8 BIODIVERSITY CONSERVATION STRATEGY 2019-29

FILE REFERENCE INT1939215

RESPONSIBLE GENERAL MANAGER Peter Benazic

AUTHOR Rob Jones

RECOMMENDATION

That Council adopts the Biodiversity Conservation Strategy.

Attachments

1	Biodiversity Conservation Strategy 2019-29	32 Pages
2	Biodiversity Conservation Strategy - Action Plan	8 Pages
3	Biodiversity Conservation Strategy - Appendices	147 Pages
4	Biodiversity Conservation Strategy - Exhibition Period Feedback	10 Pages

EXECUTIVE SUMMARY

The Biodiversity Conservation Strategy provides a strategic and planned approach to sustainably manage Cardinia Shire's natural environment so that it is resilient, healthy and valued by the community.

Cardinia Shire's native plants and animals have an intrinsic right to exist, as a consequence all public and private land managers are custodians of approximately 1739 native plant and animal species that make up our local natural environment. Working together to protect the environment provides the community with an important sense of local identity. Living with healthy populations of native plants and animals is important to our quality of life and community liveability in Cardinia Shire.

Since European settlement of Australia the natural environment has deteriorated incrementally through predation and competition from weeds and pest animals and the removal of vegetation for development and agriculture. More than four legislative acts provide the direction for Council to protect native plant and animal populations.

Compounding this decline, is a low level of environmental understanding in the community. The natural environment, which is our natural heritage, is not in the forefront of the communities decision making and value systems and unsurprisingly is not reflected in community land management. There is a need to make a link between a healthy natural environment and the liveability within the shire.

The strategy identifies goals and objectives to address threats to the natural environment in the context of protection, enhancement, connectivity and community engagement. A detailed 10 year costed action plan will deliver on these goals and enable Council to meet its legislative obligations to protect native plants and animals while also promoting Council to play a leadership role in the community.

Council received 21 submissions during the exhibition feedback period which have been incorporated into the revised strategy. A revised action plan and budget has been developed in response to the community feedback.

BACKGROUND

Council does not have a long term strategy to conserve biodiversity within the shire and reverse the decline of our native species on public land. The community who manage 83 per cent of the land area within the shire also require information and support to appropriately manage their land to achieve conservation outcomes.

Approximately 1,325 native plants and 414 native animals are found within 53 different plant communities in Cardinia Shire's natural environment. Council manages more than 77 bushland reserves, over 840 hectares and 950 kilometres of significant roadsides. Committees of management such as sporting clubs also have natural environmental assets, which as a broad collective are referred to as 'natural resource areas' (NRAs).

Unfortunately 94 native plants are listed on the state advisory list as 'rare' or 'threatened' and 63 native animals are recorded as 'threatened' in the state *Flora and Fauna Guarantee Act 1998* (FFG). Native vegetation is now limited to 29 per cent of the shire.

Council has a responsibility as land managers under four national and state legislated acts to protect our remaining native species against threats that contribute to species decline. The federal *Environment Protection and Biodiversity Conservation Act* and the state *Flora and Fauna Guarantee Act* are the most substantial regulatory acts that direct Council to protect native species.

Threats that have influenced the decline in our natural environment include the predation and competition from weeds and pest animals and the removal of vegetation for development and agriculture. Compounding this decline is a low level of environmental understanding in the community. The natural environment, which is our natural heritage, is not in the forefront of the communities decision making and value systems and unsurprisingly is not reflected in community land management.

<u>Challenges arising from these threats;</u>

- Limited Council budget - Council's staff and budget allocation to manage all natural resource areas including ongoing external grants equates to $438/hectare.
- There is a need to identify priority corridors to focus conservation works across the landscape
- A regional pest animal program is required to coordinate pest animal works
- There is a low community awareness on the value of the natural environment
- Council do not adequately monitor conservation programs to evaluate success
- There is no consistent strategic approach to roadside conservation planning
- There is no strategically planned approach to mitigate the impacts of climate change on biodiversity
- Biodiversity conservation is not always considered in Council decision making
- Environmental community groups receive limited Council support, do not have strategic long term goals and are beginning to reduce in numbers which will effect Council grant income
- Altered fire regimes impact on flora and fauna
- Climate change is predicted to be one of the greatest long-term threats to biodiversity and the uncertainty it brings

Council's budget allocation to the management of our NRA's is the lowest per hectare of any Melbourne interface Council.

The communities quality of life or liveability is also linked to a healthy natural environment through the 'ecosystem services' that our native plants and animals provide us. This includes physical and economic benefits that impact on community liveability such as shade, improved air and water quality, spiritual and mental health benefits, places for recreation, while also contributing to mitigating climate change. Economic benefits include native shelter belts which protect stock and pastures from weather events, while native species assist to improve pasture health and control pests that impact crops.

Council benefits when the community are engaged in their natural environment. For example the Cannibal Creek project group have secured more than $470,000 in funding as a result of their volunteer conservation works. A goal of the strategy is to engage and educate the community on our natural environmental assets. The strategy identifies opportunities to improve Council NRA's by working with existing community volunteer groups. These 'friends' groups and Landcare networks monitor and improve the quality of our reserves, attract external funding and also act as a conduit of environmental information to the broader community.

The strategy has been developed, based on data collected in Council's 2017 biodiversity audit to review biodiversity health. Community questionnaires and workshops have also informed priorities set out in this strategy.

The strategy identifies goals and objectives in the context of protection, enhancement, connectivity and community engagement. Fifty-three actions have been identified in a 10 year costed action plan to deliver on these goals which will ensure Council meets regulatory obligations to protect threatened species.

Council's expertise and knowledge of the local natural environment and the extensive community contacts places us with the best opportunity to play a leadership role in environmental management within the community. This strategy will develop a shared purpose with the community on the importance of the natural environment and improve the liveability within Cardinia Shire.

POLICY IMPLICATIONS

The strategy has incorporated the Sustainable Development Guidelines and is consistent with Council's *Sustainable Environment Policy 2018-28*. The goals within this strategy also compliment the goals of the *Weed Management Strategy (2019-29).*

This strategy directly aligns with the Council Liveability Plan:

- increases participation in open space bushland areas through planning for connected landscapes
- increases community connectivity to our natural environment through community engagement and education programs
- directly enhance the environmental quality of Councils open space bushlands

RELEVANCE TO COUNCIL PLAN

The strategy goals and objectives align with the following objectives of the Council Plan:
3.3.6 Promote water catchment management practices that improve the quality of our waterways.
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.
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.

CONSULTATION/COMMUNICATION

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

The preliminary consultation enabled Council officers to determine the key environmental issues and understand the opportunities to align future strategy initiatives with stakeholder goals.

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.

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 Biodiversity Conservation Strategy and draft Weed Management 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 Biodiversity Conservation Strategy received a total of 21 responses.

Most respondents were generally supportive of the draft strategy and action plan vision and objectives. A high majority had constructive comments which were broadly able to be included into the updated strategy. The dominant criticism around the strategy surrounded the theme of budget allocation as outlined in the action plan. 17 of the 21 respondents (80%) identified that the budget for conservation actions on private and public land and community conservation initiatives needed to be increased if Council were going to meet the strategy vision and objectives. Due to the constrained budget, respondents stated that Council would not be able to realise meaningful landscape change, with healthy and sustainable flora and fauna populations.

In response to this feedback the action plan has been updated and includes increased funding for seven actions. These actions would enable more extensive conservation work on Council land, additional revegetation on private land and increased grants to community groups. Although these

additional works are likely going to fall short of community expectations for Council expenditure on the strategy, they attempt to find a compromise in a rate capping environment.

The absence of response by other agencies (received from City of Casey only) was disappointing, despite being invited to participate. Refer to attachment Biodiversity Conservation Strategy – exhibition period feedback (INT1921665) to view details on community comments and Council's response.

Risk assessment

More than four legislative acts which are detailed in the strategy provide the direction for Council to protect native plants and animals in our natural resource areas against threats that contribute to species decline. By not addressing threatening processes such as displacement and predation from weeds and pest animals, Council is in contravention of these acts. Sections of the community are also aware of these obligations and will hold Council accountable to these regulations.

During the internal consultation phase it was identified the management of Council's bushland reserves requires an annual budget allocation to assist with risk mitigation to park users. This was identified for each reserve and has been built into the reserve management costs defined within the action plan.

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 meet strategy goals and objectives.

Table 1 outlines the pre and post exhibition funding totals, with an additional $470,500 (over the life of the strategy) required from Council's recurrent budget. This increase in budget is attributed to:

- bringing forward the Biodiversity Officer from 2022-23 to 2021-22 $86,000
- increasing the budget to support friends groups grants $27,000
- increasing the budget to manage councils natural resource areas $270,000
- increasing the annual biodiversity incentive grant $70,000
- increase the annual Landcare bandicoot habitat planting $30,000
- adding budget to liaise with local aboriginal groups to confirm annual works plans for natural resource areas $22,500
- adding budget to develop guidelines for developers to encourage indigenous plantings $15,000

Undertake an ecological controlled burn at Mount Cannibal has been removed with a $50,000 saving to Council, and a reduction in external funds of $50,000.

Community feedback was strongly supportive of further increasing budget for Gardens for Wildlife, Trust for Nature rate rebates and pest animal management, however these were 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	1,238,000	3,730,000	256,500	5,224,500
Post exhibition	1,238,000	4,200,500	206,500	5,645,000

Variation	0	470,500	(50,000)	420,500

In total, the updated strategy requires a budget of $5,645,000 of which $1,238,000 exists within the recurrent operational budget and a further $206,500 is required via external grants. Therefore, an additional $4,200,500 (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. Annual cost of action plan

Year	Council funding per year (existing)	Additional Council funding (per year) sought	External funding (per year) sought	Total proposed implementation costs
2019/20	123,800	0	0	123,800
2020/21	123,800	296.500	15,000	435,300
2021/22	123,800	465,000	68,500	657,300
2022/23	123,800	555,500	7,500	686,800
2023/24	123,800	441,500	3,500	568,800
2024/25	123,800	460,000	15,000	598,800
2025/26	123,800	531,000	21,000	675,800
2026/27	123,800	477,500	52,500	653,800
2027/28	123,800	496,000	21,000	640,800
2028/29	123,800	477,500	2,500	603,800
Total	1,238,000	4,200,500	206,500	5,645,000

CONCLUSION

This strategy establishes goals and objectives to focus Council resources and efforts to turn the tide of plant and animal species loss and habitat fragmentation.

The strategy addresses threats to Cardinia Shire's natural environment in the context of protection, enhancement, connectivity and community engagement to address threats to our natural environment while engaging and educating the community.

Delivering the costed action plan which details fifty-three actions over a 10 year period will meet these goals and our statutory obligations to protect and enhance Council's natural resource areas. The actions will also support community environmental networks to continue with catchment wide biodiversity projects. Council's leadership approach in environmental management, when coupled with targeted community environmental education programs will engage and inspire the broader community to participate and value the natural environment and become effective custodians of the land.

Cardinia Shire Council

Biodiversity Conservation Strategy 2019–29

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Prepared by:

Cardinia Shire Council
Environment and Heritage Unit

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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

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Abbreviations

ABCS	*Australian Biodiversity Conservation Strategy*
CaLP	*Catchment and Land Protection Act 1994*
CAMBA	China–Australia Migratory Bird Agreement
CEC	Cardinia Environment Coalition
DEDJTR	Department of Economic Development, Jobs Transport and Resources
DELWP	Department of Environment, Land, Water and Planning
EVC	Ecological Vegetation Class
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
FFG	*Flora and Fauna Guarantee Act 1988*
GIS	Geographic Information System
JAMBA	Japan–Australia Migratory Bird Agreement
ROKAMBA	Republic of Korea-Australian Migratory Bird Agreement
SEP	*Sustainable Environment Policy 2018-2028*
SDGs	Sustainable Development Goals
VBA	Victorian Biodiversity Atlas
VCT	*Victorian Conservation Trust Act 1972*

1 Executive summary

This strategy provides a strategic and planned approach to sustainably manage Cardinia Shire's natural environment so that it is resilient, healthy and valued by the community.

Cardinia Shire's native plants and animals have an intrinsic right to exist, as a consequence all public and private land managers are custodians of approximately 1,739 native plant and animal species that make up the local natural environment. Working together to protect our local environment provides the community with an important sense of identity. Living with healthy populations of native plants and animals is important to our quality of life; providing us with shade, improved water and air quality, places for recreation, mental health and spiritual benefits, while also helping mitigate climate change. Working together to protect our environment also helps achieve altruistic goals and economic benefits such as supporting healthy waterways and pastures and sheltering stock and pastures from climate extremes.

Since European settlement of Australia, the natural environment has deteriorated incrementally through vegetation removal for agriculture and development, altered fire regimes and also from the invasion of weeds and pest animals. More than four legislative acts provide direction for Council to protect native flora and fauna against threats that contribute to species decline.

Compounding this decline are low levels of understanding of the factors affecting our environment in the community. The natural environment, which is our natural heritage, may not be sufficiently in the forefront of the community's decision making and values and is often not reflected in community land management.

The need to take action now is clear: 94 of our native plants and 63 of our native animal species are 'rare' or 'threatened' and 33 per cent of our native vegetation communities are listed as 'endangered'. Private properties make up approximately 83 per cent of the shire, however vegetation only covers 14 per cent of these properties.

This strategy has been developed based on data collected in 2017 by Council in a review and audit of biodiversity health and on scientific reporting of the threats to biodiversity in Cardinia Shire. Community questionnaires and workshops have also informed priorities set out in this strategy.

The strategy identifies goals and objectives to address threats to our natural environment and meet our legislative obligations to protect native flora and fauna. A detailed 10-year action plan is included to deliver on these goals and promote a shared purpose with the community on the importance of the natural environment and its link to our quality of life.

2 Why is our natural environment important?

Native plants and animals have an intrinsic right to exist. Cardinia Shire is home to 1,325 native plants and 414 native animals. Unfortunately however, 94 native plants are listed on the state advisory list as 'rare' or 'threatened' and 63 native animals are recorded as 'rare' or 'threatened'. We have responsibilities as custodians of the land and under national and state legislation to protect our remaining native species and ensure that threatened species do not become locally extinct.

Our quality of life is also linked to a healthy natural environment and the 'ecosystem services' that the environment provides. Ecosystem services are defined as 'the benefits provided to humans through the transformations of resources (or environmental assets, including land, water, vegetation and atmosphere) into a flow of essential goods and services, for example clean air, water, and food' (Constanza et al., 1997). In Cardinia Shire our native animals, plants and micro-organisms are the engine room of ecosystem services and include physical benefits such as shade, improved air and water quality, places for recreation and also spiritual and mental health benefits. These ecosystem services help to regulate climate change, protect soil and cycle nutrients and water.

Ecosystem services also provide extensive economic benefits, such as providing native shelter belts which protect stock and pastures from erosion and weather events. Native species can also assist in improving pasture health and controlling pests that impact crops. Environmental–economic accounting has the potential to drastically change the value placed on natural assets when we calculate the potential economic cost of losing them and replacing the services they provide. This cost–benefit analysis helps to strengthen advocacy for the conservation of our natural environment.

The local environment provides our community in part with its local identify. From Emerald and Gembrook to Koo Wee Rup and Lang Lang, 53 different plant communities can be found. Each of these vegetation types have their own unique suite of native plants and animals which provide Cardinia Shire's residents with a tangible sense of place and pride. Working together to enhance our natural environment provides us with social opportunities and the satisfaction and happiness of achieving altruistic goals.

2.1 Cultural and settlement history

The Yarra and Western Port catchments are part of the traditional country of the Mayone buluk and Yallock balug clans of the Bun Wurrung people and the Bulug willam clan of the Woi Wurrung (Canning et al. 2010). Each have strong connections to the land through their ancestral history and spiritual relationships, as custodians of the land for over 40,000 years.

The Boon Wurrung and the Woi Wurrung people are part of the broader alliance of the Kulin Nation which also includes the Watha Wurrung, the Djaja Wurrung and the Taung Wurrung peoples, who all shared a common language (Rhodes et al. 2004). The Boon Wurrung and the Woi Wurrung peoples intermarried and traded, moving freely (in accordance with mutually understood protocols) across each other's territories. According to some observers, their contact was so frequent and so amicable, that boundaries between them may not necessarily have been rigidly defined.

Their movements were seasonal; during summer months they travelled along major streams, fishing for eels, and hunting and snaring game such as kangaroos, wallabies, possums, wombats and emus. They gathered plant foods, ate swamp-dwelling plants like the roots of rushes, and collected wild honey. In the cooler months, the Boon Wurrung people moved inland seeking shelter and gathering the pith of tree ferns and fishing Cardinia Creek.

The land was well-watered and was managed to provide plentiful food resources and shelter for its numerous inhabitants. In common with the practice of Aboriginal people throughout Australia, they skilfully used fire to clear forest areas into patchwork patterns to foster new plant growth, particularly grasses, to attract game and promote the growth of herbs, tubers, native fruits and nuts to balance

their diet and to forestall bushfires. These land use practices have shaped the natural environment, creating the diverse legacy of native plants and animals now found in Cardinia Shire.

Council values the traditional owners' knowledge and land management practices which can guide current land management.

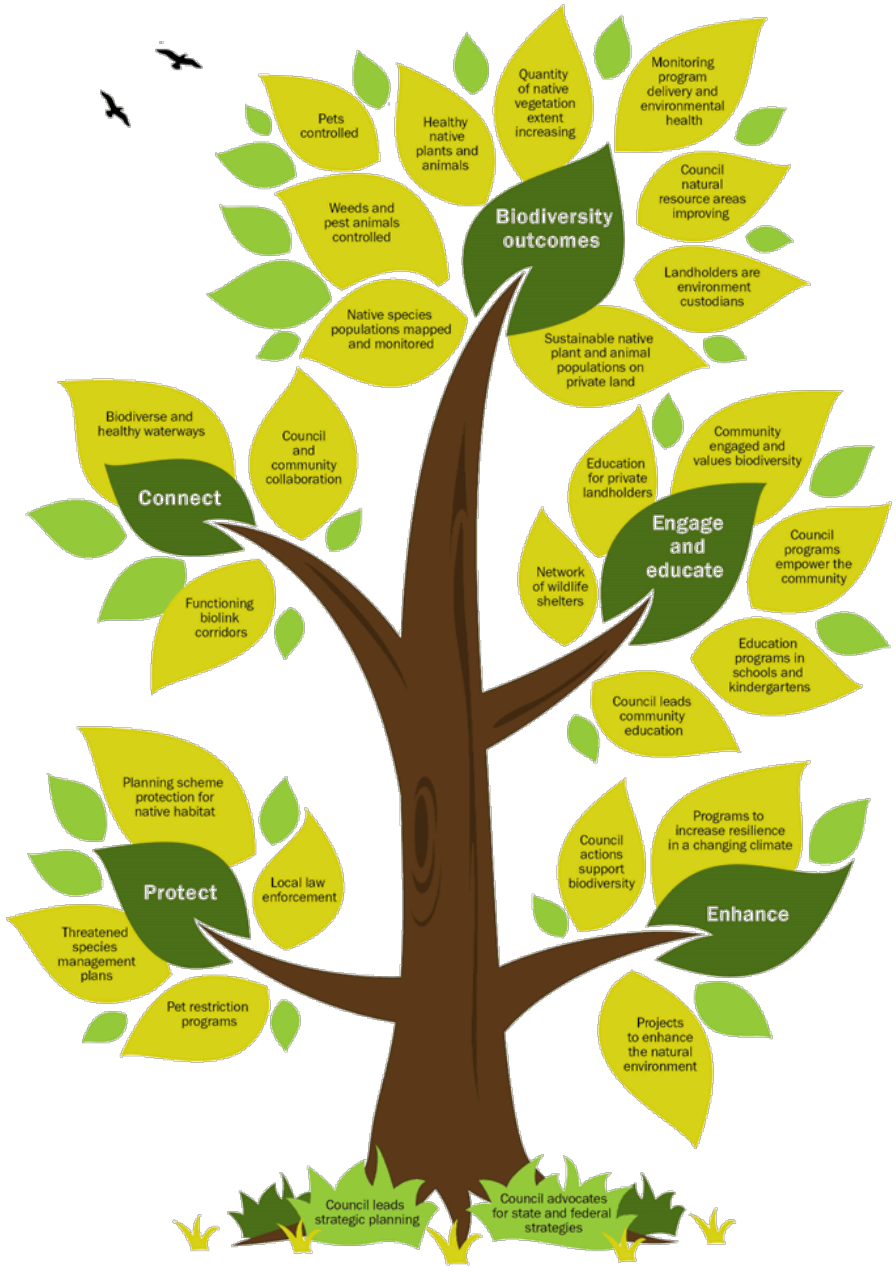
From the earliest times of European settlement, Cardinia Shire's natural environment has been detrimentally impacted. Cardinia Shire's grasslands were rapidly colonised in this period. By the mid-19th century, most of the forested land in Cardinia Shire had been taken up by pastoral leases, part of the condition was that the land had to be 'improved' and cleared for agriculture. By 1900, the Koo Wee Rup swamp had been drained to expand agriculture, which impacted approximately 40,000 hectares of wetland ecosystems.

The natural environment is under increased threat and has continued to decline. Vegetation loss continues to incrementally create fragmented landscapes. Many species and communities suffer from the cumulative impacts of land cleared for development, minimising real or perceived fire threat and competition from introduced weeds and pest animals.

3 Vision

Vision: Cardinia Shire's natural environment is protected, valued and enhanced in partnership with the community to improve our quality of life

Figure 1. Biodiversity outcomes with the successful implementation of the strategy vision



4 Goals and objectives

This strategy's goals have been divided into four distinct themes. To successfully reverse the decline of native plants and animals across the municipality, it is fundamental that Council implement programs that achieve the following outcomes:

1. **Protect** – native flora and fauna
2. **Enhance** – species health
3. **Connect** – native flora and fauna across the landscape
4. **Engage and educate** – the community on the value of our natural environment.

Table 1. Goals and objectives

Goal 1: Protect – we achieve a net gain of the overall extent and condition of habitat across land and waterway environments	
Objective 1.1	Biodiversity conservation is considered in line with the Sustainable Development Goals (SDGs) in Council's policies, strategies and plans, and is incorporated into the planning scheme
Objective 1.2	The health and extent of key threatened species has improved and increased over the life of the strategy
Goal 2: Enhance –the quantity and quality of indigenous flora and fauna is improved on private and public land	
Objective 2.1	Our natural resource areas have improved in quantity and quality by 2024 and 2029 (refer Appendix E)
Objective 2.2	By 2029, Council has revegetated 230,000 indigenous plants to enhance native habitat
Objective 2.3	Biodiversity indicators in Council's biodiversity monitoring program show progressive improvement in 2024 and 2029 (review periods)
Objective 2.4	Pest animal programs are implemented in defined catchments to protect threatened species by 2029
Goal 3: Connect – Council has mapped bio-link corridors that will enhance biodiversity connectivity across the region	
Objective 3.1	In partnership with the community, priority bio-link corridors are mapped by 2024
Objective 3.2	Implement regional initiatives and connectivity plans to control weeds and pest animals and enhance biodiversity.
Goal 4: Engage and educate – the number of community members actively participating in natural environment programs has increased	
Objective 4.1	Community participation in environmental programs has increased by 2024
Objective 4.2	Opportunities for the community to connect with nature are provided
Objective 4.3	Community environment groups are supported and empowered to enhance biodiversity (or deliver programs) on public and private land

5 Legislative and policy context

Appendix J outlines the Australian and Victorian government legislation, policies and strategies that provide important guiding principles, directions and laws which impact the way Council manages biodiversity. Section 8 Roles and responsibilities further explores the impact that these legislation, polices and strategies have on Council and other land managers.

5.1 Australian Government legislation and policies

The *Australian Biodiversity Conservation Strategy* (ABCS) is a call to action for all levels governments to achieve the strategy vision, to ensure biodiversity is healthy, resilient to climate change and valued for its essential contribution to our existence. The strategy lists six priorities for change that must be made urgently to achieve the vision:

1. building ecosystem resilience
2. mainstreaming biodiversity
3. reducing pressures on biodiversity and promoting sustainability
4. enhancing benefits of biodiversity to the community including ecosystem services
5. involving Indigenous people and the broader community
6. measuring success.

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the Australian Government's centrepiece of environmental legislation. It provides Commonwealth protection to nationally important flora, fauna, wetlands of international importance, migratory species and ecological communities. In Cardinia Shire this includes 44 species and plant communities (including Western Port Bay which are listed under the act (refer Appendix A and B).

Cardinia Shire's 16 kilometres of coastline is part of a Ramsar listed wetland of international importance. Australian migratory birds are also protected within the EPBC Act, being listed under international JAMBA, CAMBA and ROKAMBA agreements. At a national level, the Australian Government has made a commitment to appropriately manage the Western Port coastline and implement land-use recommendations that conserve these wetlands.

5.2 Victorian Government legislation and policies

Protecting Victoria's Environment – Victoria's Biodiversity Plan 2037 is the Victorian Government's plan to stop the decline of biodiversity and achieve an overall improvement over the next 20 years. The plan identifies the need for an increased effort using strategic management actions and a cost–benefit analysis to most efficiently protect the maximum number of species. The plan relies heavily on needing to work with agencies and communities to capture environmental data out in the field to feed into the Victorian Biodiversity Atlas. This work will inform Victorian investment modelling software for future government funding, including the 'Native Vegetation Information Management' tool and the Victorian Government conservation prioritisation matrix (called the 'Strategic Management Prospects' tool). Data for the Cardinia Shire region is significantly under-recorded which reduces the perceived significance of flora and fauna in the Victorian Government modelling software.

The plan places equal weighting on biodiversity conservation and the need to for the community to value nature through increased interaction and connectivity.

5.3 Local policies, strategies and plans

Council has a strong focus on protecting and enhancing biodiversity which is outlined in the *Council Plan 2018–22* action to 'protect and enhance biodiversity by increasing the area of natural ecosystems across the shire'.

The *Sustainable Environment Policy 2018–28* (SEP) is the roadmap for the future direction of Council's environmental sustainability and incorporates the international Sustainable Development Goals (SDG). The 17 SDGs are intrinsically linked and aim to end poverty, fight inequality and

injustice, and tackle climate change by 2030 (refer Appendix K). The SEP shows the link between the everyday work of Council, and highlights opportunities for Council to become a leader in the whole-of-organisational approach to solving the big issues outlined in the SDGs. Sustainable land management practises complement these SDGs by advocating for multiple land management outcomes in Council strategies and programs.

Other Council policies, strategies and plans that help provide long-term guidance and action for biodiversity conservation include:

- *Weed Management Plan 2019–29*
- *Aspirational Energy Transition Plan 2014–24*
- *Integrated Water Management Plan 2015–25*
- *The Liveability Plan 2017–29*
- *Reconciliation Action Plan*

6 Our biodiversity

Cardinia Shire has an area of 128,244 hectares. Ninety two per cent of the shire falls within the Western Port catchment while the northern 8 per cent of the shire falls into the Yarra catchment. Eight per cent is within the growth corridor or located within a township, while the remainder is rural. More than five new families move into the shire each day, this rapid growth and development provides a major challenge to our natural environment.

The vegetation of Cardinia Shire is highly diverse with 53 different ecological vegetation communities, including 19 different eucalypt species. The shire falls within two distinctly different 'bioregions' (Appendix I) located along the 'break of slope', approximately delineated by the Princes Highway

1. The 'highlands southern fall bioregion' to the north is characterised by mountainous forests and woodlands with higher rainfall. The soil types are many millions of years old. A total of 25 different ecological vegetation communities can be found in this bioregion, ranging from wet forests in the northern hills, to woodlands and heathland vegetation types in the foothills, of which orchids can make up to 20 per cent of the plant flora. Four of the ecological vegetation communities in this bioregion are listed as 'endangered' and support iconic species such as powerful owls, lyrebirds, greater gliders (possums) and lace monitors.
2. The 'Gippsland plain bioregion to the south' is dominated by the former Koo Wee Rup swamp complex; soils are thousands of years old. Native vegetation exists in only three per cent of the landscape and is made up of diverse swamp scrub and similar vegetation types. Twenty eight ecological vegetation communities of which 13 are listed as 'endangered' by the Victorian Government. This includes treeless grasslands which are our most threatened plant community and are nationally listed as 'endangered'. The Gippsland plain bioregion supports habitat for iconic species such as the southern brown bandicoot, growling grass frog, Latham's snipe and dwarf galaxias.

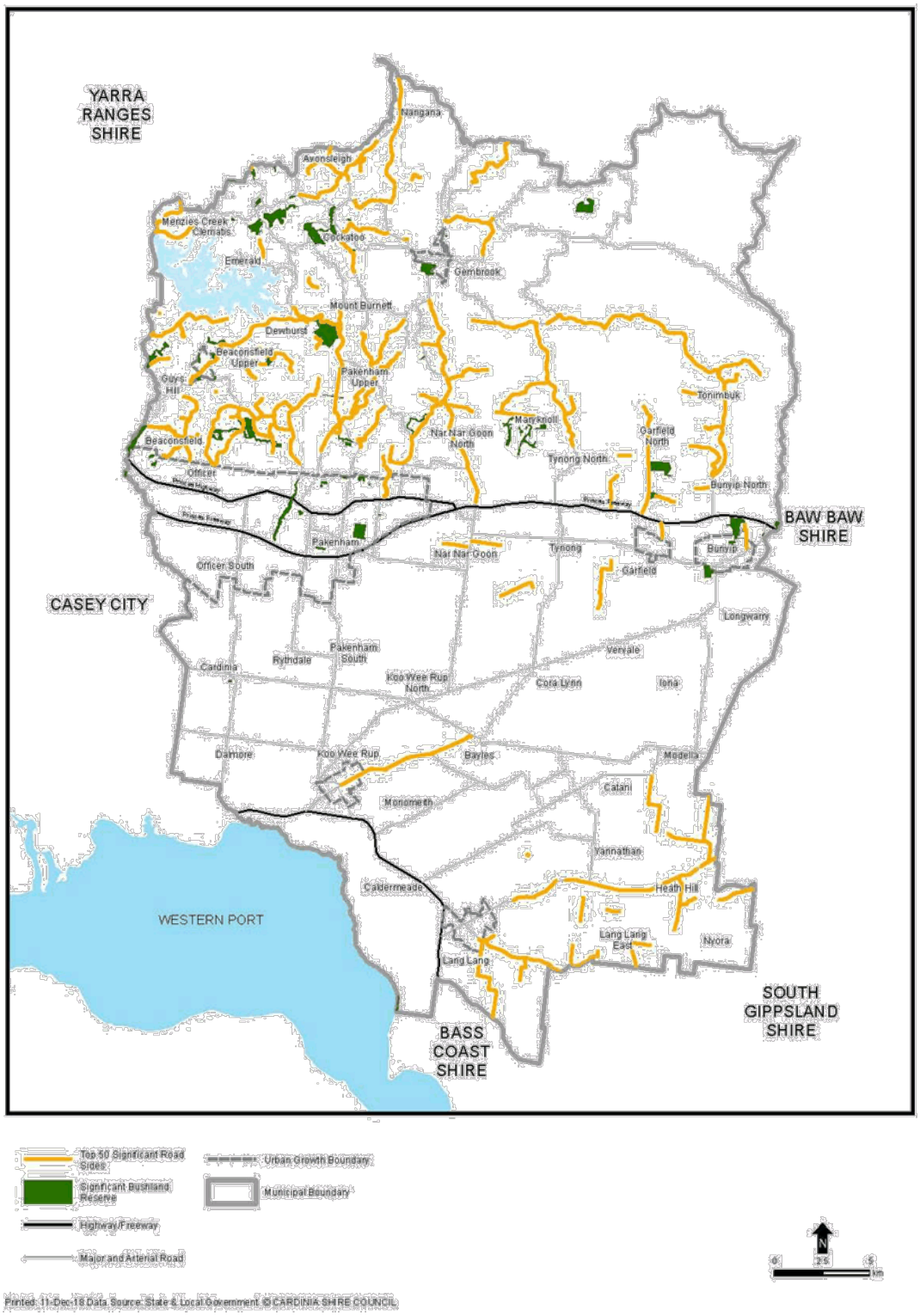
Western Port Bay extends for 17 kilometres along the Cardinia Shire coastline. The bay is listed under the Ramsar Convention and is also listed as a matter of national significance under the EPBC Act. The bay is furthermore recognised as an internationally significant biosphere reserve by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) and is represented by the Biosphere Foundation of which Council is a partner.

Western Port is characterised by seagrass meadows which act as the forests of the ocean, mangroves, mudflats, saltmarsh, melaleuca thickets and deep waterway channels. It supports a large number of marine invertebrates and about 65 per cent of Victoria's bird species (NRE, 1999). Twenty-two species of migratory wader birds that use the mudflats are listed under international agreements, including JAMBA, CAMBA , ROKAMBA and the Bonn Agreement (Australian Wetlands Database, 1982). Seagrass and mangrove communities support broader marine ecosystems including fish nurseries which support the recreational fishing industry.

Cardinia Shire has 19 significant waterways and tributaries, which Melbourne Water's index of stream condition rate from 'poor' in the lower catchment around Koo Wee Rup, through to 'moderate' to 'good' higher up in the catchment. The health of our seagrass communities are dependent on the health of our waterways.

Council manages more than 77 bushland reserves over an area of 840 hectares and 950 kilometres of very high to low quality roadside vegetation. Figure 2 shows that Council is well placed to influence the goals and objectives in the strategy and play a leadership role for land management in the community. Bunyip State Park and Cardinia Reservoir represent significant core areas for biodiversity to migrate out into the shire.

Figure 2. Land managed by Cardinia Shire Council



Every property in Cardinia Shire whether large rural acreages (supporting species such as owls and goannas) or small urban blocks (which may glimpse blue wrens visiting the backyard) have the potential to act as a home for our native plants and animals. Figure 3 represents the biodiversity hotspots that are not Council-managed where large groups of native plants and animals exist in sustainable populations. These hotspots act as essential breeding grounds for biodiversity to thrive and migrate out along corridors and into new environments.

Figure 3. Biodiversity hot spots in Cardinia Shire

6.1 Flora

The Victorian Biodiversity Atlas (VBA) contains records of 1,325 indigenous flora species occurring in Cardinia Shire. The diversity of our native species is vast and ranges from mountain ash eucalypts (which at over 80 metres in height are the tallest flowering plants in the world) to the Emerald star bush (with less than 6,000 known plants existing in the world) and 55 species of orchids found in Mt Cannibal Reserve. Of the 94 rare or threatened plants listed by the Victorian Government, five species are of national significance being listed under the *Environment Protection and Biodiversity Conservation (EPBC) Act* 1999. This includes the green-striped greenhood, maroon leek-orchid, matted flax-lily, tall astelia and clover glycine.

The 2017 Cardinia Shire vegetation mapping project (Abzeco, 2017) demonstrated the deteriorating state of the shire's natural environment. The mapping project identified:

- native vegetation is now limited to 29 per cent of the shire
- extent of native tree canopy cover on private land is 14 per cent
- 69 per cent of private properties surveyed north of the Princess Highway were found to have half of the native understorey lifeforms (groups of species) missing.

6.2 Fauna

The VBA contains records of approximately 414 indigenous fauna species in Cardinia Shire. An additional 17 animal species are likely to be locally extinct. These include iconic animals such as the eastern quoll, long-nosed potoroo and brush-tailed phascogale.

Thirty six fauna species considered present or with potential to remain in Cardinia Shire are listed under the federal EPBC Act. This includes species such as the helmeted honeyeater, southern brown bandicoot, dwarf galaxias, growling grass frog and eastern curlew.

Sixty-three species recorded in Cardinia Shire are listed as rare or threatened on the Department of Environment, Land, Water and Planning (DELWP) threatened species list. Thirty six of these species are listed under Victoria's Flora and Fauna Guarantee Act.

Western Port Bay is an internationally listed wetland under the Ramsar convention. Cardinia Shire is home to twenty five migratory wader bird species which annually travel approximately 12,000 kilometres to breeding sites in the Siberian Tundra.

Table 2. Number of known animal species (excluding invertebrates) within Cardinia Shire

	Birds	Mammals	Reptiles	Frogs	Fish	Total
Native species	232	36	27	17	23	335
Threatened species	59	11	4	3	3	80

Cardinia Shire's native plants and animals have evolved to coexist in complex ecological partnerships and are interdependent on each other for their survival. An example is in our large old trees which provide habitat hollows for 20 per cent of our native birds and many species of possums and micro-bats. Larger birds require larger hollows, such that a eucalypt may be 70–100 years old before it can provide suitable habitat. Eucalypt trees are also a vital link in the start of the food web. Scientists have counted hundreds of insect species (a species distinguished from others by its form or shape) on just two trees (Yen et al, 2002).

6.3 Community values

The link between a healthy natural environment and community quality of life is not always clearly visible. It is also challenging for the community to value and experience elements of the natural environment when many of our native species are hard to detect, being discrete, small or nocturnal in their movements.

Programs designed to engage and educate the community to more highly value the natural environment and become environmental custodians also compete with other lifestyle demands, including limited time and availability of finances.

Council undertook a community survey of 247 people in 2018 (survey results are in Appendix F and G). The survey found that:

- 46 per cent of respondents did not identify that native plants and animals lived in their backyard
- an average of 34 per cent of respondents were not aware that climate change, water pollution and community indifference were a threat to the natural environment.

Notwithstanding these results, there is clear support from the community to improve the natural environment. In the community biodiversity survey respondents identified the following environmental initiatives:

- 58 per cent suggested improved communication to raise awareness of the challenges and opportunities to improve our natural environment
- 84 per cent said they would consider participating in a citizen science project to collect environmental data for projects such as monitoring our natural environment
- 28 per cent suggested environmental programs required additional resources.

Council also ran community workshops involving 83 participants, to inform the development of the strategy goals and objectives (Appendix H provides a summary of community workshop issues and priorities).

The community workshops identified:

- that an uninformed person sees a tree as dispensable and an informed person sees it as a living environment
- an informed population is a proactive population
- a fundamental component to a healthy environment is knowledge sharing.

7 Challenges for our biodiversity

The health of native plants and animals have been in continual decline since European settlement. This has historically been the result of an accumulation of factors such as uncontrolled land clearing for agriculture and development, and increasing competition from weeds and pest animals. Competing land management priorities, such as vegetation removal for economic gain or to increase the perceived safety of people and property, result in the further deterioration of the natural environment. Cardinia Shire's large old trees are at particular risk from these threats. Where these factors are combined it has led to the widespread deterioration of our natural environment.

