION

That Council adopts the Weed Management Strategy.

Attachments

1	Weed Management Strategy 2019-29	21 Pages
2	Weed Management Strategy - Action Plan	5 Pages
3	Weed Management Strategy - Appendices	27 Pages
4	Weed Management Strategy - Exhibition Period Feedback	6 Pages

EXECUTIVE SUMMARY

Weeds have been identified as one of the top key threatening processes to a healthy viable ecosystem.

The *Pest Plant Management Strategy 2012-17* has been Council's guiding document for the protection of our biodiversity from the threats of weeds. It has guided the development and delivery of weed control programs across Council's landscape for the past five years. During implementation of this strategy a number of programs were delivered, on both Council land and working through collaboration with various land managers.

The Pest Plant Management Strategy is now out of date. The *Weed Management Strategy 2019-29* now replaces it. It builds upon the achievements to date and relationships developed, however seeks significant additional investment to meet council's legislative responsibilities.

The new strategy is framed around the three themes of protect, manage and engage, which guide the goals, objectives and action plan. The themes focus strongly on preventing new weeds arising, while strategically allocating resources to those that already exist. They also recognise the overall efficiency and environmental gains in working collaboratively with multiple land management agencies and the significant role the community plays in managing weeds.

BACKGROUND

Under the *Environment Protection and Biodiversity Conservation Act 1999*, the *Catchment and Land Protection Act* and the *Local Government Act 1989*, Council has an important legislative role to play in planning, coordinating and monitoring weed control actions in a manner inclusive of community and other land managers.

Over the past five years, this role has been guided by the *Pest Plant Management Strategy 2012-17*. Of the 19 strategy actions, the majority were completed and many remain ongoing.

Examples of projects delivered through the strategy include:

- Peri Urban Weed Partnerships program - a multi stakeholder, weed removal program located in the Cardinia Creek catchment. This program works across multiple land tenures covering an area of 174.42ha of reserves with 27km roadsides.
- Emerald Lake Park Vegetation Management Project - has resulted in large scale weedy tree removal e.g. Sycamore Maple, and Holly across 26 ha of forested area. This has led to the natural regeneration of a diverse range of native species.
- Delivery of the annual weed control grant scheme. This popular incentive program attracts an average of 100 applicants annually, and is always fully subscribed within the first six months of the year

The *Weed Management Strategy 2019-29* now replaces the outdated pest plant management strategy. It sets priorities for weed management, outlines Council's roles and responsibilities, and the role of other land managers, highlights the importance of a strategic and collaborative approach and provides a detailed 10 year costed action plan.

Community questionnaires and workshops completed in early 2018, contributed to the priorities set out in the strategy.

The strategy vision is:

Council, agencies and community working collaboratively to protect Cardinia Shire's landscape, biodiversity and agriculture from the negative impacts of weeds

To achieve this vision, the strategy is framed around three themes (which guide the goals, objectives and actions):

- **Protect** - by preventing new weed invasions
- **Manage** - by strategically allocating resources to existing weed invasions
- **Engage** - by working in a collaborative manner with agencies and community

The focus is on both preventing new weed invasions, whilst allocating resources to those that already exist. It also recognizes the role community plays in managing weeds across the landscape, and the need to work in a cooperative manner with stakeholder and relevant authorities across the municipality. There is an emphasis on community education and extension programs to ensure private landholder participation.

Thirty-three actions have been identified in a 10 year costed action plan to deliver on the goals, which will ensure Council meets its regulatory obligations.

POLICY IMPLICATIONS

The strategy is consistent with the *Sustainable Environment Policy 2018-28*. The goals within this strategy also compliment the goals of the *Biodiversity Conservation Strategy 2019-29*.

This strategy directly aligns with the Council Liveability Plan 'to increase in participation in open spaces and places.

RELEVANCE TO COUNCIL PLAN

The strategy goals and objectives align with the following objectives of the Council Plan:

2.3.1 Promote initiatives by the community and Council that connect and strengthen our communities.

2.3.2 Recognise, support and promote the value of volunteerism in our communities.

3.3.7 Protect and improve biodiversity by increasing the area of natural ecosystems across the Shire.

3.3.8 Preserve and improve our bushland and natural environment by implementing weed management strategies and programs and continuing activities on high conservation bushland reserves and roadsides.

3.3.9 Manage agricultural land use by supporting farmers to utilise sustainable farming practises.

3.4 Natural and built environments supporting the improved health and wellbeing of our communities

3.4.2 Raise awareness of our environment's impact on people's health and wellbeing by integrating the concept of liveability across all Council business units and including liveability indicators within the municipal public health and wellbeing plan.

CONSULTATION/COMMUNICATION

A community and stakeholder engagement plan has been developed for the strategy (as attached).

A detailed preliminary consultation process was undertaken throughout 2018, involving internal, external and community stakeholders.

Internal business units included:

- Operations
- Development and Compliance Services
- Information Services
- Policy Design Growth Area Planning
- Communications.

External agencies included:

- Department of Environment, Land, Water and Planning
- Department of Economic Development, Jobs, Transport and Resources
- Cardinia Environment Coalition
- Melbourne Water
- Vic Roads
- Port Phillip and Westernport Catchment Management Authority

There was a high participation rate in the preliminary consultation. Four workshops were organised with the stakeholder groups that involved 79 attendees, with 247 community surveys completed.

The community are highly invested in the outcomes of both the draft Weeds management strategy and the draft Biodiversity conservation strategy.

Issues/priorities derived from stakeholders during the consultation phase have been considered in the preparation of this draft strategy.

Community feedback

The draft strategy was placed on public exhibition for community feedback for a period of six weeks, ending on 25 March 2019. Respondents had a choice to participate in an online survey (through Our Say dashboard) or provide comments in writing (via email, in person or traditional mail). The draft Weed Management Strategy and draft Biodiversity Conservation Strategy were exhibited at the same time.

The exhibition of the draft strategy was promoted via social media and participants who responded to the initial workshops and surveys were contracted directly and invited to have their say.

The Draft Weed Management Strategy received a total of five responses through the survey, with an additional three written responses received through email. The responses were predominately

constructive, with some common reactions around the need to increase the level of funding to weed control programs and the earlier engagement of a Land Management Extension Officer.

The absence of response by other agencies was disappointing, despite being invited to participate. Refer to attachment Weed Management Strategy – exhibition period feedback (INT1921657) to view details on community comments and Council’s response.

Risk assessment

Council is required to meet its statutory obligations under relevant legislation, in protecting the environment from the threat of weeds. Weed populations are ever changing and show a rapid rise when outbreaks are not treated in a timely way. The costed action plan within the strategy assists council to meet its legislative requirements.

With a rapidly growing municipality, and disturbance to the environment, our biodiversity including endangered flora and fauna are under constant pressure, including from the ever increasing threat of weeds. The community holds Council accountable to meet these growing pressures to the environment.

FINANCIAL AND RESOURCE IMPLICATIONS

Financial and resource implications

Respondents to the exhibition period highlighted the need for additional funding, to deliver the programs outlined in the action plan and achieve strategy goals and objectives.

Table 1 outlines the pre and post exhibition funding totals, with an additional \$702,000 (over the life of the strategy) required from Council’s recurrent budget. This increase in budget is attributed to:

- bringing forward the Land Management Officer from 2024-25 to 2020-21 \$172,000
- increasing the Weed control grants \$90,000
- increasing the budget for weed reduction works in Council reserves \$450,000
- decreasing the environmental weed kit redesign and reprinting -\$10,000

Community feedback was strongly supportive of further increasing the roadside weed and pest animal program, however this was not included.

Table 1. pre and post exhibition funding totals

	Council funding per year (existing)	Additional Council funding sought	External funding sought	Total implementation costs
Pre-exhibition	2,160,000	1,865,000	1,974,000	5,999,000
Post exhibition	2,160,000	2,567,000	1,974,000	6,701,000
Variation	0	702,000	0	702,000

In total, the updated strategy requires a budget of \$6,701,000, of which \$2,160,000 exists within the recurrent operational budget and a further \$1,974,000 is required via external grants. Therefore, an additional \$2,567,000 (total) is required over the life of the strategy.

Table 2 outlines the annual cost of implementing the costed action plan, which will allow Council to achieve the goals and objectives outlined in the strategy.

Table 2. Action plan annual costs

Year of strategy	Council funding per year (existing)	Additional Council funding sought	External funding sought	Total implementation costs
2019/20	216,000	0	50,000	266,000
2020/21	216,000	243,000	76,000	535,000
2021/22	216,000	428,000*	231,000	875,000
2022/23	216,000	268,000	231,000	715,000
2023/24	216,000	268,000	231,000	715,000
2024/25	216,000	271,000	231,000	718,000
2025/26	216,000	276,000	231,000	723,000
2026/27	216,000	271,000	231,000	718,000
2027/28	216,000	271,000	231,000	718,000
2028/29	216,000	271,000	231,000	718,000
Totals	2,160,000	2,567,000	1,974,000	6,701,000

*This includes infrared GIS mapping that will be further investigated to understand the full potential and value, prior to implementation.

CONCLUSION

The *Weed Management Strategy 2019-29* supersedes the *Pest Plant Management Strategy 2012-17*. It details the course of action and costing for council for the next 10 years to carry out its legislative responsibility to control weeds across the municipality, protecting Cardinia Shire's landscape, biodiversity and agriculture from the threat of invasive weeds. It does this by providing a strategic focus through prioritised and collaborative program development and implementation across all land types.



Cardinia Shire Council

Weed Management Strategy 2019-29

June 2019

Prepared by:

Cardinia Shire Council
Environment and Heritage Unit

Published June 2019

© Cardinia Shire Council 2019
ABN: 32 210 906 807
20 Siding Avenue, Officer

PO Box 7, Pakenham Vic 3810
(DX 81006)

Phone: 1300 787 624
Email: mail@cardinia.vic.gov.au
Web: www.cardinia.vic.gov.au

Contents

1	Executive summary	5
2	Why a weed management strategy?	6
2.1	Vision, themes, goals and objectives	6
2.2	Weed classification	7
2.3	Significant weeds in Cardinia Shire	8
2.4	Sources of weeds	9
3	Managing weeds in Cardinia Shire	10
3.1	Roles and responsibilities	10
3.2	Program development	11
3.3	A collaborative approach to weed management	14
3.4	Community led programs and empowerment	15
3.5	Community education	15
4	Local legislation and compliance	16
4.1	Statutory planning	16
5	Monitoring and review	18
6	References	19
7	Action plan	20
8	Appendices	25

Figures

Figure 1.	Generalised invasion curve showing actions appropriate to each stage.....	13
Figure 2.	The Monitoring, Evaluation, Reporting, Improvement (MERI) cycle	18

Tables

Table 1.	Goals and objectives.....	7
----------	---------------------------	---

Abbreviations

AV	Agriculture Victoria
CaLP Act	<i>Catchment and Land Protection Act 1994</i>
CEC	Cardinia Environment Coalition
CPMGs	Community Pest Management Groups
DEDJTR	Department of Economic Development, Jobs Transport and Resources
DELWP	Department of Environment, Land, Water and Planning
EPA	Environment Protection Authority
ETR Act	<i>Emerald Tourist Railway Act</i>
ETRB	Emerald Tourist Railway Board
MW	Melbourne Water
PPWCMA	Port Phillip and Westernport Catchment Management Authority
VBT	Victorian Blackberry Taskforce
WONS	Weeds of National Significance

1 Executive summary

Weeds are nationally a significant problem. Weeds pose one of the biggest threats to the natural environment and change the balance of Australia's ecological biodiversity by displacing native plant and animal species. The costs of weed impacts are borne by all of us. Controlling weeds is everyone's responsibility. Under the *Local Government Act 1989*, Council has an important legislative role to play in planning, coordinating and monitoring weed control actions in a manner inclusive of community and other land managers.

The high priority actions from Council's *Pest Plant Management Strategy 2012–17* Action Plan were largely completed. This included on-ground works through collaborative projects, community incentive programs, annual weed programs on priority Council bushland and roadside reserves, and weed advocacy.

The primary focus of this strategy is goal setting for collaborative action on weed control across Cardinia Shire and action planning for the next 10 years. The strategy sits under the *Sustainable Environment Policy 2018–28*, and aligns directly to the objectives of Council's *Biodiversity Conservation Strategy 2019–2029*.

Progress of the actions in this strategy will be reviewed in 2024. A more detailed review of the entire strategy including progress towards the objectives outlined under each of the goals will take place after its conclusion in 2029.

Council's vision is that Council, agencies and the community work collaboratively to protect Cardinia Shire's landscape, biodiversity and agriculture from the negative impacts of weeds.

To achieve this vision, this plan is framed around three themes which will guide the goals, objectives and action plan. The themes are protect, manage and engage.

These focus on both preventing new weeds arising, while strategically allocating resources to those that already exist. The themes also recognise the need to work in a collaborative manner with parties within and outside the shire and the significant role the community plays in managing weeds in the landscape.

This strategy provides the context for the importance of weed management, the vision, goals and objectives, relevant legislation and policy, and outlines factors influencing the development of Council's weed management programs.

Cardinia has adopted the 'Weed threat matrix' which is a different approach to the majority of weed control programs undertaken by government agencies. It is based on the ecological value of specific sites where the highest quality sites are treated in the first year, then require less attention in subsequent years. This method preserves high quality sites and gradually expands them during the 10 years of this strategy.

The latter part of the strategy sets priorities for weed management in Cardinia Shire, Council's roles and responsibilities and the role of the community. A detailed action plan is provided guiding Council's investment (time, resources and funding) in weed management for the next 10 years.

2 Why a weed management strategy?

Cardinia Shire hosts a wide range of weedy introduced plants. Just over 400 species are considered to be naturalised in the municipality. Some of these are well established and widespread. Others are fairly recent introductions, with small populations. 36 of the 128 declared weeds listed under the *Victorian Catchment and Land Protection Act 1994*, are naturalised within Cardinia Shire, eight of these are also listed as Weeds of National Significance (WONS).

In 2007, Council recognised the importance of strategic weed control and developed the *Weed Management Strategy 2007*, to ensure weed infestations were appropriately managed, resources were effectively used and program outcomes monitored. In 2012, the *Pest Plant Management Strategy 2012–17* replaced the former strategy. This strategy continued the commitment of effectively reducing the prevalence and impacts of weeds across the municipality.

Community consultation workshops conducted in June/July 2018 to gauge the community's perception of key biodiversity issues, revealed that poor coordination of weed management across land tenures was rated as one of the top 20 issues. Lack of funding, low compliance follow-up and lack of comprehensive environmental community education/engagement program also rated as priority issues. These have been addressed in the action plan.

The challenge for Council is to develop weed management programs in a manner that meets the weed invasion and control pressures faced in a rapidly urbanising shire. This strategy charts the course of action to address this challenge, not just for Council, but for all land managers working collectively to reduce the impacts of weeds.

2.1 Vision, themes, goals and objectives

Vision: Council, agencies and community working collaboratively to protect Cardinia Shire's landscape, biodiversity and agriculture from the negative impacts of weeds

To achieve this vision, Council has framed this strategy around three themes which will guide the goals, objectives and actions.

- **Protect** – by preventing new weed invasions
- **Manage** – by strategically allocating resources to existing weed invasions
- **Engage** – by working in a collaborative manner with agencies and community

This strategy's high level goals and corresponding objectives link directly to the three themes of protect, manage and engage and align with the goals and objectives of the following strategies while addressing the needs and priorities of Cardinia Shire. See Table 1 for goals and objectives.

- the Australian Government's *Australian Weeds Strategy, Victoria's Invasive Plants*
- the Victorian Government's *Biodiversity Strategy 2037*
- the Victorian Government's *Animals Policy Framework*
- the Port Phillip and Western Port *Invasive Plants and Animals Strategy*

Table 1. Goals and objectives

Goal 1: Protect Cardinia Shire's landscape, biodiversity and agriculture from the threat of invasive weeds	
Objective 1.1:	Deliver on-ground weed management works consistent with Victorian and Australian government strategy and legislation.
Objective 1.2:	Ensure current weed populations on Council land do not increase and new incursions are addressed through annual monitoring and program planning and delivery.
Objective 1.3:	Provide support to landowners to protect biodiversity assets from weed invasions on private land and adjoining roadsides.
Goal 2: Manage – strategically allocate resources to local weed priorities consistent with regional, state and national priorities	
Objective 2.1:	Demonstrate best practise weed management on Council-owned and managed land, ensuring that Council land is not the source of invasion to neighbouring properties.
Objective 2.2:	Develop annual weed programs in collaboration with relevant agencies and community stakeholders to achieve a landscape scale approach.
Goal 3: Engage and empower our community to motivate them to collectively address weed issues	
Objective 3.1:	Provide leadership and support to the community for strategic and cost-effective weed management.
Objective 3.2:	Develop partnership programs with land managers, including private landholders, and volunteer groups such as landcare, and friends groups, to collectively reduce the impact of weeds.

2.2 Weed classification

Classifying weed species identifies particular traits that influence how they are controlled and managed. This includes the threat they currently or potentially pose to a region. Weeds can be significant at a property, local, regional, state or national level, based on their impact or potential impact. A number of listings of weeds are relevant to Cardinia Shire.

2.2.1 Nationally significant weeds

At a national level, the following three weed classifications are recognised (species lists are included in Appendix A).

Weeds of National Significance (WoNS) – Thirty-two WoNS have been declared by the Australian Government based on an assessment process prioritising these weeds on their invasiveness, potential for spread, and environmental, social and economic impacts. Consideration was also given to their ability to be successfully managed. National weed management guides and strategies are available for 20 of the 32 species. State and territory governments are responsible for legislating and administering the control of WoNS.

National Environmental Alert List (the Alert List) – this list complements the WoNS, identifying plant species that are in the early stages of establishment and have the potential to become a significant threat. It contains 28 non-native weeds that have established naturalised populations. Weed management guides are available for each of the 28 species.

Sleeper weeds – these are weeds that appear benign for many years, but may suddenly spread rapidly following certain natural events. Seventeen species have been identified as sleeper weeds, and 10 are thought to be eradicable.

2.2.2 State significant weeds

The main supporting legislation for the control of weeds in Victoria is the *Catchment and Land Protection Act 1994* (CaLP Act). Under the CaLP Act listed plants are declared as noxious weeds in Victoria. These plants cause environmental or economic harm or have the potential to cause harm. They can also present risks to human health. Responsibility for the control of noxious weeds is outlined in the CaLP Act and varies according to the category in which the weed is declared.

The CaLP Act defines four categories of noxious weeds (species listed in Appendix B) as defined below.

State prohibited weeds – these weeds either (a) do not occur in Victoria but pose a significant threat if they invade or (b) if they are present, they pose a serious threat and can reasonably be expected to be eradicated. If present, infestations of a state-prohibited weed are relatively small. If possible, they are to be eradicated from Victoria. The Victorian Government is responsible for their eradication but under Section 70(1) of the CaLP Act, Victorian Government may direct landowners to prevent their growth and spread.

Regionally prohibited weeds – these weeds are not widely distributed in a region but are capable of spreading further. It is reasonable to expect that they can be eradicated from a region and they must be managed with that goal. Landowners, including public authorities responsible for crown land management, must take all reasonable steps to eradicate regionally prohibited weeds on their land.

Regionally controlled weeds – these weeds are usually widespread in a region. To prevent their spread, ongoing control measures are required. Landowners have the responsibility to take all reasonable steps to prevent the growth and spread of regionally controlled weeds on their land.

Restricted weeds – this category includes plants that pose an unacceptable risk of spreading in Victoria and are a serious threat to another state or territory of Australia. The sale or trade of these weeds and their propagules is prohibited.

In addition, the Department of Environment, Land, Water and Planning (DELWP) has published an Advisory list of environmental weeds of the ranges bioregions of Victoria. This list is designed to assist in developing weed management plans, priority allocation of tasks and resources associated with weed control, management and extension activities, and policy development. No legal requirements flow from inclusion of a species in this advisory list, unless the species is already listed under other legislation where legal requirements apply.

Furthermore, the *Fisheries Act 1995* has declared some species as noxious aquatic plants. It is an offence to bring them into Victoria or possess, sell, transport or release them.

2.3 Significant weeds in Cardinia Shire

Of the 128 declared weeds listed under the Victorian *Catchment and Land Protection Act 1994*, (see appendices A, B and C for full list of declared noxious weed species), 36 are naturalised in Cardinia Shire and eight are also listed as WoNS.

Appendix C – Locally significant weed to Cardinia Shire lists primarily environmental weeds, but includes a number of problematic noxious weeds found in Cardinia Shire. The list is incorporated into Cardinia Shire's Planning Scheme under certain local provisions (see section on statutory planning for list of overlays this applies to). The inclusion of this list in the planning scheme schedules helps in educating the community and can provide a framework for enforcement under the *Planning and Environment Act (1987)*.

2.4 Sources of weeds

The origin of weed infestations in the shire's landscape is varied depending on geographical location. Common methods of weed spread includes through animals (carried on fur, in droppings, or through disturbed to soil), wind, water, drains, human boots/clothing and vehicles. Fire often stimulate the germination of weed seeds present in soil. The dumping of garden refuse and transportation of contaminated soil and animal fodder also accounts for many outbreaks of common weeds.

Biosecurity, enforced by the Department of Agriculture, plays an important role in the prevention of new outbreaks of weeds, but more importantly in the detection of new invasive species entering the state or into catchments where they are not yet present.

Biosecurity is a set of preventive measures, strategies and frameworks designed to reduce the risk of transmission of biological material (in this case weed species).

3 Managing weeds in Cardinia Shire

This section clarifies the roles and responsibilities of Council, agencies, community and landholders in weed control, according to land type. It highlights the importance of working collaboratively on weed management across the landscape and details the process of weed control program development.

Appendix E outlines all the Australian and Victorian government legislation and policies, along with Council policies relevant to managing weed species.

3.1 Roles and responsibilities

The legislative responsibility of landowners for weed control in Cardinia Shire differs according to land type. This includes Council-managed, private, and crown-managed land. Crown land may also differ in regards to the responsible agency. Crown land can be the responsibility of management committees or Council, or may have no designated land manager. The following describes the legislative responsibility of landowners according to land types within the shire.

Council land

Council is responsible for managing regionally controlled and regionally prohibited weeds on Council-owned or managed land. DEDJTR is responsible for the control of state prohibited weeds. While Council may lease land for a variety of reasons, if lease agreements do not include enforceable clauses designating weed control, then weed control remains the responsibility of Council. In some instances, Section 86 committees of management are established by Council with delegated responsibilities under Section 86 of the *Local Government Act 1989* to directly manage facilities and grounds, for example recreation reserves, on behalf of Council.

Cardinia Shire Council is responsible for developing and implementing this strategy. It does so in collaboration with other agency and community stakeholders as identified in the action plan.

Rail reserves

Vic Track is responsible for the maintenance of railway reserves. Under the CaLP Act, Vic Track is responsible for the control of regionally controlled and regionally prohibited weeds occurring in railway reserves. DEDJTR is responsible for the control of state prohibited weeds occurring in railway reserves.

Puffing Billy railway corridor

Under the *Emerald Tourist Railway Act* (ETR Act), the Emerald Tourist Railway Board (ETRB) has the responsibility for the preservation, development and maintenance of the railway line and its surrounds which constitute the railway corridor.

Crown land

Under the *Crown Land (Reserves) Act 1978*, designated public land managers are responsible for managing regionally controlled and regionally prohibited weeds on reserved Crown lands. This responsibility for weed control may also reside with established committees of management. DEDJTR is responsible for the control of state prohibited weeds.

Waterways

Melbourne Water is responsible for managing regionally controlled and regionally prohibited weeds along river banks and beds. Council commonly owns freehold land and is therefore responsible for managing regionally controlled and regionally prohibited weeds on this land. Private landowners are responsible for managing both regionally controlled and regionally prohibited weeds along waterways within private land. DEDJTR is responsible for controlling state prohibited weeds in all areas.

Flora and fauna reserves, state forests and state parks

The Department of Environment, Land, Water and Planning (DELWP) is responsible for controlling all noxious weeds on Crown land managed under the *Forests and Lands Act 1987* such as state forests. Parks Victoria often fulfils this responsibility in its role as the appointed land manager in land areas managed under the *National Parks Act 1975* such as state and national parks.

Roadsides

Managing invasive plants and animals on roadsides is regulated in principal by the *Catchment and Land Protection Act 1994* (CaLP Act). Other legislation affecting the control of these pests on roadsides is the *Road Management Act 2004* and the *Local Government Act 1989*.

The responsibility for roadside weed control depends on both the classification of roads under the *Transport Act 1983* and the classification of weeds under the CaLP Act. Currently, DEDJTR is responsible for the control of state prohibited weeds on all land, and regionally prohibited weeds on roadsides.

In Cardinia Shire, 368 areas of roadside are designated as being of 'very high' or 'high' conservation significance and as many of these roadsides occur on local roads, Council has traditionally taken responsibility for weed control in these areas. VicRoads (or local government acting as its agent) is responsible for managing all noxious weeds (except state prohibited weeds) on the declared road network. Under the *Road Management Act 2004*, the declared road network includes freeways, highways, and arterial roads. Roads that have not been declared under the act are known as 'undeclared' or local roads. Both Council and private landowners are responsible for managing regionally controlled weeds occurring on undeclared roadsides adjoining their land.

Volunteer groups

Volunteers are important to achieving sustainable weed management outcomes. Whether it be on private or public land, volunteer groups are the key to ongoing detection and treatment of weed management issues. This complements Council's weed control programs and the key element to success is communication and collaboration between Council and the groups.

Numerous natural reserves in Cardinia Shire have associated volunteers ('friends' groups and committees of management) that assist with weed control activities and work with Council on other reserve-related matters. Council offers annual grants to these groups to support their activities. Opportunities for training and further education also exist for these volunteers.

Other volunteer groups include those under the Landcare program. Landcare supports the management of natural resources on private land and in some cases public land, with a focus on sustainable land use practises both on farmland and in bushland areas.

Cardinia Shire has 10 Landcare groups and more than 15 'friends' groups working across the shire to provide and promote responsible land use practices, including weed control and revegetation works and associated native vegetation monitoring.

Landowners

Landowners, are key stakeholders in weed management as they occupy approximately 83 per cent of the land in Cardinia Shire. Their management actions directly influence the condition of soil, water and vegetation and, in turn, the condition of those assets influences their livelihoods, wellbeing and productivity.

Under the CaLP Act landowners are responsible for managing regionally controlled and regionally prohibited weeds on their land. DEDJTR is responsible for controlling state prohibited weeds on all land, including private land. Council engages with landholders regarding managing weeds on private land in order to achieve cross-tenure weed control outcomes, rather than focusing only on Council land.

See Section 3.3 – A collaborative approach to weed management.

3.2 Program development

3.2.1 Planning and prioritisation

Planning and developing weed prevention programs needs to be coordinated in conjunction with relevant land managers, for example government agencies, community groups and landowners.

Program outcomes are reliant on this collaborative effort as it ensures that cross-tenure outcomes are achieved. This approach also has the added benefit of pooling funding, resources and knowledge.

By strategically prioritising assets and targeting specific weeds (using Council's weed threat matrix explained in Section 3.2.2), control measures are tailored to sites and treatment frequency is built into a rolling program (annual, biannual, 3-year cycles). This asset-based program development aligns with the recommendations made by the *Australian Weeds Strategy* and Victoria's *Invasive Plants and Animals Policy Framework*. It also enables Council to ensure the protection of critical natural resources continues to be a priority.

Victorian Government investment for the control of weeds and pest animals is largely guided by decision support tools and products, such as the Strategic Management Prospects tool and Naturerprint mapping. This software has been developed by DELWP to assist land managers identify priority sites across Victoria where investment in weeds and pest animal programs will be most beneficial to the environment and the community.

3.2.2 Cardinia Shire 'weed threat matrix' and GPS mapping

To ensure a consistent approach to Cardinia Shire's annual weed programs, Council has developed a weed threat matrix (see Appendix D); a prioritisation tool guiding expenditure and establishing short, medium and long-term weed programs.

The weed threat matrix consists of two parts:

1. site prioritisation – identifying and ranking biodiversity assets based on a number of criteria that establish the environmental values contained or potentially contained in that parcel of land
2. weed assessment – identifying the weeds that pose the greatest risk to the assets at a site, using criteria based on the biology of the weed and population, its significance and impact, and ease of removal.

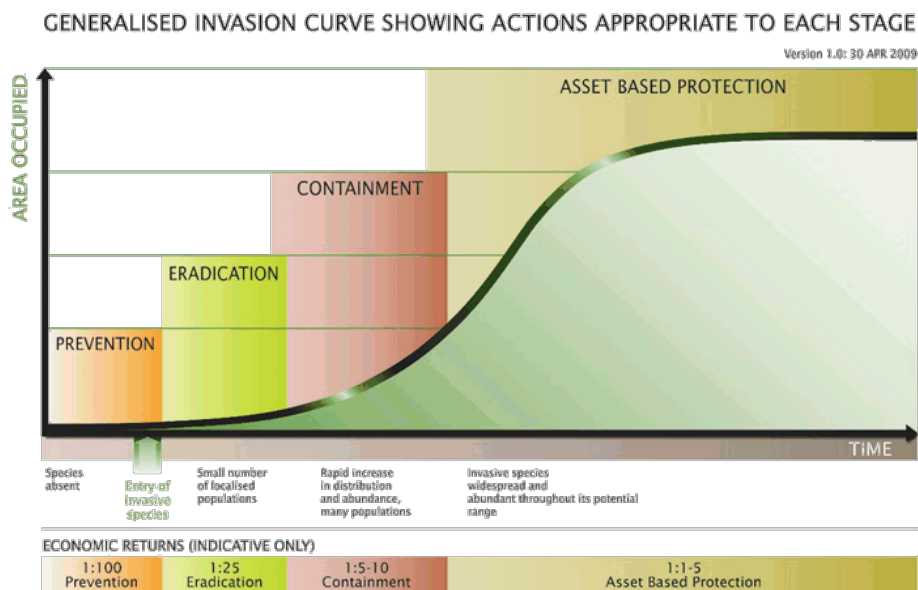
By recording and mapping the extent and type of weed invasions across the shire using GPS technology, Council is able to collect data to monitor existing weed species and record new and emerging weeds. This data is then applied to the weed threat matrix prioritisation tool to generate a score for the sites and level of weed threat. This information then feeds into planning and operational activities and provides greater clarity to the prioritisation of finite resources.

3.2.3 Biosecurity approach

Council has adopted the Australia wide biosecurity approach outlined in Victoria's *Biosecurity Strategy* and underlying *Invasive Plants and Animals Policy Framework* into planning and prioritisation of weed control activities in the shire. This approach recommends risk management to identify the threat of weeds to the environment, and then determines the most appropriate intervention to maximise public and biodiversity benefit. Interventional actions come in the form of prevention, eradication, containment or asset-based protection, depending on threat levels. The generalised invasion curve depicted in Figure 1 shows that the economic returns of preventing weed outbreaks from establishing in the shire, is far greater than trying to eradicate, contain and protect. It is important to note that this invasion curve is generalised and that good and bad investments at both ends of the spectrum will effect economic returns.