Competition from plants and animals that are not native to Australia has historically, and continues to have, a profound detrimental impact on our native flora and fauna. Council's *Weed Management Strategy* (2019–29) provides the detail of the impact of weeds and sets out the long-term plan to manage these species. Key invasive animals in Cardinia Shire include the fox, feral cat, deer, rabbit, Indian myna, starlings and honey bees.

These species impact native animals in a range of ways including:

- occupying niches that crowd and outcompete
- destroying native habitat
- eating and hunting (predating on) native species.

The mobile nature of pest animals makes these species extraordinarily difficult to control. At a minimum, pest animal control programs must be implemented on a 'whole of catchment' scale to ensure effective control. Programs that are only conducted at the property scale reveal that the pest species quickly reinvade the control area, thereby negating the usefulness of the program. The effectiveness of a pest control program can therefore be impaired due to landholder apathy or constrained time and resources. Active education and awareness programs are of critical importance to gain support from the majority of landholders in these pest control areas. This is of particular relevance in the management of domestic cats which, if not restricted within the property (indoors or in outdoor cat 'runs'), will hunt and kill native wildlife. This threat is not widely acknowledged in the community.

The consequential fragmented landscapes and disruption to plant populations, while still providing habitat for some species resilient to disturbance, can lead to entire suites of plants and animals that are sensitive to change 'crashing' and disappearing completely from an area. A study in Victoria of woodland bird populations revealed that populations are more likely to crash when tree canopy cover reduces to less than 30 per cent (Bennett et al, 2005). Species decline is reflected in Council native flora and fauna records which show that, notwithstanding our native vegetation cover extends to 29 per cent of the shire, 94 native plants and 63 native animals species are listed as 'rare' or 'threatened'.

Climate change is predicted to be one of the greatest long-term threats to biodiversity and the uncertainty it brings will need to be considered in all biodiversity conservation decisions.

The most vulnerable ecosystems include coastal ecosystems, forests, fragmented terrestrial ecosystems and areas vulnerable to fire or low freshwater availability. Species that could become endangered or extinct include those living near the upper limit of their temperature range, those with constrained climatic niches, and those that cannot migrate to new habitats due to habitat fragmentation or lack of suitable alternatives. Addressing the impacts of climate change on biodiversity will require a long-term effort and new ways of thinking.

Four key priorities are:

1. Enhancing our understanding of the likely responses of biodiversity to climate change and readjusting management programs where necessary.
2. Protecting a range of habitats and ecosystems.

3. Increasing opportunities for species to move across the landscape by working with partners and the community to protect habitat and create the necessary connections across landscapes.
4. Assessing adaptation options and supporting the resilience of climate-threatened ecosystems and species.

This strategy has identified a climate change adaptation policy, which will take an ecosystem-based approach to support the shire's biodiversity in adapting to a changing climate. Community groups and partners will play a key role in providing input on conservation land management activities and monitoring the impacts of climate change on indigenous species. Council will address the impacts of climate change by enhancing the resilience of habitats and ecosystems to support suitable alternatives, create connections across landscapes and reduce habitat fragmentation. *Climate-ready revegetation: A guide for natural resource managers* (Hancock, 2016) is a useful resource for natural resource managers when planning revegetation activities.

The variety of rural land use in Cardinia Shire also presents a challenge. These land uses can be generalised into two areas, broadly following the two bioregions (Cardinia Shire bioregions are mapped in Appendix I). Environmental programs must take into account each landholder area. The northern hills are generally made up of smaller rural hobby farms, while the southern flats are generally made up of larger more productive agricultural farms. As a consequence, land management programs such as installing a habitat corridor can be more costly in the southern flats than an equivalent program in the northern hills, due to the perceived loss of farm productivity.

In Cardinia Shire other significant threats to our natural environment include:

- grazing native vegetation from stock
- dieback caused by the root-rot fungus (*Phytophthora cinnamomi*)
- inappropriate fire regimes causing disruption to sustainable ecosystem processes and resultant loss of biodiversity
- rubbish dumping
- salinity
- coastal erosion
- loss of seagrass in Western Port (approximately 30% of sediment entering Western Port comes from eroding coastline in Cardinia Shire. The sediment reduces light reaching the seafloor and thus seagrass coverage (Wilkinson, 2016)).

Table 3 identifies the goals and opportunities in which Council will address the 11 priority challenges, incorporating multiple goals to achieve success.

Table 3. Biodiversity challenges and opportunities

	Challenge	Strategy goal	Opportunity
1.	Bio-links have not been identified or protected across the municipality	Protect, connect	Prioritise the development of a bio-links plan to identify the strategic corridors across the landscape. This will inform other conservation initiatives such as the location of statutory planning overlays and threatened species management actions.
2.	The community experience competing goals and priorities which challenge their ability to experience and value nature	Engage and educate	Utilising the Deep Creek Ecocentre as a focal point, to expand revegetation, weed control and threatened species programs in addition to increasing support for 'friends groups' and Gardens for Wildlife program. Advocate for an environmental education officer which will expand schools and kinder education and the future citizen science program.

	Challenge	Strategy goal	Opportunity
3.	Biodiversity on private properties is incrementally deteriorating through a variety of threatening processes	Enhance, engage and educate	Support the *Weed Management Strategy* actions and advocate for a future Pest Animal Strategy. Fencing remnant vegetation and revegetation works will be delivered in collaboration with Landcare groups activities to improve the natural environment, soil and water health and farm productivity.
4.	Native plants and animals in Council natural resource areas are under threat from weed invasion, pressure from pest animals and altered fire regimes.	Protect, enhance	Identify programs and additional resources to appropriately manage Council reserves. The bio-links plan will identify strategic conservation priorities that will influence external grants. This will complement the weed management, revegetation program and future Pest Animal Strategy and Ecological burn program to allocate funds strategically to most efficiently and effectively conserve our threatened species.
5.	To protect our native species a coordinated program is required to control pest animals and provide education on responsible pet ownership	Enhance, engage and educate	Collaborate with the Eastern Region Pest Animal Network to develop a regional pest animal strategy and implement across the Shire. Utilise this as a catalyst for community conversations regarding the shared responsibility to manage pest animals. This work will complement the existing pest animal projects, future bio-links plan and threatened species management actions.
6.	Native vegetation is limited to 29% of the Shire	Enhance, engage and educate	Identify a range of regeneration and revegetation initiatives on public and private land to meet objective to revegetate 226,000 indigenous plants over the strategy's life. Increasing the existing weed grant and the Gardens for Wildlife program will compliment this objective.
7.	To monitor programs to understand effectiveness	Enhance, engage and educate	Assess vegetation health in 20 priority bushland reserves and 120 random private properties. The presence of key indicator species that could be monitored include; southern brown bandicoot, platypus, growling grass frog, emerald star bush, lyrebirds, lizard diversity and powerful owls.
8.	Environmental community groups require support from Council	Protect, enhance, engage and educated	Develop action plans with 'friends groups' and provide increased support to community catchment based conservation projects.
9.	Council requires a consistent approach to roadside conservation planning and management.	Protect, enhance, connect, engage and educate	A roadside management strategy to be developed including other complimentary works to commence in 2022.

	Challenge	Strategy goal	Opportunity
10.	Council requires a strategic planned approach to mitigate the impacts of climate change on biodiversity	Protect, enhance	Develop a climate change adaptation policy which will consider the impacts on climate vulnerable species.
11.	Biodiversity conservation values are not always considered in Council decision making.	Protect, enhance, engage and educate	Raise awareness on the threats to our natural environment and seeks incorporation of the vision, goals and objectives by considering biodiversity in all organisational plans, strategies and polices. Projects such as the cross department awareness raising, and incorporation of the *Sustainable Environment Policy* will improve the collaborative opportunities within Council and identify shared opportunities to realise sustainable land management outcomes.

8 Roles and responsibilities

8.1 Victorian Government

The Victorian Government plays a broad role in setting legislation, policies and strategies to provide direction for Council. The government leads the development of specific policies and programs to conserve threatened species. A significant environmental policy document is the *Victorian Biodiversity 2037* strategy.

Victorian Government land managers such DELWP, DEDJTR, Parks Victoria, VicTrack, VicRoads and authorities such as Melbourne Water and Puffing Billy Railway manage Crown land that have high conservation values. All Council regional weed or pest animal control programs by necessity must collaborate with these government stakeholders to maximise program success.

8.2 Council's role

Council has statutory responsibilities to protect or enhance native flora and fauna from threatening processes on land managed or owned by Council. Council manages 840 hectares of natural resource areas including bushland reserves and 940 kilometres of roadsides that contain remnant native vegetation and threatened species. Council annually takes on responsibility for new bushland reserves as an outcome of urban development associated with the *Planning and Environment Act 1987*.

Where Council is the delegated land manager of a natural resource area, there are not less than four state and federal acts that direct Council to protect, care and enhance all native flora and fauna found in our reserves. These include:

- the *Flora and Fauna Guarantee Act 1988* – directs the land manager to ensure native flora and fauna must survive and flourish by managing threatening processes
- the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) – applies to 44 listed species and plant communities in Cardinia Shire (including Western Port Bay), providing the management direction that there must not be a significant (detrimental) impact to these listed species
- the *Victorian Conservation Trust Act 1972* – applies to two Council reserves which directs that all native wildlife and plants must be conserved
- the *Conservation and Land Protection Act 1994* –identifies that the land manager must manage and control regionally controlled and prohibited weeds and also control restricted pest animals.

Council plays a strategic leadership role through the development of plans and community programs to protect and enhance the natural environment and avoid and minimise native vegetation removal. This role extends to implementing regional plans to manage threatened species and coordinate and empower community conservation projects (community engagement is covered in Section 9) which consider sustainable development goals within the project objectives. This is reflected in the proposed development of a bio-link corridors plan for threatened species and roadside management strategy. These projects compliment the *Melbourne Strategic Assessment* which provides specific management directions for the EPBC listed southern brown bandicoot and growling grass frog.

Council carries out a critical role to provide statutory environmental information to residents through the *Planning and Environment Act 1987*. Utilising planning zones, overlays and DELWP guidelines this involves educating residential planning applicants on the natural environmental features that are protected on their property. This presents a unique opportunity to undertake broader education on the conservation opportunities for our residents. Where possible Council capture these conservation actions within environmental permit conditions.

To compliment 'goal 1, achieve a net gain in native vegetation,' local revegetation policy guides will be developed to ensure that compensatory vegetation offsets are directed into the Shire. These will identify appropriate vegetation specifications including species types and numbers. Policy guides will

include the development of an over the counter offset scheme, local native vegetation planting policy and environment planting guidelines.

Council utilises Ecological Vegetation Classes (EVC's) as the standard unit for classifying vegetation types within Cardinia. EVC's define the characteristic lifeforms, species, canopy and percentage large tree density by which Council makes statutory vegetation assessments. Ecologists assess the quality of vegetation for net gain offset calculations and Council plan revegetation projects and monitor the health of the natural environment using EVC benchmarks.

Council's 'Gardens for Wildlife' program complements this education initiative by engaging knowledgeable community members to provide environmental assessments and educate land owners on the value of their environmental assets. Figure 4 show the diversity of Council's environmental roles.

To stimulate the natural ecology that takes place as a result of fire, Council is working towards implementing a scheduled program to undertake ecological controlled burns in Cardinia Shire's bushland reserves. This also complements Council's Municipal Fire Management Planning role to create safer communities.

Monitoring the outcomes of conservation projects and the broader health of the natural environment provides a critical component of natural resource management because it enables Council to evaluate the effectiveness of a program and understand whether we are sustainably managing natural environmental assets. Where monitoring identifies deteriorating species health, intervention strategies can be put in place. Council programs for the community to participate in citizen science projects are important in monitoring our natural environment.

To reverse the trend of species extinction, Council is challenged in the delivery of a multitude of competing conservation projects while working within a finite budget. Council prioritises conservation planning with criteria such as the following:

- presence of threatened species
- bioregion conservation significance of vegetation communities
- DELWP's strategic priority setting
- community project support
- quality and quantity of vegetation onsite and it's connectivity role and ability to offer refuge for native species
- outcomes from the 'Open Standards for the Practise of Conservation' planning framework

The 'Open Standards for the Practise of Conservation' is an adaptive planning framework that helps land mangers systematically plan, implement and monitor conservation initiatives. This provides a more effective and efficient conservation management planning by analysing what works and what does not and continually making improvements to on ground works. This approach will provide an important tool in the delivery of programs from this strategy and to lobby for external government funding.

Figure 4. Council's diverse role to protect and enhance our natural environment

8.3 Residents

Cardinia Shire residents represent the majority of landholders in the shire and as such are custodians of the land. 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 the management of regionally controlled and regionally prohibited weeds and to prevent the spread of (and as far as possible eradicate) established pest animals.

To support residents to undertake their role in biodiversity conservation, Council provides education and support.

8.4 Community volunteers

Cardinia Shire has more than 15 'friends' groups, three indigenous plant nurseries, wildlife shelters and 10 Landcare groups who volunteer to protect and enhance the natural environment. The Cardinia Environment Coalition (CEC), Western Port Catchment Landcare Network, Southern Ranges Environment Alliance, Cannibal Creek Catchment Biodiversity group and Port Phillip to Healesville Nature Links are important network groups with which Council partners to engage with the community.

Volunteerism to enhance our natural environment conservatively reaches over 2,000 hours annually. The environmental volunteers in Cardinia Shire play a fundamental role in contributing to landscape change and community education and engagement to benefit the natural environment. The length and breadth of the work they undertake shows a profound dedication to improving the natural environment.

Volunteers currently work in 10 Council bushland reserves undertaking weed control and tree planting. Significant works also extend to liaison with neighbours and the local community on appropriate environmental land management. These groups provide an important surveillance role to monitor the health of the reserve, including reporting reserve hazards and monitoring for threatened species. The groups acquire grants for the reserves and assist in the development of strategic conservation plans and tour guiding activities to further improve the reserves. Their knowledge on the ground also provides Council with a valuable local expertise to guide in reserve management.

Wildlife shelters provide an invaluable community service to assist community members who encounter injured wildlife. After an incident, both wildlife and community member can be highly traumatised and distressed. One shelter can care for many hundred injured wildlife each year.

9 Community engagement

To achieve this strategy's goals, Council requires the entire community, including individual landholders in a whole of catchment approach to value the local biodiversity in and around their properties.

Past studies, including the project partnership report 'Why don't they manage their weeds?' developed with Johns Hill Landcare Group and Cardinia Shire Council, identified the three primary factors that inhibited residents from implementing conservation (weed) programs was one or all of the following:

- lack of knowledge
- lack of time
- lack of resources.

The project found that the greater the number of these inhibitors that could be addressed in a community conservation project, the better the success of achieving support from new landholders.

Other important behaviour change theory includes the 'Psychology of Sustainable Behaviour Change' (Christie Manning, 2009) which provides a guide on how it is possible to motivate and empower sustainable actions. This strategic behaviour-change approach forms the basis of future community conservation initiatives. For this reason, Council will continue to strengthen work with the community in collaborative conservation projects. These partnerships have proven to be the most effective method of achieving biodiversity outcomes on private and public land because they address these inhibiting factors.

Council–community collaborative partnerships contribute a combination of scientific knowledge, funding and resources to a given project which, when coupled with the community's contacts and knowledge of the local environment, can tailor programs that meet local community needs. These programs often increase in size over time as additional landholders join the project as a result of advocacy from trusted neighbours. Council also has programs to cater for landholders who prefer to implement solitary projects. The key to achieving this strategy's goals is to offer a range of conservation initiatives that suit individual landholders' needs.

Revegetation programs identified must be coordinated with weed management initiatives, if we are to ensure environmental gains onsite are sustained. Coordinated revegetation programs also provide continued community enthusiasm for conservation projects.

Deep Creek Ecocentre is intended to become a focal point for the delivery of Council's conservation initiatives. This includes Council revegetation and 'Gardens for Wildlife' programs. Educational programs to schools, kindergartens and the community will be integrated with the indigenous nursery on site. Programs to be delivered range from managing our waterways through to building possum boxes and protecting native vegetation through to controlling weeds and pest animals.

Council's website is another key tool providing the community with information on biodiversity assets, current projects, community groups, protected species in the planning scheme and web-based tools for planning applications. Due to the dynamic and changing nature of the conservation sector, it is important that resources are continually allocated to website updates to ensure information is accurate and relevant to the community.

By implementing the identified community-based conservation actions, Cardinia Shire Council will meet its goal to annually increase the number of community members actively participating in conservation initiatives on private and public land.

Case study – Cannibal Creek catchment biodiversity project

The Cannibal Creek catchment biodiversity project is a collaboration program and has been running for five years from 2013. The project has grown from original engagement of 10 properties to now involving 12 different stakeholder groups, extending over an area of 45 square kilometres along 12 kilometres of Cannibal Creek.

Using the core biodiversity assets of Mount Cannibal Reserve and Cannibal Creek, the group includes numerous government and community stakeholders. Members have collaborated to pool their vast local knowledge and resources to incrementally role out an integrated conservation management program to improve biodiversity values in the entire catchment. Council supplied expertise, funding, mapping and resources to assist in the project.

On-ground initiatives have included pest animal and weed control, revegetation, monitoring of flora and fauna, cultural heritage awareness and educational field days. The project has increased over its life by 45 times, accruing more than 2,000 volunteer hours managing weeds and tree planting and controlling 279 foxes. Up to 2020, the project will have secured funding of more than $470,000.

10 Monitoring and review

Progress of the action plan for this strategy will be reviewed in 2024. A more detail review of the entire strategy, including progress towards the objectives outlined under each of the four goals, will take place at its conclusion in 2029.

Contained within the review, is a biodiversity monitoring program in 2020 and 2024 to inform the progress towards the strategy objectives.

11 Glossary

Biodiversity	This is the variety of all life forms; the different plants, animals and microorganisms, the genes they contain and the ecosystems of which they form a part. For the purposes of this strategy, biodiversity refers to all plants and animals indigenous to Cardinia Shire
Bioregion	Biogeographic areas that capture the patterns of ecological characteristics in the landscape or seascape, providing a natural framework for recognising and responding to biodiversity value.
Bioregional conservation status	An assessment of the conservation status of the native vegetation type in the context of a particular bioregion, taking account of how commonly it originally occurred, the current level of depletion due to clearing, and the level of degradation of condition typical of remaining stands. Six categories of bioregional conservation status exist: presumed extinct, endangered, vulnerable, depleted, rare and least concern.
Bonn	The Bonn Convention identifies migratory bird taxa at and below the species level, as well as some whole families.
Bushland reserve	Council-owned reserves which contain native or indigenous flora and fauna. Vegetation is usually remnant and has never been cleared, although some bushland reserves have arisen from revegetation using indigenous species. Bushland reserves form part of the broader natural resource area system of environmental assets that Council manages.
Citizen science	The collection and analysis of data relating to the natural world by members of the general public
Ecological Vegetation Class (EVC)	A type of native vegetation classification that is described through a combination of its floristic, life form and ecological characteristics. Each EVC includes a collection of floristic communities. In 2006, approximately 300 EVCs have been defined and mapped in Victoria with around 53 of these being located in Cardinia Shire
Ecosystem	All the organisms (including plants and animals) present in a particular area together with the physical environment with which they interact.
Habitat corridor	Pathways of natural or created habitat within larger areas that have been developed by humans, either farmed or urban development. Habitat corridors attract wildlife and act as safe passages for wildlife between neighbouring natural areas. Corridors often occur along creek riparian zones that run through urban areas, however can also encompass road reserves, railway lines and other linear easements.

Indigenous vegetation/animals	Plants (including trees, shrubs, herbs, and grasses) or animals (including mammals, birds and insects) that occur naturally in the local area, a local native plant/animal.
Lifeforms	Scientific ecological vegetation classes (EVCs) can be generalised and expressed into 15 separate vegetation groups or 'lifeforms' including; three types of tree, four types of shrub, six types of ground storey vegetation and two other vegetation components.
Miradi management system	A system to design conservation projects where the project is conceptualised, actions are planned, analysed, evaluated and reported on.
Native vegetation	Plants (including trees, shrubs, herbs, and grasses) that are indigenous to a particular site.
Natural environment	All plants and animals including the locations they are found that are indigenous to Cardinia Shire.
Natural resource areas	The term used to refer to the collective of all Council assets where native plants and animals can be found. These areas include bushland reserves, roadside reserves and waterways and include any location where threatened flora and fauna may exist including weedy vegetation.
Niche	Natural home or environment of species, the physical environment in which a species lives including the energy flow the species occupies in the ecosystem
Open space reserve	Council reserve that is used for a wide variety of recreational purposes, where conservation values are shared with other recreational values. Typically sparsely vegetated with no critical habitat located onsite.
Ramsar	An intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources
Rehabilitation	Any attempt to restore elements of structure or function to an ecological system without necessarily attempting complete restoration to any specific prior condition.
Restoration	The return of a community to its pre-disturbance or natural state in terms of abiotic (non-living) conditions, community structure and species composition.
Revegetation	Replanting indigenous vegetation in either restoration or rehabilitation.
Understorey vegetation	Any vegetation lifeform under 5 metres in height. The 14 different lifeforms which generally make up an EVC which range from immature trees down to

	the smallest herbs and ferns. Where less than half of these lifeforms exist, Council is defining the vegetation quality as significantly disturbed.
Victorian Biodiversity Atlas	State Government tool to collate species presence with observations from registered users, which acts as the foundation dataset to inform environmental decision making by the State Government.

12 References

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13 Action plan

Council is committed to reversing the decline in native plants and animals by implementing the action plan. The action plan has been developed through a strategic approach to achieve the most cost-effective outcomes to protect the maximum number of species. Protection of remaining remnant vegetation is prioritised over revegetation of native landscapes.

Over the next 10 years, the actions will meet Council's statutory obligations and protect native flora and fauna.

14 Appendices

Appendix A: Indigenous flora list for Cardinia Shire post 1988
Appendix B: Indigenous fauna list for Cardinia Shire post 1988
Appendix C: Cardinia Shire ecological vegetation classes
Appendix D: Cardinia Bushland Reserves at November 2018
Appendix E: Tree canopy cover in Cardinia Shire
Appendix F: Community consultation survey 1 (Pakenham show)
Appendix G: Community consultation survey 2 (open internet survey)
Appendix H: Summary of community workshop issues and priorities
Appendix I: Cardinia Shire bioregions
Appendix J: Legislation, policy and strategies for biodiversity conservation
Appendix K: Sustainable development goals

Action plan

Table 1. *Annual cost of action plan*

Year	Council funding per year (existing)	Additional Council funding (per year) sought	External funding (per year) sought	Total proposed implementation costs
2019/20	123,800	0	0	123,800
2020/21	123,800	296.500	15,000	435,300
2021/22	123,800	465,000	68,500	657,300
2022/23	123,800	555,500	7,500	686,800
2023/24	123,800	441,500	3,500	568,800
2024/25	123,800	460,000	15,000	598,800
2025/26	123,800	531,000	21,000	675,800
2026/27	123,800	477,500	52,500	653,800
2027/28	123,800	496,000	21,000	640,800
2028/29	123,800	477,500	2,500	603,800
Total	**1,238,000**	**4,200,500**	**206,500**	**5,645,000**

Table 2. Additional staff resources

No	Action	Action duration	Timeframe	Lead	Partner	Council funding per year (existing)	Council funding per year (additional)	Total Council funding per year	Total Council funding over the life of 10 year strategy	External funding required over the life of the action	Total funding over the life of 10 year strategy	Comments
1.	Environmental education officer (1.0 FTE Band 5)	9 years	2020-21 onwards	Environment and Heritage	People and Culture		86,000	86,000	774,000			This role is also identified in the Aspirational Energy Transition Plan. Recommended that one role would service the Biodiversity Conservation Strategy, Aspirational Energy Transition Plan and Integrated Water Management Plan
2.	Environmental planner (0.5 FTE Band 6)	8 years	2021-22 onwards	Environment and Heritage	People and Culture		52,000	52,000	416,000			
3.	Biodiversity officer (1.0 FTE Band 5)	8 years	2021-22 onwards	Environment and Heritage	People and Culture		86,000	86,000	688,000			

Table 3. Goal 1: Protect

No	Action	Action duration	Timeframe	Lead	Partner	Council funding per year (existing)	Council funding per year (additional)	Total Council funding per year	Total Council funding over the life of 10 year strategy	External funding required over the life of the action	Total funding over the life of 10 year strategy	Comments
4.	Continue to provide input into Victorian and Government policies that advocate for protection and enhancement of biodiversity in Cardinia Shire	10 years	2019-20 onwards	Environment and Heritage								
5.	Keep a record of vegetation removal permits and the revegetation required to offset the losses.	10 years	2019-20 onwards									
6.	Continue to implement pet restrictions as part of the planning permit process in high priority areas to protect threatened species	10 years	2019-20 onwards	Development Services (Statutory Planning)	Environment and Heritage, Development Services (Compliance)							
7.	Develop guidelines for developers to encourage indigenous plantings	1 year	2020-21	Environment and Heritage	Infrastructure Services, Operations, Planning and Development, Development and		15,000	15,000	15,000		15,000	

No	Action	Action duration	Timeframe	Lead	Partner	Council funding per year (existing)	Council funding per year (additional)	Total Council funding per year	Total Council funding over the life of 10 year strategy	External funding required over the life of the action	Total funding over the life of 10 year strategy	Comments
					Compliance Services, Policy Design Growth Area							
8.	Develop and implement a cat and dog management awareness program to reduce impacts on biodiversity (focus on protection of southern brown bandicoot)	4 years	2022-23 2024-25 2026-27 2028-29	Environment and Heritage	Development and Compliance Services, Operations Unit (Open Space), Communications		2,500	2,500	10,000	10,000	20,000	Contingent on new biodiversity officer
9.	Develop three priority threatened species action plans by 2028	3 years	2024-25 2025-26 2027-28	Environment and Heritage	Operations Unit (Open Space and Operations team), Strategic Planning		12,500	12,500	37,500	37,500	75,000	
10.	Identify Council and Crown land committees of management responsible for open space that contain indigenous vegetation and implement an environmental education program.	1 year	2023-24	Environment and Heritage	Active Communities, Operations Unit (Open Space)							
11.	Seek external funding to assist Council and Crown land committees of management for support in land management activities	4 years	2024-25 to 2027-28	Environment and Heritage	Active Communities, Operations Unit (Open Space)							
12.	Advocate resources for a planning compliance officer to audit permit conditions (including environmental conditions)	1 year	2025-26	Development and Compliance Services (Compliance Services)	Environment and Heritage							

Table 4. Goal 2: Enhance

No	Action	Action duration	Timeframe	Lead	Partner	Council funding per year (existing)	Council funding per year (additional)	Total Council funding per year	Total Council funding over the life of 10 year strategy	External funding required over the life of the action	Total funding over the life of 10 year strategy	Comments
13.	Liaise with local aboriginal groups over the annual Council natural resource area works plans	9 years	2020-21 onwards	Environment and Heritage	Safe and Inclusive Communities, Operations Unit (Operations team)		2,500	2,500	22,500		22,500	
14.	Deliver biodiversity education sessions throughout the organisation to raise environmental awareness in Council decision making	10 years	2019-20 onwards	Environment and Heritage	Operations Unit (Operations team, Open Space)							
15.	Continue to support Eastern Region Pest Animal Network initiatives including the development of a regional Pest Animal Management Plan	10 years	2019-20 onwards	Environment and Heritage								
16.	Annually report on the revegetation outputs of the Council grant program	10 years	2019-20 onwards	Environment and Heritage	Operations Unit (Open Space)							

No	Action	Action duration	Timeframe	Lead	Partner	Council funding per year (existing)	Council funding per year (additional)	Total Council funding per year	Total Council funding over the life of 10 year strategy	External funding required over the life of the action	Total funding over the life of 10 year strategy	Comments
17.	Liaise with the nursery network to advice of salvage options for planned vegetation removal.	10 year	2019-20 onwards	Environment and Heritage								
18.	Investigate the opportunity to register an offset site with the native vegetation credit register	1 year	2019-20	Environment and Heritage								
19.	Develop a natural resource area standard operating procedure to establish quality procedures for working in natural resource areas	1 year	2020-21	Environment and Heritage	Operations Unit (Open space and Operations team),		8,000	8,000	8,000		8,000	
20.	Continue to provide funds to manage Cardinia's significant NRA's in accordance with the bushland asset costing plan (excluding weed control) (Current budget $57,000 reserve asset management)	9 years	2020-21 onwards	Operations Unit (Open Space)	Environment and Heritage	57,000	60,000	117,000	1,110,000		1,110,000	Total funding for life of strategy equals $57,000 in 2019-20 $117,000 in 2020-21 onwards
21.	Annually seek capital works budget for significant reserve works	9 years	2020-21 onwards	Operations Unit (Open Space)	Environment and Heritage		75,000	75,000	675,000		675,000	
22.	Undertake roadside vegetation assessments and install signage	2 years	2020-21 to 2021-22	Operations Unit (Open Space)	Environment and Heritage					30,000	30,000	
23.	Annually plant 10,000 plants in Council reserves and on public manage land to meet objective 2.2	9 years	2020-21 onwards	Operations Unit (Open Space)	Environment and Heritage Active Communities,		40,000	40,000	360,000		360,000	
24.	Investigate a water balance study to assess the impact of new dams on minimum stream water flows	1 year	2021-22	Environment and Heritage	Development and Compliance Services, Southern Rural Water							
25.	Investigate staff resources required to adequately manage Council's natural resource areas including the provision of community support	1 year	2021-22	Operations Unit (Open Space)	Environment and Heritage, Operations Unit (Open Space)							
26.	Work across the organisation to incorporate the Sustainable Development Goals and native vegetation objectives in Council land management including prioritising indigenous planting and habitat retention and enhancement	8 years	2021- 22 onwards	Environment and Heritage								Contingent on employment of new education officer
27.	Develop a prioritised inventory of natural resource areas requiring reserve management plans and complete one plan every second year (utilising a consultant) starting from 2021-22	4 years	2021-22 2023-24 2025-26 2027-28	Operations Unit (Open Space)	Environment and Heritage		3,500	3,500	14,000	14,000	28,000	
28.	Implement conservation and education signage for priority bushland reserves	3 years	2022-23 2025-26 2027-28	Operations Unit (Open Space),	Environment and Heritage Communications					15,000	15,000	
29.	Undertake shire wide biodiversity monitoring program on private properties and for threatened	2 years	2022-23 2025-26	Environment and Heritage			40,000	40,000	80,000		80,000	Contingent on employment of new

No	Action	Action duration	Timeframe	Lead	Partner	Council funding per year (existing)	Council funding per year (additional)	Total Council funding per year	Total Council funding over the life of 10 year strategy	External funding required over the life of the action	Total funding over the life of 10 year strategy	Comments
	species to assist with reporting against strategy objectives											biodiversity officer.
30.	Undertake biodiversity monitoring in priority NRA's to inform on biodiversity health and enable evaluation of reserve management and assist with reporting against strategy objectives	2 years	2022-23 2025-26	Environment and Heritage	Operations Unit (Open Space)		30,000	30,000	60,000		60,000	Contingent on employment of new biodiversity officer
31.	Purchase of multispectral imagery through coordinated imagery program (CIP) in DELWP to provide biodiversity analysis and assist with reporting against strategy objectives	2 years	2023-24 2027-28	Information Services	Environment and Heritage		5,000	5,000	10,000		10,000	
32.	Coordinate the development of a roadside management plan. Consultancy cost to develop the plan	1 year	2022-23	Environment and Heritage	Operations Unit (Operations team and Open Space), Community Strengthening (Emergency Management), Infrastructure Services		50,000	50,000	50,000		50,000	Contingent on employment of new biodiversity officer
33.	Undertake roadside vegetation community liaison and education	1 year	2024-25	Environment and Heritage	Operations Unit (Open Space)							Contingent on employment of new biodiversity officer
34.	Annually provide 20 plants for 150 private landholders and schools (3000 plants) to meet objective 2.2	5 year	2024-25 onwards	Environment and Heritage			9,000	9,000	45,000		45,000	
35.	Increase the 2018-19 Trust for Nature rate rebate to meet CPI	5 year	2024-25 onwards	Environment and Heritage	Rates	15,000	3,000	18,000	165,000		165,000	Total funding for life of strategy equals $15,000 for 2019-20 – 2023-24 $18,000 in 2024-25 onwards
36.	Advocate for the development of a climate adaptation strategy, which will consider the impacts on climate vulnerable species.	1 year	2024-25 onwards	Environment and Heritage								
37.	Extend the existing annual Landcare Bandicoot habitat planting 15,000 plants to meet objective 2.2	3 years	2026-27 onwards	Environment and Heritage		20,000	30,000	50,000	290,000		290,000	Total funding for life of strategy equals $20,000 for 2019-20 – 2025-26

No	Action	Action duration	Timeframe	Lead	Partner	Council funding per year (existing)	Council funding per year (additional)	Total Council funding per year	Total Council funding over the life of 10 year strategy	External funding required over the life of the action	Total funding over the life of 10 year strategy	Comments
												$50,000 in 2026-27 onwards

Table 5. Connect

No	Action	Action duration	Timeframe	Lead	Partner	Council funding per year (existing)	Council funding per year (additional)	Total Council funding per year	Total Council funding over the life of 10 year strategy	External funding required over the life of the action	Total funding over the life of 10 year strategy	Comments
38.	Support community lead catchment based biodiversity projects e.g. Cannibal Creek Catchment and Cardinia Creek Nature Links	10 years	2019-20 onwards	Environment and Heritage	Operation Unit (Open Space, Operations team)							
39.	Identify and consider strategic land purchases that enhance Cardinia's biodiversity	10 years	2019-20 onwards	Environment and Heritage								
40.	Stage 1 Undertake biolink mapping across the municipality. Map local and regional biodiversity assets and develop biolink corridors at different scales on private and public land.®	1 year	2020-21	Environment and Heritage	Operation Unit (Open Space) Community Strengthening, Strategic Planning, DELWP		50,000	50,000	50,000	50,000	100,000	
41.	Stage 2 Incorporate areas of an endorsed biolink plan into the planning scheme using environmental overlays	1 year	2022-23	Strategic and Economic Development	Environment and Heritage							

Table 6. Engage

No	Action	Action duration	Timeframe	Lead	Partner	Council funding per year (existing)	Council funding per year (additional)	Total Council funding per year	Funding over the life of the 10 year strategy	External funding required over the life of the action	Total funding over the life of 10 year strategy	Comments
42.	Develop action plans for individual 'friends' of bushland reserve groups	10 years	2019-20 onwards	Environment and Heritage	Operations Unit (Open Space)							
43.	Continue to support nature based play spaces into playground design	10 years	2019-20 onwards	Environment and Heritage	Active Communities							
44.	Continue to implement the biodiversity incentive scheme for Landcare course subsidies	10 years	2019-20 onwards	Environment and Heritage		2,000		2,000	20,000		20,000	
45.	Annually report on the combined number of community participants involved in natural environment programs	10 years	2019-20 onwards	Environment and Heritage								
46.	Continue and improve support for Council's four wildlife shelters with annual funding	9 years	2020-21 onwards	Environment and Heritage		3,000	1000	4,000	39,000		39,000	Expansion of the grant from

No	Action	Action duration	Timeframe	Lead	Partner	Council funding per year (existing)	Council funding per year (additional)	Total Council funding per year	Funding over the life of the 10 year strategy	External funding required over the life of the action	Total funding over the life of 10 year strategy	Comments
												2 wildlife shelters to 4 shelters. Total funding for life of strategy equals $3,000 for 2019-20 $4,000 in 2020-21 onwards
47.	Continue to support and increase friends group grant budget to accommodate: • the establishment of new friends groups • the support of Cardinia Environment Coalition's management of public land	9 years	2020-21 onwards	Environment and Heritage		10,000	7,000	17,000	163,000		163,000	Total funding for life of strategy equals $10,000 for 2019-20 $17,000 for 2020-21 onwards
48.	Improve on the delivery of environmental education programs to schools, kinders and the community	9 years	2020-21 onwards	Environment and Heritage		8,000	2,000	10,000	98,000		98,000	Contingent on employment of new environmental education officer Total funding for life of strategy equals $8,000 for 2019-20 $10,000 in 2020-21 onwards
49.	Investigate and support university research opportunities to better understand environmental science, which will inform conservation management.	8 years	2021-22 onwards	Environment and Heritage								Contingent on employment of new environmental education officer
50.	Increase the existing biodiversity incentive grant to community group initiatives on private and public land to conserve threatened species	7 years	2022-23 onwards	Environment and Heritage		8,800	20,000	28,800	228,000		228,000	Total funding for life of strategy equals $8,800 for 2019-20 – 2021-22 $28,800 in 2022-23 onwards

No	Action	Action duration	Timeframe	Lead	Partner	Council funding per year (existing)	Council funding per year (additional)	Total Council funding per year	Funding over the life of the 10 year strategy	External funding required over the life of the action	Total funding over the life of 10 year strategy	Comments
51.	Initiate contact with new landholders to raise awareness of the biodiversity related resources and available Landcare networks	7 years	2022-23 onwards	Environment and Heritage	Communications		1,500	1,500	10,500		10,500	
52.	Review the value of coordinating a local biodiversity stakeholders committee.	4 years	2025-26	Environment and Heritage	Cardinia Environment Coalition							
53.	Work with universities to develop farm demonstration sites that monitor farm productivity as a result of conservation works (ecosystem services). Year 1 of 10-year project with set up costs only needed in year 1.	1 year (set up year)	2026-27	Environment and Heritage	Federation University, Western Port Catchment Landcare Network					50,000	50,000	Contingent on employment of new biodiversity officer.

Appendix A: Indigenous flora recorded within Cardinia Shire post 1988

VBA - Victorian Biodiversity Atlas

EPBC Act – *Environment Protection and Biodiversity Conservation Act 1999*

EN = endangered VU = vulnerable

FFG Act – *Flora and Fauna Guarantee Act 1988*

L = listed N = nominated for listing X = rejected for listing

DEPI - Advisory List of Rare or Threatened Plants in Victoria (DEPI 2014)

e = endangered v = vulnerable r = rare k = poorly known P = not formally listed but all subordinate taxa included on the advisory list.

Likelihood of occurrence definitions:

U = unlikely to occur in Cardinia Shire

- Lack of known habitat remaining in the shire
- No known substantial/self-sustaining population in Cardinia Shire
- Undergone taxonomic revision and no longer describes the relevant entity
- Outside of the known species distribution or range

P = considered present or with the potential to occur in Cardinia Shire

- Suitable habitat or known populations present in the shire.