Given the rapid urbanisation of Cardinia Shire, rural zones in close proximity, and the development of major transport infrastructure, the importance of prevention and early intervention cannot be underestimated. This must be balanced with an emphasis on the ongoing management of many naturalised weeds in Cardinia Shire that pose a threat to biodiversity and other high value assets.

Figure 1. Generalised invasion curve showing actions appropriate to each stage



Source: www.vic.gov.au 2009

3.2.4 Weed control in reserves and roadsides

Council manages 77 bushland reserves across the municipality, covering an area of approximately 840 hectares. Council also has more than 940 kilometres of roadsides of which 93 are considered to have very high conservation value.

Council must be highly strategic in distributing finite resources to manage weed threats in bushland areas and roadsides. Actions must also be directed to build ecosystem resilience as a priority, rather than simply targeting the removal of a particular species. In practice, directing strategic weed management and building ecosystem resilience will mean focusing on high quality environmental areas where indigenous species will recolonise the treated site. This will also increase the extent of native vegetation in the reserve – a key goal of the Victorian Government’s *Native Vegetation Management Framework* and Council’s *Biodiversity Conservation Strategy 2019*.

Roadsides are vulnerable to weed invasion as they are subject to disturbance and the spreading of weeds by impacts such as machinery, slashing, neighbouring properties, drains and the dumping of garden refuse. They are a major area for concern for government and private landholders in terms of the potential serious effect on agricultural production, the natural environment and rural communities.

The significance of vegetation on roadsides is widely recognised and many roads are dominated by largely undisturbed remnant vegetation. This provides habitat for flora and fauna, landscape character and provides important corridors to larger areas of indigenous vegetation.

The management of invasive plants and animals on roadsides is principally regulated by the CaLP Act. Other legislation affecting the control of weeds on roadsides includes the *Road Management Act 2004* and the *Local Government Act 1989*. Responsibility for the operational management of roadside invasive plants is complex in nature despite legislation and has been debated for some years.

Some weed species on roadsides can provide habitat cover for species such as the southern brown bandicoot in certain localities across Cardinia Shire, including Bunyip, Bayles, Nar Nar Goon, Tynong,

Cardinia and Garfield. Careful planning of weed control programs in these sensitive areas is required in order to minimise disturbance and allow for habitat restoration.

The development of a Roadside Management Plan would consider the various roles of Council on roadsides (including grass slashing, tree works, drainage works and weed control) and outline how to best manage multiple objectives to achieve appropriate outcomes. Weed management on roadsides is one of many factors that needs to be considered to find a balanced approach, protecting indigenous vegetation and reducing fire risk.

Council has a role to play in supporting community group efforts for weed control where Friends groups or others take ownership in council reserves, and provide incentives and education for controlling weeds on private land, Areas of public land with high conservation significance such as state forest should also be protected from the threat of weeds from neighbouring land, whether council or privately owned.

3.3 A collaborative approach to weed management

Given the widespread status of weeds across the landscape, for many species there is no potential for eradication. As part of a new approach to biosecurity and effective weed management, recent emphasis has been placed on a citizen-focused approach, underpinned by more collaborative working arrangements between community and government.

Collaboration between Council, agencies and community groups to plan and deliver programs targeting problematic weed threats, achieves by far the best possible environmental outcome. It is important that future efforts are focused on developing new partnerships and expanding on current collaborations across all land tenures. Novel ideas need to be investigated and a number are proposed in the action plan.

Case study

Cardinia Creek riparian rehabilitation project

A working example of a successful partnership model is the multi-stakeholder environmental project located in the Cardinia Creek corridor. This project is funded by the Department of Environment, Land, Water and Planning. (DELWP) through the Peri Urban Weed Partnerships Initiative 2017–20. Agencies and community groups pool knowledge and resources, together to plan and deliver environmental outcomes at a catchment scale.

The project targets weed threats across multiple land tenures, including council bushland reserves, stream frontage reserves, roadsides, and public land, which occur alongside Cardinia Creek between Beaconsfield to the south, and Cardinia Reservoir Park to the north. The key objective is the restoration and protection of bushland located along the creek.

The partners to this project are Cardinia Shire Council, Parks Victoria, Melbourne Water, the Cardinia Environment Coalition, Vic Roads, Cardinia Creek Landcare Group, and the Friends of Cardinia Creek Sanctuary. Other participating community and corporate groups are local golf courses, scout groups, schools, and adjacent landholders. Cardinia Creek forms the municipal boundary between Cardinia Shire and the City of Casey, and as such, this project integrates with environmental works occurring through the City of Casey environmental works program.

Monitoring and evaluation of the project outcomes to date has revealed a general trend of a greater diversity of native plant species, through the eradication and containment of high threat weeds.

The biodiversity outcomes as a result of the works delivered are clearly a testament of joint effort and collaboration. This partnership model of working has meant complementary works are done in a targeted and strategic way, to achieve a better return on investment of funds and resources.

3.4 Community led programs and empowerment

For effective invasive weed programs, it is important for all levels of government to strengthen community capacity and confidence to take action on weeds. Agriculture Victoria supports community led programs such as the Victorian Blackberry Taskforce (VBT). These groups are led by active Victorian community members who are concerned about the impact of Victoria's worst invasive weeds. These groups are collectively called community pest management groups (CPMGs) and have been working with community members for years, supporting them to take action on pest species and building networks in the community. Council actively seeks opportunities to support community interest in these programs and strongly advocates the practices for short and long term benefits, to landowners and the environment.

Further opportunities exist for improvements to weed control including knowledge sharing, particularly through digital mechanisms, understanding the role of demographics and investigating the effectiveness of enforcement to support community led action (Agriculture Victoria, 2017).

Inappropriate land management practices on privately owned land can be a major cause of habitat loss and weed invasion. A change in these practices requires education and engagement. Changing human behaviour can be difficult and engaging landowners in making changes is no exception. Many possible factors influence landowner decisions and these vary according to each landowner and each property context. Effecting change in landowner behaviour is problematic because the private benefits of action by landowners are often uncertain. Commitment by government to enforce compliance or directly fund on-ground work is also limited.

The key issue here relates to how to motivate disengaged landholders and how to reach key audiences. Past studies, including a social research project conducted in 2012 through a partnership with Johns Hill Landcare Group and Cardinia Shire (Why don't they manage their weeds?), revealed that the three most dominant social barriers preventing landowners taking action are time, money and knowledge. It follows then, that interventions focusing on engaging and building human and social capacity, including one-on-one engagement, participation in groups, and involvement in short courses and field days have positive effects on adopting action.

3.5 Community education

Education is vital for increasing the community's understanding of weed issues and empowering individuals to take action to control weeds. Local government plays an important role in weed and environmental education for the community. Landholders in our shire have positively received the following weed management initiatives:

- weed control grants scheme
- Weed Identification Guide environmental weed management kit
- Weed Busters week and Trees for Weeds swap
- Gardens for wildlife program.
- Biodiversity Incentive Scheme

A suite of environmental education programs are provided, aiming to connect people with nature and link sustainable land management practises to healthy ecosystems. The rich knowledge bank and skills which exist amongst various Landcare and other environment groups is a great source of information for the broader community.

4 Local legislation and compliance

This section outlines mechanisms that are vested under local government through Victorian Government legislation, to enforce the control of weeds. Cardinia Shire Council's Local Laws and Planning Scheme are two of these mechanisms.

The *Local Government Act 1989* provides councils with the power to develop local laws concerning weed control within their municipalities. These local laws must be consistent with existing acts and/or regulations, and must not duplicate or be inconsistent with the planning scheme.

Under the *Catchment and Land Protection Act* 'it is the responsibility of land owners to take all reasonable steps to prevent the spread of regionally controlled weeds and established pest animals on a roadside that adjoins the land owner's land'.

Cardinia Shire is one of the few interface councils that have implemented a local law on weed control. The Local Law no. 17 Environment, Amenity and Asset Protection, Clause 58 states: 'The owner or occupier of land must not allow the land or adjoining nature strip to be a haven for noxious weeds, environmental weeds or pest animals'.

Weed issues arising on properties are enforceable under Local Law no. 17. Landholders breaching this local law by uncontrolled weed infestations will receive notification enforcing the removal of these weeds.

Although the Victorian Government provides some level of support to assist in weed enforcement for large properties, this is limited and has considerably reduced over time. As a result, the challenge exists to ensure landholders meet their legislated requirements to control noxious weeds on their land through Council's Local Law no. 17.

4.1 Statutory planning

Statutory planning provides an essential framework for future sustainable development and can play a significant role in weed management, especially when land is being developed. The planning scheme sets out policies for the use, development and protection of land, providing Council with opportunities for influencing vegetation management on private land.

It is important to note that while planning regulations can assist in the management of weeds, they can also hinder this process. Certain overlays and regulations placed on land may restrict the ability of landholders to remove or control weeds. Such limitations, including erosion control, heritage and community values, habitat protection and infrastructure damage, recognise that in certain situations the removal of weeds may be detrimental. To assist this, Council has put an exemption in place for the need to apply for a permit to remove high threat weed species.

Appendix C lists locally significant weeds to Cardinia Shire, which consists primarily of environmental weeds but includes a number of problematic noxious weeds found in the shire. The list is incorporated in the planning scheme under nine schedules within three overlays.

The inclusion of this list in the planning scheme schedules helps with public education and can provide a framework for enforcement under the *Planning and Environment Act (1987)*.

4.1.1 Planning permits

Planning permit conditions provide Council with a valuable tool to educate landowners and enforce environmentally responsible behaviour. While the use of planning permit conditions is limited to cases of new land use and development, it provides Council with an important method of protecting and/or improving remaining biodiversity assets. Permit conditions often used include avoiding the planting of weeds, the control of existing weeds, and for replacement indigenous plants to compensate for vegetation loss to be sourced from indigenous nurseries.

Planning conditions can be applied to new high-density residential developments in urban areas that prohibit the use of weeds listed in the planning scheme. This also ensures that known or potential weed species are not planted in urban landscapes (e.g. street trees).

4.1.2 Planning guidelines

Landscaping plans submitted to Council as part of a planning application need to be reviewed by Council's landscape officer to ensure that no environmental weeds are included on the plant list. This requires Council staff to cross-check plant lists with the weed list in the planning scheme. To improve the process a reference may be made to the planning scheme weed list when developers obtain permit applications or seek advice on developments. The onus is then on the applicant to select suitable landscaping plants.

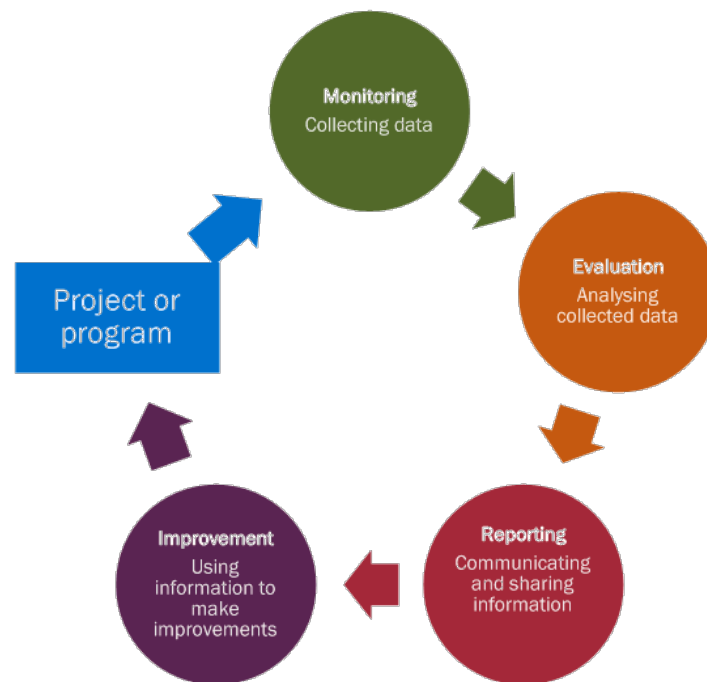
The guidelines for the removal, destruction or lopping of native vegetation is a resource that defines avoidance, minimising and offset principals for planning applicants that include native vegetation removal. These guidelines and supporting documentation are publicly available on the DELWP website.

5 Monitoring and review

To help understand whether Council's investment in weed programs is achieving planned outcomes, the design of weed management programs integrates monitoring and evaluation activities from the outset. Program review can then be based on the outcomes of this monitoring, thereby assisting in making better strategic decisions for long-term weed management.

This can be done through the cycle of monitoring, evaluation, reporting and improvement (MERI), as illustrated in Figure 2, which is a simple concept developed by the Victorian Government which, when applied, helps us understand what is being achieved and identify possible improvements for projects and programs.

Figure 2. The Monitoring, Evaluation, Reporting, Improvement (MERI) cycle



The use of GIS data capture of weed occurrences across the shire provides a real time snapshot of the extent, type and locations of weed populations, and is an effective dataset to base program planning and monitoring against.

Progress of the actions in this strategy will be reviewed in 2024. A more detailed review of the entire strategy, including progress towards the objectives outlined under each of the three goals, will take place after its conclusion in 2029.

6 References

Cardinia Shire Council Plan (2018–22)

Sustainable Environment Policy (2018–28)

Biodiversity Conservation Strategy (2019–29)

Cardinia Shire Liveability Plan (2017–29)

Context (2010) *Summary of Community Capacity Assessment: Conservation Groups and Organisations in three focus areas*. Final report, prepared for Australia Naturally Alliance.

Curtis, A. and Sample, R. (2010) *CBNRM in Victoria: contributing to dialogue, learning and action*. A report to the Victorian department of Sustainability and Environment. Charles Sturt University.

Agriculture Victoria - *Invasive Plants and Animals Policy Framework*. (2012) Melbourne, VIC.

Ecologically Sustainable Development Steering Committee (1992). *National Strategy for Ecologically Sustainable Development (NSED)*. Australian Government Department of the Environment and Water Resources, Canberra ACT

Thompson, J., Alexander, K. and Cooper, R. (2010) *A comparison of locally based program to inform future neighbourhood weed control programs*. A Report on Community Behaviour Change Programs prepared for Cardinia Shire Council.

Port Phillip & Westernport Catchment Management Authority (PPWCMA) (2011) *Port Phillip and Western Port Invasive Plants and Animals Strategy*.

Mohr, D.M. *Tools of change – Proven methods for promoting Health, Safety and Environmental citizenship*.

Natural Resource Management Ministerial Council - *Australia's Biodiversity Conservation Strategy 2010-2030*. Australian Government Department of the Environment and Water Resources, Canberra ACT.

Australian Government, Department of Environment and Water Resources, Canberra, ACT. *Australian Weeds Strategy 2017-2027*

Moss, W. and Walmsley, R. (2005) *Controlling the Sale of Invasive Garden Plants: Why Voluntary Measures Alone Fail*, WWF-Australia Discussion Paper. WWF-Australia, Sydney.