Scientific name	VBA* common name	No. of records	Year (latest record)	EPBC Act	FFG Act	DEPI	Likely occurrence in shire
Acacia brownii	Heath Wattle	15	2009				P
Acacia dealbata	Silver Wattle	272	2017				P
Acacia dealbata subsp. dealbata	Silver Wattle	14	2015				P
Acacia frigescens	Frosted Wattle	1	1989				P
Acacia genistifolia	Spreading Wattle	167	2014				P
Acacia gunnii	Ploughshare Wattle	3	2003				P
Acacia implexa	Lightwood	1	1999				P
Acacia leprosa s.l.	Cinnamon Wattle	17	1996				P
Acacia leprosa var. graveolens	Common Cinnamon-wattle	6	2009			k	P
Acacia leprosa var. graveolens (typical variant)	Common Cinnamon-wattle	2	2011				P

Scientific name	VBA* common name	No. of records	Year (latest record)	EPBC Act	FFG Act	DEPI	Likely occurrence in shire
Acacia leprosa var. uninervia	Large-leaf Cinnamon-wattle	3	2009			r	P
Acacia mearnsii	Black Wattle	195	2016				P
Acacia melanoxylon	Blackwood	407	2017				P
Acacia mucronata subsp. longifolia	Narrow-leaf Wattle	123	2016				P
Acacia myrtifolia	Myrtle Wattle	183	2013				P
Acacia obliquinervia	Mountain Hickory Wattle	39	2016				P
Acacia oxycedrus	Spike Wattle	127	2014				P
Acacia paradoxa	Hedge Wattle	77	2017				P
Acacia pycnantha	Golden Wattle	14	2009				P
Acacia spp.	Wattle	20	2015				P
Acacia stictophylla	Dandenong Wattle	19	2012			r	P
Acacia stricta	Hop Wattle	100	2017				P
Acacia suaveolens	Sweet Wattle	22	2013				P
Acacia terminalis	Sunshine Wattle	3	1994				P
Acacia ulicifolia	Juniper Wattle	9	2007				P
Acacia verniciflua s.l.	Varnish Wattle	26	2017				P
Acacia verticillata	Prickly Moses	233	2016				P
Acacia verticillata subsp. verticillata	Prickly Moses	47	2015				P
Acaena agnipila	Hairy Sheep's Burr	9	2003				P
Acaena echinata	Sheep's Burr	18	2012				P
Acaena novae-zelandiae	Bidgee-widgee	347	2017				P
Acaena ovina	Australian Sheep's Burr	5	2004				P
Acaena spp.	Sheep's Burr	8	2011				P
Acaulon spp.	Pygmy Moss	1	1990				P

Scientific name	VBA* common name	No. of records	Year (latest record)	EPBC Act	FFG Act	DEPI	Likely occurrence in shire
Achrophyllum dentatum	Toothed Mitre-moss	19	2009				P
Acianthus caudatus	Mayfly Orchid	33	2015				P
Acianthus exsertus s.l.	Gnat Orchid	22	2003				P
Acianthus exsertus s.s.	Large Mosquito-orchid	1	2003				P
Acianthus pusillus	Small Mosquito-orchid	14	2011				P
Acianthus spp.	Mosquito Orchid	20	2011				P
Acrobolbus concinnus	Olive Pouchwort	2	2013				P
Acrotriche prostrata	Trailing Ground-berry	424	2017				P
Acrotriche serrulata	Honey-pots	213	2015				P
Adiantum aethiopicum	Common Maidenhair	154	2017				P
Agrostis parviflora s.s.	Hair Bent	1	1993				P
Agrostis s.l. spp.	Bent/Blown Grass	7	2014				P
Alisma plantago-aquatica	Water Plantain	24	2011				P
Allocasuarina littoralis	Black Sheoak	46	2011				P
Allocasuarina paludosa	Scrub Sheoak	60	2012				P
Allocasuarina paradoxa	Green Sheoak	1	2000				P
Allocasuarina spp.	Sheoak	5	2007				P
Almaleea subumbellata	Wiry Bush-pea	7	1995				P
Alternanthera denticulata s.l.	Lesser Joyweed	5	2009				P
Alternanthera denticulata s.s.	Lesser Joyweed	11	2012				P

Scientific name	VBA* common name	No. of records	Year (latest record)	EPBC Act	FFG Act	DEPI	Likely occurrence in shire
Althenia cylindrocarpa	Long-fruit Water-mat	1	1990				P
Althenia spp.	Water Mat	1	2001				P
Amperea xiphoclada var. xiphoclada	Broom Spurge	257	2015				P
Amphibromus archeri	Pointed Swamp Wallaby-grass	3	2009				P
Amphibromus neesii	Southern Swamp Wallaby-grass	2	2009				P
Amphibromus nervosus	Common Swamp Wallaby-grass	14	2014				P
Amphibromus recurvatus	Dark Swamp Wallaby-grass	2	1996				P
Amphibromus spp.	Swamp Wallaby-grass	1	2004				P
Amyema pendula	Drooping Mistletoe	141	2017				P
Amyema pendula subsp. pendula (s.s.)	Drooping Mistletoe	7	2006				P
Amyema spp.	Mistletoe	4	2015				P
Angianthus preissianus	Salt Angianthus	1	1992				P
Anogramma leptophylla	Annual Fern	1	2011				P
Anthosachne scabra s.l.	Common Wheat-grass	31	2017				P
Anthosachne scabra s.s.	Common Wheat-grass	2	2007				P
Aotus ericoides	Common Aotus	17	2015				P
Aphanes spp.	Piert	6	2011				P
Aphelia spp.	Aphelia	1	1990				P
Apium prostratum subsp. prostratum	Sea Celery	4	2009				P
Apium prostratum subsp. prostratum var. prostratum	Sea Celery	2	2002				P
Apodasmia brownii	Coarse Twine-rush	2	2009				P

Scientific name	VBA* common name	No. of records	Year (latest record)	EPBC Act	FFG Act	DEPI	Likely occurrence in shire
Arthropodium milleflorum s.l.	Pale Vanilla-lily	9	2011				P
Arthropodium minus	Small Vanilla-lily	2	2002				P
Arthropodium spp. (s.s.)	Vanilla Lily	3	2009				P
Arthropodium strictum s.l.	Chocolate Lily	31	2016				P
Arthropodium strictum s.s.	Chocolate Lily	19	2009				P
Asperula conferta	Common Woodruff	19	2009				P
Asperula euryphylla s.s.	Dandenongs Woodruff	6	2005				P
Asperula polymera	Forest Woodruff	2	2010				P
Asperula scoparia subsp. scoparia	Prickly Woodruff	17	2011				P
Asperula spp.	Woodruff	4	2001				P
Asplenium bulbiferum subsp. gracillimum	Mother Spleenwort	36	2014				P
Asplenium flabellifolium	Necklace Fern	25	2014				P
Asplenium spp.	Spleenwort	2	2014				P
Astelia australiana	Tall Astelia	20	2013	VU	L	vu	P
Asterolasia asteriscophora	Lemon Star-bush	3	2007				P
Asterolasia asteriscophora spp.	Emerald Star Bush	9	2013		L	en	P
Asterolasia asteriscophora subsp. albiflora	White Star-bush	57	2014		L	en	P
Astroloma humifusum	Cranberry Heath	25	2008				P
Astrotricha asperifolia s.l.	Rough Star-hair	11	1992				P
Astrotricha asperifolia s.s.	Rough Star-hair	2	2008				P

Scientific name	VBA* common name	No. of records	Year (latest record)	EPBC Act	FFG Act	DEPI	Likely occurrence in shire
Astrotricha asperifolia subsp. 1	Rough Star-hair	2	2009				P
Astrotricha ledifolia s.l.	Common Star-hair	13	1993				P
Astrotricha spp.	Star Hair	4	1997				P
Atherosperma moschatum subsp. moschatum	Southern Sassafras	19	2010				P
Atrichum androgynum	Ripple Moss	3	2010				P
Atriplex cinerea	Coast Saltbush	2	2002				P
Atriplex paludosa subsp. paludosa	Marsh Saltbush	10	2009			r	P
Atriplex spp.	Saltbush	1	2001				P
Australina pusilla	Shade Nettle	2	2015				P
Australina pusilla subsp. muelleri	Shade Nettle	90	2016				P
Austrocynoglossum latifolium	Forest Hound's-tongue	28	2017				P
Austrohondaella limata	Silk Moss	1	2009				P
Austrostipa densiflora	Dense Spear-grass	1	1994				P
Austrostipa muelleri	Wiry Spear-grass	325	2015				P
Austrostipa nodosa	Knotty Spear-grass	1	1989				P
Austrostipa oligostachya	Fine-head Spear-grass	1	2007				P
Austrostipa pubinodis	Tall Spear-grass	22	2009				P
Austrostipa rudis	Veined Spear-grass	65	2016				P
Austrostipa rudis subsp. australis	Veined Spear-grass	5	2004			r	P
Austrostipa rudis subsp. nervosa	Veined Spear-grass	5	2004				P
Austrostipa rudis subsp. rudis	Veined Spear-grass	14	2012				P

Scientific name	VBA* common name	No. of records	Year (latest record)	EPBC Act	FFG Act	DEPI	Likely occurrence in shire
Austrostipa scabra	Rough Spear-grass	1	1998				P
Austrostipa scabra subsp. falcata	Rough Spear-grass	2	2011				P
Austrostipa semibarbata	Fibrous Spear-grass	3	2007				P
Austrostipa spp.	Spear Grass	54	2017				P
Austrostipa stipoides	Prickly Spear-grass	5	2007				P
Avicennia marina subsp. australasica	Grey Mangrove	7	2009			r	P
Azolla filiculoides	Pacific Azolla	12	2011				P
Baloskion tetraphyllum subsp. tetraphyllum	Tassel Cord-rush	35	2015				P
Banksia integrifolia subsp. integrifolia	Coast Banksia	2	2006				P
Banksia marginata	Silver Banksia	216	2015				P
Banksia spinulosa var. cunninghamii	Hairpin Banksia	301	2014			N	P
Banksia spp.	Banksia	4	2014				P
Bauera rubioides	Wiry Bauera	156	2015				P
Bauera spp.	Bauera	3	2009				P
Baumea acuta	Pale Twig-sedge	11	1999				P
Baumea arthrophylla	Fine Twig-sedge	1	2009				P
Baumea gunnii	Slender Twig-sedge	16	2014				P
Baumea juncea	Bare Twig-sedge	4	2004				P
Baumea rubiginosa s.l.	Soft Twig-rush	32	2006				P
Baumea rubiginosa s.s.	Soft Twig-sedge	6	2015				P
Baumea spp.	Twig Sedge	3	2006				P
Baumea tetragona	Square Twig-sedge	55	2014				P

Scientific name	VBA* common name	No. of records	Year (latest record)	EPBC Act	FFG Act	DEPI	Likely occurrence in shire
Bedfordia arborescens	Blanket Leaf	120	2016				P
Billardiera macrantha	Purple Apple-berry	20	2016				P
Billardiera mutabilis	Common Apple-berry	111	2015				P
Billardiera scandens s.l.	Common Apple-berry	255	2017				P
Billardiera scandens s.s.	Velvet Apple-berry	6	2008			r	P
Billardiera spp.	Apple Berry	2	2016				P
Blechnum cartilagineum	Gristle Fern	155	2015				P
Blechnum chambersii	Lance Water-fern	14	2015				P
Blechnum fluviatile	Ray Water-fern	12	2009				P
Blechnum minus	Soft Water-fern	95	2015				P
Blechnum nudum	Fishbone Water-fern	175	2017				P
Blechnum patersonii subsp. patersonii	Strap Water-fern	16	1996				P
Blechnum spp.	Water Fern	4	2016				P
Blechnum wattsii	Hard Water-fern	115	2016				P
Bolboschoenus medianus	Marsh Club-sedge	2	2003				P
Boronia muelleri	Forest Boronia	13	2014				P
Bossiaea cinerea	Showy Bossiaea	14	2015				P
Bossiaea cordigera	Wiry Bossiaea	1	2011			r	P
Bossiaea prostrata	Creeping Bossiaea	78	2015				P
Bossiaea spp.	Bossiaea	1	2008				P
Brachychiton spp.	Kurrajong	1	2005				P
Brachyloma ciliatum	Fringed Brachyloma	2	2011				P

Scientific name	VBA* common name	No. of records	Year (latest record)	EPBC Act	FFG Act	DEPI	Likely occurrence in shire
Brachyscome multifida	Cut-leaf Daisy	15	2005				P
Brachyscome parvula	Coast Daisy	2	2007				P
Brachyscome spathulata	Spoon Daisy	1	1997				P
Brachythecium rutabulum	Rough-stalked Feather-moss	1	2005				P
Breutelia affinis	Common Breutelia	2	2006				P
Bromus spp.	Brome	2	2014				P
Brunonia (monotypic)	Blue Pincushion	1	2011				P
Brunonia australis	Blue Pincushion	59	2010				P
Bulbine bulbosa	Bulbine Lily	11	2009				P
Burchardia umbellata	Milkmaids	186	2017				P
Burnettia cuneata	Lizard Orchid	9	2009			r	P
Bursaria spinosa	Sweet Bursaria	11	2017				P
Bursaria spinosa subsp. spinosa	Sweet Bursaria	146	2017				P
Bursaria spinosa subsp. spinosa var. spinosa	Sweet Bursaria	9	1992				P
Caesia calliantha	Blue Grass-lily	8	2004				P
Caesia parviflora	Pale Grass-lily	56	2012				P
Caesia parviflora var. parviflora	Pale Grass-lily	14	2003				P
Caesia spp.	Grass Lily	1	1999				P
Caladenia carnea s.s.	Pink Fingers	11	2013				P
Caladenia carnea sensu Willis (1970)	Pink Fingers	15	1992				P
Caladenia catenata s.l.	Pink Fingers/White Fingers	2	2001				P

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Caladenia catenata s.s.	White Fingers	4	2006				P
Caladenia clavigera	Plain-lip Spider-orchid	2	1989				P
Caladenia dilatata s.l.	Green-comb Spider-orchid	3	1990				P
Caladenia flavovirens	Summer Spider Orchid_ Christmas Spider Orchid					r	
Caladenia maritima	Angahook Pink-fingers	1	2000		L	en	P
Caladenia moschata	Musk Hood-orchid	10	2003				P
Caladenia oenochila	Wine-lipped Spider-orchid	14	2012			vu	P
Caladenia parva	Small Spider-orchid	11	2008				P
Caladenia praecox	Early Hood-orchid	5	2003				P
Caladenia prolata	Fertile Finger-orchid	1	1992			k	P
Caladenia pusilla	Tiny Pink-fingers	2	2003				P
Caladenia spp.	Caladenia	18	2011				P
Caladenia transitoria	Eastern Bronzehood Orchid	13	2012				P
Caladenia vulgaris	Slender Pink-fingers	2	1999			r	P
Calandrinia calyptrata	Pink Purslane	1	1990				P
Caleana major	Large Duck-orchid	4	2005				P
Callistemon pallidus	Lemon Bottlebrush	6	1993				P
Callistemon spp.	Bottlebrush	6	2017				P
Callitriche muelleri	Round Water-starwort	22	2014				P
Callitriche spp.	Water Starwort	11	2014				P
Callitris spp.	Cypress-pine	1	2010				P
Calochilus campestris	Copper Beard-orchid	4	2015				P

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Calochilus paludosus	Red Beard-orchid	6	1999				P
Calochilus robertsonii s.l.	Purple Beard-orchid	21	2008				P
Calochilus spp.	Beard Orchid	2	2008				P
Calochlaena dubia	Common Ground-fern	183	2017				P
Calotis scabiosifolia	Rough Burr-daisy	1	1999				P
Calystegia marginata	Forest Bindweed	12	2014				P
Calystegia sepium subsp. roseata	Large Bindweed	2	2010				P
Calystegia spp.	Bindweed	1	1999				P
Campylopus acuminatus	Swan-neck Moss	1	2003				P
Campylopus bicolor var. bicolor	Blunt Swan-neck Moss	5	2007				P
Campylopus clavatus	Broody Swan-neck Moss	1	2005				P
Campylopus introflexus	Heath Star Moss	10	2006				P
Campylopus spp.	Swan-neck Moss	1	2005				P
Cardamine spp.	Bitter Cress	5	2015				P
Cardamine tenuifolia	Slender Bitter-cress	10	2014			P	P
Cardamine tenuifolia (large-flower form)	Slender Bitter-cress	1	2014			en	P
Carex alsophila	Forest Sedge	12	2014			r	P
Carex appressa	Tall Sedge	190	2017				P
Carex austroflaccida	Mountain Hook-sedge	1	2007				P
Carex austrotenella	Delicate Hook-sedge	7	1992				P
Carex breviculmis	Common Grass-sedge	64	2015				P

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Carex brownii	Stream Sedge	3	2002				P
Carex fascicularis	Tassel Sedge	33	2017				P
Carex gaudichaudiana	Fen Sedge	22	2017				P
Carex inversa	Knob Sedge	21	2012				P
Carex longebrachiata	Bergalia Tussock	1	2006				P
Carex polyantha	River Sedge	2	2004				P
Carex spp.	Sedge	23	2016				P
Carpha spp.	Flower Rush	1	2001				P
Cassinia aculeata subsp. aculeata	Common Cassinia	443	2017				P
Cassinia longifolia	Shiny Cassinia	12	2014				P
Cassinia sifton	Drooping Cassinia	14	2016				P
Cassinia spp.	Cassinia	4	2009				P
Cassinia trinerva	Three-nerved Cassinia	40	2016				P
Cassytha glabella	Slender Dodder-laurel	97	2013				P
Cassytha glabella f. dispar	Slender Dodder-laurel	2	2006				P
Cassytha glabella f. glabella	Slender Dodder-laurel	1	2011				P
Cassytha melantha	Coarse Dodder-laurel	16	2009				P
Cassytha pubescens s.s.	Downy Dodder-laurel	104	2014				P
Cassytha spp.	Dodder Laurel	5	2017				P
Casuarina spp.	Sheoak	1	2011				P
Caustis flexuosa	Curly Wig	6	2008				P
Caustis pentandra	Thick Twist-rush	47	2005				P
Centella cordifolia	Centella	86	2017				P

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Centipeda cunninghamii	Common Sneezeweed	5	1998				P
Centipeda elatinoides	Elatine Sneezeweed	1	1999				P
Centipeda minima s.l.	Spreading Sneezeweed	5	1992				P
Centipeda minima subsp. minima s.s.	Spreading Sneezeweed	1	2004				P
Centipeda spp.	Sneezeweed	1	1999				P
Centrolepis aristata	Pointed Centrolepis	11	2008				P
Centrolepis fascicularis	Tufted Centrolepis	11	2009				P
Centrolepis spp.	Centrolepis	4	2014				P
Centrolepis strigosa subsp. strigosa	Hairy Centrolepis	17	2011				P
Chamaescilla corymbosa var. corymbosa	Blue Stars	35	2012				P
Cheilanthes austrotenuifolia	Green Rock-fern	9	2008				P
Cheilanthes sieberi subsp. sieberi	Narrow Rock-fern	2	2008				P
Chenopodium spp.	Goosefoot	2	2005				P
Chiloglottis aff. valida (Lowland)	Lowland Bird-orchid	1	2005				P
Chiloglottis cornuta	Green Bird-orchid	14	2016				P
Chiloglottis gunnii s.l.	Common Bird-orchid	25	2012				P
Chiloglottis jeanesii	Mountain Bird-orchid	6	2014			r	P
Chiloglottis reflexa	Autumn Wasp-orchid	4	2003				P
Chiloglottis spp.	Bird Orchid	28	2017				P
Chiloglottis trapeziformis	Dainty Wasp-orchid	2	2010				P

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Chiloglottis valida	Common Bird-orchid	39	2015				P
Chiloscyphus semiteres s.l.	Common Crestwort	5	2010				P
Chloris truncata	Windmill Grass	1	1999				P
Choretrum pauciflorum	Dwarf Sour-bush	10	1995				P
Chorizandra australis	Southern Bristle-sedge	2	2003			k	P
Chorizandra cymbaria s.l.	Heron Bristle-sedge	5	1992				P
Chorizandra cymbaria s.s.	Heron Bristle-sedge	7	2009				P
Chrysocephalum apiculatum s.l.	Common Everlasting	3	1999				P
Chrysocephalum semipapposum	Clustered Everlasting	19	2005				P
Clematis aristata	Mountain Clematis	314	2017				P
Clematis glycinoides	Forest Clematis	5	2015				P
Clematis microphylla s.l.	Small-leaved Clematis	5	2007				P
Comesperma ericinum	Heath Milkwort	20	2013				P
Comesperma volubile	Love Creeper	90	2014				P
Coprosma hirtella	Rough Coprosma	15	2015				P
Coprosma quadrifida	Prickly Currant-bush	307	2017				P
Coronidium scorpioides s.s.	Button Everlasting	183	2017				P
Correa lawrenceana	Mountain Correa	42	2016				P
Correa lawrenceana var. latrobeana	Mountain Correa	3	1993				P
Correa reflexa	Common Correa	118	2016				P
Correa reflexa var. lobata	Powelltown Correa	36	2014			r	P

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Correa reflexa var. reflexa	Common Correa	5	2006				P
Corunastylis ciliata	Fringed Midge-orchid	3	2001			k	P
Corunastylis despectans	Sharp Midge-orchid	8	2001				P
Corunastylis morrisii	Bearded Midge-orchid	10	2005				P
Corunastylis spp.	Midge Orchid	2	2006				P
Corybas aconitiflorus	Spurred Helmet-orchid	3	1992			r	P
Corybas diemenicus s.l.	Veined Helmet-orchid	4	1999				P
Corybas spp.	Helmet Orchid	15	2014				P
Corymbia spp.	Bloodwood	1	2017				P
Cotula australis	Common Cotula	1	2004				P
Craspedia canens	Grey Billy-buttons	1	2001		L	en	P
Craspedia glauca s.l.	Common Billy-buttons	7	1992				P
Craspedia paludicola	Swamp Billy-buttons	3	2001				P
Craspedia spp.	Billy Buttons	6	2009				P
Craspedia variabilis	Variable Billy-buttons	5	2008				P
Crassula decumbens var. decumbens	Spreading Crassula	3	2004				P
Crassula helmsii	Swamp Crassula	9	2017				P
Crassula sieberiana s.l.	Sieber Crassula	3	2002				P
Crassula sieberiana s.s.	Sieber Crassula	1	1995				P
Crassula tetramera	Australian Stonecrop	1	2005				P
Crepidomanes venosum	Veined Bristle-fern	30	2015				P

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Cryptostylis leptochila	Small Tongue-orchid	61	2015				P
Cryptostylis spp.	Tongue Orchid	5	2011				P
Cryptostylis subulata	Large Tongue-orchid	31	2011				P
Cullen microcephalum	Dusky Scurf-pea	1	1999				P
Cyathea australis	Rough Tree-fern	329	2017				P
Cyathophorum bulbosum	False Fern Moss	6	2015				P
Cycnogeton procerum (narrow floating leaf variant)	Common Water-ribbons	1	2012				P
Cycnogeton procerum s.s.	Common Water-ribbons	11	2014				P
Cycnogeton spp.	Water Ribbons	16	2010				P
Cymbonotus preissianus	Austral Bear's-ear	9	2010				P
Cymbonotus spp.	Bear's-ear	1	1998				P
Cynodon dactylon	Couch	18	2017				P
Cynoglossum australe	Australian Hound's-tongue	2	2004				P
Cynoglossum suaveolens	Sweet Hound's-tongue	28	2011				P
Cyperaceae spp.	Sedge	1	2007				P
Cyperus lucidus	Leafy Flat-sedge	48	2015				P
Cyperus spp.	Flat Sedge	4	2013				P
Cyrtostylis reniformis	Small Gnat-orchid	2	2003				P
Dampiera stricta	Blue Dampiera	190	2015				P
Daucus glochidiatus	Australian Carrot	2	2007				P
Daviesia latifolia	Hop Bitter-pea	22	2009				P
Daviesia leptophylla	Narrow-leaf Bitter-pea	64	2011				P
Daviesia ulicifolia	Gorse Bitter-pea	6	2006				P

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Dawsonia superba var. pulchra	Tall Dawsonia	2	2010				P
Dermocybe cramesina	Orange Dermocybe	1	2002			r	P
Desmodium gunnii	Southern Tick-trefoil	15	2008				P
Desmodium spp.	Tick Trefoil	2	2007				P
Desmodium varians	Slender Tick-trefoil	6	2005			k	P
Deyeuxia densa	Heath Bent-grass	4	2009				P
Deyeuxia minor	Small Bent-grass	1	1998				P
Deyeuxia quadriseta	Reed Bent-grass	222	2012				P
Deyeuxia rodwayi	Tasman Bent-grass	17	2014				P
Deyeuxia scaberula	Rough Bent-grass	1	1993				P
Deyeuxia spp.	Bent Grass	9	2008				P
Dianella admixta	Black-anther Flax-lily	4	2017				P
Dianella amoena	Matted Flax-lily	19	2014	EN	L	en	P
Dianella caerulea s.l.	Paroo Lily	101	2012				P
Dianella caerulea var. caerulea	Paroo Lily	2	2010				P
Dianella laevis	Smooth Flax-lily	10	2016				P
Dianella laevis var. aspera	Rough Flax-lily	22	2012				P
Dianella longifolia s.l.	Pale Flax-lily	31	2015				P
Dianella longifolia var. grandis s.l.	Glaucous Flax-lily	6	2004				P
Dianella longifolia var. longifolia s.l.	Pale Flax-lily	18	2009				P
Dianella revoluta s.l.	Black-anther Flax-lily	83	2011				P
Dianella revoluta var. revoluta s.l.	Black-anther Flax-lily	48	2012				P

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Dianella sp. aff. longifolia (Benambra)	Arching Flax-lily	2	2013			vu	P
Dianella spp.	Flax Lily	11	2013				P
Dianella tasmanica	Tasman Flax-lily	127	2015				P
Dichelachne crinita	Long-hair Plume-grass	11	2016				P
Dichelachne rara	Common Plume-grass	13	2009				P
Dichelachne sciurea spp. agg.	Short-hair Plume-grass	52	1991				P
Dichelachne sieberiana	Rough Plume-grass	3	2004				P
Dichelachne spp.	Plume Grass	11	2007				P
Dichondra repens	Kidney-weed	156	2017				P
Dichondra spp.	Kidney Weed	1	2001				P
Dicksonia antarctica	Soft Tree-fern	158	2016				P
Dicranoloma billarderi	Common Fork-moss	2	2006				P
Dicranoloma dicarpum	Pale Fork-moss	2	2009				P
Dillwynia cinerascens s.l.	Grey Parrot-pea	57	2017				P
Dillwynia cinerascens s.s.	Grey Parrot-pea	6	2011				P
Dillwynia glaberrima	Smooth Parrot-pea	57	2011				P
Dillwynia phylicoides	Small-leaf Parrot-pea	1	1999				P
Dillwynia sericea	Showy Parrot-pea	64	2009				P
Dillwynia spp.	Parrot Pea	7	2015				P
Diplarrena moraea	White Iris	40	2015				P
Diplazium australe	Austral Lady-fern	15	1992				P
Dipodium punctatum s.l.	Hyacinth Orchid	61	1992				P

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Dipodium roseum s.l.	Rosy Hyacinth-orchid	2	2004				P
Dipodium roseum s.s.	Rosy Hyacinth-orchid	14	2008				P
Dipodium spp.	Hyacinth Orchid	12	2012				P
Disphyma crassifolium subsp. clavellatum	Rounded Noon-flower	13	2009				P
Distichlis distichophylla	Australian Salt-grass	20	2009				P
Diuris orientis	Wallflower Orchid	8	2010				P
Diuris pardina	Leopard Orchid	13	2006				P
Diuris punctata	Purple Diuris				L	r	
Diuris spp.	Diuris	2	2008				P
Diuris sulphurea	Tiger Orchid	6	2003				P
Doodia australis	Common Rasp-fern	3	2010				P
Doodia caudata	Small Rasp-fern	4	2009				P
Drosera aberrans	Scented Sundew	62	2012				P
Drosera auriculata	Tall Sundew	253	2017				P
Drosera binata	Forked Sundew	11	2009				P
Drosera macrantha subsp. macrantha	Climbing Sundew	2	2007				P
Drosera peltata s.l.	Pale Sundew	26	2011				P
Drosera peltata subsp. peltata spp. agg.	Pale Sundew	33	2014				P
Drosera pygmaea	Tiny Sundew	7	2009				P
Drosera spp.	Sundew	11	2015				P
Drymophila cyanocarpa	Turquoise Berry	7	2014				P
Dryopoa dives	Giant Mountain-grass	11	2016				P
Dryopoa dives subsp. dives	Giant Mountain-grass	19	2006				P

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Echinopogon ovatus	Common Hedgehog-grass	15	1999				P
Elatine gratioloides	Waterwort	7	2003				P
Eleocharis acuta	Common Spike-sedge	52	2017				P
Eleocharis gracilis	Slender Spike-sedge	5	2004				P
Eleocharis sphacelata	Tall Spike-sedge	50	2017				P
Empodisma minus	Spreading Rope-rush	116	2015				P
Enchylaena tomentosa var. tomentosa	Ruby Saltbush	1	2001				P
Entolasia marginata	Bordered Panic	10	2009				P
Entolasia spp.	Panic	2	2007				P
Entolasia stricta	Upright Panic	3	2009			k	P
Entosthodon subnudus	Cord Moss	1	2003				P
Entosthodon subnudus var. subnudus	Cord Moss	1	2003				P
Epacris gunnii	Ace of Spades	4	2002				P
Epacris impressa	Common Heath	446	2017				P
Epacris impressa var. impressa	Common Heath	2	2012				P
Epacris microphylla s.l.	Coral Heath	11	2004				P
Epacris obtusifolia	Blunt-leaf Heath	14	2014				P
Epacris spp.	Heath	1	2006				P
Epilobium billardierianum	Variable Willow-herb	27	2017				P
Epilobium billardierianum subsp. billardierianum	Smooth Willow-herb	5	2002				P

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Epilobium billardierianum subsp. cinereum	Grey Willow-herb	14	2012				P
Epilobium billardierianum subsp. intermedium	Variable Willow-herb	2	2006				P
Epilobium hirtigerum	Hairy Willow-herb	27	2016				P
Epilobium pallidiflorum	Showy Willow-herb	10	2014				P
Eragrostis brownii	Common Love-grass	42	2012				P
Eriochilus cucullatus s.l.	Parson's Bands	10	2011				P
Erodium spp.	Heron's Bill	2	2009				P
Eryngium vesiculosum	Prickfoot	4	2009				P
Eucalyptus baxteri s.l.	Brown Stringybark	132	2013				P
Eucalyptus baxteri s.s.	Brown Stringybark	30	2014				P
Eucalyptus bunyip	Giant Swamp-gum	26	2014				P
Eucalyptus camaldulensis	River Red-gum	6	2012			X	P
Eucalyptus camphora subsp. humeana	Mountain Swamp-gum	2	1999				P
Eucalyptus cephalocarpa s.l.	Silver-leaf Stringybark	7	2016				P
Eucalyptus cephalocarpa s.s.	Mealy Stringybark	225	2013				P
Eucalyptus croajingolensis	Gippsland Peppermint	1	1992				P
Eucalyptus cypellocarpa	Mountain Grey-gum	261	2016				P
Eucalyptus dives	Broad-leaf Peppermint	191	2017				P
Eucalyptus fulgens	Green Scentbark	142	2017			r	P

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Eucalyptus globoidea	White Stringybark	51	2011				P
Eucalyptus goniocalyx s.l.	Bundy	57	2017				P
Eucalyptus goniocalyx s.s.	Bundy	31	2016				P
Eucalyptus goniocalyx subsp. goniocalyx	Bundy	4	2011				P
Eucalyptus ignorabilis s.s.	Grey Scentbark	4	2004			r	P
Eucalyptus macrorhyncha	Red Stringybark	1	1999				P
Eucalyptus muelleriana	Yellow Stringybark	3	2009				P
Eucalyptus nitens	Shining Gum	1	1992				P
Eucalyptus obliqua	Messmate Stringybark	579	2017				P
Eucalyptus oleosa	Oil Mallee	1	1991				P
Eucalyptus ovata	Swamp Gum	182	2017				P
Eucalyptus ovata subsp. ovata	Swamp Gum	52	2016				P
Eucalyptus pauciflora	Snow Gum	4	1999				P
Eucalyptus polyanthemos	Red Box	4	1999				P
Eucalyptus radiata s.l.	Narrow-leaf Peppermint	386	2017				P
Eucalyptus radiata subsp. radiata	Narrow-leaf Peppermint	152	2016				P
Eucalyptus regnans	Mountain Ash	71	2016				P
Eucalyptus rubida	Candlebark	6	2002				P
Eucalyptus sieberi	Silvertop Ash	186	2014				P
Eucalyptus splendens	Apple Jack	1	1997			en	P
Eucalyptus spp.	Eucalypt	24	2017				P

Scientific name	VBA* common name	No. of records	Year (latest record)	EPBC Act	FFG Act	DEPI	Likely occurrence in shire
Eucalyptus viminalis	Manna Gum	87	2011				P
Eucalyptus viminalis subsp. pryoriana	Coast Manna-gum	21	2015				P
Eucalyptus viminalis subsp. viminalis	Manna Gum	29	2013				P
Eucalyptus X studleyensis	Studley Park Gum	2	2010			en	P
Eucalyptus yarraensis	Yarra Gum	3	2010		X	r	P
Euchiton involucratus s.l.	Common Cudweed	19	2014				P
Euchiton involucratus s.s.	Star Cudweed	70	2015				P
Euchiton japonicus s.l.	Clustered/Creeping Cudweed	6	2016				P
Euchiton japonicus s.s.	Creeping Cudweed	110	2014				P
Euchiton sphaericus	Annual Cudweed	8	2007				P
Euchiton spp.	Cudweed	11	2017				P
Euphorbia spp.	Spurge	1	2009				P
Euphrasia caudata	Tailed Eyebright	1	2005			r	P
Euphrasia collina	Purple Eyebright	2	2008				P
Euphrasia collina subsp. collina	Purple Eyebright	2	2008				P
Eurhynchium praelongum	Common Feather-moss	1	2005				P
Euryomyrtus ramosissima	Rosy Baeckea	13	1999				P
Euryomyrtus ramosissima subsp. ramosissima	Rosy Baeckea	2	2014				P
Exocarpos cupressiformis	Cherry Ballart	174	2017				P
Exocarpos spp.	Ballart	2	2012				P
Exocarpos strictus	Pale-fruit Ballart	69	2014				P

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Festuca spp.	Fescue	1	2013				P
Ficinia nodosa	Knobby Club-sedge	7	2008				P
Fieldia australis	Fieldia	25	2014				P
Fissidens spp.	Pocket Moss	1	2006				P
Fissidens taylorii var. taylorii	Pygmy Pocket-moss	1	2006				P
Frullania clavata	Scalewort	1	2007				P
Gahnia clarkei	Tall Saw-sedge	17	2015				P
Gahnia filum	Chaffy Saw-sedge	7	2009				P
Gahnia radula	Thatch Saw-sedge	632	2017				P
Gahnia sieberiana	Red-fruit Saw-sedge	219	2016				P
Gahnia spp.	Saw Sedge	3	2011				P
Gahnia trifida	Coast Saw-sedge	1	2007				P
Galium australe s.l.	Tangled Bedstraw	4	2008				P
Galium binifolium	Reflexed Bedstraw	11	2012				P
Galium binifolium subsp. conforme	Reflexed Bedstraw	1	2005				P
Galium gaudichaudii	Rough Bedstraw	25	2009				P
Galium leiocarpum	Maori Bedstraw	58	2016				P
Galium migrans s.l.	Wandering Bedstraw	3	2002				P
Galium spp.	Bedstraw	53	2017				P
Gastrodia procera	Tall Potato-orchid	5	2008				P
Gastrodia sesamoides s.l.	Cinnamon Bells	6	1992				P
Gastrodia sesamoides s.s.	Cinnamon Bells	8	2007				P
Gastrodia spp.	Potato Orchid	2	2014				P
Geranium gardneri	Rough Crane's-bill	3	2016				P
Geranium homeanum	Rainforest Crane's-bill	16	2014				P

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Geranium potentilloides	Soft Crane's-bill	116	2014				P
Geranium potentilloides var. 1	Soft Crane's-bill	1	2010			k	P
Geranium potentilloides var. potentilloides	Soft Crane's-bill	9	2004				P
Geranium retrorsum s.l.	Grassland Crane's-bill	1	1991				P
Geranium retrorsum s.s.	Grassland Crane's-bill	8	2004				P
Geranium solanderi s.l.	Austral Crane's-bill	40	1998				P
Geranium solanderi var. solanderi s.s.	Austral Crane's-bill	5	2008			vu	P
Geranium sp. 2	Variable Crane's-bill	11	2011				P
Geranium sp. 5	Naked Crane's-bill	13	2010				P
Geranium sp. aff. retrorsum (Nillumbik)	Valley Crane's-bill	2	2001			k	P
Geranium spp.	Crane's Bill	80	2017				P
Gleichenia dicarpa	Pouched Coral-fern	43	2015				P
Gleichenia microphylla	Scrambling Coral-fern	81	2015				P
Glossodia major	Wax-lip Orchid	20	2011				P
Glossostigma elatinoides	Small Mud-mat	1	1998				P
Glyceria australis	Australian Sweet-grass	19	2014				P
Glyceria spp.	Sweet Grass	3	2004				P
Glycine clandestina	Twining Glycine	120	2017				P
Glycine latrobeana	Clover Glycine	1	2003	VU	L	vu	P
Glycine microphylla	Small-leaf Glycine	2	1989				P
Glycine spp.	Glycine	1	2007				P