Victorian Serrated Tussock Working Party. Professor Allan Curtis, Mr Simon Curtis. *Decoy Marketing - Social research to motivate disengaged landowners: A summary. June 2018*

7 Action plan

8 Appendices

Appendix A – Nationally significant weeds

Appendix B – State significant weeds

Appendix C – Locally significant weeds to Cardinia Shire

Appendix D – Weed threat matrix

Appendix E – Legislation, policy and strategies for invasive plant management

Action plan

Table 1. Action plan annual costs

Year of strategy	Council funding per year (existing)	Additional Council funding sought	External funding sought	Total implementation costs
2019/20	216,000	0	50,000	266,000
2020/21	216,000	243,000	76,000	535,000
2021/22	216,000	428,000*	231,000	875,000
2022/23	216,000	268,000	231,000	715,000
2023/24	216,000	268,000	231,000	715,000
2024/25	216,000	271,000	231,000	718,000
2025/26	216,000	276,000	231,000	723,000
2026/27	216,000	271,000	231,000	718,000
2027/28	216,000	271,000	231,000	718,000
2028/29	216,000	271,000	231,000	718,000
Totals	2,160,000	2,567,000	1,974,000	6,701,000

*This includes infrared GIS mapping that will be further investigated to understand the full potential and value, prior to implementation.

Table 2. Protect action plan

No	Action	Action duration	Action start date	Lead	Partner	Council funding per year (existing)	Council funding per year (additional)	Total Council funding per year	Total Council funding over life of 10 year strategy	External funding required over the life of the action	Total funding over the life of 10 year strategy	Comments on Council total funding
1.	Continue to develop annual weed control programs for bushland reserves and road reserves, as part of a rolling treatment roster (1-3 years)	10 years	2019-20 onwards	Operations Unit (Open Space)	Environment and Heritage, VicRoads, Information Services							
2.	Continue to collaborate with partner agencies, community groups and landholders, to plan and implement weed programs.	10 years	2019-20 onwards	Environment and Heritage	Operations Unit (Open Space), DELWP, community groups							
3.	Seek external funds to continue the Emerald Lake Park Vegetation Management Project.	10 years	2019-20 onwards	Environment and Heritage	DELWP, MW, PPWCMA, Operations (Open Space)	50,000		50,000	500,000	500,000	1,000,000	
4.	Continue to use standard planning permit conditions to avoid the planting of weedy species in new developments.	10 years	2019-20 onwards	Environment and Heritage	Development and Compliance Services							
5.	Investigate opportunities to utilise depot machinery to undertake weed control works on roadsides.	10 years	2019-20 onwards	Operations Unit (Open Space)	Environment and Heritage							
6.	Update the schedules to environmental overlays and Clause 52.17 in Cardinia Shire Planning Scheme with the reviewed Cardinia environment weed list	2 year	2020-21 to 2021-22	Policy Design Growth Area Planning	Environment and Heritage							
7.	Seek budget allocation to undertake weed mapping to inform a new GIS weed layer for Council bushlands and road reserves (to assist in the development of annual weed control programs).	9 year	2020-21 onwards	Operations Unit (Open Space)	Environment and Heritage	6000	14,000	20,000	186,000		186,000	Total Council funding for life of strategy equals \$5,000 in 2019-20 \$20,000 in 2020-21 onwards
8.	Seek funding for a future stage of the Cannibal Creek Catchment Biodiversity Project (beyond 2021), and continue Council's funding co-contribution to the project.	8 years	2021-22 onwards	Environment and Heritage	DELWP, MW, PPWCMA, Landcare, Operations Unit (Open Space)	20,000		20,000	200,000	640,000	840,000	Council funding for life of strategy (10 years) equals \$20,000 each year
9.	Investigate and develop of a Machinery Fleet Hygiene Protocol for the Operations fleet.	1 year	2021-22	Environment and Heritage	Operations Unit (Open Space), Agriculture Victoria							

No	Action	Action duration	Action start date	Lead	Partner	Council funding per year (existing)	Council funding per year (additional)	Total Council funding per year	Total Council funding over life of 10 year strategy	External funding required over the life of the action	Total funding over the life of 10 year strategy	Comments on Council total funding
10.	Provide input into the review of Council's roadside management plan to reinforce the aims of the weed management strategy	1 year	2022-23	Environment and Heritage	Operations Unit (Open Space)							
11.	Develop a 'new and emerging weeds' protocol to detect and respond to specific weed threats including identification, control and monitoring of such outbreaks.	1 year	2024-25	Environment and Heritage	Operations Unit (Open Space), DEDJTR							

Table 3. Manage action plan

No	Action	Action duration	Action start date	Lead	Partner	Council funding per year (existing)	Council funding per year (additional)	Total Council funding per year	Council funding over life of action	External funding required over the life of the action	Total funding over the life of 10 year strategy	Comments on Council total funding
12.	Monitor and evaluate effectiveness of weed control contractors.	10 years	2019-20 onwards	Operations Unit (Open Space)								
13.	Continue to work in partnership with the Victorian Government through the Roadside Weeds and Pest Animals Program to deliver actions reducing the impact of weeds on identified rural roadsides	10 years	2019-20 onwards	Operations Unit (Open Space)								
14.	Continue to inform key public land managers of weed priorities in Cardinia and encourage a strategic long-term approach to weed control, including addressing any concerns of weeds on adjoining council and private land	10 years	2019-20 onwards	Environment and Heritage	Operations (Open Space)							
15.	Advocate to DEDJTR to continue to provide support to local government for weed control on private land through an ongoing weed enforcement program	10 years	2019-20 onwards	Environment and Heritage	DEDJTR							
16.	Continue to act as lead agency and work in collaboration with stakeholders involved in the current Peri Urban Weed Partnerships Project, (2019-2021)	3 years	2019-20 to 2021-22	Environment and Heritage	Operations Unit (Open Space), DELWP, Parks Vic, CEC, MW							
17.	Expand annual weed reduction programs for Council bushlands	9 years	2020-21 onwards	Operations Unit (Open Space)	Environment and Heritage	70,000	130,000	200,000	1,870,000		1,870,000	Total Council funding for life of strategy equals \$70,000 in 2019-20 \$200,000 in 2020-21 onwards
18.	Seek annual funding allocation for roadside weeds program, to match Victorian Government	9 years	2020-21 onwards	Environment and Heritage	Operations (Open Space)		26,000	26,000	234,000	234,000	468,000	

No	Action	Action duration	Action start date	Lead	Partner	Council funding per year (existing)	Council funding per year (additional)	Total Council funding per year	Council funding over life of action	External funding required over the life of the action	Total funding over the life of 10 year strategy	Comments on Council total funding
	contribution through the Roadside Weeds and Pests Animal Program											
19.	Investigate how to best support Development and Compliance Services to enforce Local Law 17.	9 year	2020-21	Environment and Heritage	Development and Compliance Services							Contingent on employment of new land extension officer
20.	Work in partnership with DEDJTR to deliver the Weed Spotters Program every 2 years for landholders and council staff.	9 years	2020-21 onwards	Environment and Heritage	DEDJTR, Operations Unit (Open Space)							Contingent on employment of new land extension officer
21.	Investigate the opportunities and seek budget to use GIS infrared mapping to understand weed extent.	1 year	2021-22	Environment and Heritage	Information Services		160,000	160,000	160,000		160,000	
22.	Seek funding for a future stage of the Peri Urban Weed Partnerships Project (beyond 2021), and continue Council's funding co-contribution to the project	8 years	2021-22 onwards	Environment and Heritage	DELWP	50,000	25,000	75,000	700,000	600,000	1,300,000	Total Council funding for life of strategy equals \$50,000 in 2019-20 & 2020-21 \$75,000 in 2021-22 onwards
23.	Advocate the formation of an Agency Weed Network to share approaches/knowledge with other land managers/agencies.	1 year	2022-23	Environment and Heritage	External agencies							

Table 4. Engage action plan

No	Action	Action duration	Action start date	Lead	Partner	Council funding per year (existing)	Council funding per year (additional)	Total Council funding per year	Council funding over life of action	External funding required over the life of the action	Total funding over the life of 10 year strategy	Comments for Council total funding
24.	Continue to provide direction and support to environmental friends groups to plan and implement weed control programs in council reserves.	10 years	2019-20 onwards	Operations Unit (Open Space)								
25.	Provide training to relevant Council departments to assist in weed identification and reporting.	10 years	2019-20 onwards	Environment and Heritage								

No	Action	Action duration	Action start date	Lead	Partner	Council funding per year (existing)	Council funding per year (additional)	Total Council funding per year	Council funding over life of action	External funding required over the life of the action	Total funding over the life of 10 year strategy	Comments for Council total funding
26.	Expand the Weed Control Grant program.	9 years	2020-21 onwards	Environment and Heritage		20,000	30,000	50,000	470,000		470,000	Total Council funding for life of strategy equals \$20,000 in 2019-20 \$50,000 in 2020-21 onwards
27.	Seek funding for a 0.5 FTE Land Management Extension Officer to support community sustainable land practises	9 years	2020-2021 onwards	Environment and Heritage	Westernport Landcare Network, Cardinia Environment Coalition.		43,000	43,000	387,000		387,000	
28.	Investigate opportunities for Operations staff to report weed incursions	1 year	2022-23	Environment and Heritage	Operations (Open Space)							
29.	Investigate if a process exists to ensure that Committees of Management for Shire or Crown land are meeting their weed control responsibilities	1 year	2023-24	Environment and Heritage	PPWCMA, PV, DEDJTR							
30.	Expand current Tree for Weeds Swap program from one site (Emerald) to include Beaconsfield and Bunyip.	5 years	2024-25 onwards	Environment and Heritage	Community groups		3,000	3,000	15,000		15,000	Contingent on employment of new Land Management Extension Officer
31.	Provide environmental educational literature to the community through Weed Identification Booklet, Indigenous Plant Guide, and Environmental Weed Kits.	5 years	2024-25 onwards	Environment and Heritage								Contingent on employment of new Land Management Extension Officer
32.	Investigate the formation of a community led weed taskforce	1 years	2024-25	Environment and Heritage	AV, DEDJTR							Contingent on employment of new Land Management Extension Officer
33.	Redesign and reprint of Council's Environmental weed kits	1 year	2025-26	Environment and Heritage	Communications		5,000	5,000	5,000		5,000	

Appendix A – Nationally significant weeds

Weeds of national significance

Scientific name	Common name
<i>Alternanthera philoxeroides</i>	Alligator weed
<i>Tamarix aphylla</i>	Athel pine
<i>Chrysanthemoides monilifera</i>	Bitou bush / Boneseed
<i>Rubus fruticosus</i> agg.	Blackberry
<i>Asparagus asparagoides</i>	Bridal creeper
<i>Cabomba caroliniana</i>	Cabomba
<i>Nassella neesiana</i>	Chilean needle grass
<i>Ulex europaeus</i>	Gorse
<i>Hymenachne amplexicaulis</i>	Hymenachne
<i>Lantana camara</i>	Lantana
<i>Prosopis</i> spp.	Mesquite
<i>Mimosa pigra</i>	Mimosa
<i>Parkinsonia aculeata</i>	Parkinsonia
<i>Parthenium hysterophorus</i>	Parthenium weed
<i>Annona glabra</i>	Pond apple
<i>Acacia nilotica</i> ssp. <i>indica</i>	Prickly acacia
<i>Cryptostegia grandiflora</i>	Rubber vine
<i>Salvinia molesta</i>	Salvinia
<i>Nassella trichotoma</i>	Serrated tussock
<i>Salix</i> spp. except <i>S. babylonica</i> , <i>S. X calodendron</i> and <i>S. X reichardtiji</i>	Willows except weeping willows, pussy willow and sterile pussy willow

National environmental alert list

Scientific name	Common name
<i>Acacia catechu</i>	Cutch Tree
<i>Acacia karroo</i>	Karoo Thorn
<i>Asystasia gangetica</i> subsp. <i>Micrantha</i>	Chinese Violet
<i>Barleria prionitis</i>	Barleria
<i>Bassia scoparia</i> subsp. <i>Densiflora</i>	Kochia
<i>Calluna vulgaris</i>	Heather
<i>Chromolaena odorata</i>	Siam Weed
<i>Cynoglossum creticum</i>	Blue Hound's Tongue
<i>Cyperus teneristolon</i>	Cyperus
<i>Cytisus multiflorus</i>	White Spanish Broom
<i>Dittrichia viscosa</i>	False Yellowhead
<i>Equisetum</i> species	Horsetails
<i>Gymnocoronis spilanthoides</i>	Senegal Tea Plant
<i>Hieracium aurantiacum</i>	Orange Hawkweed
<i>Koelreuteria elegans</i> subsp. <i>Formosana</i>	Chinese Rain Tree
<i>Lachenalia reflexa</i>	Yellow Soldier
<i>Lagarosiphon major</i>	Lagarosiphon
<i>Nassella charruana</i>	Lobed Needle Grass
<i>Nassella hyalina</i>	Cane Needle Grass
<i>Pelargonium alchemilloides</i>	Garden Geranium
<i>Pereskia aculeata</i>	Leaf Cactus
<i>Piptochaetium montevidense</i>	Uruguayan Rice Grass
<i>Praxelis clematidea</i>	Praxelis
<i>Retama raetam</i>	White Weeping Broom
<i>Senecio glastifolius</i>	Holly Leaf Senecio
<i>Thunbergia laurifolia</i>	Laurel Clock Vine
<i>Tipuana tipu</i>	Rosewood
<i>Trianoptiles solitaria</i>	Subterranean Cape Sedge

Sleeper weeds

Category 1

Species that are considered to have been eradicated but are recommended for ongoing field monitoring

Scientific name	Common name
<i>Crupina vulgaris</i>	Common Crupina
<i>Eleocharis parodii</i>	Parodi Spike Rush
<i>Piptochaetium montevidense</i>	Uruguayan Ricegrass

Category 2

Species for which recent field surveys are complete and immediate eradication is recommended.

Scientific name	Common name
<i>Asystasia gangetica</i> ssp. <i>micrantha</i>	Chinese Violet
<i>Baccharis pingraea</i>	Chilquilla
<i>Centaurea eriophora</i>	Mallee Cockspur
<i>Nassella charruana</i>	Lobed Needle Grass
<i>Oenanthe pimpinelloides</i>	Meadow Parsley, Water Dropwort
<i>Onopordum tauricum</i>	Taurian Thistle

Category 3

Species considered suitable for eradication but for which field surveys on distribution are recommended to confirm feasibility of eradication.

Scientific name	Common name
<i>Aeschynomene paniculata</i>	Pannicle Jointvetch
<i>Gmelina elliptica</i>	Badhara Bush
<i>Rorippa sylvestris</i>	Creeping Yellow Cress

Category 4

Eradication is desirable but probably not feasible, and field surveys on distribution are recommended to confirm this assessment

Scientific name	Common name
<i>Cuscuta suaveolens</i>	Chilean Dodder
<i>Brillantaisia lamium</i>	Giant Tropical Salvia
<i>Hieracium aurantiacum</i>	Orange Hawkweed
<i>Froelichia floridana</i>	Snakecotton
<i>Hypericum tetrapterum</i>	Square-stalked St John's Wort

Appendix B – State significant weeds

Current at 20 July 2017

State significant weeds

Schedule 1: State prohibited weeds

Scientific name	Common name
<i>Acacia erioloba</i> E. Mey	Giraffe thorn
<i>Acacia karroo</i> Hayne	Karoo thorn
<i>Alhagi maurorum</i> Medik.	Camel thorn
<i>Alternanthera philoxeroides</i> (Mart.) Griseb.	Alligator weed
<i>Ambrosia psilostachya</i> DC.	Perennial ragweed
<i>Cannabis sativa</i> L.	Marijuana
<i>Carduus nutans</i> L.	Nodding thistle
<i>Centaurea nigra</i> L.	Black knapweed
<i>Eichhornia crassipes</i> (Mart) Solms	Water hyacinth
<i>Equisetum</i> L. spp.	Horsetail
<i>Fallopia japonica</i> (Houtt.) Ronse Decr.	Japanese knotweed
<i>Fallopia sachalinensis</i> (F. Schmidt ex Maxim) Ronse Decr.	Giant knotweed
<i>Fallopia x bohemica</i> (Chrtek & Chrtkova) J.P.Bailey	Japanese knotweed hybrid
<i>Festuca gautieri</i> (Hack.) K. Richt.	Bear-skin fescue
<i>Hieracium</i> spp.	Hawkweed
<i>Hypericum triquetrifolium</i> Turra	Tangled hypericum
<i>Iva axillaris</i> Pursh.	Poverty weed
<i>Lagarosiphon major</i> (Ridl.) Moss	Lagarosiphon
<i>Malvella leprosa</i> (Ortega) Krapov.	Ivy-leafed sida
<i>Nassella charruana</i> (Arechav.) Barkworth	Lobed needle grass
<i>Nassella tenuissima</i> (Trin.) Barkworth	Mexican feather grass
<i>Orobanche ramosa</i> L.	Branched broomrape
<i>Parthenium hysterophorus</i> L.	Parthenium weed
<i>Prosopis</i> spp.	Mesquite
<i>Salvinia molesta</i> D.S. Mitch.	Salvinia

Regionally significant weeds**Schedule 2**

Regionally prohibited weeds (P), regionally controlled weeds (C), or restricted weeds (R)

Scientific name	Common name	Corangamite	East Gippsland	Glenelg	Goulburn	Mallee	North Central	North East	Port Phillip and Westernport	West Gippsland	Wimmera
<i>Acacia nilotica</i> (L.) <i>Delile subsp. indica</i> (Benth.) Brenan	Prickly acacia	Restricted weed (R) in the whole of the State									
<i>Ailanthus altissima</i> (Mill.) Swingle	Tree of heaven	R	C	C	C	R	R	C	C	C	R
<i>Allium triquetrum</i> L.	Angled onion	Restricted weed (R) in the whole of the State									
<i>Allium vineale</i> L.	Wild garlic	R	R	R	P	C	C	C	R	R	C
<i>Alternanthera pungens</i> Kunth.	Khaki weed	R	P	R	C	R	C	P	P	R	C
<i>Amsinckia</i> spp.	Amsinckia	P	C	P	C	R	C	C	C	P	R
<i>Andropogon gayanus</i> Kunth	Gamba grass	Restricted weed (R) in the whole of the State									
<i>Annona glabra</i> L.	Pond apple	Restricted weed (R) in the whole of the State									
<i>Anredera cordifolia</i> (Ten.) Steenis	Madeira vine	Restricted weed (R) in the whole of the State									
<i>Asparagus aethiopicus</i> L.	Ground asparagus	Restricted weed (R) in the whole of the State									
<i>Asparagus africanus</i> Lam.	Ornamental asparagus	Restricted weed (R) in the whole of the State									
<i>Asparagus asparagoides</i> (L.) Druce	Bridal creeper	Restricted weed (R) in the whole of the State									
<i>Asparagus declinatus</i> L.	Bridal veil creeper	Restricted weed (R) in the whole of the State									
<i>Asparagus plumosus</i> Baker	Climbing asparagus	Restricted weed (R) in the whole of the State									
<i>Asparagus scandens</i> Thunb.	Asparagus fern	Restricted weed (R) in the whole of the State									
<i>Austrocylindropuntia</i> Backeb. spp.	Opuntoid cacti	Restricted weed (R) in the whole of the State									
<i>Calicotome spinosa</i> (L.) Link	Spiny broom	C	R	R	R	R	R	P	P	R	C

Scientific name	Common name	Corangamite	East Gippsland	Gleneleg	Goulburn	Mallee	North Central	North East	Port Phillip and Westernport	West Gippsland	Wimmera
<i>Carduus tenuiflorus</i> Curtis/ <i>C. pycnocephalus</i> L.	Slender/ Shore thistle	R	C	R	R	R	R	C	C	C	R
<i>Carthamus lanatus</i> L.	Saffron thistle	R	C	R	C	R	R	C	C	C	C
<i>Cenchrus longispinus</i> (Hack.) Fernald	Spiny burr grass/ Gentle Annie	R	R	P	C	C	C	C	P	R	C
<i>Centaurea calcitrapa</i> L.	Star thistle	R	C	R	R	R	R	C	P	C	R
<i>Centaurea solstitialis</i> L.	St Barnaby's thistle	P	P	P	C	R	R	C	P	P	C
<i>Cestrum parqui</i> L'Her.	Chilean cestrum	R	P	R	C	R	R	C	P	P	C
<i>Chondrilla juncea</i> L.	Skeleton weed	R	R	C	R	R	R	R	P	R	R
<i>Chrysanthemoides monilifera</i> (L.) Norl.	Boneseed/ Bitou bush	C	P	C	C	C	P	P	C	C	C
<i>Cirsium arvense</i> (L.) Scop.	Californian/ Perennial thistle	C	C	C	C	R	P	P	C	C	C
<i>Cirsium vulgare</i> (Savi) Ten.	Spear thistle	R	C	R	R	R	R	C	C	C	R
<i>Conium maculatum</i> L.	Hemlock	C	R	R	C	R	R	C	C	C	R
<i>Convolvulus arvensis</i> L.	Bindweed	R	P	R	R	R	R	C	C	C	C
<i>Crataegus monogyna</i> Jacq.	Hawthorn	R	C	R	C	R	R	C	C	C	C
<i>Cryptostegia grandiflora</i> R. Br.	Rubber vine	Restricted weed (R) in the whole of the State									
<i>Cuscuta</i> L. spp.	Dodder	R	R	R	C	R	R	C	C	P	P
<i>Cylindropuntia</i> (Engelm.) F. M. Knuth spp.	Opuntoid cacti	Restricted weed (R) in the whole of the State									
<i>Cynara cardunculus</i> L.	Artichoke thistle	C	R	R	P	C	C	P	C	P	R

Scientific name	Common name	Corangamite	East Gippsland	Gleneig	Goulburn	Mallee	North Central	North East	Port Phillip and Westernport	West Gippsland	Wimmera
<i>Cytisus scoparius</i> (L.) Link	English broom	C	P	R	C	R	R	C	C	C	P
<i>Datura ferox</i> L.	Thorn apple (long-spine)	R	R	C	C	R	C	C	C	C	R
<i>Datura innoxia</i> Mill.	Thorn apple (recurved)	R	R	C	C	R	C	C	P	P	R
<i>Datura stramonium</i> L.	Thorn apple (common)	R	R	C	C	R	C	C	C	C	R
<i>Diploaxis tenuifolia</i> (L.) DC.	Sand rocket/ Sand mustard	R	R	C	R	R	R	R	C	R	R
<i>Dipsacus fullonum</i> L. subsp. <i>fullonum</i>	Wild teasel	R	R	R	R	R	R	C	C	C	R
<i>Ditrichia graveolens</i> (L.) Greuter	Stinkwort	R	R	R	R	R	R	C	C	R	R
<i>Dolichandra unguicati</i> (L.) L.G. Lohmann	Cat's claw creeper	Restricted weed (R) in the whole of the State									
<i>Echium plantagineum</i> L.	Paterson's curse	C	C	C	C	R	C	C	C	C	C
<i>Echium vulgare</i> L.	Viper's bugloss	C	C	C	C	R	R	C	C	C	C
<i>Emex australis</i> Steinh.	Spiny emex	R	R	R	C	C	R	C	P	R	P
<i>Eragrostis curvula</i> (Schrad.) Nees	African love grass	C	C	R	C	R	C	C	C	C	R
<i>Foeniculum vulgare</i> Mill.	Fennel	C	R	R	R	R	R	R	R	R	R
<i>Genista linifolia</i> L.	Flax-leaved broom	C	P	R	R	R	R	P	C	C	C
<i>Genista monspessulana</i> (L.) L.A.S. Johnson	Cape broom	C	C	R	C	R	R	C	C	C	C
<i>Hymenachne amplexicaulis</i> (Rudge) Nees	Hymenachne, Olive hymenachne	Restricted weed (R) in the whole of the State									
<i>Hypericum androsaemum</i> L.	Tutsan	R	C	R	C	R	R	C	C	C	R

Scientific name	Common name	Corangamite	East Gippsland	Gleneig	Goulburn	Mallee	North Central	North East	Port Phillip and Westernport	West Gippsland	Wimmera
<i>Hypericum perforatum</i> L.	St. John's wort	C	C	C	C	R	C	C	C	C	C
<i>Hypericum tetrapterum</i> Fr.	St. Peter's wort	R	R	R	R	R	R	C	C	R	R
<i>Jatropha gossypifolia</i> L.	Bellyache bush	Restricted weed (R) in the whole of the State									
<i>Juncus acutus</i> L.	Spiny rush	R	C	C	C	R	C	C	C	C	C
<i>Lantana camara</i> L.	Lantana	Restricted weed (R) in the whole of the State									
<i>Lavandula stoechas</i> L.	Topped lavender	R	R	R	R	R	R	C	R	R	R
<i>Lepidium draba</i> L.	Hoary cress	C	R	R	C	C	R	P	C	C	R
<i>Leucanthemum vulgare</i> Lam.	Ox-eye daisy	C	R	R	C	R	R	R	C	C	R
<i>Lycium ferocissimum</i> Miers	African boxthorn	C	C	C	C	C	C	C	C	C	C
<i>Marrubium vulgare</i> L.	Horehound	C	C	C	C	R	C	C	C	C	C
<i>Melianthus comosus</i> Vahl	Tufted honeyflower	R	R	R	C	R	R	R	C	C	R
<i>Mimosa pigra</i> L.	Mimosa, giant sensitive plant	Restricted weed (R) in the whole of the State									
<i>Moraea flaccida</i> (Sweet) Steud.	Cape tulip (one-leaf)	C	C	C	P	P	C	C	C	C	C
<i>Moraea miniata</i> Andrews	Cape tulip (two-leaf)	P	P	C	P	P	C	C	C	P	P
<i>Nassella neesiana</i> (Trin. & Rupr.) Barkworth	Chilean needle grass	Restricted weed (R) in the whole of the State									
<i>Nassella trichotoma</i> (Nees.) Hack. ex Arechav.	Serrated tussock	C	P	P	P	P	P	P	C	C	P
<i>Onopordum acanthium</i> L.	Scotch/ Heraldic thistle	C	C	C	C	R	P	C	P	C	R
<i>Onopordum acaulon</i> L.	Stemless thistle	R	C	R	R	R	R	C	P	R	R

Scientific name	Common name	Corangamite	East Gippsland	Gleneig	Goulburn	Mallee	North Central	North East	Port Phillip and Westernport	West Gippsland	Wimmera
<i>Onopordum illyricum</i> L.	Illyrian thistle	R	P	R	P	R	C	P	P	R	R
<i>Opuntia aurantiaca</i> Lindl.	Tiger pear	C	P	P	C	P	P	P	C	C	P
<i>Opuntia</i> Mill. spp. (except <i>O.aurantiaca</i> Lindl., <i>O. monacantha</i> Haw., <i>O. robusta</i> H.L. Wendl. ex Pfeiff., <i>Opuntia stricta</i> (Haw.) Haw., <i>O. ficus-indica</i> (L.) Mill.)	Opuntoid cacti	Restricted weed (R) in the whole of the State									
<i>Opuntia monacantha</i> Haw.	Prickly pear (drooping)	R	R	R	R	C	C	C	C	P	C
<i>Opuntia robusta</i> H.L. Wendl. ex Pfeiff.	Wheel cactus	R	R	R	R	C	C	C	P	R	C
<i>Opuntia stricta</i> (Haw.) Haw.	Prickly pear (erect)	R	R	R	R	C	C	C	C	P	C
<i>Oxalis pes-caprae</i> L.	Sour sob	Restricted weed (R) in the whole of the State									
<i>Parkinsonia aculeata</i> L.	Parkinsonia/ Jerusalem-thorn	Restricted weed (R) in the whole of the State									
<i>Pennisetum macrourum</i> Trin.	African feather grass	P	P	C	P	P	P	P	P	P	P
<i>Physalis hederifolia</i> A. Gray	Prairie ground cherry	C	R	R	C	C	C	C	C	R	P
<i>Picnemon acarna</i> (L.) Cass.	Soldier thistle	R	R	R	C	R	P	C	P	R	R
<i>Proboscidea louisianica</i> (Mill.) Thell.	Devil's claw (purple-flower)	R	R	C	C	R	R	C	P	R	R
<i>Proboscidea lutea</i> (Lindl.) Stapf	Devil's claw (yellow-flower)	R	R	C	C	R	R	C	P	R	R
<i>Reseda luteola</i> L.	Wild mignonette	Restricted weed (R) in the whole of the State									

Scientific name	Common name	Corangamite	East Gippsland	Gleneig	Goulburn	Mallee	North Central	North East	Port Phillip and Westernport	West Gippsland	Wimmera
<i>Rhaponcticum repens</i> (L.) Hildalgo	Hardheads/ Russian knapweed	P	R	P	C	C	C	P	P	R	C
<i>Rosa rubiginosa</i> L.	Sweet briar	C	C	C	C	R	C	C	C	C	C
<i>Rubus fruticosus</i> L. agg.	Blackberry	C	C	C	C	R	C	C	C	C	C
<i>Sagittaria</i> L. spp.	Arrowhead	P	P	P	C	P	C	C	P	P	P
<i>Salix</i> spp. (except <i>Salix alba</i> var. <i>caerulea</i> (Sm.) Sm., <i>Salix alba</i> x <i>matsudana</i> , <i>Salix babylonica</i> L., <i>Salix X calodendron</i> Wimm., <i>Salix caprea</i> L. 'Pendula', <i>Salix matsudana</i> Koidz 'Aurea', <i>Salix matsudana</i> Koidz 'Tortuosa', <i>Salix myrsinifolia</i> Salisb., and <i>Salix X reichardtii</i> A. Kern.)	Willows	Restricted weed (R) in the whole of the State									
<i>Salpichroa originifolia</i> (Lam.) Thell.	Pampas lily-of-the-valley	R	P	R	R	R	R	C	C	R	R
<i>Scolymus hispanicus</i> L.	Golden thistle	C	R	P	C	R	C	P	C	R	R
<i>Senecio jacobaea</i> L.	Ragwort	C	C	C	P	R	R	P	C	C	R
<i>Senecio madagascariensis</i> Poir.	Fireweed	Restricted weed (R) in the whole of the State									
<i>Senecio pterophorus</i> DC.	African daisy	P	R	C	P	R	P	P	C	P	P
<i>Silybum marianum</i> (L.) J. Gaertn.	Variegated thistle	R	C	R	C	R	R	C	C	C	R
<i>Solanum elaeagnifolium</i> Cav.	Silverleaf nightshade	C	R	P	C	C	C	C	P	R	C
<i>Solanum rostratum</i> Dunal	Buffalo burr	R	R	R	C	R	R	P	P	R	P

Scientific name	Common name	Corangamite	East Gippsland	Gleneig	Goulburn	Mallee	North Central	North East	Port Phillip and Westernport	West Gippsland	Wimmera
<i>Tamarix aphylla</i> (L.) H. Karst.	Athel pine/ tamarisk	Restricted weed (R) in the whole of the State									
<i>Tribulus terrestris</i> L.	Caltrop	C	R	C	C	R	C	C	P	P	C
<i>Ulex europaeus</i> L.	Gorse/ Furze	C	P	C	C	R	C	C	C	C	C
<i>Verbascum thapsus</i> L.	Great mullein	R	C	R	C	R	R	C	R	R	R
<i>Watsonia meriana</i> (L.) Mill. var <i>bulbillifera</i> (J.W. Mathews & L. Bolus) D.A. Cooke	Wild watsonia	C	C	R	R	R	R	C	C	C	R
<i>Xanthium spinosum</i> L.	Bathurst burr	C	C	C	C	R	C	C	C	C	C
<i>Xanthium strumarium</i> L.	Noogoora burr/ Californian burr	P	R	C	C	C	C	C	C	P	P

Appendix C – Locally significant weeds to Cardinia Shire

RP = Regionally Prohibited, RC = Regionally Controlled, WONS = Weeds of National Significance, R = Restricted in the whole of the state.