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Glycine tabacina s.s.	Variable Glycine	1	2007				P
Gompholobium huegelii	Common Wedge-pea	105	2012				P
Gonocarpus humilis	Shade Raspwort	160	2016				P
Gonocarpus micranthus	Creeping Raspwort	6	2014				P
Gonocarpus micranthus subsp. micranthus	Creeping Raspwort	36	2014				P
Gonocarpus spp.	Raspwort	20	2016				P
Gonocarpus tetragynus	Common Raspwort	577	2017				P
Gonocarpus teucrioides s.l.	Germander Raspwort	19	2005				P
Gonocarpus teucrioides s.s.	Germander Raspwort	1	2003				P
Goodenia elongata	Lanky Goodenia	14	2009				P
Goodenia geniculata	Bent Goodenia	9	2004				P
Goodenia humilis	Swamp Goodenia	25	2009				P
Goodenia lanata	Trailing Goodenia	339	2017				P
Goodenia ovata	Hop Goodenia	359	2016				P
Goodenia spp.	Goodenia	3	2008				P
Goodia lotifolia s.l.	Golden Tip	17	2010				P
Goodia lotifolia s.s.	Common Golden-tip	14	2014				P
Goodia spp.	Golden-tip	1	2008				P
Gratiola peruviana	Austral Brooklime	56	2017				P
Gratiola pubescens	Glandular Brooklime	7	2014				P
Gratiola spp.	Brooklime	3	2014				P
Grevillea alpina	Cat's Claw Grevillea	14	2009				P
Grevillea spp.	Grevillea	2	2012				P

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Gymnoschoenus sphaerocephalus	Button Grass	8	2014				P
Gynatrix pulchella s.l.	Hemp Bush	24	2014				P
Gynatrix pulchella s.s.	Hemp Bush	13	2015				P
Hakea dactyloides	Finger Hakea	1	2008			r	P
Hakea decurrens	Bushy Needlewood	20	2012				P
Hakea decurrens subsp. physocarpa	Bushy Needlewood	63	2014				P
Hakea nodosa	Yellow Hakea	133	2016				P
Hakea sericea s.l.	Bushy Needlewood	147	2011				P
Hakea spp.	Hakea	3	2007				P
Hakea teretifolia subsp. hirsuta	Dagger Hakea	79	2014				P
Hakea ulicina	Furze Hakea	186	2017				P
Haloragis brownii	Swamp Raspwort	1	1992				P
Haloragis heterophylla	Varied Raspwort	5	2009				P
Hardenbergia violacea	Purple Coral-pea	42	2010				P
Hedycarya angustifolia	Austral Mulberry	122	2017				P
Helichrysum leucopsideum	Satin Everlasting	18	2014				P
Hemarthria uncinata var. uncinata	Mat Grass	33	2012				P
Heteroscyphus fissistipus	Crestwort	2	2010				P
Hibbertia acicularis	Prickly Guinea-flower	14	2005				P
Hibbertia appressa	Southern Guinea-flower	1	1997				P
Hibbertia australis	Upright Guinea-flower	4	2006				P

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Hibbertia empetrifolia s.l.	Tangled Guinea-flower	29	2013				P
Hibbertia fasciculata var. prostrata	Bundled Guinea-flower	10	2005				P
Hibbertia obtusifolia	Grey Guinea-flower	4	1999				P
Hibbertia procumbens	Spreading Guinea-flower	6	2011				P
Hibbertia riparia	Erect Guinea-flower	72	2011				P
Hibbertia sericea vars. densiflora/sericea	Silky Guinea-flower	1	1992				P
Hibbertia spp.	Guinea Flower	7	2011				P
Hibbertia stricta s.l.	Upright Guinea-flower	3	1997				P
Histiopteris incisa	Bat's Wing Fern	87	2016				P
Hookerochloa hookeriana	Hooker Fescue	5	2004				P
Hovea asperifolia subsp. asperifolia	Mountain Beauty	35	2014				P
Hovea heterophylla	Common Hovea	179	2015				P
Hovea pannosa s.l.	Mountain Beauty	6	2009				P
Hovea spp.	Hovea	2	2007				P
Hydrocotyle callicarpa	Small Pennywort	3	2008				P
Hydrocotyle foveolata	Yellow Pennywort	21	2010				P
Hydrocotyle geraniifolia	Forest Pennywort	70	2016				P
Hydrocotyle hirta	Hairy Pennywort	223	2016				P
Hydrocotyle laxiflora	Stinking Pennywort	25	2017				P
Hydrocotyle pterocarpa	Wing Pennywort	12	1996				P
Hydrocotyle sibthorpioides	Shining Pennywort	23	2014				P

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Hydrocotyle spp.	Pennywort	21	2017				P
Hydrocotyle tripartita	Slender Pennywort	1	2002				P
Hydrocotyle verticillata	Shield Pennywort	5	1989				P
Hymenophyllum australe	Austral Filmy-fern	14	1992				P
Hymenophyllum cupressiforme	Common Filmy-fern	25	2015				P
Hymenophyllum flabellatum	Shiny Filmy-fern	15	2006				P
Hypericum gramineum	Small St John's Wort	228	2015				P
Hypericum japonicum	Matted St John's Wort	24	2014				P
Hypnodendron spininervium subsp. archeri	Umbrella Moss	1	2005				P
Hypnodendron vitiense subsp. australe	Umbrella Moss	4	2009				P
Hypnum cupressiforme	Common Plait-moss	4	2004				P
Hypolaena fastigiata	Tassel Rope-rush	7	2015				P
Hypolepis glandulifera	Downy Ground-fern	9	2008				P
Hypolepis muelleri	Harsh Ground-fern	23	2015				P
Hypolepis rugosula	Ruddy Ground-fern	26	2014				P
Hypolepis spp.	Ground Fern	15	2014				P
Hypopterygium didictyon	Umbrella Moss	2	2015				P
Hypoxis hygrometrica var. hygrometrica	Golden Weather-glass	9	2009				P
Hypoxis hygrometrica var. villosisepala	Golden Weather-glass	1	2003				P
Hypoxis s.l. spp.	Hypoxis	3	2002				P

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Indigofera australis subsp. australis	Austral Indigo	19	2009				P
Iridaceae spp.	Irid	6	2008				P
Isoetes drummondii	Plain Quillwort	1	2005				P
Isolepis cernua	Nodding Club-sedge	3	2012				P
Isolepis cernua var. cernua	Nodding Club-sedge	15	2009				P
Isolepis cernua var. platycarpa	Broad-fruit Club-sedge	6	2009				P
Isolepis fluitans	Floating Club-sedge	12	2009				P
Isolepis hookeriana	Grassy Club-sedge	4	2009				P
Isolepis inundata	Swamp Club-sedge	82	2014				P
Isolepis spp.	Club Sedge	15	2014				P
Isolepis subtilissima	Mountain Club-sedge	5	2016				P
Isolepis wakefieldiana	Tufted Club-sedge	1	2004			r	P
Isopogon ceratophyllus	Horny Cone-bush	11	2008				P
Juncus amabilis	Hollow Rush	38	2017				P
Juncus articulatus x holoschoenus	Jointed Rush x Joint-leaf Rush hybrid	6	1991				P
Juncus australis	Austral Rush	13	2016				P
Juncus bufonius	Toad Rush	42	2016				P
Juncus caespiticius	Grassy Rush	1	1996				P
Juncus flavidus	Gold Rush	1	2004				P
Juncus gregiflorus	Green Rush	45	2014				P
Juncus holoschoenus	Joint-leaf Rush	14	2009				P
Juncus homalocaulis	Wiry Rush	1	1992				P

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Juncus kraussii subsp. australiensis	Sea Rush	10	2009				P
Juncus pallidus	Pale Rush	83	2017				P
Juncus pauciflorus	Loose-flower Rush	33	2014				P
Juncus planifolius	Broad-leaf Rush	54	2014				P
Juncus prismatocarpus subsp. prismatocarpus	Branching Rush	4	2014				P
Juncus procerus	Tall Rush	63	2014				P
Juncus sarophorus	Broom Rush	59	2017				P
Juncus sp. (subgenus Genuini)	Rush	4	2006				P
Juncus spp.	Rush	94	2018				P
Juncus subsecundus	Finger Rush	22	2016				P
Juncus vaginatus	Clustered Rush	3	2004				P
Kennedia prostrata	Running Postman	17	2009				P
Kunzea ericoides s.l.	Burgan	119	2017				P
Kunzea leptospermoides	Yarra Burgan	1	2011			k	P
Kurzia compacta	Fingerwort	1	2006				P
Lachnagrostis aemula s.l.	Leafy Blown-grass	2	2006				P
Lachnagrostis aemula s.s.	Leafy Blown-grass	6	2011				P
Lachnagrostis billardierei subsp. billardierei	Coast Blown-grass	1	2007				P
Lachnagrostis filiformis s.l.	Common Blown-grass	60	2016				P
Lachnagrostis filiformis s.s.	Common Blown-grass	1	2009				P
Lachnagrostis punicea subsp. punicea	Purple Blown-grass	1	2002			r	P

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Lachnagrostis robusta	Salt Blown-grass	2	1999			r	P
Lachnagrostis spp.	Blown Grass	1	2011				P
Lagenophora gracilis	Slender Bottle-daisy	61	2011				P
Lagenophora spp.	Bottle Daisy	16	2015				P
Lagenophora stipitata	Common Bottle-daisy	160	2017				P
Landoltia punctata	Thin Duckweed	1	1992				P
Lastreopsis acuminata	Shiny Shield-fern	31	2016				P
Lastreopsis hispida	Bristly Shield-fern	5	1996			r	P
Leionema bilobum subsp. serrulatum	Toothed Leionema	23	2012			r	P
Lejeunea drummondii	Common Pouncewort	1	2005				P
Lembophyllum divulsum	Catkin Moss	2	2007				P
Lemna disperma	Common Duckweed	19	2009				P
Lemna spp.	Duckweed	1	2003				P
Lepidosperma canescens	Hoary Rapier-sedge	4	1992			r	P
Lepidosperma concavum	Sandhill Sword-sedge	1	2001				P
Lepidosperma elatius	Tall Sword-sedge	247	2017				P
Lepidosperma filiforme	Common Rapier-sedge	66	2015				P
Lepidosperma forsythii	Large-flower Rapier-sedge	16	2011				P
Lepidosperma gunnii	Slender Sword-sedge	16	2011				P
Lepidosperma laterale	Variable Sword-sedge	251	2015				P

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Lepidosperma laterale var. laterale	Variable Sword-sedge	69	2014				P
Lepidosperma laterale var. majus	Variable Sword-sedge	91	2015				P
Lepidosperma longitudinale	Pithy Sword-sedge	17	2015				P
Lepidosperma neesii	Stiff Rapier-sedge	4	2007				P
Lepidosperma semiteres	Wire Rapier-sedge	50	2015				P
Lepidosperma spp.	Sword Sedge	22	2015				P
Lepidosperma tortuosum	Tortuous Rapier-sedge	28	1992				P
Lepidosperma urophorum	Tailed Rapier-sedge	4	1992				P
Lepidozia ulothrix	Common Fingerwort	1	2006				P
Leptinella filicula	Mountain Cotula	2	2014				P
Leptocarpus tenax	Slender Twine-rush	9	2004				P
Leptoceras menziesii	Hare Orchid	9	2009				P
Leptorhynchos squamatus	Scaly Buttons	4	2009				P
Leptorhynchos squamatus subsp. squamatus	Scaly Buttons	3	2001				P
Leptorhynchos tenuifolius	Wiry Buttons	7	2009				P
Leptospermum continentale	Prickly Tea-tree	676	2017				P
Leptospermum grandifolium	Mountain Tea-tree	3	1992				P
Leptospermum lanigerum	Woolly Tea-tree	65	2015				P
Leptospermum myrsinoides	Heath Tea-tree	111	2015				P
Leptospermum scoparium	Manuka	37	2012				P

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Leptospermum spp.	Tea Tree	4	2003				P
Leptostigma breviflorum	Mountain Nertera	11	2010				P
Leptostigma reptans	Dwarf Nertera	1	2016				P
Lepyrodia muelleri	Common Scale-rush	28	2010				P
Lepyrodia spp.	Scale Rush	2	2008				P
Leucopogon australis	Spike Beard-heath	9	2015				P
Leucopogon collinus	Fringed Beard-heath	5	2014				P
Leucopogon ericoides	Pink Beard-heath	13	2015				P
Leucopogon spp.	Beard Heath	1	2007				P
Leucopogon virgatus	Common Beard-heath	15	2011				P
Lichen spp.	Lichen	5	2010				P
Lilaeopsis polyantha	Australian Lilaeopsis	1	2002				P
Limosella australis	Austral Mudwort	1	2006				P
Lindsaea linearis	Screw Fern	213	2017				P
Linum marginale	Native Flax	6	2017				P
Liparophyllum exaltatum	Erect Marsh-flower	12	2003				P
Lobelia anceps	Angled Lobelia	90	2015				P
Lobelia browniana	Humped Lobelia	1	2003				P
Lobelia gibbosa sensu Albrecht (1999)	Tall Lobelia	3	2007				P
Lobelia gibbosa sensu Walsh Albrecht & Knox (2010)	Tall Lobelia	1	2008				P
Lobelia gibbosa sensu Willis (1973)	Tall Lobelia	27	1999				P

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Lobelia rhombifolia	Tufted Lobelia	3	2009				P
Lobelia simplicicaulis	Narrow Lobelia	4	2014				P
Lobelia spp.	Lobelia	6	2014				P
Lomandra filiformis	Wattle Mat-rush	266	2017				P
Lomandra filiformis subsp. coriacea	Wattle Mat-rush	82	2015				P
Lomandra filiformis subsp. filiformis	Wattle Mat-rush	88	2015				P
Lomandra longifolia	Spiny-headed Mat-rush	253	2017				P
Lomandra longifolia subsp. exilis	Cluster-headed Mat-rush	26	2012				P
Lomandra longifolia subsp. longifolia	Spiny-headed Mat-rush	51	2011				P
Lomandra micrantha s.l.	Small-flower Mat-rush	3	1999				P
Lomandra multiflora subsp. multiflora	Many-flowered Mat-rush	28	2008				P
Lomandra nana	Dwarf Mat-rush	1	1989				P
Lomandra spp.	Mat-rush	25	2011				P
Lomatia fraseri	Tree Lomatia	37	2016				P
Lomatia ilicifolia	Holly Lomatia	278	2014				P
Lomatia spp.	Lomatia	2	2011				P
Lotus spp.	Trefoil	21	2016				P
Lunularia cruciata	Crescent Moonwort	1	2005				P
Luzula meridionalis	Common Woodrush	22	2016				P
Luzula meridionalis var. densiflora	Common Woodrush	3	2008				P
Luzula meridionalis var. flaccida	Common Woodrush	13	2011				P
Luzula meridionalis var. meridionalis	Common Woodrush	6	2003				P

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Luzula spp.	Woodrush	8	2011				P
Lycopodium deuterodensum	Bushy Clubmoss	6	2006				P
Lycopus australis	Australian Gipsywort	9	2010				P
Lyperanthus suaveolens	Brown-beaks	8	2006				P
Lythrum hyssopifolia	Small Loosestrife	69	2014				P
Macromitrium archeri	Macromitrium	1	2006				P
Malva spp.	Mallow	7	2011				P
Mazus pumilio	Swamp Mazus	3	2005				P
Melaleuca spp.	Honey-myrtle	5	2012				P
Melaleuca squarrosa	Scented Paperbark	197	2015				P
Melicytus dentatus s.l.	Tree Violet	7	2012				P
Melicytus dentatus s.s.	Tree Violet	3	2012				P
Mentha laxiflora	Forest Mint	7	2014				P
Mentha spp.	Mint	2	2006				P
Metzgeria submarginata	Slender Veilwort	1	2005			k	P
Microlaena stipoides var. stipoides	Weeping Grass	481	2017				P
Microseris spp.	Yam Daisy	2	1989				P
Microsorum pustulatum subsp. pustulatum	Kangaroo Fern	45	2015				P
Microtis arenaria	Notched Onion-orchid	2	2007				P
Microtis parviflora	Slender Onion-orchid	23	2009				P
Microtis spp.	Onion Orchid	20	2012				P

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Microtis unifolia	Common Onion-orchid	23	2015				P
Mittenia plumula	Glow-worm Moss	1	2006				P
Monotoca scoparia	Prickly Broom-heath	94	2015				P
Montia australasica	White Purslane	4	2001				P
Montia fontana subsp. chondrosperma	Water Blinks	1	2004				P
Muellerina eucalyptoides	Creeping Mistletoe	18	2014				P
Myosotis spp.	Forget-me-not	1	2017				P
Myriophyllum amphibium	Broad Water-milfoil	9	2014				P
Myriophyllum crispatum	Upright Water-milfoil	4	2008				P
Myriophyllum pedunculatum subsp. pedunculatum	Mat Water-milfoil	3	2004				P
Myriophyllum simulans	Amphibious Water-milfoil	6	2005				P
Myriophyllum spp.	Water Milfoil	4	2015				P
Myriophyllum verrucosum	Red Water-milfoil	1	2001				P
Myrsine howittiana	Mutton-wood	40	2017				P
Notelaea ligustrina	Privet Mock-olive	10	2014				P
Nothofagus cunninghamii	Myrtle Beech	19	2013				P
Notogrammitis billardierei	Common Finger-fern	39	2013				P
Notogrammitis heterophylla	Gipsy Fern	4	1991				P
Olearia argophylla	Musk Daisy-bush	91	2017				P
Olearia asterotricha	Rough Daisy-bush	7	2014			r	P

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Olearia asterotricha subsp. lobata	Rough Daisy-bush	2	2008				P
Olearia erubescens	Moth Daisy-bush	22	2008				P
Olearia glandulosa	Swamp Daisy-bush	5	2009				P
Olearia lirata	Snowy Daisy-bush	360	2017				P
Olearia myrsinoides	Silky Daisy-bush	5	2006				P
Olearia phlogopappa	Dusty Daisy-bush	41	2016				P
Olearia phlogopappa subsp. continentalis	Dusty Daisy-bush	1	2015				P
Olearia ramulosa	Twiggy Daisy-bush	13	2009				P
Olearia ramulosa var. ramulosa	Twiggy Daisy-bush	2	2007				P
Olearia rugosa	Wrinkled Daisy-bush	61	2009				P
Olearia speciosa	Netted Daisy-bush	1	1996			k	P
Olearia spp.	Daisy Bush	2	2014				P
Opercularia aspera	Coarse Stinkweed	1	2002				P
Opercularia ovata	Broad-leaf Stinkweed	11	2009				P
Opercularia varia	Variable Stinkweed	195	2017				P
Orchidaceae spp.	Orchid	1	2004				P
Ornduffia reniformis	Running Marsh-flower	13	2010				P
Ornduffia spp.	Marsh Flower	3	2009				P
Orthoceras strictum	Horned Orchid	9	2010				P
Ottelia ovalifolia subsp. ovalifolia	Swamp Lily	6	2011				P
Oxalis corniculata s.l.	Yellow Wood-sorrel	128	2017				P
Oxalis exilis	Shade Wood-sorrel	126	2014				P
Oxalis exilis/perennans	Shade/Grassland Wood-sorrel	3	2012				P

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Oxalis perennans	Grassland Wood-sorrel	69	2017				P
Oxalis radicosa	Stout-rooted Wood-sorrel	1	2010				P
Oxalis spp.	Wood Sorrel	49	2017				P
Oxylobium arborescens	Tall Oxylobium	13	1995				P
Ozothamnus ferrugineus	Tree Everlasting	248	2017				P
Ozothamnus obcordatus	Grey Everlasting	2	2004				P
Ozothamnus rosmarinifolius	Rosemary Everlasting	16	2014				P
Pandorea pandorana subsp. pandorana	Wonga Vine	129	2017				P
Papillaria crocea	Festoon Moss	1	2005				P
Parsonsia brownii	Twining Silkpod	74	2015				P
Passiflora spp.	Passion Flower	1	2017				P
Patersonia fragilis	Short Purple-flag	35	2008				P
Patersonia occidentalis var. occidentalis	Long Purple-flag	45	2012				P
Patersonia sericea var. sericea	Silky Purple-flag	1	2003				P
Patersonia spp.	Purple Flag	4	2015				P
Pauridia vaginata	Yellow Star	1	2005				P
Pauridia vaginata var. vaginata	Yellow Star	1	1998				P
Pelargonium australe	Austral Stork's-bill	3	2008				P
Pelargonium inodorum	Kopata	6	2009				P
Pelargonium rodneyanum	Magenta Stork's-bill	1	2004				P
Pelargonium spp.	Stork's Bill	3	2013				P

Scientific name	VBA* common name	No. of records	Year (latest record)	EPBC Act	FFG Act	DEPI	Likely occurrence in shire
Pellaea falcata s.l.	Sickle Fern	13	2009				P
Pellaea falcata s.s.	Sickle Fern	4	2005				P
Pentapogon quadrifidus var. quadrifidus	Five-awned Spear-grass	25	2009				P
Persicaria decipiens	Slender Knotweed	78	2013				P
Persicaria hydropiper	Water Pepper	13	2012				P
Persicaria lapathifolia	Pale Knotweed	2	2009				P
Persicaria praetermissa	Spotted Knotweed	42	2014				P
Persicaria subsessilis	Hairy Knotweed	4	2010				P
Persoonia arborea	Tree Geebung	12	1993		X	vu	P
Persoonia juniperina	Prickly Geebung	76	2011				P
Phebalium squamulosum subsp. squamulosum	Forest Phebalium	5	1991			r	P
Pheladenia deformis	Bluebeard Orchid	2	1999				P
Philotheca myoporoides	Long-leaf Wax-flower	3	1992				P
Philotheca myoporoides subsp. myoporoides	Long-leaf Wax-flower	2	2012				P
Phragmites australis	Common Reed	119	2017				P
Pimelea axiflora	Bootlace Bush	64	2014				P
Pimelea axiflora subsp. axiflora	Bootlace Bush	11	2016				P
Pimelea curviflora s.l.	Curved Rice-flower	3	1999				P
Pimelea flava	Yellow Rice-flower	51	2009				P
Pimelea flava subsp. flava	Yellow Rice-flower	50	2012				P

Scientific name	VBA* common name	No. of records	Year (latest record)	EPBC Act	FFG Act	DEPI	Likely occurrence in shire
Pimelea humilis	Common Rice-flower	87	2011				P
Pimelea ligustrina	Tall Rice-flower	6	2006				P
Pimelea linifolia	Slender Rice-flower	24	2006				P
Pimelea phylicoides	Heath Rice-flower	8	2008				P
Pimelea spp.	Rice Flower	4	2016				P
Pisidium (Euglesa) carum	Pea Clam	1	1999				P
Pittosporum bicolor	Banyalla	47	2016				P
Pittosporum spp.	Pittosporum	2	2005				P
Plagiochila baileyana	Toothed Featherwort	1	2007				P
Plantago debilis	Shade Plantain	25	2016				P
Plantago spp.	Plantain	3	2009				P
Plantago varia	Variable Plantain	12	2005				P
Platylobium formosum s.l.	Handsome Flat-pea	199	2011				P
Platylobium montanum	Mountain Flat-pea	1	2013				P
Platylobium obtusangulum	Common Flat-pea	127	2017				P
Platylobium reflexum	Victorian Flat-pea	5	2013			r	P
Platysace heterophylla var. heterophylla	Slender Platysace	65	2014				P
Platysace lanceolata	Shrubby Platysace	3	2005				P
Platysace spp.	Platysace	1	2008				P
Poa australis spp. agg.	Tussock Grass	184	2017				P
Poa clelandii	Noah's Ark	21	2009				P
Poa ensiformis	Sword Tussock-grass	91	2014				P

Scientific name	VBA* common name	No. of records	Year (latest record)	EPBC Act	FFG Act	DEPI	Likely occurrence in shire
Poa helmsii	Tall Mountain Tussock-grass	2	2009				P
Poa labillardierei	Common Tussock-grass	70	2016				P
Poa labillardierei var. labillardierei	Common Tussock-grass	18	2012				P
Poa morrisii	Soft Tussock-grass	89	2011				P
Poa poiformis	Coast Tussock-grass	5	2008				P
Poa poiformis var. poiformis	Coast Tussock-grass	5	2009				P
Poa rodwayi	Velvet Tussock-grass	23	2012				P
Poa sieberiana	Grey Tussock-grass	44	2011				P
Poa sieberiana var. hirtella	Grey Tussock-grass	3	2005				P
Poa sieberiana var. sieberiana	Grey Tussock-grass	21	2011				P
Poa spp.	Tussock Grass	44	2017				P
Poa tenera	Slender Tussock-grass	264	2017				P
Poaceae spp.	Grass	1	2008				P
Podolepis jaceoides s.l.	Showy/Basalt Podolepis	3	1999				P
Pogonatum subulatum	Forest Haircap	2	2005				P
Polyscias sambucifolia	Elderberry Panax	134	2017				P
Polyscias sambucifolia subsp. 1	Broad-leaf Panax	9	2010				P
Polyscias sambucifolia subsp. 3	Mountain Panax	7	2014				P
Polyscias spp.	Panax	2	1993				P
Polystichum proliferum	Mother Shield-fern	127	2017				P

Scientific name	VBA* common name	No. of records	Year (latest record)	EPBC Act	FFG Act	DEPI	Likely occurrence in shire
Polytrichadelphus magellanicus	Walrus Whiskers	1	2009				P
Polytrichum juniperinum	Juniper Haircap	3	2005				P
Pomaderris aspera	Hazel Pomaderris	214	2016				P
Pomaderris elachophylla	Lacy Pomaderris	3	2002				P
Pomaderris elliptica var. elliptica	Smooth Pomaderris	2	2011				P
Pomaderris lanigera	Woolly Pomaderris	1	2010				P
Pomaderris racemosa	Cluster Pomaderris	6	2008				P
Pomaderris spp.	Pomaderris	1	1989				P
Poranthera microphylla s.l.	Small Poranthera	120	2017				P
Poranthera microphylla s.s.	Small Poranthera	8	2012				P
Portulaca oleracea	Common Purslane	15	2012				P
Potamogeton ochreatus	Blunt Pondweed	7	2009				P
Potamogeton spp.	Pondweed	2	2002				P
Potamogeton tricarinatus s.l.	Floating Pondweed	5	2009				P
Prasophyllum australe	Austral Leek-orchid	6	2009				P
Prasophyllum brevilabre	Short-lip Leek-orchid	4	1989				P
Prasophyllum elatum	Tall Leek-orchid	1	2009				P
Prasophyllum frenchii	Maroon Leek-orchid	15	2005	EN	L	en	P
Prasophyllum lindleyanum	Green Leek-orchid	4	2001		X	vu	P
Prasophyllum odoratum s.l.	Scented Leek-orchid	9	2009				P
Prasophyllum spp.	Leek Orchid	8	2008				P

Scientific name	VBA* common name	No. of records	Year (latest record)	EPBC Act	FFG Act	DEPI	Likely occurrence in shire
Prostanthera lasianthos	Victorian Christmas-bush	127	2017				P
Prostanthera lasianthos var. lasianthos	Victorian Christmas-bush	14	2012				P
Prostanthera melissifolia	Balm Mint-bush	14	2016				P
Pseudognaphalium luteoalbum	Jersey Cudweed	14	2009				P
Pteridium esculentum	Austral Bracken	704	2017				P
Pteris tremula	Tender Brake	4	2015				P
Pterostylis alpina s.l.	Alpine Greenhood	7	2003				P
Pterostylis alpina s.s.	Mountain Greenhood	2	1999				P
Pterostylis atrans	Dark-tip Greenhood	2	1995				P
Pterostylis chlorogramma	Green-striped Greenhood	67	2015	VU	L	vu	P
Pterostylis curta	Blunt Greenhood	3	2008				P
Pterostylis falcata s.l.	Sickle Greenhood	9	2014				P
Pterostylis foliata	Slender Greenhood	4	2008				P
Pterostylis grandiflora	Cobra Greenhood	14	2012			r	P
Pterostylis longifolia s.l.	Tall Greenhood	42	2012				P
Pterostylis lustra	Small Sickle Greenhood	3	2009		L	en	P
Pterostylis melagramma	Tall Greenhood	30	2017				P
Pterostylis nutans	Nodding Greenhood	26	2015				P
Pterostylis parviflora s.l.	Tiny Greenhood	14	2009				P
Pterostylis parviflora s.s.	Tiny Greenhood	6	2003				P

Scientific name	VBA* common name	No. of records	Year (latest record)	EPBC Act	FFG Act	DEPI	Likely occurrence in shire
Pterostylis pedunculata	Maroonhood	27	2014				P
Pterostylis sp. aff. parviflora (Southern Victoria)	Red-tip Greenhood	3	2011			r	P
Pterostylis spp.	Greenhood	21	2017				P
Ptychomitrium acutifolium	Pincushion	1	2006				P
Ptychomitrium australe	Pincushion	1	2006				P
Ptychomnion aciculare	Paper Moss	10	2013				P
Puccinellia stricta s.l.	Australian Saltmarsh-grass	6	2007				P
Puccinellia stricta s.s.	Australian Saltmarsh-grass	4	2009				P
Pultenaea daphnoides	Large-leaf Bush-pea	8	2005				P
Pultenaea dentata	Clustered Bush-pea	5	2004				P
Pultenaea gunnii	Golden Bush-pea	205	2017				P
Pultenaea gunnii subsp. gunnii	Golden Bush-pea	91	2014				P
Pultenaea hispidula	Rusty Bush-pea	84	2009				P
Pultenaea humilis	Dwarf Bush-pea	3	2005				P
Pultenaea juniperina s.s.	Prickly Beauty	6	2015			r	P
Pultenaea mollis	Soft Bush-pea	87	2014				P
Pultenaea muelleri s.l.	Mueller's Bush-pea	11	1993				P
Pultenaea muelleri s.s.	Mueller's Bush-pea	3	2014				P
Pultenaea scabra	Rough Bush-pea	173	2014				P
Pultenaea sericea	Chaffy Bush-pea	12	2014				P
Pultenaea spp.	Bush-pea	3	2008				P

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Pultenaea weindorferi	Swamp Bush-pea	23	2014		X	r	P
Pyrorchis nigricans	Red-beaks	5	2012				P
Pyrrhobryum paramattense	Tassel Thyme-moss	3	1995				P
Racomitrium crispulum var. crispulum	Common Fringe-moss	1	2005				P
Racopilum cuspidigerum var. convolutaceum	Common Carpet-moss	2	2007				P
Ranunculus amphitrichus	Small River Buttercup	10	2009				P
Ranunculus glabrifolius	Shining Buttercup	11	2009				P
Ranunculus inundatus	River Buttercup	8	2014				P
Ranunculus lappaceus	Australian Buttercup	21	2011				P
Ranunculus plebeius s.l.	Forest/Hairy Buttercup	6	1989				P
Ranunculus plebeius s.s.	Forest Buttercup	2	2003				P
Ranunculus spp.	Buttercup	25	2017				P
Rhacocarpus purpurascens	Mountain Heath-moss	1	2008				P
Rhagodia candolleana subsp. candolleana	Seaberry Saltbush	1	2001				P
Rhaphidorrhynchium amoenum	Common Signal-moss	1	2015				P
Rhaphidorrhynchium amoenum var. amoenum	Moss	2	2006				P
Rhizogonium distichum	Thyme Moss	4	2014				P
Rhynchostegium tenuifolium	Feather Moss	3	2006				P

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Rhytidosporum procumbens	White Marianth	7	2013				P
Riccardia crassa	Yellow Germanderwort	1	2006				P
Rorippa dictyosperma	Forest Bitter-cress	4	1997				P
Rorippa gigantea	Long-style Bitter-cress	1	1995				P
Rosulabryum billarderi	Common Thread-moss	4	2006				P
Rubus parvifolius	Small-leaf Bramble	129	2015				P
Rubus spp.	Bramble	48	2012				P
Rumex brownii	Slender Dock	5	2009				P
Rumex dumosus	Wiry Dock	1	2001				P
Rumex spp.	Dock	9	2012				P
Rumohra adiantiformis	Leathery Shield-fern	30	1992				P
Rytidosperma bipartitum s.l.	Leafy Wallaby-grass	2	1989				P
Rytidosperma caespitosum	Common Wallaby-grass	29	2017				P
Rytidosperma erianthum	Hill Wallaby-grass	5	2005				P
Rytidosperma fulvum	Copper-awned Wallaby-grass	3	2008				P
Rytidosperma geniculatum	Kneed Wallaby-grass	10	2011				P
Rytidosperma indutum	Shiny Wallaby-grass	1	2003				P
Rytidosperma laeve	Smooth Wallaby-grass	30	2012				P
Rytidosperma lepidopodum	Scaly-foot Wallaby-grass	3	2003				P
Rytidosperma pallidum	Silvertop Wallaby-grass	186	2015				P

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Rytidosperma penicillatum	Weeping Wallaby-grass	43	2009				P
Rytidosperma pilosum	Velvet Wallaby-grass	57	2009				P
Rytidosperma racemosum var. racemosum	Slender Wallaby-grass	60	2016				P
Rytidosperma semiannulare	Wetland Wallaby-grass	39	2010				P
Rytidosperma setaceum	Bristly Wallaby-grass	91	2016				P
Rytidosperma setaceum var. setaceum	Bristly Wallaby-grass	2	2008				P
Rytidosperma spp.	Wallaby Grass	74	2017				P
Rytidosperma tenuius	Purplish Wallaby-grass	2	2009				P
Sambucus gaudichaudiana	White Elderberry	75	2017				P
Samolus repens var. repens	Creeping Brookweed	16	2009				P
Sarcochilus australis	Butterfly Orchid	6	1992				P
Sarcocornia quinqueflora	Beaded Glasswort	14	2015				P
Sarcocornia quinqueflora subsp. quinqueflora	Beaded Glasswort	7	2009				P
Scaevola aemula	Fairy Fan-flower	12	2009				P
Scaevola spp.	Fan Flower	1	2006				P
Schoenoplectus spp.	Club Sedge	1	2003				P
Schoenoplectus tabernaemontani	River Club-sedge	15	2017				P
Schoenus apogon	Common Bog-sedge	160	2017				P
Schoenus brevifolius	Zig-zag Bog-sedge	17	2009				P
Schoenus latelaminatus	Medusa Bog-sedge	2	1995				P

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Schoenus lepidosperma	Slender Bog-sedge	28	2007				P
Schoenus lepidosperma subsp. lepidosperma	Slender Bog-sedge	4	2011				P
Schoenus maschalinus	Leafy Bog-sedge	41	2015				P
Schoenus spp.	Bog Sedge	4	2006				P
Schoenus tesquorum	Soft Bog-sedge	9	2009				P
Sclerodontium pallidum	Knitting Nancy	1	2009				P
Sebaea ovata	Yellow Sebaea	4	1992				P
Selaginella gracillima	Tiny Selaginella	3	2009				P
Selaginella uliginosa	Swamp Selaginella	43	2015				P
Selliera radicans	Shiny Swamp-mat	12	2008				P
Senecio biserratus	Jagged Fireweed	8	2007				P
Senecio campylocarpus	Floodplain Fireweed	2	2010			r	P
Senecio glomeratus	Annual Fireweed	96	2017				P
Senecio glomeratus subsp. glomeratus	Annual Fireweed	1	2006				P
Senecio hispidulus s.l.	Rough Fireweed	51	2011				P
Senecio hispidulus s.s.	Rough Fireweed	10	2012				P
Senecio linearifolius	Fireweed Groundsel	40	2016				P
Senecio linearifolius var. denticulatus	Fireweed Groundsel (eastern variant)	1	2006				P
Senecio minimus	Shrubby Fireweed	165	2017				P
Senecio phelleus	Stony Fireweed	3	2011				P

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Senecio pinnatifolius	Variable Groundsel	7	2011				P
Senecio pinnatifolius var. lanceolatus	Lance-leaf Groundsel	4	1999				P
Senecio prenanthoides	Beaked Fireweed	7	2012				P
Senecio quadridentatus	Cotton Fireweed	90	2014				P
Senecio spp.	Groundsel	70	2016				P
Senecio squarrosus s.l.	Leafy Fireweed	1	2002				P
Senecio tenuiflorus s.l.	Slender Fireweed	80	2017				P
Senecio velleioides	Forest Groundsel	18	2016				P
Sigesbeckia orientalis subsp. orientalis	Indian Weed	25	2014				P
Sigesbeckia spp.	Sigesbeckia	1	2008				P
Solanum aviculare	Kangaroo Apple	14	2015				P
Solanum laciniatum	Large Kangaroo Apple	9	2015				P
Solanum prinophyllum	Forest Nightshade	28	2015				P
Solanum spp.	Nightshade	12	2012				P
Solanum vescum	Gunyang	2	2009				P
Solenogyne dominii	Smooth Solenogyne	3	2009				P
Solenogyne gunnii	Hairy Solenogyne	1	2008				P
Sonchus spp.	Sow Thistle	3	2009				P
Sowerbaea juncea	Rush Lily	1	1993			r	P
Spergularia marina s.s.	Lesser Sea-spurrey	2	2009				P
Spergularia tasmanica	Native Sea-spurrey	3	2007				P

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Sphaerolobium minus	Eastern Globe-pea	14	2013				P
Sphaerolobium spp.	Globe Pea	1	2004				P
Sphaerolobium vimineum s.l.	Leafless Globe-pea	26	2008				P
Sphaerolobium vimineum s.s.	Leafless Globe-pea	5	2014				P
Sphagnum australe	Peat Moss	1	2006				P
Sphagnum spp.	Peat Moss	1	2009				P
Spinifex sericeus	Hairy Spinifex	1	2002				P
Spiranthes australis s.l.	Austral Ladies' Tresses	10	2008				P
Sprengelia incarnata	Pink Swamp-heath	18	2006				P
Spyridium parvifolium	Dusty Miller	401	2017				P
Stackhousia monogyna s.l.	Creamy Stackhousia	95	2013				P
Stackhousia monogyna s.s.	Creamy Candles	1	2004				P
Stellaria flaccida	Forest Starwort	72	2017				P
Stellaria pungens	Prickly Starwort	8	2010				P
Stellaria spp.	Starwort	3	2009				P
Sticherus lobatus	Spreading Fan-fern	7	2014				P
Sticherus tener s.l.	Silky Fan-fern	5	1992				P
Stuckenia pectinata	Fennel Pondweed	2	2009				P
Stylidium armeria	Common Triggerplant	30	2015				P
Stylidium armeria subsp. armeria	Common Triggerplant	3	2011				P
Stylidium graminifolium s.l.	Grass Triggerplant	105	2012				P
Stylidium graminifolium s.s.	Grass Triggerplant	7	2004				P
Stylidium spp.	Trigger Plant	8	2003				P