**Threat ratings (where rated) are derived from the risk rating score in the DELWP Advisory list of environmental weeds in Victoria 2018

Cardinia Shire environmental and declared noxious weed list

Scientific name	Common name	**Threat rating (Low, Medium, Medium High, High, Very high)	State classifications (where listed in a noxious weed category)
<i>Acacia baileyana</i>	Cootamundra Wattle	MH	
<i>Acacia decurrens</i>	Early Black Wattle		
<i>Acacia elata</i>	Cedar Wattle	H	
<i>Acacia floribunda</i>	White Sallow Wattle		
<i>Acacia longifolia</i>	Sallow Wattle	VH	
<i>Acacia longifolia subsp sophorae</i>	Coast Wattle		
<i>Acacia saligna</i>	Golden Wreath Wattle		
<i>Acer pseudo-platanus</i>	Sycamore Maple	H	
<i>Agapanthus praecox orientalis</i>	Agapanthus / African Lily	H	
<i>Allium triquetrum</i>	Angled Onion	H	R
<i>Alstromeria aurea</i>	Peruvian Lily	H	
<i>Amaryllis belladonna</i>	Belladonna Lily	H	
<i>Anredera cordifolia</i>	Madeira vine	H	R
<i>Anthoxanthum odoratum</i>	Sweet Vernal Grass	H	
<i>Arctotheca calendula</i>	Cape Weed	M	
<i>Asparagus asparagoides</i>	Bridal Creeper	H	WONS, R
<i>Asparagus scandens</i>	Asparagus Fern	H	WONS, R
<i>Berberis darwinii</i>	Darwin's Berberry	H	
<i>Briza minor</i>	Shivery Grass	MH	
<i>Briza maxima</i>	Quaking Grass	MH	
<i>Buddleia variabilis</i>	Butterfly Bush	H	
<i>Calicotome spinosa</i>	Spiny broom	H	Noxious (RP)

Scientific name	Common name	**Threat rating (Low, Medium, Medium High, High, Very high)	State classifications (where listed in a noxious weed category)
<i>Carduus tenuiflorus</i>	Slender Thistle		Noxious (RC)
<i>Castanea spp.</i>	Chestnut		
<i>Cestrum elegans</i>	Red Cestrum	VH	
<i>Chamaecytisus palmensis</i>	Tree Lucerne	VH	
<i>Chrysanthemoides monilifera var monilifera</i>	African Boneseed	H	Noxious (RC), WONS
<i>Chrysanthemum maximum</i>	Shasta Daisy		
<i>Cirsium vulgare</i>	Spear thistle	MH	Noxious (RC)
<i>Clematis vitalba</i>	Old Man's Beard	VH	
<i>Conium maculatum</i>	Hemlock	MH	Noxious (RC)
<i>Conyza bonariensis</i>	Tall Fleabane		
<i>Coprosma repens</i>	Mirror Bush	VH	
<i>Coprosma robusta</i>	Karamu	VH	
<i>Cordyline australis</i>	Cabbage Tree	H	
<i>Cornus capitata</i>	Evergreen Dogwood		
<i>Cortaderia selloana</i>	Pampas Grass	H	
<i>Cotoneaster spp.</i>	Cotoneaster	VH	
<i>Crataegus monogyna</i>	Hawthorn	H	Noxious (RC)
<i>Crocosmia x crocosmiifolia</i>	Montbretia	VH	
<i>Cytisus palmensis</i>	Tree Lucerne		
<i>Cytisus scoparius</i>	English Broom	H	Noxious (RC)
<i>Cyperus erogrostis</i>	Drain Flat Sedge	M	
<i>Delairea odorata</i>	Cape Ivy	VH	
<i>Dipogon lignosus</i>	Common Dipogon (Dolichos Pea)	VH	
<i>Dodonea viscosa</i>	Sticky Hop Bush	L	
<i>Echium plantagineum</i>	Patersons Curse	H	Noxious (RC)
<i>Ehrharta erecta</i>	Panic Veldt Grass	VH	

Scientific name	Common name	**Threat rating (Low, Medium, Medium High, High, Very high)	State classifications (where listed in a noxious weed category)
<i>Ehrharta longiflora</i>	Annual Veldt grass	VH	
<i>Erica baccans</i>	Berry-flower Heath	VH	
<i>Erica lusitanica</i>	Spanish Heath	VH	
<i>Euryops abrotanifolius</i>	Euryops	H	
<i>Foeniculum vulgare</i>	Fennel	VH	R
<i>Fraxinus ornus</i>	Manna Ash	VH	
<i>Fraxinus angustifolia</i>	Desert Ash		
<i>Fraxinus oxycarpa</i>	Caucasian Ash	H	
<i>Galium aparine</i>	Cleavers	H	
<i>Genista linifolia</i>	Flax Leaf Broom	VH	Noxious (RC)
<i>Genista monspessulana</i>	Cape/Montpellier Broom	VH	Noxious (RC)
<i>Glyceria maxima</i>	Red Sweet Grass	VH	
<i>Hakea salicifolia</i>	Willow Hakea	VH	
<i>Hakea sauveolens</i>	Sweet Hakea	M	
<i>Hedra helix</i>	English Ivy	VH	
<i>Holcus lanatus</i>	Yorkshire Fog	H	
<i>Hypericum androsaemum</i>	Tutsan	H	Noxious (RC)
<i>Hypericum perforatum</i>	St.John's Wort	MH	Noxious (RC)
<i>Hypericum tetrapterum</i>	St. Peter's Wort	MH	Noxious (RC)
<i>Ilex aquifolium</i>	Holly	VH	
<i>Ipomoea indica</i>	Blue Morning Glory	H	
<i>Juncus acutus</i>	Spiny Rush	M	Noxious (RC)
<i>Lathyrus latifolius</i>	Sweet Pea	L	
<i>Leptospermum laevigatum</i>	Coast Tea Tree	VH	
<i>Leycesteria Formosa</i>	Himilayan Honeysuckle	VH	
<i>Ligustrum vulgare</i>	European Privet	VH	
<i>Lonicera japonica</i>	Japanese Honeysuckle	VH	

Scientific name	Common name	**Threat rating (Low, Medium, Medium High, High, Very high)	State classifications (where listed in a noxious weed category)
<i>Lycium ferocissimum</i>	African Boxthorn	VH	Noxious (RC)
<i>Marrubium vulgare</i>	Horehound	H	Noxious (RC)
<i>Melaleuca armillaris</i>	Giant Honey Myrtle	VH	
<i>Melaleuca hypericifolia</i>	Honey Myrtle	H	
<i>Moraea flaccida</i>	Cape Tulip	MH	Noxious (RC)
<i>Myosotis sylvatica</i>	Common Forget-me-not	M	
<i>Nassella trichotoma</i>	Serrated Tussock	VH	Noxious (RC)
<i>Oenothera stricta</i>	Common Evening Primrose	MH	
<i>Opuntia aurantiaca</i>	Prickly Pear	VH	
<i>Oxalis pes-caprae</i>	Soursob	VH	R
<i>Portulaca oleracea</i>	Common Purslane		
<i>Paraserianthis lapantha</i>	Cape Wattle		
<i>Passiflora sp. aff. mollissima</i>	Banana Passionfruit	VH	
<i>Pentaglottis serpvirens</i>	Alkanet		
<i>Phalaris aquatica</i>	Toowoomba Canary Grass	L	
<i>Phytolacca octandra</i>	Red Inkweed	H	
<i>Pinus radiata</i>	Monterey/Radiata Pine	VH	
<i>Pittosporum crassifolium</i>	Karo		
<i>Pittosporum undulatum</i>	Sweet Pittosporum	VH	
<i>Polygala myrtifolia</i>	Myrtle Leaf Milkwort	VH	
<i>Populus tremuloides</i>	American Aspen	H	
<i>Prunus cerasifera</i>	Cherry Plum	M	
<i>Prunus laurocerasus</i>	Cherry Laurel	H	
<i>Prunus lusitanica</i>	Portugal Laurel	VH	
<i>Psoralea pinnata</i>	Pinnate Scurf-Pea	H	
<i>Pyracantha spp.</i>	Firethorns	VH	
<i>Quercus robur</i> **	Oak		

Scientific name	Common name	**Threat rating (Low, Medium, Medium High, High, Very high)	State classifications (where listed in a noxious weed category)
<i>Ranunculus repens</i>	Creeping Buttercup	VH	
<i>Rhamnus alaternus</i>	Italian Buckthorn		
<i>Ricinus communis</i>	Castor Oil Plant	M	
<i>Robinia pseudacacia</i>	Black Locust Tree	H	
<i>Romulea rosea var australis</i>	Onion Grass	M	
<i>Rosa rubiginosa</i>	Sweet Briar	H	Noxious (RC)
<i>Rubus fruticosus</i> spp. agg.	Blackberry	VH	Noxious (RC), WONS
<i>Salix babylonica</i>	Weeping Willow		
<i>Salix cinerea</i>	Willow	VH	WONS, R
<i>Salpichroa origanifolia</i>	Pampas Lily of the Valley	MH	Noxious (RC)
<i>Senecio madagascariensis</i>	African Fireweed	VH	R
<i>Senecio jacobaea</i>	Ragwort	MH	Noxious (RC)
<i>Solanum elaeagnifolium</i>	Silverleaf Nightshade	MH	Noxious (RP)
<i>Solanum linnaeanum</i>	Apple of Sodom	MH	Noxious (RC)
<i>Solanum mauritianum</i>	Tree Tobacco	MH	
<i>Solanum nigrum</i>	Black Nightshade	M	
<i>Solanum pseudocapsicum</i>	Madeira Winter Cherry	H	
<i>Sollya heterophylla</i>	Blue-bell Creeper	VH	
<i>Spartina anglica</i>	Common Cord-grass		
<i>Tradescantia fluminensis</i>	Wandering Tradescantia	VH	
<i>Trapaolum majus</i>	Nasturtium	M	
<i>Ulex europaeus</i>	Gorse	H	Noxious (RC), WONS
<i>Ulmus procera</i>	English Elm	H	
<i>Verbascum thapsus</i>	Great Mullein	M	
<i>Viburnum tinus</i>	Laurestinus	L	
<i>Vinca major</i>	Blue Periwinkle	H	

Scientific name	Common name	**Threat rating (Low, Medium, Medium High, High, Very high)	State classifications (where listed in a noxious weed category)
<i>Viola odorata</i>	Fragrant Violet	H	
<i>Viola riviniana</i>	Wood Violet		
<i>Watsonia borbonica</i>	Rosy Watsonia		
<i>Watsonia meriana</i> var. <i>bulbillifera</i>	Bulbil Watsonia	VH	Noxious (RC)
<i>Willow spp</i>	Willows	VH	
<i>Xanthium spinosum</i>	Bathurst Burr	M	Noxious (RC)
<i>Zantedeschia aethiopica</i>	White Arum Lily	VH	

Appendix D – Weed threat matrix

Risk assessment

Determining risk is an essential component in helping to define priorities for weed prevention and control. A *risk* is the chance of something occurring that has the potential to cause loss, damage or injury, and the term is used within this strategy to describe the negative impact of weeds on the environmental, economic and social values of Cardinia Shire.

Council has adopted the 'Weed threat matrix' (based on a similar weed threat matrix developed by the Yarra Ranges Council 2005) to identify sites where risks are greatest and to set priorities for weed management. Part A of the matrix is designed to identify and rank biodiversity assets, while Part B identifies the threat weeds pose to these assets. This helps to determine which weed species should be controlled.

To what degree these species are controlled is then determined through the development of site-specific management plans, which take into account the level of resources available. Part B of the matrix, identifies weed species at the site (identified in Part A), and uses criteria to determine which weeds should be actively managed:

- The invasiveness of the species (derived from Carr et al. 1992)
- Listing under the CaLP Act 1994
- Listing on the PPWCMA Weed Action Plan
- Ease of removal and likely damage to surrounding vegetation
- Seed dispersal capabilities
- Life stage/maturity of the plants (seed bearing or immature)

The invasiveness of the species is based on the ranking system used by Carr et al. (1992) in Environmental Weed Invasions in Victoria. Carr et al. (1992) assessed weeds for invasiveness using the following criteria:

- Proven weediness for related plants
- Reproductive potential
- Dispersal and vectors of dispersal
- Ability to flourish in a given climate

Prioritising weed control

The matrix is a site-based assessment that prioritises weed control based on the ecological value of sites. This approach is different to the majority of weed control programs undertaken by government agencies, which are typically species-based, focussing on the control of noxious weeds. By setting priorities based on the ecological value of sites, a wide range of weed infestations will be identified ranging from small, localised new invasions to large infestations that completely cover an area. Management options will therefore vary for each site. As it is the ecological value of sites that is significantly threatened by weed invasions, and extremely difficult to regain if degraded, the site-based approach is considered more appropriate than the species-based.

The intention of implementing the weed threat matrix is that the highest quality sites will be treated in the first year, then require less attention in following year. This will allow the next highest quality sites to be treated in the second year and so on until the majority of sites have been treated and only maintenance is required.

This approach to weed management is based on the philosophy of 'always working from the best areas to the worst'.

While sites with the highest ecological value will be a priority using the matrix, it is important that not all resources are used in these areas, or there will be some sites that never get managed. Therefore, this problem could be addressed by including one or a combination of the following:

- visit all sites on a rolling roster (1-3 years), but vary the intensity of weed control at each site to be proportional to how they rank;
- divide up weed control resources so that a large proportion (i.e. 60%) goes to sites of 'high' value, 30 per cent to 'medium' value and 10 per cent to low value sites;
- prioritise certain works e.g. removal of mature Sweet Pittosporum, and carry out these works across all sites in order as prioritised by the matrix;
- use a combination of all three options.

The weed threat matrix is a priority-setting tool that will guide weed control efforts in Cardinia Shires bushland reserves. There is also potential for the matrix to be used for assessing roadsides conservation value, however some alterations may need to be made.

Part A: Site prioritisation

Table 1. The weed threat matrix, Part A: Site prioritisation

Criteria	Category	Rank
Sites of significance	National	10
	State	8
	Regional	6
	Local	4
Ecological Vegetation Class EVC	Endangered	10
	Vulnerable	8
	Rare	6
	Depleted	4
	Least Concern	2
Rare or Threatened Species	Rare or Threatened Species known to occur in the EVC (2 points per species)	2
Endangered species listed as Critically Endangered or Endangered on DSE 'Advisory List' found in EVC, but not necessarily at this site.	Endangered species known to occur in the EVC (2 points per species)	2
Endangered Species known to be present on the site.	EN or CR or FFG listed species	6
Roadside conservation status (include this score OR sites of significance score)	High (2 points for each adjoining roadside)	2
Is the site adjacent to a creek/waterway	High value	5
Tenure of land within 200m	State Park/Water Catchment	5

Criteria	Category	Rank
	Other crown land/reserves managed for conservation	2
	Private land, remnant vegetation	2
Size of reserve (to estimate edge effect)	Private land, agricultural	0
	>10 ha	4
	5-10 ha	2
	<5 ha	1
Friends' group or other community members assisting with weed control	Regular involvement (> twice per year)	5
	Irregular involvement (< twice per year)	2
	No involvement	0
Other reasons for selecting site	Site of heritage or cultural significance	4
	Site has high educational potential through weed removal	3
	Site of high tourism value	2
Treat sites with a score equal to or greater than 10		

Part B: Weed assessment

The second part of the Weed Threat Matrix is used once the sites have been prioritised (Part A). Part B is used to determine which weeds found on the sites will be actively managed. Weeds are selected primarily for their invasiveness - ease of removal and infestation area and also considered. For each assessment criteria a rank is assigned. These ranks are added together to provide an overall ranking. As stated by the Shire of Yarra Ranges, it is recommended that if the ranking tallies 13 points or more then the weed should be actively managed. If the ranking tallies less than 13, the particular weed species is not considered to pose a high enough threat to warrant spending resources.