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Suaeda australis	Austral Seablite	14	2009				P
Taraxacum spp.	Dandelion	14	2016				P
Tasmannia lanceolata	Mountain Pepper	22	2016				P
Tecticornia arbuscula	Shrubby Glasswort	6	2007				P
Tetraria capillaris	Hair Sedge	40	2006				P
Tetrarrhena acuminata	Pointed Rice-grass	7	2009				P
Tetrarrhena distichophylla	Hairy Rice-grass	22	2008				P
Tetrarrhena juncea	Forest Wire-grass	611	2017				P
Tetratheca bauerifolia	Heath Pink-bells	3	2015				P
Tetratheca ciliata	Pink-bells	181	2014				P
Tetratheca pilosa	Hairy Pink-bells	4	2001				P
Tetratheca pilosa subsp. latifolia	Hairy Pink-bells	7	2004				P
Tetratheca spp.	Pink Bells	1	2008				P
Tetratheca stenocarpa	Long Pink-bells	83	2014			r	P
Thelionema caespitosum	Tufted Lily	18	2007				P
Thelymitra arenaria	Forest Sun-orchid	2	2001				P
Thelymitra aristata	Great Sun-orchid	3	2009				P
Thelymitra carnea	Pink Sun-orchid	5	2005				P
Thelymitra flexuosa	Twisted Sun-orchid	5	2009				P
Thelymitra hiemalis	Winter Sun-orchid	1	2012		L	en	P
Thelymitra holmesii s.l.	Blue-star Sun-orchid	5	2009				P
Thelymitra ixioides s.l.	Spotted Sun-orchid	19	2012				P
Thelymitra ixioides s.s.	Spotted Sun-orchid	9	2009				P

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Thelymitra juncifolia	Rush-leaf Sun-orchid	4	2003				P
Thelymitra media s.l.	Tall Sun-orchid	10	1992				P
Thelymitra media s.s.	Tall Sun-orchid	10	2014				P
Thelymitra nuda	Plain Sun-orchid	14	2007				P
Thelymitra pauciflora s.l.	Slender Sun-orchid	33	2004				P
Thelymitra pauciflora s.s.	Slender Sun-orchid	5	2008				P
Thelymitra peniculata	Trim Sun-orchid	3	2008				P
Thelymitra rubra	Salmon Sun-orchid	3	1999				P
Thelymitra spp.	Sun Orchid	64	2012				P
Themeda spp.	Kangaroo Grass	1	2001				P
Themeda triandra	Kangaroo Grass	204	2017				P
Thuidiopsis sparsa	Weft Moss	11	2010				P
Thuidiopsis spp.	Weft Moss	1	2006				P
Thuidium spp.	Weft Moss	3	2005				P
Thynninorchis huntiana	Elbow Orchid	5	2012				P
Thysanotus patersonii	Twining Fringe-lily	41	2017				P
Thysanotus spp.	Fringe Lily	1	1991				P
Thysanotus tuberosus	Common Fringe-lily	102	2009				P
Thysanotus tuberosus subsp. tuberosus	Common Fringe-lily	3	1999				P
Tmesipteris obliqua	Long Fork-fern	18	2011				P
Tmesipteris ovata	Oval Fork-fern	7	2008			r	P
Tmesipteris parva	Small Fork-fern	21	1995			r	P
Tmesipteris spp.	Fork-fern	2	2014				P

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Todea barbara	Austral King-fern	52	2015				P
Tricoryne elatior	Yellow Rush-lily	44	2012				P
Tricoryne spp.	Rush Lily	1	2011				P
Triglochin spp.	Arrowgrass	1	2008				P
Triglochin striata	Streaked Arrowgrass	41	2014				P
Triquetrella papillata	Common Twine-moss	1	2005				P
Typha domingensis	Narrow-leaf Cumbungi	15	2013				P
Typha orientalis	Broad-leaf Cumbungi	11	2010				P
Typha spp.	Bulrush	15	2014				P
Urtica incisa	Scrub Nettle	30	2014				P
Utricularia australis	Yellow Bladderwort	2	1992				P
Utricularia dichotoma s.s.	Fairies' Aprons	8	2014				P
Veronica calycina	Hairy Speedwell	30	2010				P
Veronica derwentiana	Derwent Speedwell	2	1992				P
Veronica derwentiana subsp. derwentiana	Derwent Speedwell	5	2016				P
Veronica gracilis	Slender Speedwell	30	2010				P
Veronica notabilis	Forest Speedwell	12	2014				P
Veronica plebeia	Trailing Speedwell	59	2017				P
Veronica spp.	Speedwell	2	2015				P
Viminaria juncea	Golden Spray	13	2009				P
Viola betonicifolia	Showy Violet	2	1999				P
Viola cleistogamoides	Hidden Violet	43	2017				P
Viola hederacea sensu Entwisle (1996)	Ivy-leaf Violet	190	2016				P

Scientific name	VBA* common name	No. of records	Year (latest record)	EPBC Act	FFG Act	DEPI	Likely occurrence in shire
Viola hederacea sensu Thiele & Prober	Ivy-leaf Violet	8	2014				P
Viola hederacea sensu Willis (1972)	Ivy-leaf Violet	354	2016				P
Viola sieberiana spp. agg.	Tiny Violet	10	2007				P
Wahlenbergia communis s.l.	Tufted Bluebell	5	1998				P
Wahlenbergia communis s.s.	Tufted Bluebell	1	2004				P
Wahlenbergia gracilenta s.l.	Annual Bluebell	11	2008				P
Wahlenbergia gracilenta s.s.	Hairy Annual-bluebell	9	2012				P
Wahlenbergia gracilis	Sprawling Bluebell	60	2014				P
Wahlenbergia graniticola s.s.	Granite Bluebell	4	2009				P
Wahlenbergia gymnoclada	Naked Bluebell	3	2001				P
Wahlenbergia multicaulis	Branching Bluebell	20	2009				P
Wahlenbergia spp.	Bluebell	18	2011				P
Wahlenbergia stricta subsp. stricta	Tall Bluebell	65	2012				P
Westringia spp.	Westringia	2	2005				P
Weymouthia cochlearifolia	Coarse Festoon-moss	1	2007				P
Weymouthia mollis	Fine Festoon-moss	2	2005				P
Wijkia extenuata	Spear Moss	11	2015				P
Wolffia australiana	Tiny Duckweed	1	1992				P
Wurmbea dioica	Common Early Nancy	10	2015				P
Wurmbea dioica subsp. dioica	Common Early Nancy	2	2003				P

Scientific name	VBA* common name	No. of records	Year (latest record)	EPBC Act	FFG Act	DEPI	Likely occurrence in shire
Wurmbea spp.	Early Nancy	1	1989				P
Xanthorrhoea australis	Austral Grass-tree	27	2013				P
Xanthorrhoea minor subsp. lutea	Small Grass-tree	258	2017				P
Xanthorrhoea spp.	Grass Tree	2	2015				P
Xanthosia dissecta s.l.	Cut-leaf Xanthosia	121	2012				P
Xanthosia dissecta s.s.	Native Parsley	31	2015				P
Xanthosia huegelii	Heath Xanthosia	2	2007				P
Xanthosia pilosa	Woolly Xanthosia	2	2007				P
Xanthosia pusilla spp. agg.	Heath Xanthosia	4	1993				P
Xanthosia spp.	Xanthosia	2	2014				P
Xanthosia tasmanica	Southern Xanthosia	3	2008			r	P
Xanthosia tridentata	Hill Xanthosia	29	2013				P
Xerochrysum bracteatum	Golden Everlasting	3	2011				P
Xerochrysum spp.	Everlasting	1	2009				P
Xyris gracilis	Slender Yellow-eye	8	2010				P
Xyris operculata	Tall Yellow-eye	16	2009				P
Zieria arborescens subsp. arborescens	Stinkwood	68	2016				P
Zygodon intermedius	Common Zygodon	4	2014				P

Appendix B: Indigenous fauna recorded within Cardinia Shire post 1988

The list below provides VBA records post 1988 for indigenous fauna (including rare and threatened species) within Cardinia Shire (DELWP 2018c).

Origin

* = introduced from overseas # = native to Australia but not indigenous (local) to Cardinia Shire

EPBC Act – *Environment Protection and Biodiversity Conservation Act 1999*

CR = critically endangered EN = endangered VU = vulnerable MIG migratory bird

FFG Act – Flora and Fauna Guarantee Act 1988

L = listed N = nominated for listing

DEPI - Advisory List of Rare or Threatened Plants in Victoria (DEPI 2014)

cr=critically endangered en = endangered vu = vulnerable nt=near threatened dd=data deficient

Likelihood of occurrence definitions:

U = unlikely to occur in Cardinia Shire
- lack of known habitat remaining in the shire
- no known substantial/self-sustaining population in Cardinia Shire
- undergone taxonomic revision and no longer describes the relevant entity
- outside of the known species distribution or range

P = considered present or with the potential to occur in Cardinia Shire
- suitable habitat or known populations present in the shire

Fishes

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Acanthogobius flavimanus	Yellowfin Goby	*	2	2014				P	
Afurcagobius tamarensis	Tamar Goby		5	2008				P	
Aldrichetta forsteri	Yellow-eye Mullet		3	2008				P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Anguilla australis	Southern Shortfin Eel		203	2012				P	
Anguilla reinhardtii	Longfin Eel		5	2005				P	
Arenigobius bifrenatus	Bridled Goby		2	2014				P	
Atherinosoma microstoma	Smallmouthed Hardyhead		1	2002				P	
Carassius auratus	Goldfish	*	56	2010				P	
Cyprinus carpio	European Carp	*	25	2010				P	
Gadopsis marmoratus	River Blackfish		42	2009				P	
Galaxias brevipinnis	Climbing Galaxias		28	2011				P	
Galaxias maculatus	Common Galaxias		164	2012				P	
Galaxias olidus s.l.	Mountain Galaxias (complex)		1	2006				P	Galaxias olidus group comprising multiple taxa (Raadik 2014)
Galaxias ornatus	Cardinia Galaxias		4	2001				P	Not recorded in the VBA. Known from Menzies Creek and the headwaters of Cardinia Creek upstream of Cardinia Reservoir (Raadik 2014).
Galaxias truttaceus	Spotted Galaxias		24	2009				P	
Galaxiella pusilla	Dwarf Galaxis		81	2012	VU	L	en	P	
Gambusia holbrooki	Eastern Gambusia	*	155	2012				P	
Geotria australis	Pouched Lamprey		4	1998				P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Mordacia mordax	Shorthead Lamprey		71	2008				P	
Mugil cephalus	Sea Mullet		1	1998				P	
Nannoperca australis	Southern Pygmy Perch		134	2012				P	
Neochanna cleaveri	Australian Mudfish		1	2009		L	cr	P	
Oncorhynchus mykiss	Rainbow Trout	*	1	2006				P	
Ophisurus serpens	Serpent Eel		1	2004				U	Likely recorded in error. Unlikely to occur at the recorded locality ("Farm dam N of drain: W of Mile Rd") as this is a marine and estuarine species.
Perca fluviatilis	Redfin	*	15	2008				P	
Philypnodon grandiceps	Flathead Gudgeon		4	2008				P	
Philypnodon macrostomus	Dwarf Flat-headed Gudgeon		1	2006				P	
Prototroctes maraena	Australian Grayling		108	2014	VU	L	vu	P	
Pseudogobius olorum	Bluespot Goby		2	2014				P	
Psudaphritis urvillii	Tupong		1	2018				P	Unpublished in the VBA. Recorded in Diamond Creek at Jolley Road, Tonimbuk (A. Lamande unpub. data 2018)
Rutilus rutilus	Roach	*	3	1998				P	
Salmo trutta	Brown Trout	*	71	2009				P	

Amphibians

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Crinia signifera	Common Froglet		222	2012				P	
Geocrinia laevis	Southern Smooth Froglet	#	1	2009				U	Recorded in error. The species is restricted to south-west Victoria, SA and Tasmania. Likely to have been G. victoriana.
Geocrinia victoriana	Victorian Smooth Froglet		63	2011				P	
Limnodynastes dumerilii	Southern Bullfrog (ssp. unknown)		59	2011				P	
Limnodynastes dumerilii dumerilii	Pobblebonk Frog		2	2008				P	
Limnodynastes dumerilii insularis	Pobblebonk Frog		2	2007				P	
Limnodynastes peronii	Striped Marsh Frog		145	2012				P	
Limnodynastes tasmaniensis	Spotted Marsh Frog (race unknown)		47	2012				P	
Limnodynastes tasmaniensis NCR	Spotted Marsh Frog (northern call race)	#	3	2008				U	Recorded in error. The northern call race of L. tasmaniensis is only known to overlap with the local southern call race in central Victoria and south-eastern NSW (Littlejohn and Roberts 1975).
Limnodynastes tasmaniensis SCR	Spotted Marsh Frog (southern call race)		137	2007				P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Litoria ewingii	Southern Brown Tree Frog		154	2015				P	
Litoria ewingii SOUTHERN	Southern Brown Tree Frog (southern)		6	2007				P	
Litoria peronii	Peron's Tree Frog		2	2012				P	
Litoria raniformis	Growling Grass Frog		241	2012	VU	L	en	P	
Litoria verreauxii (ssp. unknown)	Unknown Tree Frog		15	2009				P	
Litoria verreauxii verreauxii	Verreaux's Tree Frog		197	2012				P	
Paracrinia haswelli	Haswell's Froglet		1	2008				P	
Pseudophryne semimarmorata	Southern Toadlet		3	2006			vu	P	

Reptiles

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Acritoscincus duperreyi	Eastern Three-lined Skink		1	2010				P	
Amphibolurus muricatus	Tree Dragon		2	2009				P	
Anepischetosia maccoyi	McCoy's Skink		19	2012				P	
Austrelaps ramsayi	Highland Copperhead		1	1993				U	Incorrect coordinates. Reported from "Jumbunna".
Austrelaps superbus	Lowland Copperhead		86	2010				P	
Chelodina longicollis	Eastern Snake-necked Turtle	#	12	2010			dd	P	Currently considered to be an introduction to the Melbourne area, although genetic analysis of populations within and to either side of the Port Phillip and Western Port catchments would be required to be more certain (N. Clemann pers. comm. 2018).
Cryptophis nigrescens	Eastern Small-eyed Snake		1	1988				P	
Drysdalia coronoides	White-lipped Snake		2	2010				P	
Egernia saxatilis intermedia	Black Rock Skink		22	2004				P	
Eulamprus quoyii	Eastern Water Skink	#	2	2012				U	Recorded in error. The lodged records are known to have been confused with E. tympanum.

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Eulamprus tympanum tympanum	Southern Water Skink		23	1996				P	
Lampropholis delicata	Delicate Skink		3	2009				P	
Lampropholis guichenoti	Garden Skink		42	2012				P	
Liopholis whitii	White's Skink		1	2010				P	
Liopholis whitii SPOTTED BACK MORPH	White's Skink (spotted back morph)		1	2014				P	
Lissolepis coventryi	Swamp Skink		21	2014		L	vu	P	
Niveoscincus coventryi	Coventry's Skink		32	1993				P	
Niveoscincus metallicus	Metallic Skink		8	2014				P	
Notechis scutatus	Tiger Snake		17	2010				P	
Pseudechis porphyriacus	Red-bellied Black Snake		3	2011				P	
Pseudemoia entrecasteauxii	Southern Grass Skink		1	2010				P	
Pseudemoia rawlinsoni	Glossy Grass Skink		3	2010			vu	P	
Pseudemoia spenceri	Spencer's Skink		8	1993				P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Saproscincus mustelinus	Weasel Skink		8	2002				P	
Tiliqua nigrolutea	Blotched Blue-tongued Lizard		9	2010				P	
Tiliqua scincoides	Common Blue-tongued Lizard		4	2010				P	
Varanus varius	Lace Monitor		23	2016			en	P	

Birds

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Acanthiza chrysorrhoa	Yellow-rumped Thornbill		142	2012				P	
Acanthiza lineata	Striated Thornbill		1100	2012				P	
Acanthiza nana	Yellow Thornbill		5	2009				P	
Acanthiza pusilla	Brown Thornbill		1343	2017				P	
Acanthiza reguloides	Buff-rumped Thornbill		25	2011				P	
Acanthorhynchus tenuirostris	Eastern Spinebill		893	2017				P	
Accipiter cirrhocephalus	Collared Sparrowhawk		7	2005				P	
Accipiter fasciatus	Brown Goshawk		128	2011				P	
Accipiter novaehollandiae novaehollandiae	Grey Goshawk		4	2003		L	vu	P	
Acridotheres tristis	Common Myna	*	417	2014				P	
Acrocephalus australis	Australian Reed Warbler		1	2010				P	
Acrocephalus stentoreus	Clamorous Reed Warbler		13	2009				P	
Actitis hypoleucos	Common Sandpiper		2	1998	MIG		vu	P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Aegotheles cristatus	Australian Owlet-nightjar		56	2017				P	
Alauda arvensis	European Skylark	*	42	2011				P	
Alcedo azurea	Azure Kingfisher		16	2007			nt	P	
Alisterus scapularis	Australian King-Parrot		327	2017				P	
Anas castanea	Chestnut Teal		50	2012				P	
Anas gracilis	Grey Teal		36	2012				P	
Anas platyrhynchos	Northern Mallard	*	2	1988				P	
Anas rhynchotis	Australasian Shoveler		10	1999			vu	P	
Anas superciliosa	Pacific Black Duck		235	2017				P	
Anhinga novaehollandiae	Darter		6	2004				P	
Anser anser	Domestic Goose	*	1	1990				P	
Anseranas semipalmata	Magpie Goose		1	1989		L	nt	P	
Anthochaera carunculata	Red Wattlebird		638	2017				P	
Anthochaera chrysoptera	Little Wattlebird		48	2011				P	
Anthus novaeseelandiae	Australasian Pipit		31	2011				P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Apus pacificus	Fork-tailed Swift		1	1988	MIG			P	Occasional visitor. Migratory.
Aquila audax	Wedge-tailed Eagle		91	2017				P	
Ardea ibis	Cattle Egret		9	2006				P	
Ardea intermedia	Intermediate Egret		1	1994		L	en	P	Occasional visitor.
Ardea modesta	Eastern Great Egret		7	2012		L	vu	P	
Ardea pacifica	White-necked Heron		25	2011				P	
Arenaria interpres	Ruddy Turnstone		1	1991	MIG		vu	P	
Artamus cyanopterus	Dusky Woodswallow		66	2011				P	
Artamus personatus	Masked Woodswallow		1	2009				P	
Artamus superciliosus	White-browed Woodswallow		12	2011				P	
Aythya australis	Hardhead		14	2007			vu	P	
Biziura lobata	Musk Duck		21	2008			vu	P	
Botaurus poiciloptilus	Australasian Bittern		1	1991	EN	L	en	P	
Cacatua galerita	Sulphur-crested Cockatoo		423	2016				P	
Cacatua sanguinea	Little Corella		25	2009				P	
Cacatua tenuirostris	Long-billed Corella		53	2011				P	
Cacomantis flabelliformis	Fan-tailed Cuckoo		242	2012				P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Cacomantis pallidus	Pallid Cuckoo		61	2011				P	
Cacomantis variolosus	Brush Cuckoo		21	2011				P	
Calamanthus fuliginosus	Striated Fieldwren		6	2010				P	
Calidris acuminata	Sharp-tailed Sandpiper		21	2006	MIG			P	
Calidris canutus	Red Knot		2	1990	EN		en	P	
Calidris ferruginea	Curlew Sandpiper		24	1999	CR		en	P	
Calidris melanotos	Pectoral Sandpiper		2	1998	MIG		nt	P	Very rarely recorded. Regular visitor to southern Victoria in small numbers.
Calidris ruficollis	Red-necked Stint		46	2008	MIG			P	
Callocephalon fimbriatum	Gang-gang Cockatoo		185	2012				P	
Calyptorhynchus funereus	Yellow-tailed Black-Cockatoo		378	2012				P	
Carduelis carduelis	European Goldfinch	*	98	2011				P	
Cereopsis novaehollandiae	Cape Barren Goose		2	1998				P	
Charadrius bicinctus	Double-banded Plover		23	2010	MIG			P	
Charadrius leschenaultii	Greater Sand Plover		2	1992	VU		cr	P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Charadrius mongolus	Lesser Sand Plover		4	1997	EN		cr	P	
Charadrius ruficapillus	Red-capped Plover		22	1998				P	
Chenonetta jubata	Australian Wood Duck		297	2017				P	
Cheramoeca leucosternus	White-backed Swallow		2	2009				P	
Chlidonias hybridus javanicus	Whiskered Tern		2	1997			nt	P	
Chloris chloris	European Greenfinch	*	20	2003				P	
Chroicocephalus novaehollandiae	Silver Gull		30	2010				P	
Chrysococcyx basalis	Horsfield's Bronze-Cuckoo		22	2011				P	
Chrysococcyx lucidus	Shining Bronze-Cuckoo		192	2011				P	
Chthonicola sagittatus	Speckled Warbler		1	1999		L	vu	U	Unlikely to remain present within its former distribution in the Shire due to habitat loss and increased predation pressure.
Cincloramphus cruralis	Brown Songlark		4	2011				P	
Cincloramphus mathewsi	Rufous Songlark		3	2009				P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Cinclosoma punctatum	Spotted Quail-thrush		8	2007				P	
Circus approximans	Swamp Harrier		44	2011				P	
Circus assimilis	Spotted Harrier		1	1997				P	
Cisticola exilis	Golden-headed Cisticola		20	2012				P	
Climacteris erythrops	Red-browed Treecreeper		157	2009				P	
Climacteris picumnus victoriae	Brown Treecreeper (south-eastern ssp.)		3	2005				P	
Colluricincla harmonica	Grey Shrike-thrush		1037	2017				P	
Columba leucomela	White-headed Pigeon		1	2008				U	Very rare visitor.
Columba livia	Rock Dove	*	6	2010				P	
Coracina novaehollandiae	Black-faced Cuckoo-shrike		313	2012				P	
Coracina papuensis	White-bellied Cuckoo-shrike		1	2008				P	Rare visitor.
Coracina tenuirostris	Common Cicadabird		4	2011				P	Occasional migrant.
Corcorax melanorhamphos	White-winged Chough		1	1996				P	
Cormobates leucophaeus	White-throated Treecreeper		1082	2017				P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Corvus coronoides	Australian Raven		414	2014				P	
Corvus mellori	Little Raven		148	2014				P	
Coturnix pectoralis	Stubble Quail		16	2010				P	
Coturnix ypsilophora australis	Brown Quail		9	2008				P	
Cracticus nigrogularis	Pied Butcherbird		1	2007				P	Rare visitor.
Cracticus tibicen	Australian Magpie		638	2017				P	
Cracticus torquatus	Grey Butcherbird		535	2017				P	
Cygnus atratus	Black Swan		36	2009				P	
Dacelo novaeguineae	Laughing Kookaburra		769	2017				P	
Daphoenositta chrysoptera	Varied Sittella		281	2012				P	
Dicaeum hirundinaceum	Mistletoebird		231	2010				P	
Dromaius novaehollandiae	Emu		4	2007			nt	P	
Egretta garzetta nigripes	Little Egret		2	1998		L	en	P	
Egretta novaehollandiae	White-faced Heron		213	2017				P	
Elanus axillaris	Black-shouldered Kite		28	2012				P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Elseyornis melanops	Black-fronted Dotterel		38	2009				P	
Eolophus roseicapillus	Galah		344	2012				P	
Eopsaltria australis	Eastern Yellow Robin		1044	2017				P	
Epthianura albifrons	White-fronted Chat		9	2011				P	
Erythrogonys cinctus	Red-kneed Dotterel		1	1999				P	
Eurostopodus mystacalis	White-throated Nightjar		21	2009				P	
Eurystomus orientalis	Dollarbird		1	2006				U	Rare visitor. Mostly recorded north of the Great Dividing Range.
Falco berigora	Brown Falcon		30	2011				P	
Falco cenchroides	Nankeen Kestrel		24	2011				P	
Falco longipennis	Australian Hobby		15	2010				P	
Falco peregrinus	Peregrine Falcon		23	2016				P	
Falcunculus frontatus	Crested Shrike-tit		187	2012				P	
Fulica atra	Eurasian Coot		44	2017				P	
Gallinago hardwickii	Latham's Snipe		26	2013	MIG		nt	P	
Gallinula tenebrosa	Dusky Moorhen		35	2012				P	
Gallirallus philippensis	Buff-banded Rail		4	2012				P	
Geopelia striata	Peaceful Dove		1	2003				U	Very rare visitor, possibly augmented by avaiary escapes.

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Glossopsitta concinna	Musk Lorikeet		64	2012				P	
Glossopsitta pusilla	Little Lorikeet		5	2000				P	
Grallina cyanoleuca	Magpie-lark		490	2014				P	
Haematopus longirostris	Pied Oystercatcher		10	2007				P	
Haliaeetus leucogaster	White-bellied Sea-Eagle		4	2008		L	vu	P	
Haliastur sphenurus	Whistling Kite		2	2000				P	
Hieraaetus morphnoides	Little Eagle		4	2004				P	
Himantopus himantopus	Black-winged Stilt		9	2010				P	
Hirundapus caudacutus	White-throated Needletail		43	2008	MIG		vu	P	
Hirundo neoxena	Welcome Swallow		327	2017				P	
Hydroprogne caspia	Caspian Tern		11	1997	MIG	L	nt	P	
Ixobrychus flavicollis australis	Black Bittern		1	2008		L	vu	U	Very rare visitor.
Ixobrychus minutus dubius	Little Bittern		5	2006		L	en	P	
Lalage sueurii	White-winged Triller		8	2009				P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Larus pacificus pacificus	Pacific Gull		16	2010			nt	P	
Lathamus discolor	Swift Parrot		3	1998	CR	L	en	P	
Leucosarcia melanoleuca	Wonga Pigeon		6	2006				P	
Lewinia pectoralis pectoralis	Lewin's Rail		2	1994		L	vu	P	Very rarely recorded, although has potential to be recorded in future in suitable habitat.
Lichenostomus chrysops	Yellow-faced Honeyeater		638	2012				P	
Lichenostomus leucotis	White-eared Honeyeater		575	2017				P	
Lichenostomus melanops	Yellow-tufted Honeyeater		5	2009				P	
Lichenostomus melanops cassidix	Helmeted Honeyeater		522	2012	CR	L	cr	P	
Lichenostomus ornatus	Yellow-plumed Honeyeater		1	2010				U	Very rare visitor.
Lichenostomus penicillatus	White-plumed Honeyeater		211	2011				P	
Limicola falcinellus	Broad-billed Sandpiper		2	1997	MIG			P	Few historic records. Regular visitor to southern Victoria in small numbers.
Limosa lapponica	Bar-tailed Godwit		4	1991	VU			P	Regular visitor to southern Victoria in small numbers.

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Lophoictinia isura	Square-tailed Kite		1	2001		L	vu	P	Rare visitor.
Malacorhynchus membranaceus	Pink-eared Duck		12	2010				P	
Malurus cyaneus	Superb Fairy-wren		970	2017				P	
Manorina melanocephala	Noisy Miner		313	2014				P	
Manorina melanophrys	Bell Miner		354	2012				P	
Megalurus gramineus	Little Grassbird		2	2007				P	
Melanodryas cucullata cucullata	Hooded Robin		1	2009		L	nt	P	Rare visitor.
Meliphaga lewinii	Lewin's Honeyeater		109	2011				P	
Melithreptus brevirostris	Brown-headed Honeyeater		144	2017				P	
Melithreptus lunatus	White-naped Honeyeater		628	2012				P	
Menura novaehollandiae	Superb Lyrebird		166	2012				P	
Merops ornatus	Rainbow Bee-eater		1	2000				P	Occasional migrant.
Microcarbo melanoleucos	Little Pied Cormorant		52	2012				P	
Microeca fascinans	Jacky Winter		69	2008				P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Mirafra javanica	Horsfield's Bushlark		1	2000				P	
Monarcha melanopsis	Black-faced Monarch		U	2009	MIG			U	Occasional migrant/vagrant to the area.
Myiagra cyanoleuca	Satin Flycatcher		105	2012	MIG			P	
Myiagra inquieta	Restless Flycatcher		22	2009				P	
Myiagra rubecula	Leaden Flycatcher		13	2009				P	
Myzomela sanguinolenta	Scarlet Honeyeater		1	2009				P	Rare visitor.
Neochmia temporalis	Red-browed Finch		359	2012				P	
Neophema chrysostoma	Blue-winged Parrot		22	2009				P	
Ninox connivens connivens	Barking Owl		2	1999		L	en	P	
Ninox novaeseelandiae	Southern Boobook		328	2015				P	
Ninox strenua	Powerful Owl		101	2017		L	vu	P	
Numenius madagascariensis	Eastern Curlew		22	2007	CR		vu	P	
Numenius phaeopus	Whimbrel		2	1991	MIG		vu	P	
Nycticorax caledonicus hillii	Nankeen Night Heron		5	2011			nt	P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Nymphicus hollandicus	Cockatiel		6	2004				P	
Ocyphaps lophotes	Crested Pigeon		6	2011				P	
Oriolus sagittatus	Olive-backed Oriole		116	2009				P	
Oxyura australis	Blue-billed Duck		6	2006		L	en	P	
Pachycephala olivacea	Olive Whistler		50	2009				P	
Pachycephala pectoralis	Golden Whistler		843	2017				P	
Pachycephala rufiventris	Rufous Whistler		319	2017				P	
Pardalotus punctatus punctatus	Spotted Pardalote		986	2017				P	
Pardalotus striatus	Striated Pardalote		298	2011				P	
Passer domesticus	House Sparrow	*	221	2014				P	
Passer montanus	Eurasian Tree Sparrow	*	1	1999				P	
Pelecanus conspicillatus	Australian Pelican		25	2015				P	
Petrochelidon ariel	Fairy Martin		2	1999				P	
Petrochelidon nigricans	Tree Martin		10	2008				P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Petroica boodang	Scarlet Robin		177	2017				P	
Petroica goodenovii	Red-capped Robin		3	2007				P	
Petroica phoenicea	Flame Robin		26	2017				P	
Petroica rodinogaster	Pink Robin		19	2009				P	
Petroica rosea	Rose Robin		144	2012				P	
Phalacrocorax carbo	Great Cormorant		28	2010				P	
Phalacrocorax sulcirostris	Little Black Cormorant		23	2012				P	
Phalacrocorax varius	Pied Cormorant		12	2010			nt	P	
Phaps chalcoptera	Common Bronzewing		323	2017				P	
Phaps elegans	Brush Bronzewing		53	2009				P	
Phasianus colchicus	Common Pheasant	*	1	1996				U	Very rarely recorded. Likely to be an escape, although some small populations exist elsewhere in southern Victoria.
Philemon corniculatus	Noisy Friarbird		2	2007				P	
Phylidonyris novaehollandiae	New Holland Honeyeater		336	2017				P	
Phylidonyris pyrrhoptera	Crescent Honeyeater		182	2011				P	
Platalea flavipes	Yellow-billed Spoonbill		18	2010				P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Platalea regia	Royal Spoonbill		13	2006			nt	P	
Platycercus elegans	Crimson Rosella		1065	2017				P	
Platycercus eximius	Eastern Rosella		453	2014				P	
Pluvialis fulva	Pacific Golden Plover		7	1997	MIG		vu	P	
Pluvialis squatarola	Grey Plover		3	1992	MIG		en	P	
Podargus strigoides	Tawny Frogmouth		61	2017				P	
Podiceps cristatus	Great Crested Grebe		6	2008				P	
Poliocephalus poliocephalus	Hoary-headed Grebe		31	2017				P	
Porphyrio porphyrio	Purple Swamphen		68	2017				P	
Porzana fluminea	Australian Spotted Crake		5	2012				P	
Porzana pusilla palustris	Baillon's Crake		3	2008		L	vu	P	
Porzana tabuensis	Spotless Crake		1	2012				P	Rarely recorded.
Psophodes olivaceus	Eastern Whipbird		266	2012				P	
Ptilonorhynchus violaceus	Satin Bowerbird		17	2008				P	
Puffinus tenuirostris	Short-tailed Shearwater		1	1993				P	
Pycnoptilus floccosus	Pilotbird		19	2009				P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Rhipidura albiscapa	Grey Fantail		1328	2017				P	
Rhipidura leucophrys	Willie Wagtail		411	2014				P	
Rhipidura rufifrons	Rufous Fantail		200	2017				P	
Sericornis frontalis	White-browed Scrubwren		916	2017				P	
Sericornis magnirostris	Large-billed Scrubwren		21	2009				P	
Smicrornis brevirostris	Weebill		6	1999				P	
Stagonopleura bella	Beautiful Firetail		30	2008				P	
Stipiturus malachurus	Southern Emu-wren		54	2009				P	
Strepera graculina	Pied Currawong		353	2017				P	
Strepera versicolor	Grey Currawong		100	2011				P	
Streptopelia chinensis	Spotted Turtle-Dove	*	435	2014				P	
Sturnus vulgaris	Common Starling	*	409	2014				P	
Tachybaptus novaehollandiae	Australasian Grebe		80	2011				P	
Tadorna tadornoides	Australian Shelduck		92	2012				P	
Thalasseus bergii	Crested Tern		10	1997	MIG			P	
Threskiornis molucca	Australian White Ibis		103	2012				P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Threskiornis spinicollis	Straw-necked Ibis		94	2012				P	
Todiramphus sanctus	Sacred Kingfisher		74	2010				P	
Trichoglossus chlorolepidotus	Scaly-breasted Lorikeet	#	1	1999				P	Rarely recorded. Likely augmented by aviary escapes.
Trichoglossus haematodus	Rainbow Lorikeet		24	2017				P	
Tringa nebularia	Common Greenshank		8	1997	MIG		vu	P	
Turdus merula	Common Blackbird	*	624	2017				P	
Turdus philomelos	Song Thrush	*	11	2003				U	Numbers diminished in Victoria to occasional resident.
Turnix varia	Painted Button-quail		23	2010				P	
Tyto javanica	Pacific Barn Owl		9	2005				P	
Tyto novaehollandiae novaehollandiae	Masked Owl		10	2001		L	en	P	
Tyto tenebricosa tenebricosa	Sooty Owl		78	2012		L	vu	P	
Vanellus miles	Masked Lapwing		305	2014				P	
Vanellus tricolor	Banded Lapwing		1	2001				P	
Xenus cinereus	Terek Sandpiper		16	1997	MIG	L	en	U	Occasional migrant.
Zoothera lunulata	Bassian Thrush		131	2014				P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Zosterops lateralis	Silvereye		510	2012				P	

Mammals

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Acrobates spp.	Feathertail glider species		14	2012				P	
Antechinus agilis	Agile Antechinus		97	2017				P	
Antechinus mimetes	Mainland Dusky Antechinus		42	2016				P	
Bos taurus	Cattle (feral)	*	1	1990				P	
Canis lupus	Dingo & Dog (feral)	*	19	1995				P	
Canis lupus familiaris	Dog	*	4	2015				P	
Capra hircus	Goat (feral)	*	1	2008				P	
Cercartetus nanus	Eastern Pygmy-possum		10	2017			nt	P	
Cervus dama	Fallow Deer	*	4	2009				P	
Cervus unicolor	Sambar	*	14	2016				P	
Chalinolobus gouldii	Gould's Wattled Bat		10	1999				P	
Chalinolobus morio	Chocolate Wattled Bat		32	2013				P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Dasyurus maculatus maculatus	Spot-tailed Quoll		2	2003	EN	L	en	P	Unknown whether the species remains within the Shire due to historic regional decline and lack of very recent reporting. Further targeted surveys would be required to inform its status.
Felis catus	Cat	*	53	2017				P	
Gymnobelideus leadbeateri	Leadbeater's Possum		8	2016	CR	L	en	P	
Hydromys chrysogaster	Water Rat		3	2006				P	
Isoodon obesulus obesulus	Southern Brown Bandicoot		457	2015	EN	L	nt	P	
Lepus europeaus	European Hare	*	14	2011				P	
Macropus giganteus	Eastern Grey Kangaroo		81	2017				P	
Mastacomys fuscus mordicus	Broad-toothed Rat		3	1993	VU	L	en	P	Unknown whether the species remains within the Shire due to habitat reduction, increased predation pressure and lack of more recent survey.
Miniopterus schreibersii GROUP	Common Bent-wing Bat		1	1992		L		P	Likely to be the eastern subspecies M. s. oceanensis.
Mus musculus	House Mouse	*	69	2017				P	
Nyctophilus geoffroyi	Lesser Long-eared Bat		30	2017				P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Nyctophilus gouldi	Gould's Long-eared Bat		5	2005				P	
Ornithorhynchus anatinus	Platypus		14	2006				P	
Oryctolagus cuniculus	European Rabbit	*	228	2015				P	
Perameles nasuta	Southern Long-nosed Bandicoot		23	2016				P	
Petauroides volans	Greater Glider		92	2017	VU	L	vu	P	
Petaurus australis	Yellow-bellied Glider		168	2015				P	
Petaurus breviceps	Sugar Glider		128	2016				P	
Phascolarctos cinereus	Koala		21	2017				P	
Pseudocheirus peregrinus	Common Ring-tailed Possum		243	2016				P	
Pteropus poliocephalus	Grey-headed Flying-fox		2	2017	VU	L	vu	P	
Rattus fuscipes	Bush Rat		127	2017				P	
Rattus lutreolus	Swamp Rat		51	2017				P	
Rattus norvegicus	Brown Rat	*	3	2006				P	
Rattus rattus	Black Rat	*	91	2017				P	
Sminthopsis leucopus	White-footed Dunnart		1	1990		L	nt	P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Tachyglossus aculeatus	Short-beaked Echidna		78	2017				P	
Tadarida australis	White-striped Freetail Bat		94	2017				P	
Trichosurus cunninghami	Mountain Brush-tailed Possum		37	2016				P	
Trichosurus vulpecula	Common Brush-tailed Possum		167	2012				P	
Vespadelus darlingtoni	Large Forest Bat		12	2013				P	
Vespadelus regulus	Southern Forest Bat		27	2013				P	
Vespadelus vulturnus	Little Forest Bat		33	2013				P	
Vombatus ursinus	Common Wombat		171	2017				P	
Vulpes vulpes	Red Fox	*	152	2017				P	
Wallabia bicolor	Black Wallaby		175	2017				P	