Table 2. The weed threat matrix: Part B: Weed assessment¹

Criteria	Category	Rank
Risk rating	V - Very serious threat	8
	S - Serious threat	4
From Carr et al. (1992)	P - Potential threat	1
	N - Not a threat	0

¹ Additional resources required to use this threat matrix include: Cardinia Shire GIS Maps and records from Biosites, Sites of Significance, EVC's and Roadsides Conservation Status databases

Criteria	Category	Rank
Or...from Port Phillip and Westernport Invasive Plant and Animal Strategy	Very high risk environmental weed	5
Noxious weeds	State prohibited	50
	Regionally prohibited	30
	Regionally controlled	5
	Restricted	5
National environmental alert list species		8
Population size	<20 plants or < 0.01ha	5
	20-500 plants or 0.01 - 0.1ha	2
	500+ plants or >0.1 ha	1
Ease of removal: -Number of treatments required -Damage / disturbance to indigenous flora due to control methods -Efficiency of removal / treatments (i.e. number of plants removed per unit of time)	Single treatment, rarely damage surrounding vegetation, rapid removal	3
	1-3 treatments, minor damage, moderately time consuming	2
	Multiple treatments, moderate damage, highly time consuming	1
	Continuous treatment, major disturbance, highly time consuming	0
Seed dispersal and time to maturity	Can readily spread > 50m, plants take >1 year to seed	8
	Can readily spread > 50m, plants take <1 year to seed	3
	Rarely spreads >50m	0
Threat to native vegetation: - Ability to invade intact native vegetation - Suppression of native vegetation once established	Able to invade and strong suppression	5
	Needs disturbance, competes once established or can invade, moderately suppresses	2
	Establishes only in disturbed areas, out competed by robust native vegetation	0
Treat weeds with score equal to or greater than 13		

Appendix E – Legislation, policy and strategies for invasive plant management

The legislative policy and strategy documents identified in the following table, modified from the *Port Phillip and Western Port Invasive Plant and Animal Strategy*, July 2011, are all relevant to the management of weed species.

Australian Government

Legislation

Legislation	Summary
Agricultural and Veterinary Chemicals Administration Act 1992	This Act provides for controls in relation to the evaluation, registration, and use of agricultural chemicals including pesticides for the control of weeds and pest animals. This Act is complemented by State legislation relating to the use, application, and sale of agricultural chemicals
Environment Protection and Biodiversity Conservation Act 1999 (EPBC)	The EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places which are defined in the Act as matters of national environmental significance. Threat abatement plans are generated under the EPBC Act to provide for the research, management, and any other actions necessary to reduce the impact of a listed key threatening process on native species and ecological communities. Plans have been developed for a number of species, including foxes, rabbits, feral cats, 'unmanaged' goats and feral pigs.
Quarantine Act 1908	The Commonwealth agency Quarantine and Inspection Service (AQIS) established under the Quarantine Act manages quarantine controls at our borders to minimise the risk of exotic pests, animals, weeds and diseases entering the country. The risk assessments of importing individual species are undertaken by Biosecurity Australia.

Strategy

Strategy	Summary
Australian Weeds Strategy 2017-2027	The AWS has three overarching goals: <ul style="list-style-type: none"> To prevent the development of new weed problems. To reduce the impacts of existing weed problems of national significance. To provide the framework and capacity for ongoing management of weed problems of national significance

Victorian Government

Legislation

Act	Summary
Agricultural and Veterinary Chemicals (Control of Use) Act (1992) Agricultural and Veterinary Chemicals(Victoria) Act	These Acts complement Commonwealth legislation on the registration of agricultural chemicals including the use, application and sale of pesticides used for the control of weeds and invasive animals.
Catchment and Land Protection Act (1994) (CaLP Act)	The CaLP Act provides the power to declare noxious invasive plants and invasive animals if the Minister is satisfied that the species has or has the potential to become a serious threat to primary production, Crown land, the environment, or community health.
Conservation Forests and Land Act (1987)	This Act enables the Minister to establish Codes of practice including eradication and control procedures for weeds and pest animals. The Act also provides for the establishment of land management cooperative agreements including the provision of grants and rate relief.
Crown land Reserves Act (1978)	The Act provides for the permanent or temporary reservation and management of Crown Lands for a range of public purposes. Committees of management are appointed to manage, improve, maintain, and control the land for the purposes for which it was reserved
Flora and Fauna Guarantee Act (1988) (FFG Act)	The FFG Act aims to guarantee that all Victorian taxa of flora and fauna can survive, flourish, and retain their potential for evolutionary development in the wild. Invasive plants and invasive animals present a major threat to flora, fauna and natural communities. Environmental weeds and some pest animals (eg feral cat) are listed as potentially threatening processes for native flora and fauna under FFG. FFG action statements provide land managers with a choice of procedures that can be used for the management of potentially threatening processes.
Land Act (1958)	The Land Act requires lessees and holders of agricultural licenses to control and keep the licensed land free of invasive animals and invasive plants.
Local Government Act (1989) Planning and Environment Act (1987)	These Acts provide opportunities for local councils to become involved in and enforce weed and pest animal control through local laws and planning permit conditions.
National Parks Act (1975)	The Act requires national and State parks to be managed in a manner that protects natural condition of the park. Managers are required to eradicate or control exotic species in all parks managed under the Act.
Road Management Act (2004)	Provides for the management of the road reserves including the protection of significant roadside

Act	Summary
	vegetation. It provides for the preparation of voluntary roadside management plans. At least nine acts make provision for the management of invasive plants and invasive animals along roadsides. These include the CaLP Act, Forests Act 1958, Transport Act 1983 and the Country Fire Authority Act 1958.
Sustainable Forests (Timber) Act (2004)	The Sustainable Forests Act (2004) inserted new clauses into the Forests Act (1958) including the provision for the use of fire to control weeds and animals in State Forests, National parks and protected public land. Fire may also be used to protect and enhance the ecology of these lands.
Water Act (1989)	The purpose of the Water Act is to provide means for the protection and enhancement of the environmental quality of waterways and for the protection of catchment conditions. This includes controls on the introduction of exotic species and the protection of land and waterways

Policy

Title	Summary
Code of Practice for Fire management on Crown Land	The Code requires that wherever possible the introduction and spread of weeds and pest animals is to be avoided or addressed within appropriate timeframes by effective Machinery hygiene practices.
Code of Practice for timber production (2007)	A mandatory requirement of the code is to identify and mitigate against potential threats such as invasive plants, pest and pathogens.
Environmental Policy for Victoria's State Forests	The policy identifies the seven objectives for the management of State forests in Victoria.
Invasive Pest Plant and Animal Policy Framework (IPAPF)	The policy provides a revision of the Victorian Pest Management Framework. It represents the Victorian Government's approach to managing existing and potential invasive species across the whole of Victoria.
Sustainability Charter for Victoria's State Forests	The charter sets objectives for the sustainability of public native forests and the timber harvesting industry on public land in Victoria. It has strong links with the Environmental Policy for Victoria's State Forests.

Strategies

Title	
Biosecurity Strategy for Victoria	The strategy covers threats to primary industries, the environment, social amenity and human health, across Victorian public and private land, freshwater and marine habitats, caused by plant and animal pests and diseases, and invasive plants and animals. The strategy focuses on new and emerging threats
Victorian Biodiversity Strategy	Victoria's Biodiversity Strategy fulfils commitments in the national strategy for the Conservation of Biodiversity and requirements under Victoria's FFG Act 1998.

Guidelines

Title	Summary
Guidelines and Procedures for managing environmental impacts of invasive plants on public land in Vic 2007	The Guidelines propose a priority setting framework for managing the environmental impact of invasive plants and gives highest priority to new and emerging invasive plants and the next priority to protecting the highest value assets at greatest risk.

Other

Title	Summary
Securing our natural future: A white paper for land and biodiversity at a time of climate change	The White Paper is a long-term, strategic framework to secure the health of Victoria's land, water and biodiversity in the face of ongoing pressures and a changing climate over the next fifty years

Regional

Strategies

Title	Summary
Port Phillip and Western Port Regional Catchment Strategy 2004-2009	The Port Phillip and Western Port RCS is the region's overarching strategy for natural resource management. The following documents are sub-strategies of the RCS
Port Phillip and Western Port Native Vegetation Plan 2006	The Port Phillip and Western Port NVP is a strategic guide for regional native vegetation management to achieve a reversal of the long-term decline in the extent and quality of native vegetation leading to a 'Net Gain'.
Port Phillip and Western Port Regional River Health Strategy 2006	This strategy identifies waterway values (catchment based), threats to waterway values, and actions to address these threats. It provides a five-year blueprint for Melbourne Water, the Port Phillip and Westernport CMA, councils, community groups and environmental and industry associations to work together to improve our rivers and creeks.

Local

Strategies

Title	Summary
Cardinia Shire Council Plan (2018–22)	Commits to 'long-term sustainability of the built and natural environment' within an overall framework that plans for 'future generations to enjoy and experience the diverse and distinctive characteristics of our municipality'. Of the major challenges raised over the Council Plan life, 'Managing our environment' features as one of four corner-stones.
Sustainable Environment Policy (2018-2028)	A roadmap for the future direction of Council's environmental sustainability. It identifies environmental challenges facing the municipality and provides an overarching framework to ensure a consistent and holistic approach. The policy focuses on the areas of: Biodiversity, Climate change, Waste, Water
Biodiversity Conservation Strategy (2019-2029)	The Biodiversity Conservation Strategy has been developed as part of Cardinia Shire's commitment to protect, manage and enhance biodiversity within the municipality as identified within the Council Municipal Strategic Statement. The Strategy provides a strategic 10 year plan to achieve a protected, well managed and connected landscape on private and public land with a community who values our natural environment. The Strategy provides a vision and direction for the conservation management of biodiversity assets on Council land, initiatives to build community

Title	Summary
Cardinia Shire Liveability Plan (2017-2029)	engagement, awareness and education to conserve our biodiversity and an action plan for future initiatives to realise conservation outcomes on private and public land. Recognises Council's role in coordinating local public health planning, by bringing together a range of organisations and local groups to collectively protect, improve and promote the health and wellbeing of all Cardinia Shire residents

Weed Management Strategy – exhibition period feedback

Survey responses

Red text refers to action items that have an increase in budget.

Survey questions and responses		Council's response
1. How well do you feel your priorities for the control of weeds in Cardinia Shire are addressed in the draft WMS? (Scale 1-5)	2. Please provide any comments you may have about other priorities you would like to see included in the strategy.	
3	Nil	
3	Specific engagement with the farming community, weed control is in everyone's best interest.	This will be a function of the Land Management Extension Officer role and broader community education program. See Actions: 2. Continue to collaborate with partner agencies, community groups and landholders, to plan and implement weed programs. 14. Advocate to DEDJTR to continue to provide support to local government for weed control on private land through an ongoing weed enforcement program. 27. Seek funding for a 0.5 FTE Land Extension Officer to support community sustainable land practises
3	I would like to see greater priority put on ensuring drainage issues are linked with weed issues. A greater emphasis on water sensitive urban design would be great to see. Almost all (environmental) weed issues are caused by drainage issues.	This will be addressed by Action 9 - Provide input into the review of Council's roadside management plan to reinforce the aims of the weed management strategy. Council's Infrastructure Services team have a Water Sensitive Urban Design Officer, responsible for advising on better design of drainage systems.
3	Council could improve their relationships with local community groups including friends of and Landcare groups as this is where a lot of knowledge exists. Council should invest in groups to build capacity rather than council engaging contractors who are not familiar with the issues.	This has been discussed in the strategy under the following sections; 3.3 A collaborative approach to weed management 3.4 Community led programs and empowerment 3.5 Community education Since Dec 2018, Council has appointed a new Bushland Team to supplement the delivery of onground works in reserve and roadsides, reducing the need to outsource much of this work to contractors. This team also works closely with volunteer community groups, such as landcare and friends groups, who work in council reserves, building their capacity to carry out works and developing local knowledge.
	Roadside weeds could be raised as a priority and where weed reduction can also assist with reduction of fuel loads that may help with bushfire risk.	Have added new text under Section 3.2.4 – Weed control in reserves and roadsides that speaks to this comment. See also... Action item 9 - Provide input into the review of Council's roadside management plan to reinforce the aims of the weed management strategy
	Council could resource more events that raise awareness on weed management.	Examples of this in the strategy action plan include; Action - Expand current Tree for Weeds Swap program from one site (Emerald) to include Beaconsfield and Bunyip.
	Local groups have many successful programs where council do not like to support.	Council's Environment and Heritage Unit and Bushland team support many local environment groups in their projects. See also Action table 4 for actions in relation to this.
	Council should increase the available grants for landowners to take action.	Funding to support landowners to take action, is usually available from Victorian and Australian government sources, which council continually monitors for opportunities to run programs. Council has a number of community grants available for landowners and groups.
	Include in this more awareness raising and innovative ways to help landowners take action.	This has been discussed in the strategy under the following sections; 3.3 A collaborative approach to weed management

Survey questions and responses		Council's response
		3.4 Community led programs and empowerment 3.5 Community education
	Target private land with potential for weed incursion into council reserves and roadsides.	These properties will be better monitored now that we have a Bushland team which can provide better surveillance of weeds on private land. The edge effects of private land adjacent to bushland reserves is a factor considered in the Weed Threat Matrix found in Appendices.
	Action: "Continue to use standard planning permit conditions for the control of weed species in new developments Aim to eradicate not just limit weedy plants used in landscape plantings for new developments.	This action has been changed to now read; <i>Continue to use standard planning permit conditions to avoid the planting of weedy species in new developments.</i>
5	4. Please provide any further comments about other environmental issues you would like to see included in the action plan.	No comment
	3. How well do you feel the strategy action plan addresses weed issues in Cardinia Shire? (Scale 1-5)	
3	The agricultural community may actual derive a financial benefit.	One of the objectives of the strategy Action Plan is to direct actions that reduce the impact of weeds across the municipality. There will be many sectors of the community benefiting from cross tenure weed control, including the agriculture community, as the reduction of weeds on roadsides and private land will minimise spread onto farming lands, which will in turn benefit farmers. This is a positive outcome.
4	Again drainage issues are not emphasised enough. Also the impact of feral deer and weed issues are not sufficiently addressed here (or in the biodiversity strategy).	This has now been addressed with an additional action. See Action Table 2 Investigate opportunities to utilise depot machinery to undertake weed control works on roadsides. In addition to this, reference to source of weeds, including deer is now addressed in new Section 2.4 Sources of weed outbreaks.
2	The current Urban Weed management initiate funded through DEWLP has resulted in segregation of local community groups including Cardinia Catchment Landcare groups. Lots of great work these groups have undertaken have been progressively taken over by council contractors without continuing to support local groups. If future funding becomes available then local groups would prefer if other areas were addressed rather than doubling and sometime tripling investment on areas along Cardinia Creek that groups have worked for many many years.	The Urban Weed management initiative (now called Peri Urban Weed Partnerships Program) as its name implies, is a collaborative, partnership project with a range of stakeholders involved in the Cardinia Creek Riparian Rehabilitation project. The Cardinia Creek Catchment Landcare group is an active member of the projects Community Reference Group, a group set up to advise the Project Steering committee on current works underway by differing groups. The function of this is also to ensure investment is not duplicated in this project area by the different stakeholders, but rather coordinated for best on ground outcomes and distribution of funds. The history of work this group has along the creek corridor is greatly admired and acknowledged and their membership to this group is considered of great value. See Strategy Section 3.3 A collaborative approach to weed management which discusses this topic. And Section 3.3.1 Case Study Cardinia Creek Riparian Rehabilitation Project, which actually names the Cardinia Creek Landcare Group and its involvement in this project as a key community stakeholder.
	Could help community with on ground works through a number of programs as the current ones are not as effective as they have been in the past.	Council is in regular contact with volunteer groups working in bushland reserves. One of the many roles of Council's Bushland team is to support community groups, which includes assisting them with projects such as National tree Day and other community days.
	Council should be careful in employing people in weed management without consulting with the wider local groups as investment seems to have been targeted towards areas that have had works completed previously.	Communication between Council and community groups is essential to avoid reinvesting in areas that the groups have already invested in.
	Council could promote and support local indigenous nurseries to provide cheaper plants for landowners to plant.	Council has a good working relationship with the Indigenous nurseries in the shire and actively promotes them to the community.

Survey questions and responses		Council's response
	Council could pay local community groups to door knock and encourage landowners to manage weeds with follow-up plantings to help reduce the weeds from returning.	Council has run successful neighbourhood weed programs which have involved approaching landholders through flier distribution, doorknocking and community weed events, where weed management is promoted and replacement planting is encouraged. The strategy outlines this approach as very successful in helping landholders with identifying and managing weeds on private land.
3	Issue education material with planning permits.	Much of councils education material is available online.
5	6.-Please provide further any ideas you may have for other programs to encourage land owners to control weeds.	
	5. How well do you feel the strategy provides effective programs to encourage land owners to control weeds on private and public land? (Scale 1-5)	
	The grants for weed control on private land need to be increased by more than what is asked for in this strategy. The appointment of a Land Extension Officer is a great idea, however this should happen sooner than projected.	The Weed Control Grant Scheme budget has been increased. The appointment of a Land Management Extension Officer has been brought forward to 2020-2021.
3	Literature to include weed identification and multiple methods for control. Organic controls are important to some stakeholders.	Councils environmental weed kit includes identification and control methods as well as replacement plant species suggestions. Chemical free methods of control are always recommended as first choice over chemical methods.
4	The weed (herbicide) grants for residents is absolutely fantastic. Long may it last!	
4	Council could invest in local groups to help work with landowners to raise awareness. Most landowner our groups talk to are not aware of the small grants available. Local groups can help facilitate this on behalf of council.	Council is always keen for environmental groups to promote the weed grant available to landholders. There are many groups that already promote this grant. The weed control grant is always oversubscribed each year and promotion has been limited deliberately for this purpose.
	Council staff responsible for weed management could invest more time working with local environment networks such as Cardinia Environment Coalition, Westernport Catchment Landcare Network, Southern Ranges Environment Alliance and Healesville to Philip Island Nature link for leverage to assist landowners take action.	Council environment staff already works closely with these groups to leverage action to assist landholders.
	Linking weeds with fuel reduction is a key initiative to help landowners understand what they can do.	Future planning of environmental education programs will include an element linking weeds removal to reducing fire risks in the community.
2	More assistance for landholders to control weeds on their land.	This will be addressed with the appointment of a Land Management Extension Officer position at Council and increased weed education programs.
	Strengthen compliance programs.	This will be addressed with the appointment of a Land Management Extension Officer position at Council and increased weed education programs.
	Better surveillance through remote sensing technology.	Unsure of whether this is suggesting surveillance of weeds on private land or surveillance of weeds across the shire to assist Council with weed management program planning.
4	7.- Please provide any other comments in relation to improving the strategy and action plan.	
	There is no where near enough money being allocated to weed control. You are asking for 1.4 million dollars over 10 years, Yarra Ranges spend 1 million in 1 year. Also, there is no mention of anyone actually monitoring weeds or native vegetation. There is mention of GIS infrared mapping, but surely this will need ground truthing, and vegetation extents would still need to be monitored by people. Perhaps there should be a part time role created to do this.	The increase in budget for Weed Control Grant Scheme has been considered and addressed in the action plan. See strategy section 5 Monitoring and Review in relation to weed monitoring to gauge program outcomes. See also section 3.2.2 Cardinia Shire 'weed threat matrix' and GPS mapping and Section 3.2.3 Biosecurity approach for information on councils monitoring protocol. All GIS mapping requires ground truthing for accuracy.
	none	

Survey questions and responses	Council's response
<p>Overall, I think the plan is under ambitious and unlikely to achieve measurable change in the rate of invasion of environmental weeds. I can't see that this is anywhere near enough funding to curb the increase in weed cover in native bushland. I think the bushland weed control budget for Cardinia is something like 1/10th that of the adjoining Yarra Ranges Council? It would also be good to see more on-ground monitoring, as most NR managers won't understand how to analyse technically complex remote-sensing methods of data collection.</p> <p>It would be great if there was a comprehensive weed mapping project undertaken by council, as is done in Yarra Ranges Council. This would represent an important step in evaluating success. It would probably require a designated role for the task.</p>	<p>There has been an additional increase to the draft budget for weed control in bushland reserves and roadsides, in response to the consultation phase,</p> <p><i>Table 2 Action 5 - Seek budget allocation to undertake weed mapping to inform a new GIS weed layer for Council bushlands and road reserves (to assist in the development of annual weed control programs).</i></p>
<p>Council has limited resources to address the issues in the strategy and may not be practical to achieve the objectives. Council could consult more with local groups and leverage off their resources to help achieve councils objectives. Encouraging community to concentrate on specific issues may also help keeping the community involved. The strategy doesn't appreciate the amount of investment other weed strategies are delivering successfully in the shire. It seems council is approaching this as if no other great work is going on.</p>	<p>The section on community has been changed to strengthen the point about working with community groups and the good work being done across the shire by these groups.</p> <p>Action table 4 also outlines actions which support community groups.</p>
<p>Page 17. The MERI cycle is used at the Australian Government level as well to monitor and evaluate all their environmental projects as well not just Victoria. In Table 1 of the Action Plan - is there any reason why the Council contribution remains the same through to 2029? Shouldn't this be increased annually in line with indexation and the increase in the rates base for the Shire?</p>	<p>Page 17 The MERI cycle has been changed to include the whole of Australia. Indexation is assumed in these figures but not included. Indexation is done automatically through Councils annual budgetary processes.</p>
<p>B. Do you have any other comments about the strategy?</p>	
<p>I don't understand how the weed threat matrix could be implemented only using GIS mapping. Surely someone would need to visit reserves to implement this matrix.</p>	<p>Ground truthing definitely forms part of the Weed Threat Matrix assessments and contribute to deciding the final scores in WTM Part A – Site Assessment and Part B Weed Assessment.</p>
<p>nope</p>	
<p>Push for more money! Be bold! Be ambitious! Cardinia has a huge rate payer base and can afford to spend more!!!</p>	<p>The increase in budgets has been considered and addressed:</p> <ul style="list-style-type: none"> • Weed Control Grant Scheme • Weed control in bushland reserves
<p>The strategy needs some wording around how on ground action can be progressive and variations be considered at any stage. The budgets proposed could be designed to be flexible to align with the community needs. Small incentives for groups to help council is a great way to build capacity to reduce the load on council.</p>	<p>The MERI cycle illustrates how weed programs are monitored and altered depending on outcomes. Regarding flexible budgets, Council needs to report on budget expenditure and has little room for flexibility. Council's environment team works closely with community groups in order to assist where possible with their needs that arise.</p> <p>Council's Biodiversity Incentive Scheme, administered through the Westport Landcare Network is an incentive for small groups or landholders. Taking on this role reduces the load on Council.</p>
<p>See previous comments and questions, otherwise a really good plan to take Council forward on weed management for the next ten years.</p>	

Direct feedback (via email)

	Community comments/feedback	Council's response
Response 1	There is far too little money to do the job at hand. If we are serious in reversing the decline then land management - and hence a very high priority on invasive plants - is the name of the game.	The increase in budgets has been considered and addressed: <ul style="list-style-type: none"> • Weed Control Grant Scheme • Weed control in bushland reserves • Weed control on roadsides
	It has to be a very high priority that Council manages its own land well. Not only to improve the quality of the bush lands that are its responsibility but also to provide a leadership role. As is well known from our partnership project - Why Don't They Do Their Weeds? - an excuse offered by people: <i>well the Council isn't, so why should I? Or what is the point of me doing them if Council's weeds just reinfect my place.</i>	The increase in budgets has been considered and addressed: <ul style="list-style-type: none"> • Weed Control Grant Scheme • Weed control in bushland reserves <p>The appointment of a Land Management Extension Officer will assist in providing a leadership role. Council encourages more neighbourhood weed projects as trailed through the joint Council/Johns Hill Landcare Group, Social Research Project – Why don't they do their weeds?"</p>
	The current level of funding is far too low and we know Cardinia Shire has not even been able to do all of the high conservation value roadsides let alone other roadsides with native vegetation on them or ones that even have strategic value such as Wetlands and Doery Roads where Johns Hill Landcare have been working with GSC.	The increase in budgets has been considered and addressed: <ul style="list-style-type: none"> • Weed Control Grant Scheme • Weed control in bushland reserves
	The weed grant budget has often run out well before the end of the FY; it has also been cut in recent years. This must be restored to more than its former levels, and promoted.	The increase in budgets has been considered and addressed: <ul style="list-style-type: none"> • Weed Control Grant Scheme • Weed control in bushland reserves
Response 2	I welcome the proposal for a Land Management Officer but again, why not till 2024/25FY?? While Landcare and other groups, Gardens for Wildlife, can do good work with landholders they are all volunteers or massively underpaid. There must be a position in Council that can provide the information necessary for landholders to manage their land. Of course this should be focused on 'neighbourhoods' (catchments as they are referred to in the Draft) as we know that collective action is far more effective. I would strongly urge that this position is brought forward as soon as possible, ideally this coming FY.	The appointment of a Land Management Extension Officer has been changed on the Action Plan to occur at 2020-2021.
Response 3	P7, Objective 1.3. Provide support to landowners to protect biodiversity assets from weed invasions on private land and adjoining properties Add: and roadsides.	Noted in strategy
	P7, Objective 3.2 Develop partnership programs with land managers, Add: volunteer groups such as Landcare and Friends groups	Noted in strategy
	P11, 3.2.3 End of second sentence.to maximise public Add: and biodiversity benefit.	Good pick up, noted in strategy.
	P12, 3.2.4 End of first paragraph. There is the assumption that council is only concerned with weed control on land they manage and private property. However there is much land of very high biodiversity significance eg Bonyip State Park, that should not be ignored either. Council also has a role here, in consultation with relevant land managers, to help control weeds such as on adjoining private land and roadsides, to those assets. Council has powers eg Local Laws, Planning of new developments etc whereas the other land manager eg DELWP may not. In these situations There needs to be recognition of land managed by others where Council can assist on adjoining land.	See amended section 3.2.4 in the strategy
	P 15, No. 4, 5th Paragraph Re Local Law no 17.; "uncontrolled heavy weed infestations" delete the word "heavy. The word uncontrolled says it all and it could be very difficult proving what is and isn't a "heavy" weed infestation. It would also very useful to make the Local Law applicable to properties 1 Ha and greater rather than just 2 Ha. For instance there are properties around Mt Cannibal, a Site of State	Noted in strategy - See Section 4 - 6 th paragraph

	Significance, that are less than the 2 Ha, where it would be very useful to have those powers.	
	P15, 4.1.1 Permit conditions are often used Add: to require the control of weeds. Surely this can be required on a permit and readers should be told this.	Strategy has been amended to reflect this comment. See 4.1.1 <i>Planning permits</i>
	The following are comments on the Action Plan: Continue to use standard planning permit conditions to limit the planting of weedy species in new developments ... Add: for the control of weeds	Action amended in strategy see Action 4 table 2.
	Continue to inform key public land managers of weed priorities in Cardinia and encourage strategic long-term approach to weed control ... Add: and seek information from them regarding their concerns on weeds on adjoining private property and roadsides under council control. Where possible act on their concerns.	Addressed in strategy see Action 14
	Expand annual weed reduction programs for Council bushlands We strongly support this recommendation.	No response required
	Seek annual funding allocation for roadside weeds program, to match Victorian Government contribution through the Roadside Weeds and Pests Animal Program We strongly support this recommendation.	No response required
	Continue to provide direction and support to environmental friends groups to plan weed control programs in council reserves Add: and financially implement weed control programs in council reserves.	Noted in strategy see changes to Action 24
	Expand the Weed Control Grant program We strongly support this recommendation.	No response required
	Seek funding for a 0.5 FTE Land Extension Officer to support community sustainable land practises We strongly support this recommendation.	No response required
	Redesign and reprint of Council's Environmental weed kits We support the recommendation but suggest it should not be contingent on the employment of a new officer but, due to the educational benefit, should proceed regardless.	This contingency has been removed.
	Re appendix D, Weed Threat Matrix: Site prioritisation. We do not understand why sites of National, State, Regional and Local Significance are given the same rating of 4. There is a very great difference between a site of Local and National significance and we suggest there should be different ratings for each one and that the overall rating of just 4 should be much higher eg 10. For a site to be deemed of significance it needs to go through a stringent and well-defined process overseen by professionals who are well qualified to make this assessment.	Noted in the Weed Threat Matrix, with values changes for a rating of 4-10
	Overall our group considers that council's weed management strategy should be strongly supported by council. We are concerned though that the overall budget does not seem to take into account cost of living increases, which would mean budget items would see an overall decline with time. Given the harmful effect of weeds on biodiversity and agriculture this should be corrected	The increase in budgets has been considered and addressed: <ul style="list-style-type: none"> • Weed Control Grant Scheme • Weed control in bushland reserves
Response 4	Executive Summary Add 3 sentences to cover the important concepts raised in Appendix D. In particular, stress that Cardinia has adopted the "Weed threat matrix" which is a different approach to the majority of weed control programs undertaken by government agencies. It is based on the ecological value of specific sites where the highest quality sites are treated in the first year, then require less attention in subsequent years. This method preserves high quality sites and gradually expands them during the 10 years of this strategy.	This text has been added to the Executive summary
	Action Plan	The increase in budgets has been considered and addressed:

	<p>Looks like the budget for Weed Management is too low. The existing funding is \$3.8 million short of proposed implementation costs over the 10 years of this Strategy. The Additional Council funding should be added to Existing funding to give the budget security. Further, the External funding could be doubled.</p> <p>Promote further collaborations to stretch funding resources</p>	<ul style="list-style-type: none"> • Weed Control Grant Scheme • Weed control in bushland reserves
	<p>Appendix C Locally significant weeds</p> <p>Prediction is that this Appendix will be heavily used. Suggest that Common Name move to column 1 and be sorted in Common name alphabetical order. In addition, it would be useful to group plants into sections such as: trees, shrubs, lilies & bulbs, climbers, and herbs. Or a suitable breakdown which enables an indicative treatment method to be applied. For example, drill and fill, or cut and paste.</p>	<p>Appendix C is ordered according to scientific name first, based on industry standard.</p>