Invertebrates

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Aeolochroma mniaria	Geometer moth		1	2007				P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Amarinus lacustris	Freshwater spider crab		6	2008				P	
Anthela acuta	Lappet moth		1	2007				P	
Anthela protocentra	Lappet moth		3	2005				P	
Anthela repleta	Lappet moth		1	2007				P	
Antipodia chaostola chares	Heath Sand-skipper Butterfly		1	2005			dd	P	
Candalides consimilis goodingi	Dark Pencilled-blue Butterfly		4	1993				P	
Casbia melanops	Geometer moth		3	2007				P	
Casbia tanaoctena	Geometer moth		3	2007				P	
Chaetolopha leucophragma	Geometer moth		1	2008				P	
Chaetolopha oxyntis	Geometer moth		1	2004				P	
Cherax destructor destructor	Common yabby		3	2010				P	
Chiriphe dichotoma	Moth		1	2008				P	
Chlenias ochrocrana	Geometer moth		2	2003				P	
Chloroclystis insigillata	Geometer moth		1	2009				P	
Chlorocoma melocrossa	Geometer moth		1	2008				P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Conosara castanea	Geometer moth		1	2007				P	
Dichromodes atrosignata	Geometer moth		2	2007				P	
Dichromodes estigmaria	Geometer moth		1	2009				P	
Dichromodes euscia	Geometer moth		2	2008				P	
Didymoctenia exsuperata	Geometer moth		1	2010				P	
Discophlebia celaena	Snub moth		1	2008				P	
Discophlebia lucasii	Snub moth		1	2008				P	
Dysbatus stenodesma	Geometer moth		3	2010				P	
Ecnomodes sagittaria	Moth		1	2007				P	
Ectropis lignea	Geometer moth		1	2010				P	
Engaeus cunicularius	Granular burrowing crayfish		2	2009				P	
Engaeus laevis	Richards burrowing crayfish		1	2006				P	
Entometa guttularis	Boxtree moth		1	2007				P	
Eodelena melanochelis	Huntsman spider		2	1989				P	
Epicompsa xanthocrossa	Geometer moth		1	2010				P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Euastacus kershawi	Gippsland spiny crayfish		8	2007				P	
Euastacus woiwuru	Central highlands spiny crayfish		14	2009				P	
Euastacus yarraensis	Southern victorian spiny crayfish		18	2009				P	
Euchaetis metallota	Concealer moth		1	2007				P	
Euchaetis rhizobola	Concealer moth		2	2007				P	
Fisera hypoleuca	Geometer moth		1	2008				P	
Furcatrox furneauxi	Geometer moth		1	2008				P	
Hadronyche modesta	Victorian Funnel-web Spider		1	1992				P	
Hylaeora capucina	Moth		2	2008				P	
Hylaeora caustopis	Moth		1	2007				P	
Hylaeora eucalypti	Eucalyptus prominent moth		1	2007				P	
Hyridella (Hyridella) australis	Austral mussel		1	1999				P	
Hyridella (Hyridella) drapeta	Freshwater mussel		16	2016				P	
Idiodes siculoides	Geometer moth		1	2011				P	
Lychnographa agaura	Geometer moth		2	2007				P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Lycosa godeffroyi	Garden wolf spider		1	1992				P	
Maxates centrophylla	Geometer moth		1	2005				P	
Microdes villosata	Geometer moth		1	2007				P	
Missulena bradleyi	Eastern mouse spider		1	1991				P	
Nola vernalis	Tuft moth		1	2007				P	
Novodamus nodatus	Red and black spider		1	1989				P	
Opsirhina albigutta	Lappet moth		1	2008				P	
Paratya australiensis	Common freshwater shrimp		128	2010				P	
Parepisparis lutosaria	Geometer moth		3	2009				P	
Philenora aspectalella	Moth		1	2007				P	
Philenora elegans	Moth		1	2007				P	
Phrissogonus laticostata	Geometer moth		1	2013				P	
Pisidium (Euglesa) carum	Pea clam		1	1999				P	
Pisidium (Euglesa) etheridgei	Pea clam		1	1988				P	
Poecilasthena anthodes	Geometer moth		1	2010				P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Poecilasthena balioloma	Geometer moth		1	2010				P	
Proteuxoa florescens	Owlet moth		1	2007				P	
Proteuxoa hypochalchis	Owlet moth		1	2007				P	
Proteuxoa restituta	Owlet moth		1	2007				P	
Psilosticha absorpta	Geometer moth		1	2010				P	
Rhapsa suscitatalis	Owlet moth		1	2003				P	
Rhinodia rostraria	Geometer moth		3	2008				P	
Rhuma divergens	Geometer moth		1	2005				P	
Scioglyptis chionomera	Geometer moth		1	2007				P	
Scoliacma nana	Moth		2	2008				P	
Scopula rubraria	Plantain moth		1	2007				P	
Spilosoma canescens	Dark-spotted Tiger Moth		1	2007				P	
Termessa gratiosa	Moth		1	2007				P	
Termessa shepherdi	Sheperd's footman		1	2007				P	
Thallarcha albicollis	Moth		2	2004				P	
Thallarcha phalarota	Moth		1	2008				P	

Scientific name	Common name	Origin	No. of records	Year (last record)	EPBC Act	FFG Act	DSE	Likely occurrence in Cardinia Shire	Comments
Thallogama nigraria	Geometer moth		1	2010				P	
Velesunio ambiguus	Balonne freshwater mussel		1	1998				P	
Visiana brujata	Geometer moth		2	2004				P	
Xanthorhoe anthracinata	Geometer moth		1	2010				P	
Xenomusa monoda	Geometer moth		3	2008				P	

Appendix C: Cardinia Shire ecological vegetation communities

Table 1. Highlands Southern Fall bioregion Ecological Vegetation Classes (EVCs)

EVC no.	EVC name	Bioregional conservation status	Hectares	% of shire	Vegetation communities
2	Coast Banksia Woodland	Endangered	0.12	0.0001	Banksia Woodland
8	Wet Heathland	Depleted	73.39	0.0572	Scented Paperbark Wet Heathland/Riparian Scrub (Community 23)
16	Lowland Forest	Least Concern	8707	6.7894	Silvertop Ash Lowland Forest (Community 6) Messmate Lowland Forest (Community 7) White Stringybark Lowland Forest (Community 8)
17	Riparian Scrub/Swampy Riparian Woodland Complex	Vulnerable	127.58	0.0995	Swamp Gum Shrubby Gully Forest (Community 14) Scented Paperbark Wet Heathland/Riparian Scrub (Community 23)
18	Riparian Forest	Least Concern	1104.97	0.8616	Manna Gum Riparian Forest (Community 4)
22	Grassy Dry Forest	Least Concern	4.08	0.0032	Long-leaf Box Grassy Forest (Community 10)
23	Herb-rich Foothill Forest	Least Concern	357.79	0.2790	Messmate Lowland Forest (Community 7) White Stringybark Lowland Forest (Community 8)
27	Blackthorn Scrub	Rare	11.89	0.0093	Sweet Bursaria Scrub (Community 24)
29	Damp Forest	Least Concern	7379.64	5.7544	Mountain Grey Gum Damp Forest (Community 3)
30	Wet Forest	Least Concern	3794.29	2.9586	Mountain Ash Wet Forest (Community 2)
31	Cool Temperate Rainforest	Vulnerable	68.23	0.0532	Myrtle Beech Cool Temperate Rainforest (Community 1)
45	Shrubby Foothill Forest	Least Concern	3011.72	2.3484	Messmate Shrubby Foothill Forest (Community 5)
48	Heathy Woodland	Least Concern	3102.59	2.4193	Silver-leaf Stringybark Damp Heathy Woodland (Community 15)
53	Swamp Scrub	Endangered	53.7	0.0419	Swamp Paperbark Swamp Scrub (Community 21)
55	Plains Grassy Woodland	Endangered	0.2	0.0002	Narrow-leaf Peppermint Grassy Forest (Community 9)

EVC no.	EVC name	Bioregional conservation status	Hectares	% of shire	Vegetation communities
					Kangaroo Grass Plains Grassland (Community 25)
59	Riparian Thicket	Vulnerable	237.08	0.1849	Scented Paperbark Wet Heathland/Riparian Scrub (Community 23)
126	Swampy Riparian Complex	Endangered	341.73	0.2665	Swamp Gum Swampy Riparian Woodland (Community 19) Swamp Paperbark Swamp Scrub (Community 21
128	Grassy Forest	Vulnerable	848.4	0.6616	Narrow-leaf Peppermint Grassy Forest (Community 9) Long-leaf Box Grassy Forest (Community 10) Green Scentbark Grassy Forest (Community 11) Manna Gum Grassy Forest (Community 12)
159	Clay Heathland/Wet Heathland/Riparian Scrub Mosaic	Depleted	1259.11	0.9818	Scented Paperbark Wet Heathland/Riparian Scrub (Community 23)
175	Grassy Woodland	Depleted	67.21	0.0524	Narrow-leaf Peppermint Grassy Forest (Community 9)
191	Riparian Scrub	Vulnerable	0.83	0.0006	Scented Paperbark Wet Heathland/Riparian Scrub (Community 23)
793	Damp Heathy Woodland	Depleted	626.14	0.4882	Silver-leaf Stringybark Damp Heathy Woodland (Community 15)
902	Gully Woodland	Vulnerable	4.57	0.0036	Manna Gum Riparian Forest (Community 4)
937	Swampy Woodland	Vulnerable	45.06	0.0351	Swamp Gum Swampy Woodland (Community 20)
938	Shrubby Gully Forest	Vulnerable	318.42	0.2483	Swamp Gum Shrubby Gully Forest (Community 14)

Table 2. Gippsland Plain bioregion Ecological Vegetation Classes (EVCs)

EVC no.	EVC name	Bioregional conservation status	Hectares	% of shire	Vegetation communities
3	Damp Sands Herb-rich Woodland	Vulnerable	7.58	0.0059	Coast Manna Gum Damp Sands Herb- rich Woodland (Community 16
9	Coastal Saltmarsh	Least Concern (Nationally protected as Subtropical Temperate Coastal Saltmarsh)	237.48	0.1852	Glasswort Coastal Saltmarsh (Community 29)
16	Lowland Forest	Vulnerable	611.58	0.4769	Messmate Lowland Forest (Community 7) White Stringybark Lowland Forest (Community 8)
17	Riparian Scrub/Swampy Riparian Woodland Complex	Vulnerable	2.15	0.0017	Swamp Gum Shrubby Gully Forest (Community 14) Scented Paperbark Wet Heathland/Riparian Scrub (Community 23)
18	Riparian Forest	Vulnerable	125.15	0.0976	Manna Gum Riparian Forest (Community 4)
23	Herb-rich Foothill Forest	Vulnerable	68.12	0.0531	Messmate Lowland Forest (Community 7) White Stringybark Lowland Forest (Community 8)
29	Damp Forest	Endangered	17.62	0.0137	Mountain Grey Gum Damp Forest (Community 3)
48	Heathy Woodland	Least Concern	294.55	0.2297	Silver-leaf Stringybark Damp Heathy Woodland (Community 15) Coast Manna Gum Damp Sands Herb- rich Woodland (Community 16)
53	Swamp Scrub	Endangered	569.62	0.4442	Swamp Paperbark Estuarine Swamp Scrub (Community 22)
55	Plains Grassy Woodland	Endangered	9.55	0.0074	Kangaroo Grass Plains Grassland (Community 25)
59	Riparian Thicket	Vulnerable	0.86	0.0007	Scented Paperbark Wet Heathland/Riparian Scrub (Community 23)
74	Wetland Formation	Endangered	16.26	0.0127	Wetland Formation (Community 27)
83	Swampy Riparian Woodland	Endangered	428.48	0.3341	Swamp Gum Swampy Riparian Woodland (Community 19) Manna Gum Floodplain Riparian Woodland (Community 18)

EVC no.	EVC name	Bioregional conservation status	Hectares	% of shire	Vegetation communities
125	Plains Grassy Wetland*	Endangered (nationally protected as Natural Damp Grassland of Victorian Coastal Plains)	1.00*	0.0008	Plains Grassy Wetland
126	Swampy Riparian Complex	Endangered	76.22	0.0594	Swamp Gum Swampy Riparian Woodland (Community 19) Swamp Paperbark Swamp Scrub (Community 21)
128	Grassy Forest	Endangered	27.13	0.0212	Narrow-leaf Peppermint Grassy Forest (Community 9) Long-leaf Box Grassy Forest (Community 10) Green Scentbark Grassy Forest (Community 11) Manna Gum Grassy Forest (Community 12)
132.62	SE Plains Grassland*	Endangered (nationally protected as Natural Damp Grassland of the Victorian Coastal Plains)	11.00*	0.0086	Kangaroo Grass Plans Grassland (Community 25)
140	Mangrove Shrubland	Least Concern	18.5	0.0144	White Mangrove Shrubland (Community 31)
159	Clay Heathland/Wet Heathland/Riparian Scrub Mosaic	Depleted	209.64	0.1635	Scented Paperbark Wet Heathland/Riparian Scrub (Community 23)
160	Coastal Dune Scrub	Depleted	0.76	0.0006	Coastal Dune Scrub
175	Grassy Woodland	Endangered	271.31	0.2116	Narrow-leaf Peppermint Grassy Forest (Community 9) Coast Manna Gum Damp Sands Herb- rich Woodland (Community 16) White Sallee Grassy Woodland (Community 17)
191	Riparian Scrub	Vulnerable	54.3	0.0423	Scented Paperbark Wet Heathland/Riparian Scrub (Community 23
302	Coastal Saltmarsh/Mangrove Shrubland Mosaic	Vulnerable (Nationally protected as Subtropical	55.1	0.0430	Coastal Saltmarsh/Mangrove Shrubland Mosaic

EVC no.	EVC name	Bioregional conservation status	Hectares	% of shire	Vegetation communities
		Temperate Coastal Saltmarsh)			
311	Berm Grassy Shrubland	Endangered	11.3	0.0088	Coast Saltbush Berm Grassy Shrubland (Community 30)
793	Damp Heathy Woodland	Vulnerable	8.06	0.0063	Silver-leaf Stringybark Damp Heathy Woodland (Community 15)
914	Estuarine Flats Grassland	Endangered	65.2	0.0508	Prickly Spear-grass Estuarine Flats Grassland (Community 28)
937	Swampy Woodland	Endangered	399.53	0.3115	Swamp Gum Swampy Woodland (Community 20)
938	Shrubby Gully Forest	Vulnerable	1.3	0.0010	Swamp Gum Shrubby Gully Forest (Community 14)

Appendix D: Cardinia Shire bushland reserves

Current at November 2018

Asset Name	Asset Location	Locality	Priority bushland reserve to be monitored over long term	Friends Group	Total area (hectares)	Walking track length (m)
Avonsleigh Bush Reserve	Belgrave-Gembrook Road	Avonsleigh			1.8	265
Bayles Former Tip	Kooweerup-Longwarry Road	Bayles			4.5	
Beaconsfield Flora and Fauna Reserve	Beaconsfield-Emerald Road	Beaconsfield	Yes	Friends of Cardinia Creek	38	2,150
Beaconsfield Recreation Reserve Bushland Only	Beaconsfield-Emerald Road	Beaconsfield		Friends of Cardinia Creek	2.4	
Beaconsfield Railway and creek reserve	Kenilworth Avenue	Beaconsfield			1.3	
Hilltop Reserve	Crestview Drive	Beaconsfield			3.6	400
Ridge Top Reserve	Gumview Court	Beaconsfield			2	225
Salisbury Gully Reserve	Salisbury Road	Beaconsfield Upper	Yes	Friends of Salisbury Gully	2.4	
Sutherland Road Reserve	Stoney Creek Road (between Lenne Street and Sutherland Street)	Beaconsfield Upper			0.6	
Craik Road Bushland Reserve	Craik Road	Beaconsfield Upper			0.8	
Harris Reserve	Craik Road or Valley Drive	Beaconsfield Upper				
Hamilton Reserve	Berglund Road	Beaconsfield Upper			7.7	1,075

Asset Name	Asset Location	Locality	Priority bushland reserve to be monitored over long term	Friends Group	Total area (hectares)	Walking track length (m)
Stoney Creek Reserve	Either side Stoney Creek Road	Beaconsfield Upper			7.5	
Brennans Bushland Reserve	Brennan Avenue	Beaconsfield Upper	Yes		24.3	155
Bunyip Streamside	Princes Freeway	Bunyip	Yes		5.7	
Pound Road Reserve	Pound Road	Bunyip	Yes		10.5	
Holgate Park	A'Beckett Road	Bunyip			0.6	
Chambers Road Reserve	Adjacent to Wattletree Road	Bunyip			0.4	
Bunyip Sanctuary	Doran Road	Bunyip	Yes		50.6	
Clematis Hall Reserve	Wellington Road	Clematis			3.7	
Alma Treloar Reserve	Pakenham Road	Cockatoo		Friends of Cockatoo Creek	10.8	
Hall Road Reserve	Between First Avenue and Neville Street	Cockatoo			5.5	
Baker Street Reserve	End of Baker Street	Cockatoo			10.2	325
Mountain Road Recreation Reserve	Mountain Road	Cockatoo			22	176
Tymon Road Bushland	3 Tymon Road	Cockatoo			1.6	
Garden City Estate inc. surrounding blocks	Bailey Road	Cockatoo			59.91	375
Wattle Creek Reserve	Between Emerald Lake Park and Wright Road	Emerald		Friends of Wrights Forest	4.1	854

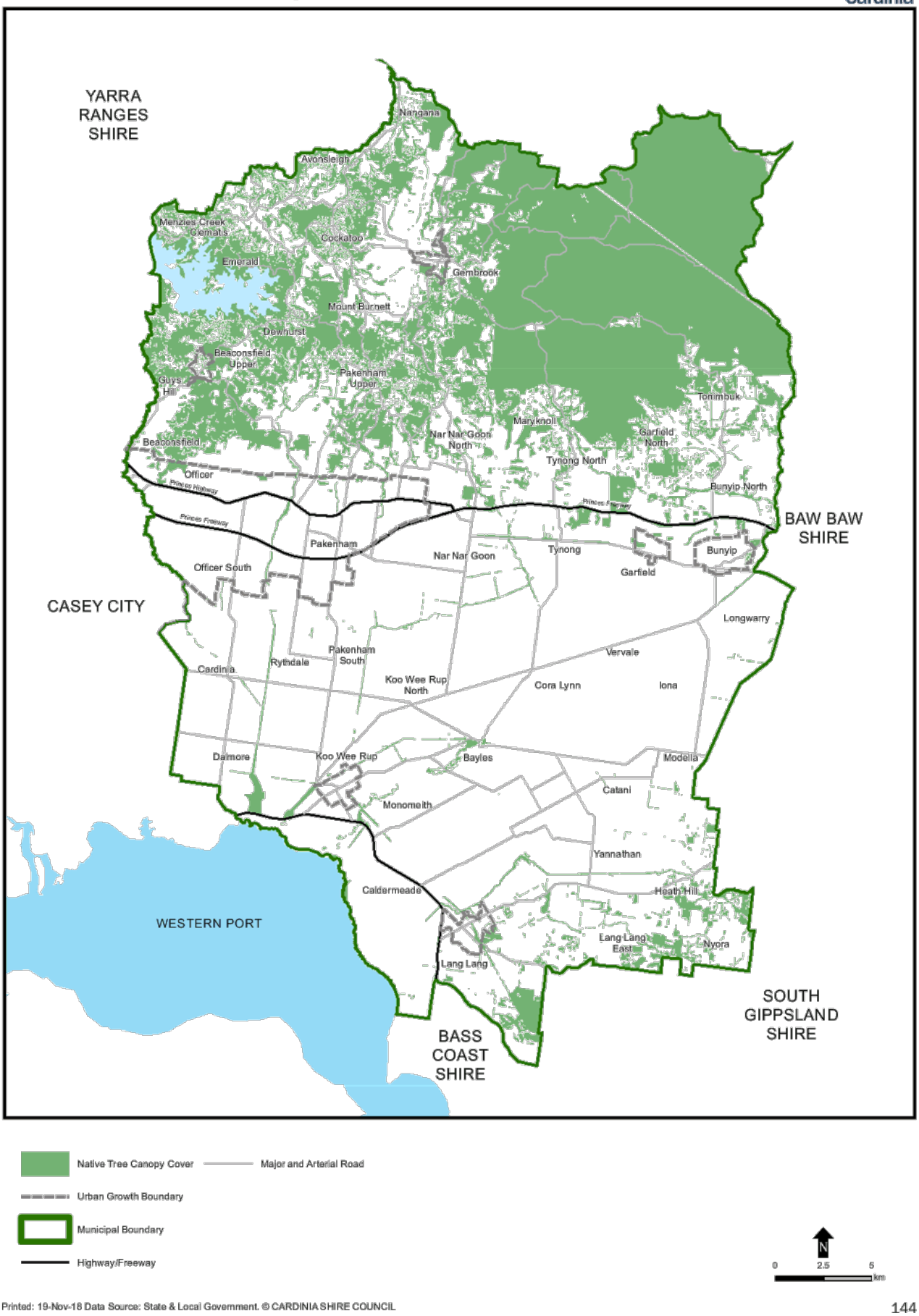
Asset Name	Asset Location	Locality	Priority bushland reserve to be monitored over long term	Friends Group	Total area (hectares)	Walking track length (m)
Pepi's Land	Beaconsfield-Emerald Road	Emerald		Johns Hill Landcare	22.15	
Emerald Quarry Reserve	Emerald-Monbulk Road	Emerald	Yes		5.33	630
Ridge Road East Reserve	Ridge Road	Emerald			0.8	
Stewart Road Reserve	140 Stewart Road	Emerald			1.5	
Bushland Reserve - Emerald Lake Park	Emerald Lake Road	Emerald		Friends of Emerald Lake Park	10	
Bassed Road	Bassed Road	Garfield North			2.49	
Mt Cannibal Flora and Fauna reserve	260 Garfield Nth Road	Garfield North	Yes	Friends of Mt Cannibal	53	2,200
Collie Road Reserve	Collie Road	Gembrook			0.5	
Gembrook Park	Redwood Drive	Gembrook	Yes	Friends of Gembrook Park	26.5	2,990
Currawong Drive Reserve	Currawong Road	Gembrook	Yes		44.66	
Koo Wee Rup Rail Trail	Station Street	Koo Wee Rup	Yes	Not defined	8.78	
Bushland - Maryknoll Recreation Reserve	Bundilla Road	Maryknoll		Tracks and Reserves Group	5.64	
Nagle Walkway	Nagle Cr	Maryknoll		Tracks and Reserves Group	0.05	126
Roches Reserve	Mirrabooka Road	Maryknoll		Tracks and Reserves Group	0.2	
Turramurra Track	Turramurra Road	Maryknoll		Tracks and Reserves Group	0.1	265

Asset Name	Asset Location	Locality	Priority bushland reserve to be monitored over long term	Friends Group	Total area (hectares)	Walking track length (m)
Barongarook Track Reserve	Barongarook Road	Maryknoll	Yes	Tracks and Reserves Group	5.8	840
Yarrabubba Reserve and Snell Road easement walk	Yarrabubba Road	Maryknoll	Yes	Tracks and Reserves Group	10	1,130
Sister Chanel Reserve	Nagle Crescent	Maryknoll		Tracks and Reserves Group	1.11	
Wirragulla Reserve	Wirragulla Road	Maryknoll		Tracks and Reserves Group	6.7	440
Manoora Road Drainage Easement	Wingadee Road	Maryknoll		Tracks and Reserves Group	0.9	
Bundilla Reserve	Barongarook Road on south side along west side of Back Creek	Maryknoll		Tracks and Reserves Group	1.64	
Wheeler Road Reserve	Wheeler Road	Maryknoll		Tracks and Reserves Group	3	
Koala Reserve	Koolbirra Road	Maryknoll	Yes	Tracks and Reserves Group	2.8	230
Triangle Reserve		Maryknoll		Tracks and Reserves Group	0.6	
Weatherhead Forest Reserve	Fogarty Road	Maryknoll	Yes	Tracks and Reserves Group	13.4	
Manoora Reserve	Manoora Road	Maryknoll		Tracks and Reserves Group	5	180
St. Joseph's Wildflower Reserve	St Joseph's Square	Maryknoll		Tracks and Reserves Group	0.4	
E A Owen Reserve	Dickie Road	Officer	Yes		6.8	1,000

Asset Name	Asset Location	Locality	Priority bushland reserve to be monitored over long term	Friends Group	Total area (hectares)	Walking track length (m)
Cardinia Aqueduct Trail	Between 539m east of Thewlis and Dickie Road	Officer	Yes		39	628
Toomuc Creek Linear Reserve		Pakenham			20	740
Pakenham Ridge Reserve	Meaby Drive	Pakenham	Yes		4.67	
Lilliput Lane Reserve	Lilliput Lane	Pakenham			1.5	805
Henty Lily Pond Reserve	Duncan Drive	Pakenham			3.25	
Mt Shamrock Road storage site	Corner Mt. Shamrock and Pakenham Roads	Pakenham			0.6	
Lower Deep Creek Reserve	Near Canty Lane	Pakenham			0.72	
Eastone Reserve	Windermere Boulevard	Pakenham			3	
Vantage Drive Reserve - Bushland	Vantage Drive	Pakenham				
Peppermint Gum Reserve	Manna Gum Drive	Pakenham			1.68	
Melissa Way Reserve	Melissa Way	Pakenham			0.2	
Reynolds Road Reserve	Reynolds Road to Army Road, also connects Lilliput Lane	Pakenham			6.2	1,100
Kennedy Creek Linear Reserve/BellbiRoad Close Creek Reserve	Bushland along Kennedy Creek (AKA BellbiRoad Close Creek Reserve) north and south section	Pakenham			5.13	
Cook Spring Reserve	Windermere Boulevard	Pakenham			4.47	

Asset Name	Asset Location	Locality	Priority bushland reserve to be monitored over long term	Friends Group	Total area (hectares)	Walking track length (m)
Pakenham Native Grassland Reserve	Arden Avenue	Pakenham	Yes		4.8	
Hillview Bushland Reserve	Between Bathe Road and Carpenter Road	Pakenham	Yes		46.61	
Carne Road Reserve	Road reserve at the end of Carne road through to Toomuc Valley Road	Pakenham Upper			3	990
Twin Creeks Road Reserve	Northern end of Twin Creeks Road, Nar Nar Goon North. - at the intersection with Bessie Creek Road	Pakenham Upper			0.5	265
RJ Chambers Flora and Fauna Reserve	Bourkes Creek Road	Pakenham Upper	Yes	Toomuc Valley Landcare	121	5,885
Markbeech Creek Reserve	Markbeech Creek	Officer			0.64	
Paper Road off Alexander Street	Off Alexander St and adjacent to Emerald Close Reserve	Emerald			0.3	
Holm Park Reserve Bushland Areas		Beaconsfield			2.75	

Appendix E: Tree canopy cover in Cardinia Shire



Printed: 19-Nov-18 Data Source: State & Local Government. © CARDINIA SHIRE COUNCIL

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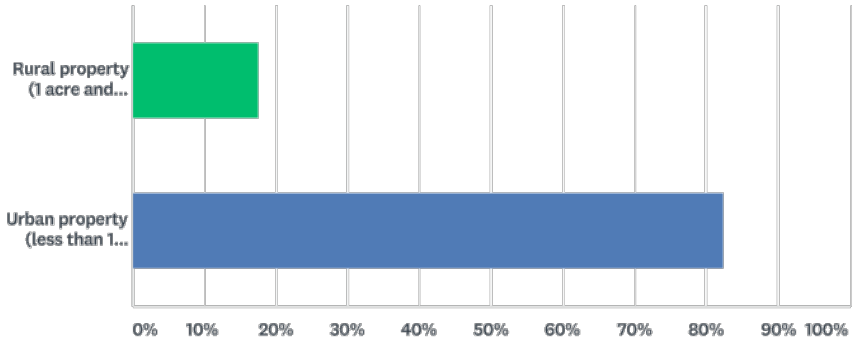
Appendix F: Community consultation survey 1 (Pakeham Show)

Q1 What type of property do you live on? (select one)

Answered: 125 Skipped: 0

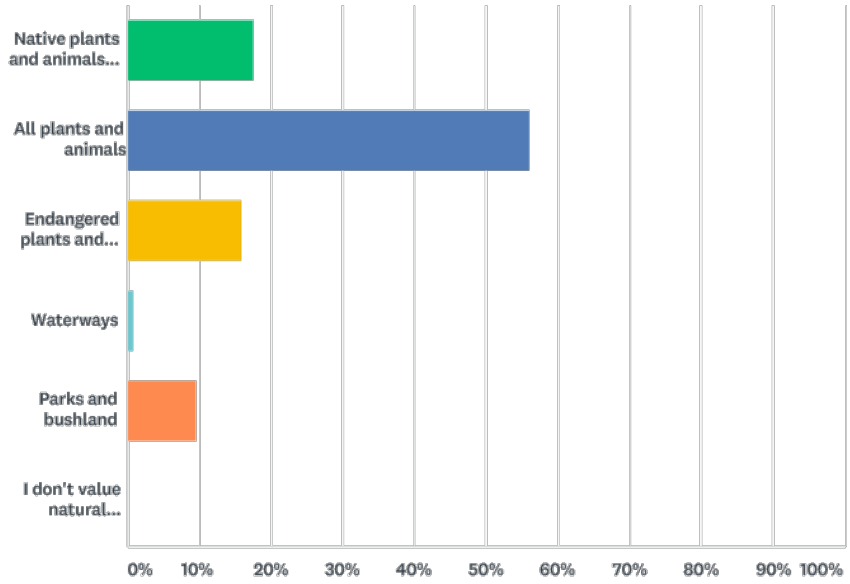


ANSWER CHOICES	RESPONSES	
Rural property (1 acre and above)	17.60%	22
Urban property (less than 1 acre)	82.40%	103
Total Respondents: 125		

Biodiversity Conservation Strategy survey

Q2 What do you most value in the natural environment?

Answered: 125 Skipped: 0

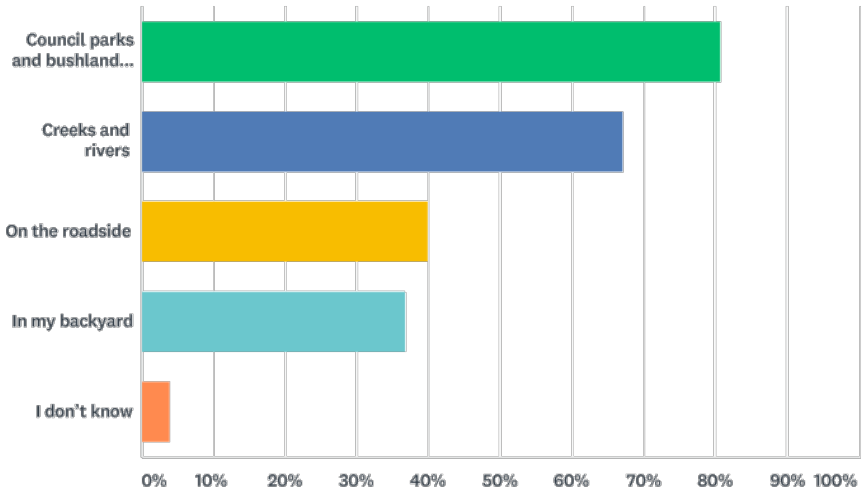


ANSWER CHOICES	RESPONSES	
Native plants and animals only	17.60%	22
All plants and animals	56.00%	70
Endangered plants and animals	16.00%	20
Waterways	0.80%	1
Parks and bushland	9.60%	12
I don't value natural environment	0.00%	0
TOTAL		125

Biodiversity Conservation Strategy survey

Q3 Where do you think the natural environment exists in our shire? (select all that apply)

Answered: 125 Skipped: 0

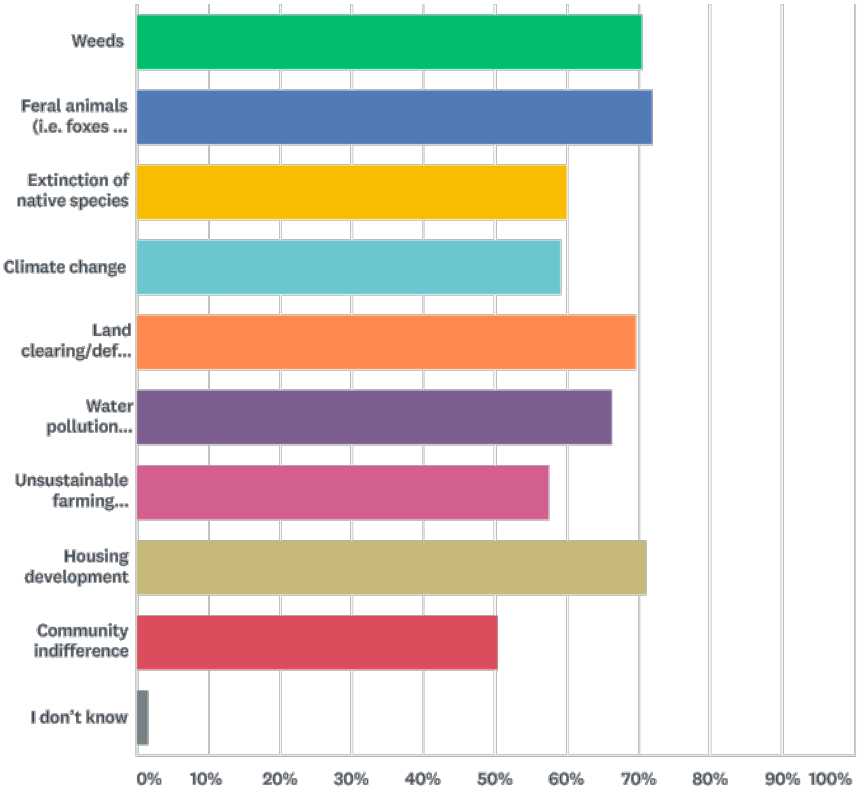


ANSWER CHOICES	RESPONSES	
Council parks and bushland reserves	80.80%	101
Creeks and rivers	67.20%	84
On the roadside	40.00%	50
In my backyard	36.80%	46
I don't know	4.00%	5
Total Respondents: 125		

Biodiversity Conservation Strategy survey

Q4 Which of the following do you think might threaten our natural environment? (select all that apply)

Answered: 125 Skipped: 0



ANSWER CHOICES	RESPONSES	
Weeds	70.40%	88
Feral animals (i.e. foxes and rabbits)	72.00%	90
Extinction of native species	60.00%	75
Climate change	59.20%	74
Land clearing/deforestation	69.60%	87
Water pollution (creeks and rivers)	66.40%	83
Unsustainable farming practices	57.60%	72
Housing development	71.20%	89
Community indifference	50.40%	63
I don't know	1.60%	2

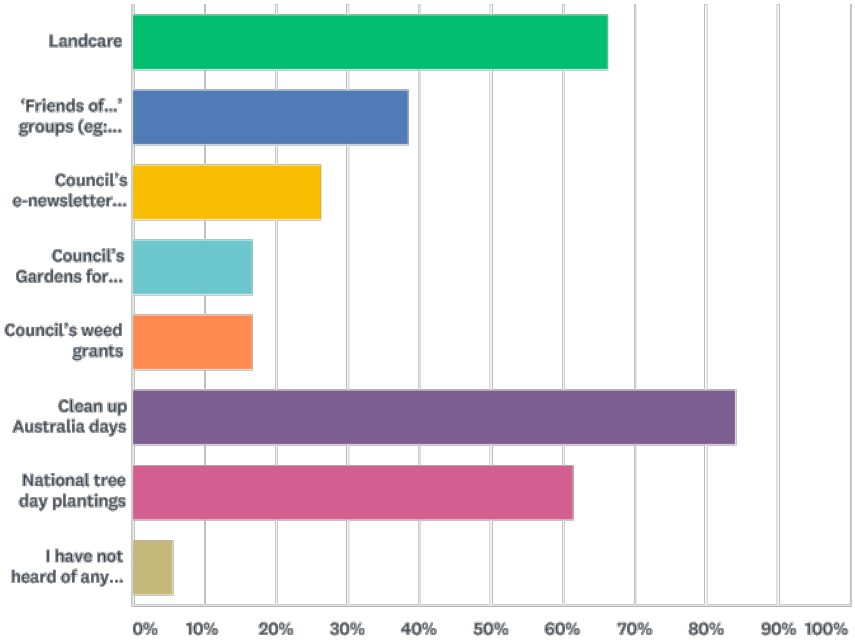
Biodiversity Conservation Strategy survey

Total Respondents: 125	

Biodiversity Conservation Strategy survey

Q5 Which of the following programs or groups have you heard of? (select all that apply)

Answered: 125 Skipped: 0

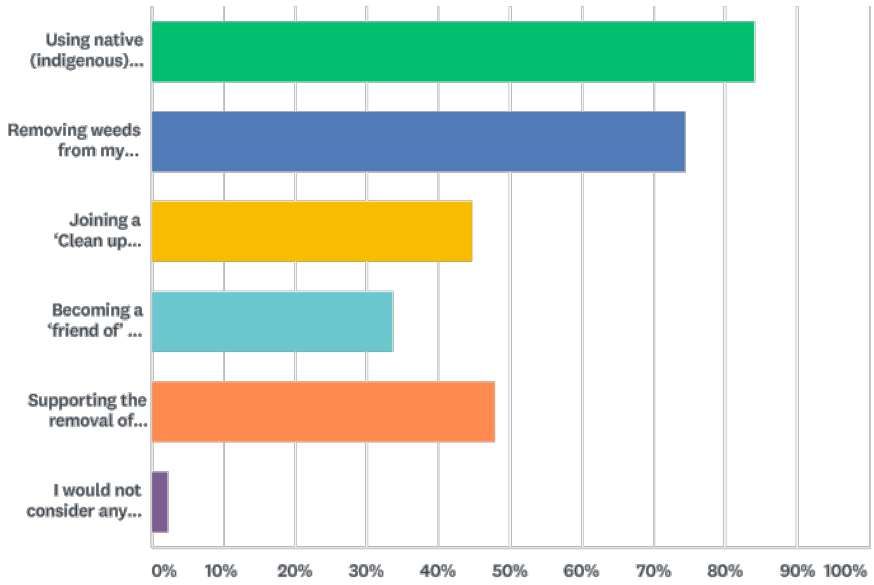


ANSWER CHOICES	RESPONSES	
Landcare	66.40%	83
'Friends of…' groups (eg: Friends of Mt Cannibal)	38.40%	48
Council's e-newsletter Down to Earth	26.40%	33
Council's Gardens for Wildlife program for private properties	16.80%	21
Council's weed grants	16.80%	21
Clean up Australia days	84.00%	105
National tree day plantings	61.60%	77
I have not heard of any of these	5.60%	7
Total Respondents: 125		

Biodiversity Conservation Strategy survey

Q6 Which of the following would you consider doing to support our natural environment? (select all that apply)

Answered: 125 Skipped: 0

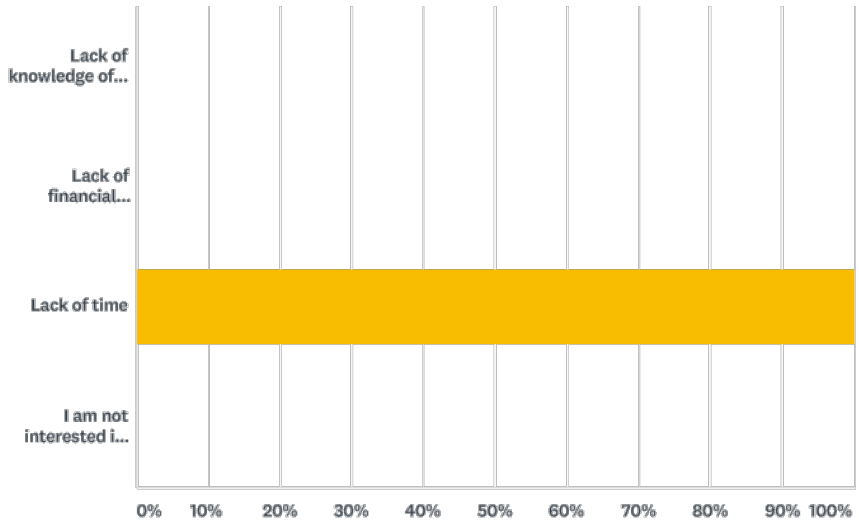


ANSWER CHOICES	RESPONSES	
Using native (indigenous) plants in my garden	84.00%	105
Removing weeds from my property	74.40%	93
Joining a 'Clean up Australia' day	44.80%	56
Becoming a 'friend of' my local park/reserve	33.60%	42
Supporting the removal of feral animals	48.00%	60
I would not consider any of these	2.40%	3
Total Respondents: 125		

Biodiversity Conservation Strategy survey

Q7 Please indicate why you would not consider any of the above (select all that apply)

Answered: 2 Skipped: 123

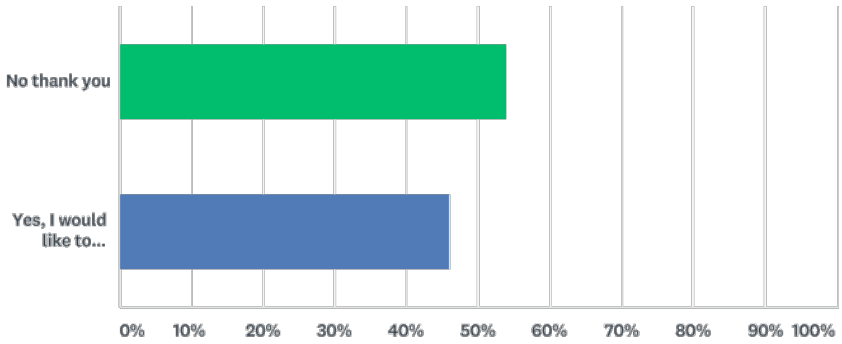


ANSWER CHOICES	RESPONSES	
Lack of knowledge of how I can support our natural environment at home	0.00%	0
Lack of financial resources	0.00%	0
Lack of time	100.00%	2
I am not interested in supporting our natural environment at home	0.00%	0
Total Respondents: 2		

Biodiversity Conservation Strategy survey

Q8 Would you like to know more about Council's environmental programs?

Answered: 124 Skipped: 1

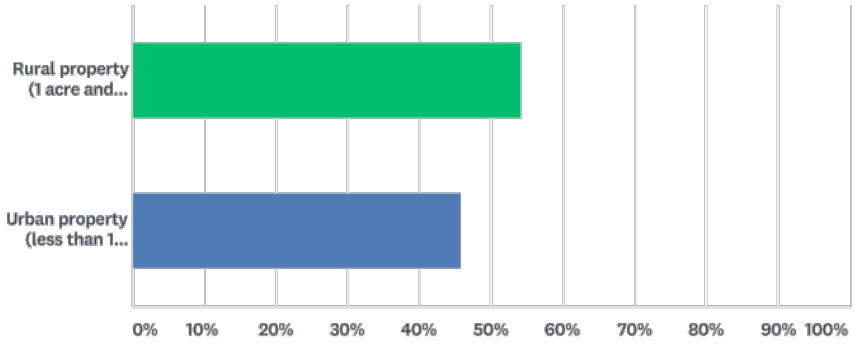


ANSWER CHOICES	RESPONSES	
No thank you	54.03%	67
Yes, I would like to subscribe to Council's e-newsletter Down to Earth	45.97%	57
TOTAL		124

Appendix G: Community consultation survey 2 (open internet survey)

Q1 What type of property do you live on? (select one)

Answered: 122 Skipped: 0

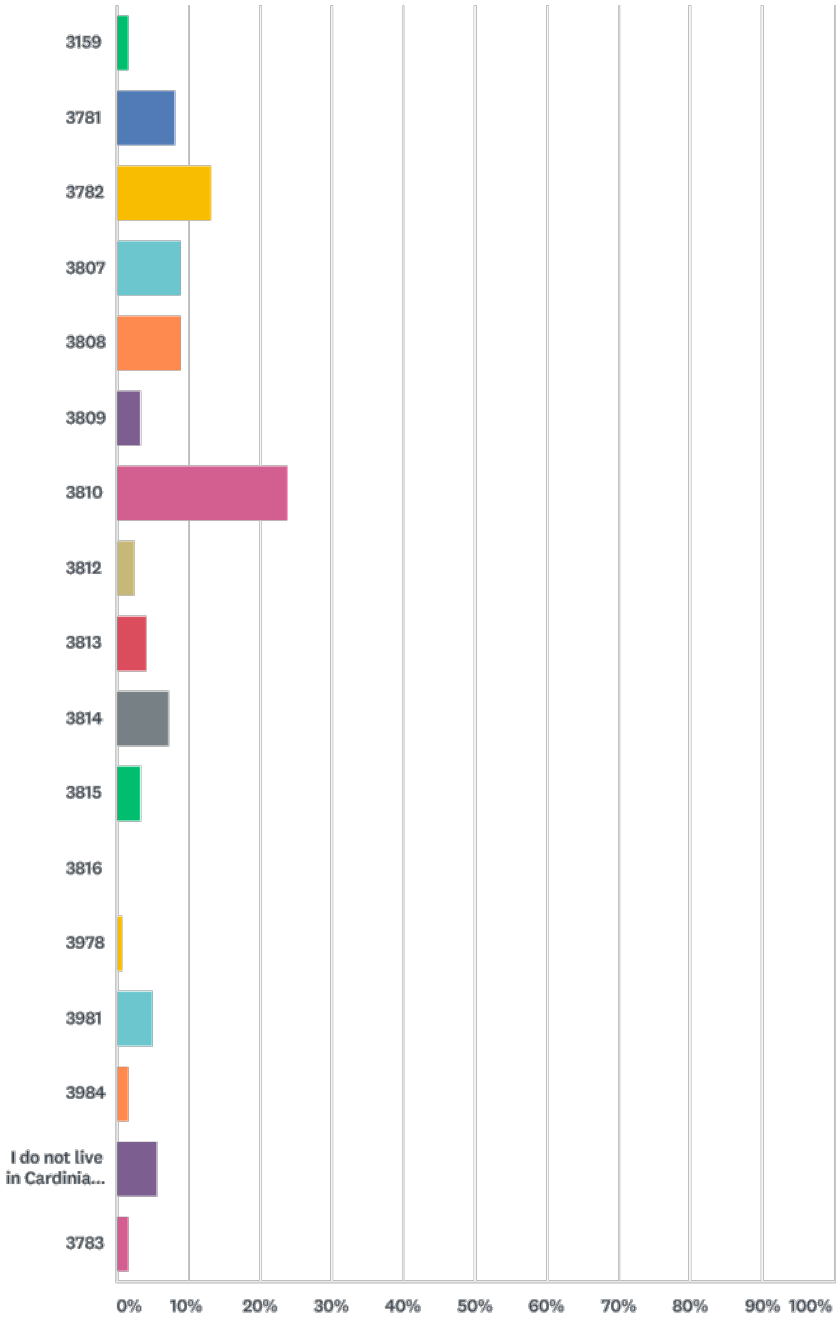


ANSWER CHOICES	RESPONSES	
Rural property (1 acre and above)	54.10%	66
Urban property (less than 1 acre)	45.90%	56
TOTAL		122

Biodiversity and weed questionnaire

Q2 What is your postcode?

Answered: 122 Skipped: 0



ANSWER CHOICES	RESPONSES

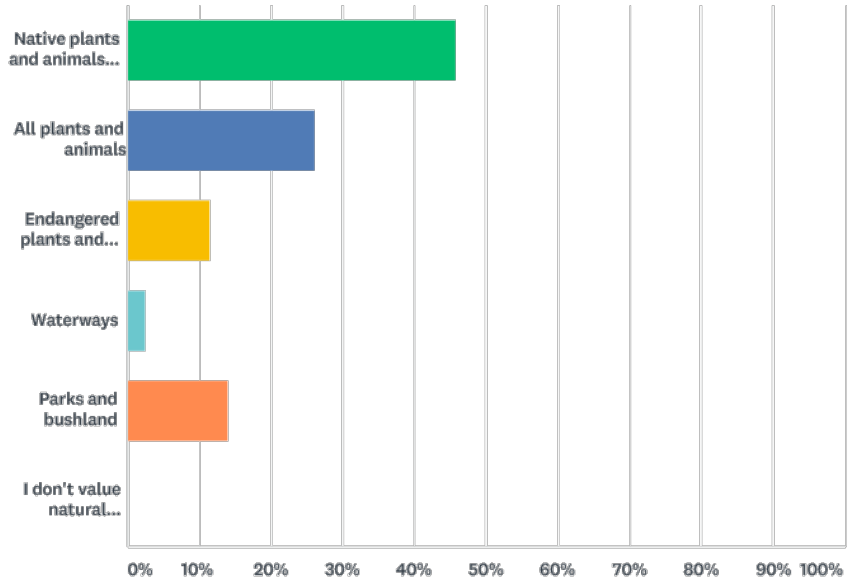
Biodiversity and weed questionnaire

3159	1.64%	2
3781	8.20%	10
3782	13.11%	16
3807	9.02%	11
3808	9.02%	11
3809	3.28%	4
3810	23.77%	29
3812	2.46%	3
3813	4.10%	5
3814	7.38%	9
3815	3.28%	4
3816	0.00%	0
3978	0.82%	1
3981	4.92%	6
3984	1.64%	2
I do not live in Cardinia Shire	5.74%	7
3783	1.64%	2
TOTAL		122

Biodiversity and weed questionnaire

Q3 What do you most value in the natural environment? (select one)

Answered: 122 Skipped: 0

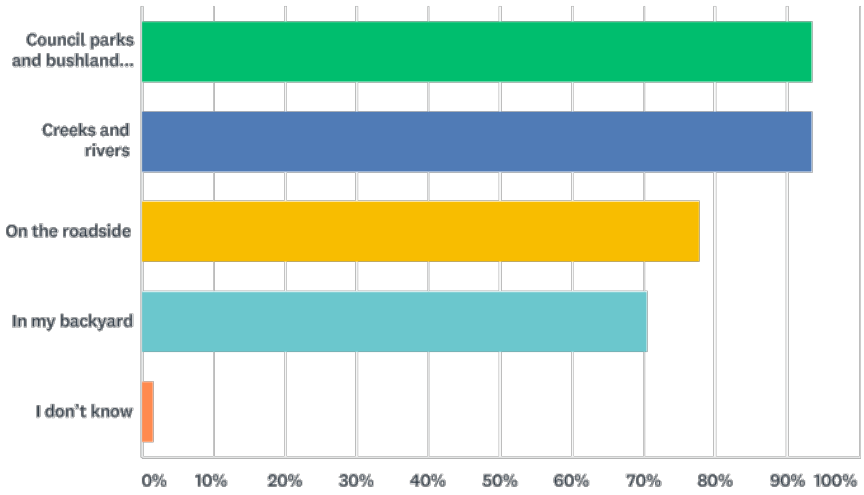


ANSWER CHOICES	RESPONSES	
Native plants and animals only	45.90%	56
All plants and animals	26.23%	32
Endangered plants and animals	11.48%	14
Waterways	2.46%	3
Parks and bushland	13.93%	17
I don't value natural environment	0.00%	0
TOTAL		122

Biodiversity and weed questionnaire

Q4 Where do you think the natural environment exists in our shire? (select all that apply)

Answered: 122 Skipped: 0

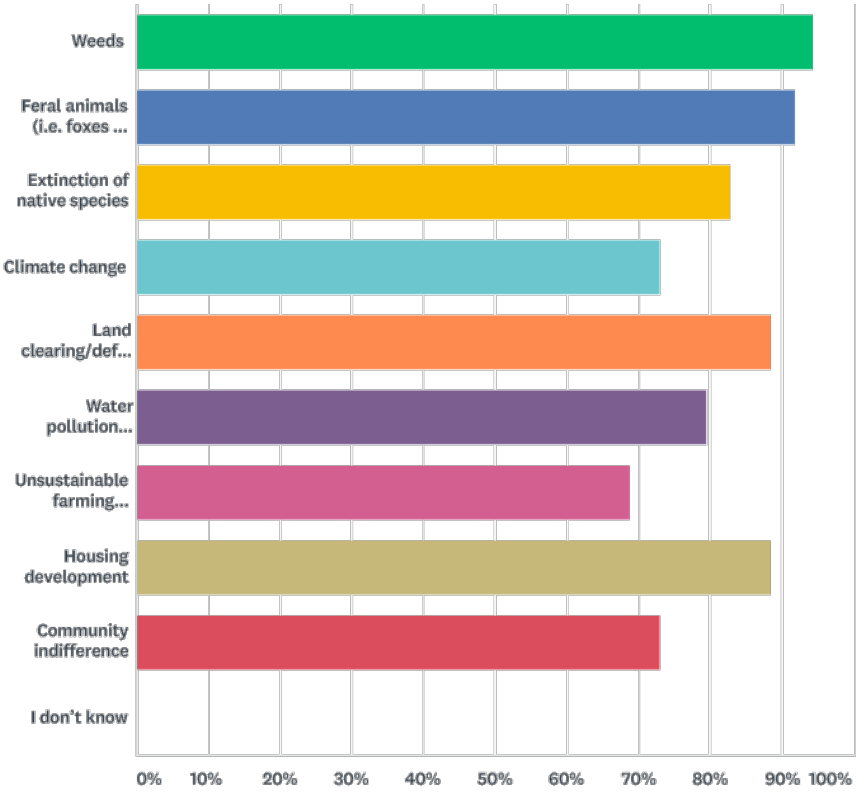


ANSWER CHOICES	RESPONSES	
Council parks and bushland reserves	93.44%	114
Creeks and rivers	93.44%	114
On the roadside	77.87%	95
In my backyard	70.49%	86
I don't know	1.64%	2
Total Respondents: 122		

Biodiversity and weed questionnaire

Q5 Which of the following do you think might threaten our natural environment? (select all that apply)

Answered: 122 Skipped: 0



ANSWER CHOICES	RESPONSES	
Weeds	94.26%	115
Feral animals (i.e. foxes and rabbits)	91.80%	112
Extinction of native species	82.79%	101
Climate change	72.95%	89
Land clearing/deforestation	88.52%	108
Water pollution (creeks and rivers)	79.51%	97
Unsustainable farming practices	68.85%	84
Housing development	88.52%	108
Community indifference	72.95%	89
I don't know	0.00%	0

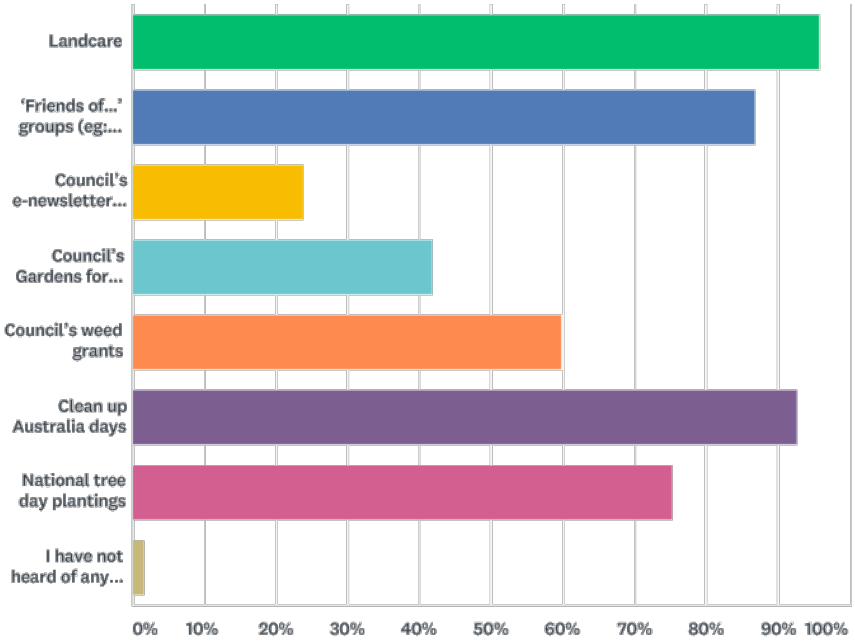
Biodiversity and weed questionnaire

Total Respondents: 122	

Biodiversity and weed questionnaire

Q6 Which of the following programs or groups have you heard of? (select all that apply)

Answered: 122 Skipped: 0



ANSWER CHOICES	RESPONSES	
Landcare	95.90%	117
'Friends of…' groups (eg: Friends of Mt Cannibal)	86.89%	106
Council's e-newsletter Down to Earth	23.77%	29
Council's Gardens for Wildlife program for private properties	41.80%	51
Council's weed grants	59.84%	73
Clean up Australia days	92.62%	113
National tree day plantings	75.41%	92
I have not heard of any of these	1.64%	2
Total Respondents: 122		

Biodiversity and weed questionnaire

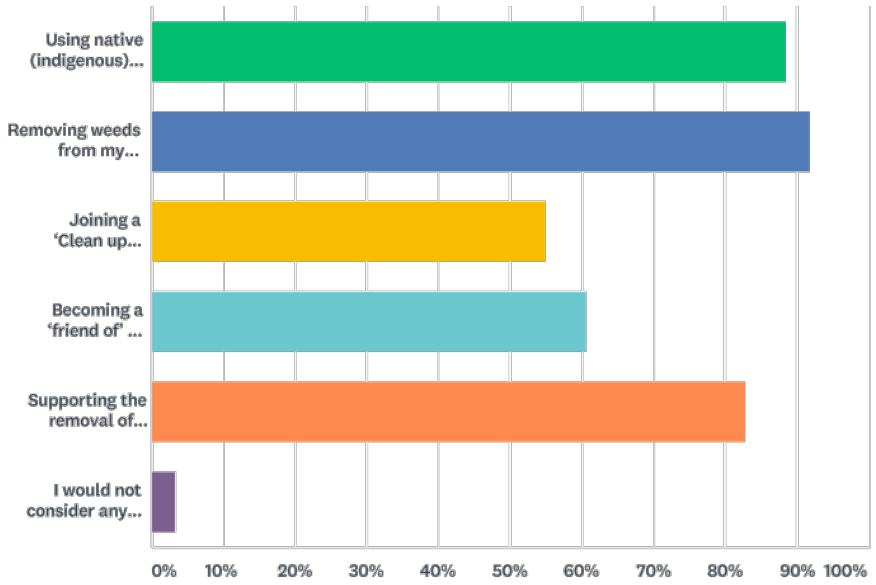
Q7 Do you have any suggestions on how Council can improve these programs?

Answered: 122 Skipped: 0

Biodiversity and weed questionnaire

Q8 Which of the following would you consider doing to support our natural environment? (select all that apply)

Answered: 122 Skipped: 0

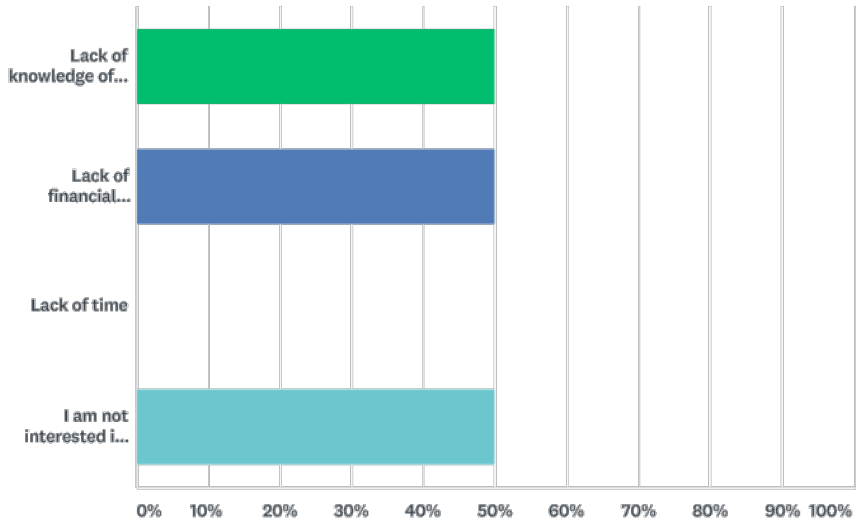


ANSWER CHOICES	RESPONSES	
Using native (indigenous) plants in my garden	88.52%	108
Removing weeds from my property	91.80%	112
Joining a 'Clean up Australia' day	54.92%	67
Becoming a 'friend of' my local park/reserve	60.66%	74
Supporting the removal of feral animals	82.79%	101
I would not consider any of these	3.28%	4
Total Respondents: 122		

Biodiversity and weed questionnaire

Q9 Please indicate why you would not consider any of the above (select all that apply)

Answered: 2 Skipped: 120



ANSWER CHOICES	RESPONSES	
Lack of knowledge of how I can support our natural environment at home	50.00%	1
Lack of financial resources	50.00%	1
Lack of time	0.00%	0
I am not interested in supporting our natural environment at home	50.00%	1
Total Respondents: 2		

Biodiversity and weed questionnaire

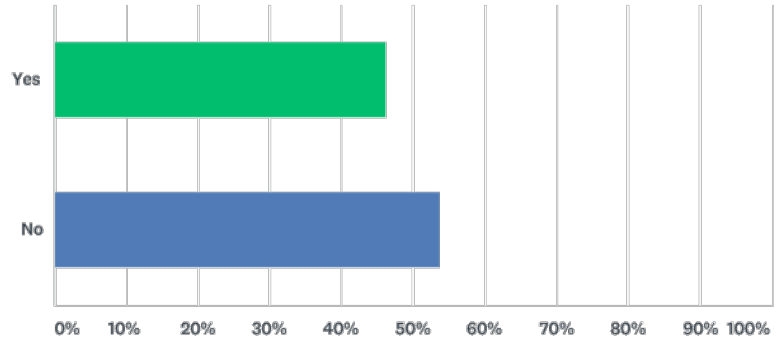
Q10 Do you have any suggestions for new biodiversity conservation programs?

Answered: 119 Skipped: 3

Biodiversity and weed questionnaire

Q11 Citizen Science is an initiative where the general public can assist in collecting valuable environmental data. Have you heard about Citizen Science projects?

Answered: 119 Skipped: 3

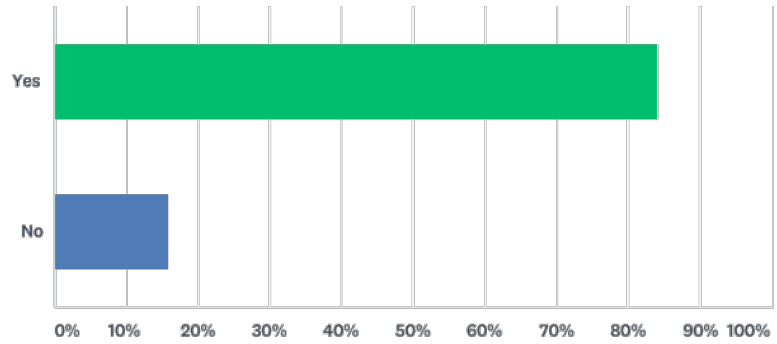


ANSWER CHOICES	RESPONSES	
Yes	46.22%	55
No	53.78%	64
TOTAL		119

Biodiversity and weed questionnaire

Q12 Would you consider participating in a Council citizen science program?

Answered: 119 Skipped: 3

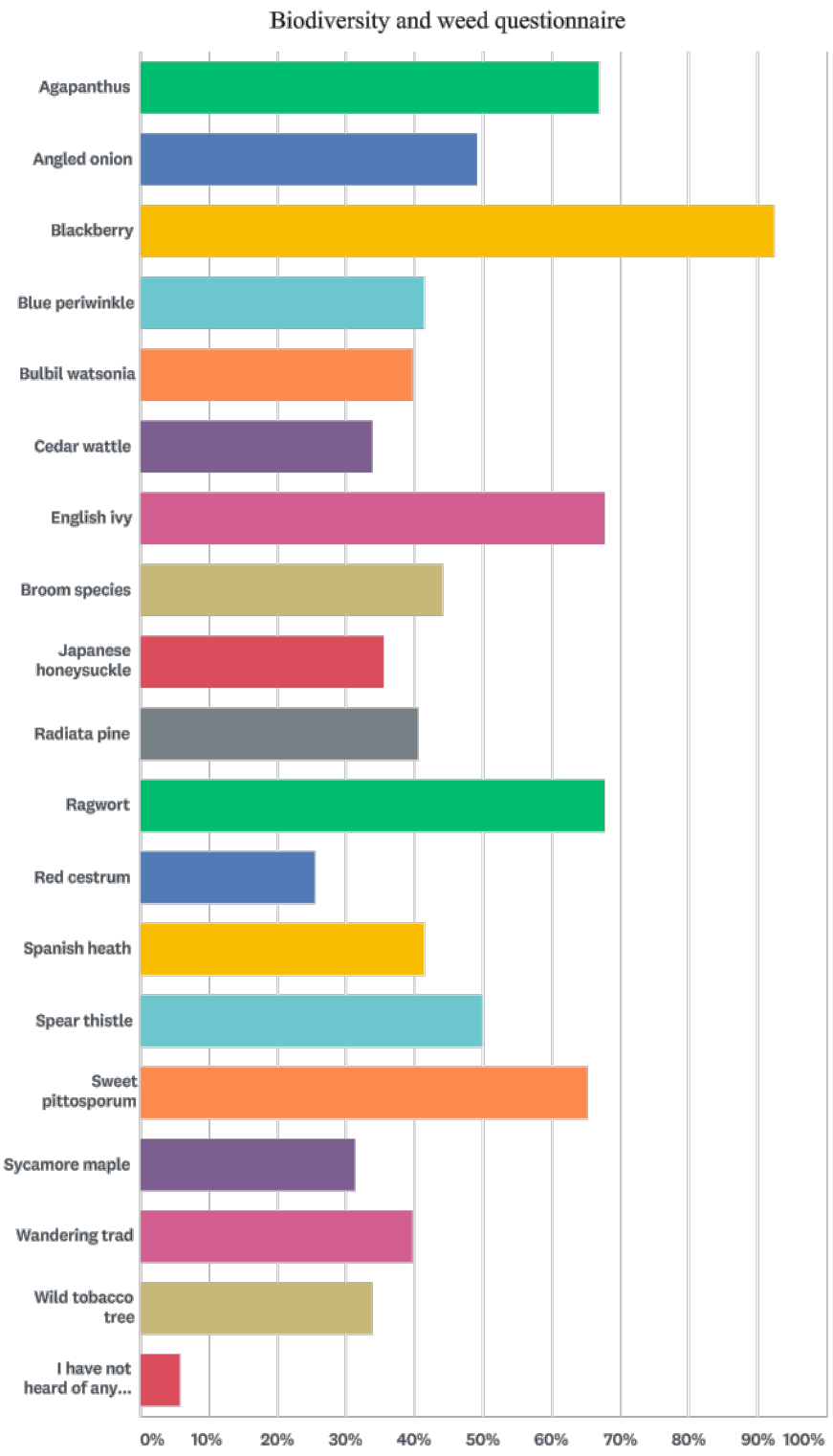


ANSWER CHOICES	RESPONSES	
Yes	84.03%	100
No	15.97%	19
TOTAL		119

Biodiversity and weed questionnaire

Q13 Which weeds species do you consider to be a threat in Cardinia Shire?

Answered: 118 Skipped: 4



ANSWER CHOICES	RESPONSES

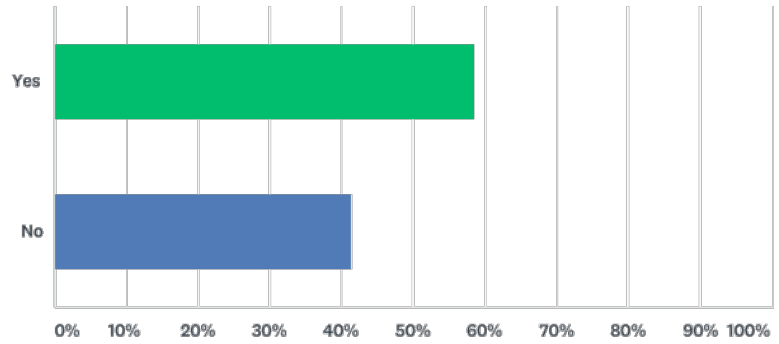
Biodiversity and weed questionnaire

Agapanthus	66.95%	79
Angled onion	49.15%	58
Blackberry	92.37%	109
Blue periwinkle	41.53%	49
Bulbil watsonia	39.83%	47
Cedar wattle	33.90%	40
English ivy	67.80%	80
Broom species	44.07%	52
Japanese honeysuckle	35.59%	42
Radiata pine	40.68%	48
Ragwort	67.80%	80
Red cestrum	25.42%	30
Spanish heath	41.53%	49
Spear thistle	50.00%	59
Sweet pittosporum	65.25%	77
Sycamore maple	31.36%	37
Wandering trad	39.83%	47
Wild tobacco tree	33.90%	40
I have not heard of any of these weeds	5.93%	7
Total Respondents: 118		

Biodiversity and weed questionnaire

Q14 Are you aware of your legal responsibilities for weed control on your property, including Council's Local Law 17?

Answered: 118 Skipped: 4

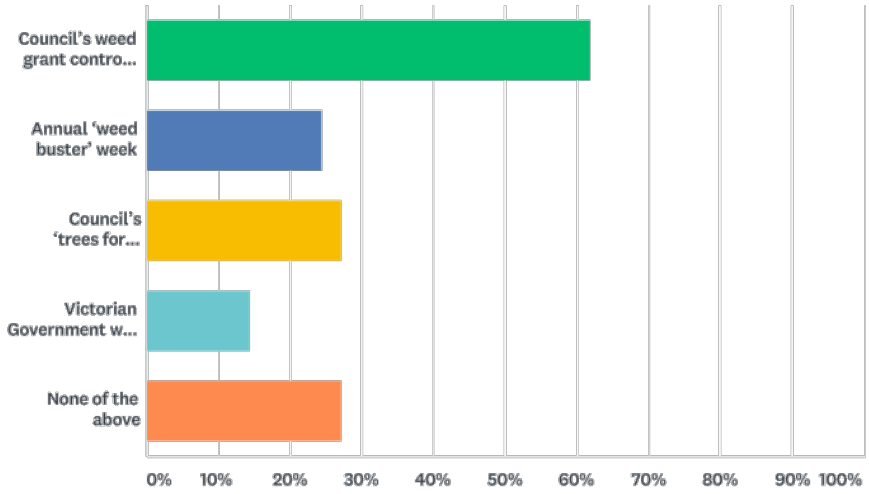


ANSWER CHOICES	RESPONSES	
Yes	58.47%	69
No	41.53%	49
TOTAL		118

Biodiversity and weed questionnaire

Q15 Which of the following weed programs have you heard of?

Answered: 118 Skipped: 4

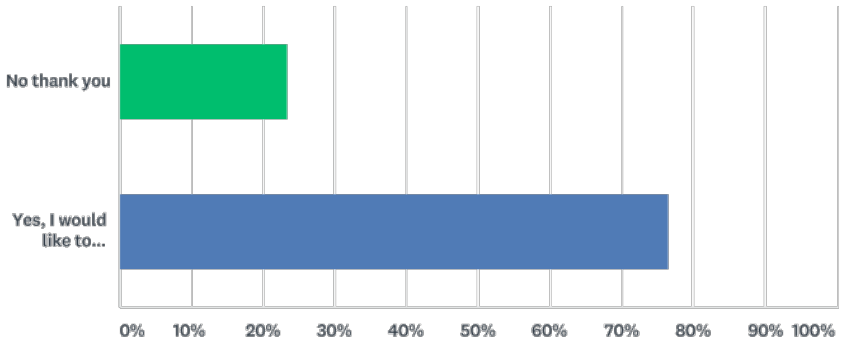


ANSWER CHOICES	RESPONSES	
Council's weed grant control program	61.86%	73
Annual 'weed buster' week	24.58%	29
Council's 'trees for weeds swap' event	27.12%	32
Victorian Government weed spotter program	14.41%	17
None of the above	27.12%	32
Total Respondents: 118		

Biodiversity and weed questionnaire

Q16 Would you like to know more about Council's environmental programs?

Answered: 115 Skipped: 7



ANSWER CHOICES	RESPONSES	
No thank you	23.48%	27
Yes, I would like to subscribe to Council's e-newsletter Down to Earth	76.52%	88
TOTAL		115

Biodiversity and weed questionnaire

Q17 If you would like to enter the draw to win a $100 Bunnings voucher, please enter your contact details below.

Answered: 91 Skipped: 31

ANSWER CHOICES	RESPONSES	
Name	100.00%	91
Company	0.00%	0
Address	0.00%	0
Address 2	0.00%	0
City/Town	0.00%	0
State/Province	0.00%	0
ZIP/Postal Code	0.00%	0
Country	0.00%	0
Email Address	0.00%	0
Phone Number	100.00%	91

Appendix H: Summary of community workshop issues and priorities

List of all community priorities			Priority ranking through table discussion where 1 is highest priority
Table # Workshop '3'	Issue	Any additional notes	Priority Ranking
1	Effective roadside weed control		
1	Pittosporums	Classification by council/bylaw to remove	1
1	Pest animal control	Foxes, Rabbits	2
1	Deer classification	Needs changing	2
1	Cat curfew		2
1	Roadside weed control	Not all environmental weeds included on roadside spraying	4
1	Paper roads	Should be replanted, fenced and protected	6
1	Vic Roads	No weed control done	7
1	V-Line	No weed control done	8
1	Waterways	Mandatory fencing, weed control and re veg.	5
1	Biolink	Existing and future	3
2	Kikuyu on road sides		
2	Better development - medium density - less spread		6
2	Community involvement and education. Linking new residences to environmental groups	e.g.. Recognition of environmental weeds	
2	Disruptive factors - unexpected threats e.g.. Quarry		
2	Lack of indigenous vegetation on agricultural land e.g.. Insectariums		4
2	Off-set funding is retained in shire		3
2	Protection of all waterways, controls around all waterways	Protects from feral animals, biolinks	1
2	Formal environmental education on curriculum of school children		8
2	Emerging threats from feral animals e.g.. Deer, pigs, cats		5
2	Protection of agricultural land from urbanisation. Food security		2
2	Impact of individual development around small towns		
3	Deer (feral)		
3	Educating community awareness and enthusiasm	Wildlife corridors, waterways, green spaces, S Pittostp	1
3	Urban East Development		5
3	Community ref group - Council	Waterways, Urban sprawl, pest animal	2
3	Mt Cannibal Quarry (Tynong North)		4
3	Phytophthora infestation (fungi) Cinnamon fungus		
3	Litter dumping		
3	Preserving/conserving urban indigenous species (flora - fauna) Genetic diversity	Green Wedge	3

Appendix H: Summary of community workshop issues and priorities

4	Weeds	Problem with weeds in VicRoads and railway lines. Weed spotting facility on council website - what are the weeds? People can report locations	4
4	Pest animals		5
4	Planting indigenous plant		
4	Efficiency of council operations	Monitoring of contractors e.g.. They may be given a job sheet but there is another issue nearby that they can't do because it's not on the job sheet	
4	Speed limits (to protect native animals)	Less dust on vegetation, less maintenance required	
4	Urban growth threat/green wedge maintained		3
4	Remnant vegetation protection		
4	Compulsion on land owners to protect remnant veg. and revegetate		
4	Streamside protection - Melbourne Water too slow		2
4	Wildlife corridors		1
5	Status of green wedge	Green wedge is slowly getting eaten away	1
5	Plan - Not receiving enough priority. Developers putting pressure on green wedge areas for development	Strategic plan not being implemented	1
5	Bandicoots/education and strategic planning - lack of leadership from government	Foxes/Bayles pop being diminished	2
6	Pest animal control	Listed as an action in previous Sustainable Environment Strategy	
6	Road side weeds	Control spread through corridor. Identification of weeds by community	
6	Dumping of garden waste and rubbish		
6	Biodiversity value to business	What businesses rely on biodiversity value	
6	Green space V's Biodiversity	Parks and gardens are not ecological value but amenity	
6	Urban sprawl impacting on flora, fauna & food production (loss of connectivity - e.g. Cranbourne Botanic Gardens	is there any planning to prevent or manage this? Any obligation on developers to create parks and corridors. Developers have too much say, their money talks, there is no quality of life	
6	Inappropriate town planning		
6	providing biodiversity spaces in new developments	not just football fields (fake green spaces), must be just for biodiversity. Don't remove vegetation in the first place	
6	lost connectivity - creating biodiversity islands		
Summary of workshop '4' on at Emerald RSL			
7	Urban Growth - People ↑ population	People who live here and those who visit increase the pressure on native environment	5
7	Insensitive land development		
7	weed control on private land and enforcement		
7	Incremental loss of biodiversity	over history and current poor management	

Appendix H: Summary of community workshop issues and priorities

7	Lack of endorsed council policy to conserve the natural environment with a clear target of vegetation coverage across the landscape		1
7	More support for environmental community programs (G & W grant programs)		2
7	Burning regimes do not follow tolerable fire intervals. There is a conflict of policies	Fire prevention V's bio Conservation	
7	Regulatory - there needs to be a strategy to actively protect native vegetation	Rather than be reactive to vegetation loss via illegal clearing	3
7	There needs to be clear advocacy to state policies to protect Cardinia's biodiversity		4
7	There is no coordinated regional approach to pest animal management		
7	Council is not adequately funded to sustainably manage biodiversity		
8	The conservation of the Emerald Star Bush needs comprehensive management	Weeds, loss of habitats, slashing regime, goal - establish populations awareness - new resident pack	
8	Loss of habitat for threatened species e.g.. Helmeted Honeyeater	John Hill LC group working to provide habitat link in the Butterfield Reserve	
8	Environmental knowledge is lost - need to be able to pass this knowledge on - on ground learning not supported.	e.g. need to develop a model for succession planning for communication of practice, knowledge of capture	
8	People letting dogs off leads and cats in the environment	Lack of education in community to impact of pets on environment	
8	Lack of knowledge of weeds and no appreciation of environment		
8	Effects on land use of waterways e.g.. Road sides		
8	Liaison between agencies and groups to manage sites needs to be improved		
8	Fragmented degradation of habitat corridor	Meander, Yellingbo - Butterfield reserve	
8	Road sides weed control		
8	Support for landholders	The penalties are not enough	
8	Loss of habitat across private property due to _____		
8	Lack of knowledge. Interest of landholders to environmental protection e.g.. Land maintenance and domestic animals		
8	Protect, restore, enhance maintenance		
8	Native habitat liaison between agencies and groups → landowner and agencies		
9	Better internal council discussion works V's environmental outcomes		2
9	Better promotion of opportunities (clean-up Australia Day, trees (or weeds/swaps) weed buster week)		
9	Lack of recognition (awareness) of weeds		

Appendix H: Summary of community workshop issues and priorities

9	Develop greater awareness of weeds in community		
9	Weed for sale		
9	Pest animal management (e.g. Deer) at regional level		4
9	Tips and tricks for local pest management @ property level		
9	Engage community in backyard biodiversity		3
9	ID unique shire environments weaknesses/strengths		5
9	Need for urban biolinks		1
9	Education in new home owner kits (e.g. facts shared at start of workshop)		
9	Stormwater impacts on out natural waterways		

Appendix I: Cardinia Shire bioregions

Printed: 29-Oct-18 Data Source: State & Local Government. © CARDINIA SHIRE COUNCIL

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Appendix J – Legislation, policies, plans and strategies for biodiversity conservation

The legislative policy and strategy documents identified in the following table are all relevant to biodiversity conservation

Australian Government

Legislation

Legislation	Summary
Environment Protection and Biodiversity Conservation Act 1999 (EPBC)	The Australian Government's centre piece of environmental legislation. It provides Commonwealth protection to nationally important flora, fauna and ecological communities. Melbourne Strategic Assessment requires the Victorian Government to make commitments under the EPBC in relation to conservation outcomes and measures to protect matters of national and state environmental significance. In Cardinia Shire this is relevant for the protection of two known threatened species which have had conservation plans developed for; • sub regional species strategy for the Southern Brown Bandicoot 2014 • sub regional species strategy for the Growling Grass Frog 2013

Strategies and frameworks

Strategy	Summary
Australian Biodiversity Conservation Strategy	A call to action for all levels of governments to achieve the strategy vision, to ensure our biodiversity is healthy, resilient to climate change and valued for its essential contribution to our existence. The strategy lists six priorities for change that must be made urgently to achieve the vision: 1. building ecosystem resilience 2. mainstreaming biodiversity 3. reducing pressures on biodiversity and promoting sustainability 4. enhancing benefits of biodiversity to the community including ecosystem services 5. involving indigenous people and the broader community 6. measuring success
Australia's Native Vegetation Management Framework (2012)	The framework recognises that native vegetation is crucial for the health of Australia's environment, that it supports our economy and productivity as well as our biodiversity. The framework sets a vision and five goals around; extent and connectivity, improvement to condition, maximising ecosystem services and capacity building of the community including indigenous peoples.

Strategy	Summary
Australian Weeds Strategy 2017-2027	The major framework setting weed management policy at a national level is the Australian Weeds Strategy. This strategy provides consistent guidance for all parties, and identifies priorities for weed management across the nation with the aim of minimising the impact of weeds on Australia's environmental, economic and social assets
Australian Pest Animal Strategy 2017-2027.	The strategy provides national guidance with a vision and policy on best practice vertebrate pest animal management to protect Australia's economy, environment and social wellbeing from the impact of pest animals. The strategy aims to; recognise the challenges and negative impacts, encourage a coordinated strategic approach and describes the principles to effective pest animal management.
Australian Standards	In the context of biodiversity conservation there are Australia Standards for; • the protection of trees on development sites. (AS4970-2009) • horticulturally correct pruning of trees (AS4374-2007)

Victorian Government

Legislation

Act	Summary
Aboriginal Heritage Act 2006	Provides protection of Aboriginal cultural heritage in Victoria. Gives effect to Aboriginal Heritage Regulations (2018) which define high impact activities and areas of cultural heritage sensitivity. Where a high impact activity is proposed in an area of cultural heritage sensitivity, a cultural heritage management plan must be prepared to assess the likelihood of, and manage harm to, any Aboriginal cultural heritage in the activity area. This includes protectioins for sites of aboriginal significance or sensitivity from ground disturbance.
Catchment and Land Protection Act (1994) (CalP Act)	The CaLP Act contains provisions relating to catchment planning, land management, noxious weeds and pest animals. The act provides a legislative framework for the management of private and public land and outlines the responsibilities land managers have to eradicate or control weeds of varying classifications. The act also provides direction for the management of established pest animals.
Climate Change Act (2017)	Identifies the management of climate change risks and, identifies actions to drive transitions to climate resilient communities with zero emissions by 2050. Requires Adaptation Action Plans for key systems such as the Ramsar wetlands and Cardinia's coastal

Act	Summary
	saltmarsh that are either vulnerable to the impacts of climate change or essential to ensure Victoria is prepared
Conservation Forests and Lands Act 1987	Provides a framework for a land management system to administer and enforce provisions for management, including section 69 agreements for on title protection of reserves for perpetuity.
Crown land Reserves Act (1978)	Provides the direction for the management of Crown Land. Cardinia Shire Council is the delegated committee of management for many environmentally significant Crown Land reserves. This includes the obligation to appropriately protect, care and enhance flora and fauna within the reserve.
Domestic Animal Act 1994	Enables Council to direct that cats are kept secured within the owners premises at all times
Environment Protection Act 1970	The act is outcome oriented, with a basic philosophy of preventing pollution and environmental damage by setting environmental quality objectives and establishing programs to meet them. State environment protection policies (SEPPs) are defined in the Act as an important component of the regulatory framework in Victoria. SEPPs outline the uses and values of the environment that the community want to protect (these are called beneficial uses) and define the quality of the environment required to protect these
Flora and Fauna Guarantee Act (1988) (FFG Act)	The act is the primary Victorian legislation for the protection and conservation of threatened species and communities and for the management of potentially threatening process. The objectives of the Act include; ensuring native flora and fauna survive, flourish and maintain in situ; the protection of evolutionary potential; the management of threatening processes; encouraging the conserving of flora and fauna through cooperative community endeavours; and the establishment of a regulatory structure for the conservation of flora and fauna in Victoria. Species in Cardinia Shire listed as threatened in the act include but are not limited to dwarf galaxias, growling grass frog, powerful owl, greater glider, matted flax-lily and cobra greenhood.
Local Government Act (1989)	This defines the purposes and functions of local government as well as providing the administrative framework. Cardinia Shire enforces Local Law 17 environment, amenity and asset protection, to take action against landowners not controlling noxious weeds on their land. Local Law 17 also provides protections to conserve environmental assets in Council Shire's natural resource areas.

Act	Summary
Planning and Environment Act (1987)	The act provides an essential framework for future sustainable development and can play a significant role in directing appropriate land management. The planning scheme sets out policies for the use, development and protection of native vegetation and waterways, providing Council with opportunities for influencing vegetation management on private land. All planning applications received by Council's Planning Department proposing the clearance of native vegetation are referred to Council's Environment and Heritage Unit for further investigation and comments. Matters involving native vegetation removal in the 'detailed assessment pathway' are also referred to DELWP. Environmental assessment of planning applications is guided by a range of existing conservation planning controls including; • Environmental and Landscape Values – 12.0 • Natural Resource Management – 14.0. This includes creek management plans under clause 14.02. • Green Wedge Zone – 35.04 • Rural Conservation Zone – 35.06 • Public Conservation and Resource Zone – 36.03 • Environmental Significance Overlay – 42.01 Schedules 1 to 6 (ESOs): defines objectives to protect and enhance important environmental values. Applications to remove vegetation must show they demonstrated the hierarchy of avoid, minimise and compensation for vegetation loss. • Vegetation Protection Overlay – 42.02 Schedules 1 to 3 (VPOs): defines objectives to protect and conserve existing vegetation used for the protection and maintenance of vegetation in built-up areas. Applications to remove vegetation must show they demonstrated the hierarchy of avoid, minimise and compensation for vegetation loss. • Clause 52.17 - incorporates the three step approach of avoidance, minimisation and offsetting vegetation removal applications to ensure there is no net loss of biodiversity. • Bushfire planning – 53.02 Provides guidelines for defendable space requirements • Native Vegetation Precinct Plans within the growth corridor – Provides for the strategic management of native vegetation for a defined area or precinct.
Victorian Conservation Trust Act 1972	Authorises the Trust For Nature organisation the process to permanently protect on title public and private land which is ecologically significant. Cardinia Shire has 57 properties that contain conservation covenants on title, which annually grow and are one of the highest concentrations of

Act	Summary
	covenants within a municipality in the state. These properties are eligible for rate rebates.
Wildlife Act 1975	The primary Victorian legislation for the protection and management of wildlife. The operations of the Flora and Fauna Guarantee Act 1988 often need to be considered in conjunction with the provisions and procedures of the Wildlife Act, as some wildlife will be protected under both acts. The act requires that people engaged in wildlife research including fauna surveys, salvage or translocation must hold a valid permit under the act to ensure that these activities are undertaken consistently and with the appropriate controls
Water Act (1989)	Provides the legal framework for management and protection of Victoria's water resources and waterways including creation of Water Corporation (Melbourne Water) licencing to use water and the protection of water flows and quality.

Plans and frameworks

Title	Summary
Protecting Victoria's Environment – Victoria's Biodiversity Plan 2037	The Victorian Governments plan to stop the decline in biodiversity and achieve an overall improvement over the next 20 years. The plan identifies the need for an increased effort using strategic management actions and a cost benefit analysis to most efficiently protect the maximum number of species. The plan plays a strong reliance on the need to work with communities to capture environmental data out in the field. using methodologies such as the Victorian Biodiversity Atlas and Citizen Science programs. The plan places equal weighting on biodiversity conservation and the need to for the community to value nature through increased interaction and connectivity.
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.
Department of Environment, Land, Water and Planning (DELWP) : Guidelines for the removal destruction and lopping of native vegetation	Describes the application of Victoria's statewide policy in relation to assessing and compensating for the removal of native vegetation.
DELWP: Preparing a Native Vegetation Precinct Plan	Provides for the strategic management of native vegetation for a defined area or precinct.
DELWP: Compliance and enforcement strategy, native vegetation removal regulations	This is used to guide offset security agreements, to inform compliance activities in relation to the native vegetation removal regulations, including the development of compliance and enforcement plans.

Title	Summary
Protecting Victoria's Environment – Victoria's Biodiversity Plan 2037	The Victorian Governments plan to stop the decline in biodiversity and achieve an overall improvement over the next 20 years. The plan identifies the need for an increased effort using strategic management actions and a cost benefit analysis to most efficiently protect the maximum number of species. The plan plays a strong reliance on the need to work with communities to capture environmental data out in the field. using methodologies such as the Victorian Biodiversity Atlas and Citizen Science programs. The plan places equal weighting on biodiversity conservation and the need to for the community to value nature through increased interaction and connectivity.
DELWP: Native vegetation planting standards	This sets out the appropriate standard for revegetation which are identified in planning permit conditions.

Regional

Strategies

Title	Summary
Port Phillip and Western Port Regional Catchment Strategy 2004-2009	The Regional Catchment Strategy (RCS) describes the Port Phillip & Westernport catchment assets and how they are interrelated. The strategy details what needs to be done to manage and use the assets in a sustainable and integrated way, and outlines future goals and priorities

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'. The Council plan identifies the action 'protect and enhance biodiversity by increasing the area of natural ecosystems across the Shire'
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.

Title	Summary
Weed Management Strategy (2019-2029)	Provides the long term direction on Council policy and management of weeds on private and public land. This includes providing information on Council's legislative obligations and the most effective management strategies to engage Council and the community.
Cardinia Shire Liveability Plan (2017-2029)	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
Aspiration Energy Transition Plan 2014-24	Strategically considers Council's and the community's energy consumption and greenhouse gas emissions and identifies significant areas for cost effective improvement including tree planting opportunities for carbon sequestration.
Integrated Water Management Plan 2015-25	Identifies the anticipated growth in population and the impact of urbanisation on Cardinia Shire's water cycle, and seeks to ensure that the water cycle can support productive land uses, particularly in the context of climate change. The plan identifies aspirations and targets for; stormwater, potable water, alternative water sources, groundwater, wastewater and waterways.
Reconciliation Action Plan	This action plan responds to the Aboriginal Heritage Act and influences our management actions. The Victoria Biodiversity 2037 strategy is heavily weighted on Aboriginal liaison.

Appendix K: Sustainable Development Goals

Biodiversity Conservation 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 think your priorities for the natural environment are addressed in the strategy? (Scale 1-5)	**2.- Please list any other priorities you would like to see added to the strategy.**	
1	Bigger budget	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward.
3	No more carving up of land in BUNYIP!	Partially Strategic Planning responsibility, although SBB ESO will address
3	I feel it is all covered	Comment supports BCS
3	Improvements with connectivity through a landscape scale.	Biolinks project will address this.
3	The priorities are properly identified, but I don't think the plan is ambitious enough. I know Yarra Ranges Council spend much, much more on biodiversity conservation, and I would think the rate payer base for Cardinia would be now able to support a stronger funding pool for the environment. I just would like to see much more money spent on the identified actions, as the current draft seems to be inadequate in addressing the priorities of the strategy. More money is required to achieve these goals!	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward.
4	Nil	
4	Nil	
4	I would like to see a policy development on phytophthora management although I have not read the Weed Management strategy so perhaps it is mentioned there	This project work is to be implemented. Monitoring programs are identified in the BCS Action Plan.
4	Given that a large component of the shire environment is managed by farmers running agricultural pursuits, there is a gap in this strategy in that it fails to identify this constituency, engage productively with them and leverage their management of vast tracts of land that can equally provide habitat and environmental benefits AND agricultural productivity.	All actions within goal 4 are based around community engagement. Biolinks Plan will seek to do this.
4	Nil	
4	A reduction in habitat loss and fragmentation over the term of the strategy.	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives.
5	Nil	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward.
5	More investment in planning and on ground works south of the highway. Provide more resources to environment groups with an emphasis to build capacity of community to get more involved in environment action.	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward. Biolinks project seeks to gain significant improvement in conservation works south of the highway.

Survey questions and responses		Council's response
3.-How well do you think the action plan addresses biodiversity issues in Cardinia Shire? (Scale 1-5)	**4. Please list any other environmental issues you would like to see included in the action plan.**	
2	The action plan text was too small to read. Too many columns. This was the most important section which could not be easily read.	Text can be magnified. Will liaise with resident.
2	The local population of Bandicoots has suffered badly due to all the land carve up in Bunyip	Bunyip SBB ESO seeks to rectify this. Biolink project seeks to strengthen SBB populations.
4	NA	
4	Climate change impacts to biodiversity.	Information on climate change has been added to BCS
3	Again, the issues are well identified, but the plan is not nearly ambitious enough to achieve the goals set out here. The proposed biodiversity officer position should be brought forward to the first 12 months of the plan, in order to undertake proper monitoring and evaluation of success. Especially to undertake baseline monitoring to evaluate progress. This never gets done but is absolutely necessary to know where your money was spent well and where it should not be spent in the future!	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward. Open Standards for Conservation more clearly articulated in BCS
4	Nil	
5	The issue of climate change adaptation in regards to biodiversity and conservation planning could be emphasized more.	Information on climate change has been added to BCS
3	There are plenty of issues mentioned and if they can all show improvement in the 10 year plan that will be magnificent.	Comment supports BCS
3	I would like to see the plan extended beyond its current council centric focus. More emphasis on engaging farmers and farming communities.	All actions within goal 4 are based around community engagement. Biolinks Plan will seek to do this.
4	Nil	
5	Fire frequency and intensity due to human induced climate change.	Information on climate change has been added to BCS
5	More action on eradication of deer, shire and state combined action.	
3	Council to collaborate more actively with other agencies and stakeholders to deliver more catchment wide actions. Develop MOU's with existing environment networks to help deliver on ground works. Include more consideration of fuel management issues due to fire risk and how it impacts on biodiversity.	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward. Open Standards for Conservation more clearly articulated in BCS. Pest animal strategy articulated in Action plan.
5.- How well do you think the strategy encourages the community to value biodiversity? (Scale 1-5)	**6.- Please provide any additional ideas you may have to encourage the community to value biodiversity in Cardinia Shire.**	
1	More funding. Enforce penalties and severe fines for those that destroy biodiversity values.	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward.

Survey questions and responses		Council's response
2	Rate money earned by the Shire will come first before biodiversity	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward.
4	NA	
3	Highlight key species, particularly fauna and flowering plants.	This work will be elaborated on in the monitoring initiatives and the biolinks plan and citizen science initiatives.
4	Nil	
3	Set up & run citizen science projects. Invite community groups to help gather data & learn how to run/lead such a program. Fund community representatives to facilitate Gardens for Wildlife program. Re action - empower Friends of groups by running workshop about how to develop an action plan. They will be more engaged, enthused and motivated to carry out an initiative they have developed themselves.	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward. Respondents ideas will be incorporated into community programs.
3	Educational programs via social media and the role of young people as local leaders of their peers within schools. Engaging the school communities to protect their local environment.	Environment education officer will act in an advocacy role to achieve this outcome.
3	The message just does not get through to or seem relevant to many adult people - the rate rebate for TfN people is worthy but they are already committed. Encouragement of good land practices by "requiring" all new land holders to attend information session or two about the environmental assets in their area and how they can build on them to enhance their own properties (and why they should) using a Gardens for Wildlife model for all.	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward. Environment education officer will act in an advocacy role to achieve this outcome.
4	Somehow put a monentary value on biodiversity, to encourage landowner participation.	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward. Environment education officer will act in an advocacy role to achieve this outcome. All actions within goal 4 are based around community engagement. Biolinks Plan and Deep Creek Ecocentre will also seek to do this.
3	Nil	
4	Have bi-annual biodiversity festival, feature a vegetation community, iconic or threatened species. Have presentations, guided walks, spotlighting tours, weed swaps etc.	Environment education officer will act in an advocacy role to consider this outcome. Support for community groups supports this outcome.
5	The education components were very good and additional support for Friends groups will be beneficial for them to encourage their communities. Gardens for Wildlife is a great idea, but follow up after initial contact to join the programme is very slow. A lot of encouragement is community volunteers leading the way.	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward. Environment education officer will act in an advocacy role to achieve this outcome. All actions within goal 4 are based around community engagement. Deep Creek Ecocentre will also seek to do this.
3	More opportunities for landowners to actively manage their biodiversity on their property. Continue to provide weed incentive small grants. Council should invest in providing community driven action to residents in estates and built up areas. This should include investing in local community groups to recruit more members and to door knock and raise awareness on biodiversity. Council should engage groups to facilitate and coordinate programs such as gardens for wildlife, land for wildlife and conservation covenants. Council need to invest in groups to work closer with schools and build capacity in these schools to undertaken ongoing action to improve biodiversity.	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward. Environment education officer will act in an advocacy role to achieve this outcome. All actions within goal 4 are based around community engagement. Biolinks Plan and Deep Creek Ecocentre will also seek to do this.
7.-How well does the strategy provide programs to encourage land owners to enhance biodiversity on private and public land? (Scale 1-5)	**8. Please provide any additional program ideas you may have to encourage land owners to enhance biodiversity.**	

Survey questions and responses		Council's response
1	More funding.	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward.
1	stop rezoning farm land for housing	Biolinks plan will address this issue. This is also a broader state government planning issue.
3	na	
4	Native plant vouchers.	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives.
3	Again, more money to support residents undertaking biodiversity projects will get results. The power of showing people what lives on their land should not be underestimated! If they know what is there they will care, and dollars invested to protect and enhance such assets is likely to leverage much more investment by residents.	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward. Environment education officer will act in an advocacy role to achieve this outcome. All actions within goal 4 are based around community engagement. Biolinks Plan and Deep Creek Ecocentre will also seek to do this.
3	Provide incentive for developers to encourage new residents to plant indigenous gardens - discounted rates, park facillites (benches, signage, play equipment) etc. Gardens for Wildlife program great, but under-resourced. See above comment.	Developer landscape guidelines seek to increase indigenous planting near biodiversity areas. In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward.
3	Grants for weed removal, free training and resources for future weed management. Workshops and training into urban landscapes and encouraging native flora in residents backyards.	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward. Environment education officer will act in an advocacy role to achieve this outcome using Gardens 4 Wildlife. Biolinks Plan and Deep Creek Ecocentre will also seek to do this.
4	The previous question asked how but it doesn't address the fact that most people won't read it (i would love to be wrong on that)	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward. Environment education officer will act in an advocacy role to achieve better community education.
1	see above	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward. Environment education officer will act in an advocacy role to achieve better community education.
2	The strategy on provides outlines and comments on programs - it doesn't give specifics of what they are or who they are for, so the strategy itself doesnt provide the programs - the programs are there but there isn't a lot of 'new' within it	Strategy is a high level document. More than 50 actions have been identified, most of which are new initiatives.
3	Land for Wildlife programs & Trust for Nature covenants.	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward. Environment education officer will act in an advocacy role to achieve better community education.
4	Constant weed control. Increasing the participation of Weedbusters Week and Trees for Weed swap, very good.	Many of the actions within the Action plan support this response. Officer EFT has been brought forward. Environment education officer will act in an advocacy role to achieve better community education.
1	Strategy should seek ways to invest in landowners to take action through a number of awareness programs, grants and demonstration sites. Linking bushfire risk with biodiversity especially nth of the hwy needs more emphasis.	Many of the actions within the Action plan support this response. Environment education officer will act in an advocacy role to achieve better community education.
	9.-Do you have any other comments about the strategy?	
	The document lacks structure which makes it difficult to read and understand.	The document is highly complex in that deals with an extraordinarily diverse range of issues and may be difficult to initially understand.
	stop trying to change our rural towns and leave them as they are a Rural Town!	SBB ESO will seek to retain native species and the natural environment.
	It is great to see that wildlife shelters are mentioned in this strategy	Comment supports BCS

Survey questions and responses		Council's response
	It currently appears like a dry read with lots of information. It may work better to be concise, straight to the key points with more pictures.	Final published plan will be more appealing to the reader.
	I think this strategy has properly identified the biodiversity issues in the shire and set a good general road map in moving forward. I do however, feel that the plan is underambitious, and as a result unlikely to achieve its goals (though the goals are sound). To achieve meaningful improvements to biodiversity we need to be far more ambitious, in terms of both dollars and timelines. By 2028 we won't need an action plan for three priority threatened species, because they will be gone by then, plain and simple. The proposed education officer and biodiversity officer roles should start in the next 12 months to allow for proper baseline assessment and to identify and foster key relationships early. These seem to be pivotal to the success of this plan.	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward. Environment education officer will act in an advocacy role to achieve better community education.
	Overall, I was very pleased with it and it looks very exciting. The points regarding biolinks and habitat corridors was great to see as landscape ecology/conservation is having an ever increasing value in biodiversity conservation.	Comment supports BCS
	I wonder if Connect or the Gazette could have regular local Biodiversity stories for people to read, learn from and look forward to?. I know that does take another person to co-ordinate regularly so maybe not viable.	Environment education officer will act in an advocacy role to compliment this point.
	nope	
	Biodiversity is not just indigenous. Biodiversity considers the entire ecosystem. So whilst exotic street trees or native plants not indigenous to the area may not fulfil the aspirations of the strategy, they are key habitat and provide all of the same key mental and physical health benefits listed for indigenous environments. I get that we need to preserve what we had but this is not valuing anything unless it is indigenous, riparian habitat.	The BCS has preference on indigenous species, but it is not advocating the removal of all other species. BCS has been updated to include Climate Change strategy which will loComment supports BCS more broadly than indigenous species. Some of the respondents points are not supported by science.
	Great work, very comprehensive. Few minor spelling and grammatical errors only.	Comment supports BCS
	I thought it was an excellent document and well done to all concerned in getting to this stage. I hope this will be an active and living strategy and funds WILL be provided and sort to allow all the actions to be carried out over the ten years. I did not see anywhere written about Wright Forest as a significant area, although managed by Parks Vic. It is part of the corridor to Emerald Lake Park and Pepis land in Emerald and significant for Powerful Owls. The new Natural Reserves Team has been a significant help in the weed management of Bushland Reserves and assisting Friends Groups, but I could not see in the actions any increase in this team included, and it must if there is to be more weed control work done in these reserves. Roadsides and nature strips will continue to be areas that require community and government agencies to come on board and protect the biodiversity and remove the weeds. Compliance issues need to be more forceful.	Actions for Bushland team are identified in Action plan. BCS is high level document so does not have specifics down to reserve level, although reserves are specifically identified in appendix. In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward.
	The strategy could consider the implications of climate change predictions and to build capacity in the community on how best to adapt and mitigate practices in the shire both on public and private land.	Information on climate change has been added to BCS

Direct feedback (via email)

	Community comments/feedback	Council's response
Response 1	Increase in funding for Mt Cannibal bushland reserve – with increase in population the use of the reserve, more maintenance of the track is required to prevent erosion and loss of species as impromptu tracks are made around dangerous sections of 'made track'.	Noted. In response to community consultation budget increases were sought in a range of Council reserve projects. The BCS does not address specific reserve management issues.
Response 2	Page 8. I would move point 4. Engage & Educate could be made the first point.	Feedback has been considered.

	Community comments/feedback	Council's response
	Page 11 the strategy talks about the coastal area of the Shire but doesn't mention coastal erosion.	Information on climate change has been added to BCS, which will address specific issues such as coastal erosion. This has been added to the document.
	Figure 2: Land managed by CSC – showing significant roadsides • could include the roads of significance on the Cardinia Shire boundary in the neighbouring shires. It may be possible to connect them to the areas in Cardinia.	This was not possible to undertake within the scope of the BCS
	Figure 3: Biodiversity hot spots in Cardinia Shire – showing significant waterways • Other water courses that could be included are King Parrot, Musk, Heifer and Adams creeks. Although degraded, these creeks may present possibilities. Also water courses such as the Lang Lang River are not shown extending beyond the Shire boundary • The map shows all the township boundaries with the exception of Emerald and Cockatoo • The regional park along Cardinia creek between Casey and Cardinia could also be included in the map	Have added Musk King Parrot and Adams Creek waterway to Bayles into the map. Taken out all township boundaries.
	Page 17 has a list of invasive animals which could include Starlings and Honey Bees.	Document has been amended to reflect this comment.
	Page19 talks about raising the environmental awareness within the council organisation. This requires cultural change and the organisation may now be ready for it.	Comment supports BCS
	The council partnership with the Biosphere is not mentioned and could be included somewhere in paragraph 8.4 maybe	Document has been amended to reflect this comment.
	Action: Investigate a water balance study to assess the impact of new dams on minimum stream water flows **Is this a council responsibility?**	Yes in collaboration with Southern Rural Water. Amended document.
	Action: Implement conservation and education signage for priority bushland reserves **About time. It should also include an easy to navigate website of all council owned and managed sites and why they are significant.**	Comment supports BCS
	Action: Undertake biodiversity monitoring in priority NRA's to inform on biodiversity health and enable evaluation of reserve management and assist with reporting against strategy objectives **If this is to provide a baseline to track improvement or otherwise, it is important.**	Comment supports BCS
	Action: Undertake an ecological controlled burn at Mount Cannibal bushland reserve and additional priority reserves as required. **I already had a question on this action before the fires as the areas of council owned and managed land are often small. This may not give the best outcome both for environmental or fire management**	This action has been removed.
	Action: Increase the 2018-19 Trust for Nature rate rebate to meet CPI **I declare a direct interest. It should be increased at the same percentage as the rates.**	Budget amended to consider this request.
	Action: Identify and consider strategic land purchases that enhance Cardinia's biodiversity **Could also encourage land holders to put Trust for Nature covenant on suitable land.**	Advocacy for the TFN subsidy to be increased will incentivise this program.
	Action: Work with universities to develop farm demonstration sites that monitor farm productivity as a result of conservation works (ecosystem services). Year 1 of 10-year project with set up costs only needed in year 1. **The Westernport Catchment Landcare network is already working in this area. It's maybe worth contracting Peter Ronalds**	Document has been amended to reflect this comment.
Response 3	Page 5, 3rd paragraph. Add altered fire regimes, to the list of threats to vegetation deterioration. It could also be added to P6 last paragraph and P17 first paragraph. This sets up having an overall recommendation for ecological burns in appropriate bushland reserves designed to maintain species diversity and is dealt with in your action no. 32.	Document has been amended to reflect this comment.
	P8, Objective 1.2 " extent of key threatened species Add: sites of significance. Just improving key species, from a biodiversity perspective, does not seem adequate. Key species are limited in number and distribution, whereas if the goal is to achieve a net gain in overall extent and condition of habitat then including sites of significance provides a much larger area targeted and a better outcome for this goal.	This concept has merit, however requires substantial additional work to define 'sites of significance' to ensure the objective is SMART.
	P8, Objectives 2.2 Add "regeneration of indigenous vegetation". We don't see how the goal of enhancing the quality and quantity of native vegetation could be achieved by just revegetation The benefits of regeneration are considerable as the plants that come back have evolved in the local area, are well suited to local conditions, often do better than vegetation that has been planted and, most importantly, usually consist of greater species diversity than that which has been planted. It is usually achieved by fencing areas from stock allowing understorey and trees to come back To achieve regeneration fencing can be	The other BCS objectives meet the issues that have been identified. In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward. Environment education officer will act in an advocacy role to achieve better community education.

	Community comments/feedback	Council's response
	required through planning conditions placed on permits, assisting Landcare groups in applying for grants, plus council could bring in its own biodiversity scheme to provide financial assistance to landowner to fence significant areas/corridors etc. The number of hectares protected could measure outcomes. We recommend funding for such a program of approximately $30,000 pa. Revegetation should also be added to P18, challenge number 6, as well as having an added goal of assisting, and an added opportunity of a biodiversity scheme.	
	P8, Objective 2,4 The objective seems too broad to protect biodiversity values. Delete "in defined catchments" and Replace with "sites of significance/high biodiversity areas."	There may be reasons to implement programs to improve agricultural productivity, or to meet community goals, so this definition provides flexibility with Council programs.
	P11, No 6 Environment and biodiversity section It would be good to add a section on sites of significance plus a map showing where they are located. It would be of excellent educational value for residents to see and know where these are located. Plus it would provide a launch pad for specific recommendations on sites of significance, which seem to not even be mentioned in the draft strategy.	Maps 1 and 2 represent this. Elaborating on the sites of significance as an educational tool is a good idea. Undertaking this piece of work would require significant staff time. The action could be addressed as a future educational initiative.
	P11, third paragraph from the bottom of the page Add mangroves to the plant communities, as they too are important fish nurseries, and protect the coastline from erosion. Note that 33% of sediment entering Western Port comes from eroding coastline in Cardinia. The sediment reduces light to the seafloor and thus seagrass coverage.	Document has been amended to reflect this comment.
	P14, Map There's a new Trust for Nature property along Menzies Creek in Clematis, and is the TforN property along Sanders Rd in Garfield North on the map or is it marked correctly?	The map is representative only of the important biodiversity sites within Cardinia Shire.
	P17, Re the discussion about pest animal control, it would be good to mention the very effective pest animal control program in Garfield North, which has helped protect Mt Cannibal and Cannibal Creek Reserves.	This information is already listed in the text.
	P18 Table 2, No 3. Opportunity Add regeneration.	Document has been amended to reflect this comment.
	P18, Table 2, No 4 Challenge. Add altered fire regimes to the threats. And in the Opportunity section Add regeneration and ecological burns. Note ecological burns have taken place previously which, amongst other things, have helped the Southern Emu Wren in Chambers Reserve.	Document has been amended to reflect this comment.
	P18, Table 2, No 5 Opportunity. Add Assist already successful and established pest animal activities.	Document has been amended to reflect this comment.
	P18, Table 2, No 6 Opportunity. Add regeneration.	Document has been amended to reflect this comment.
	P21, Add, appropriate environmental permit conditions.	Document has been amended to reflect this comment.
	P23, 8.4, first paragraph, Add: the Cannibal Creek Catchment Biodiversity group to the list.	Document has been amended to reflect this comment.
	Table 2 actions (additional staff resources) Are very strongly supported especially as the municipality's population has grown considerably and with it increased pressure on the environment, the need for more education, to provide appropriate planning and to implement biodiversity programs.	Comment supports BCS
	Nos 11, 19, 26, 29, 35, and 50 are strongly supported.	Comment supports BCS
	Action: Deliver biodiversity education sessions throughout the organisation to raise environmental awareness in Council decision making **Add: invite councillors to attend the educational sessions too.**	Document has been amended to consider this comment.
	Action: Continue to support Eastern Region Pest Animal Network initiatives including the development of a regional Pest Animal Management Plan **Add: support existing very successful pest animal programs. Plus add $2,000 of support each financial year. At present council's lack of financial support for this program is not appreciated locally.**	In the lack of state advocacy or meaningful leadership, Council is participating in the development of a regional pest animal strategy with 16 other stakeholder agencies. On completion of this strategy, Council will be able to proceed with local pest animal initiatives within the Shire.
	Action: Undertake an ecological controlled burn at Mount Cannibal bushland reserve and additional priority reserves as required. **Edit: no longer relevant at Mt Cannibal as has burnt. But an opportunity now exists to use the funding, in the short term, for a post fire monitoring program, then based on information gained, prepare an ecological burn program for the future. The information gained would also be invaluable for future ecological burn programs at other reserves.**	Post burn monitoring will be undertaken by the Bushland team. An ecological burn program has been more clearly articulated in the document.
	Action: Identify and consider strategic land purchases that enhance Cardinia's biodiversity	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought

	Community comments/feedback	Council's response
	We strongly support this recommendation but consider that ways of financially implementing purchases should be explored including, amongst other mechanisms, a small levy on rates, or specific funding set aside annually in the budget which would accumulate over time providing enough funding for purchases. Other municipalities do this eg Noosa Shire Council.	forward. Council will be briefed on requests to purchase land as the opportunities arise and will be considered on their merit and available budget.
	Action: Stage 1 Undertake biolink mapping across the municipality. Map local and regional biodiversity assets and develop biolink corridors at different scales on private and public land.* **We strongly support biolink mapping and their inclusion in the Planning Scheme. We hope that the Cannibal Creek catchment area from the Bunyip State Park south to Bunyip or even Western Port can be undertaken in the next financial year. Much of the area has been burnt and there is a need to cement their existence and protection in people's minds.**	Comment supports BCS
	Action: Continue to support and increase friends group grant budget to accommodate: • the establishment of new friends group • the support of Cardinia Environment • Coalition's management of public land **Add: the costs associated with insurance/Landcare membership, which also covers insurance.**	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Community groups have been advised to seek government funding to support their insurance costs.
	Action: Increase the existing biodiversity incentive grant to community group initiatives on private and public land to conserve threatened species **We strongly support the recommendation Add: sites of significance and areas with high biodiversity values. If council is serious about biodiversity values the size of the grant should be much greater e.g. $20,000 plus per annum.**	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward.
	Action: Initiate contact with new landholders to raise awareness of the biodiversity related resources and available Landcare networks **Add: Friends groups.**	Greater Friends Group contact including undertaking strategic action planning has been identified in the BCS.
Response 4	Respondent 4 provided overall comments, both positive and negative, the items below are the respondents recommendations:	
	1. That Cardinia Shire Council (CSC) with other Councils, the MAV and VLGA, lobby the state and federal governments for major increase in funding specifically for biodiversity outcomes. While this may be happening there is no mention in the Action Plan. This should be done with support from the environmental NGOs and Statutory Authorities such as Trust for Nature.	Document has been amended to consider this comment.
	2. That CSC commit up front and in the Vision to reversing the decline of native species, communities and ecological processes in the CSC area while acknowledging that these are stretch goals and that they require a major increase in funding.	Council can only set targets that are within our control and that can realistically be achieved. Many threatening processes that impact native species are outside of Council's control. In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward.
	3. That Council implement multi-year funding grants;	All actions within goal 4 are based around community engagement, many provide grant opportunities. In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward.
	4. That where grants to NGOs (from anywhere) have been successfully implemented in the last three years that building on this work becomes a priority for further grants/Council actions so as not to lose the good work that has been done, or the momentum of landholders or community groups. An example is the Cardinia Creeks WEEDCAP grants to Johns Hill Landcare that lasted for three years and resulted in considerable behaviour change of landholders (Dandenong Ranges Environment and Bushfire Reduction Grants). This area, which Johns Hill is continuing to fund at 0.1EFT (so inadequate), should then be a high priority for roadside funding in spite of not coming up on the top priority list of 50 most important roadsides. See Figure 2 (p12) of top 50 significant roadsides managed by CSC	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward. The original draft budget and potential additional funding will assist Council to provide follow grant funding for successful projects. Projects for roadside assessment have been detailed in the action plan. Biolinks planning will assist the process of priority funding.
	5. That Yarra Ranges Landcare Network be included somewhere given that Johns Hill Landcare, a significant stakeholder on Council area around Emerald, is a member of that Network.	The BCS is a high level document. Individual community members have not been listed. Grants can provided on their merit to any group working within Cardinia Shire boundaries.
	6. That a much higher priority and funding (than is evident today) be given to Council managing its own land	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward.
	7. Clarify link between Goals/Objectives and Action Plan more clearly	The linkage is outlined and within the scope of the strategy.

	Community comments/feedback	Council's response
	8. Consider a revised vision to: Cardinia Shire's native plants and animals and habitats are flourishing, resilient and valued by council and the community	Will consider this alternative vision. There are similarities to the current vision.
	9. Goal 1, objective 1.1	Comment supports BCS
	10. Goal 1, objective 1.2	Comment supports BCS
	11. Goal 2, objective 2.1 That funding by quadrupled for this item as this must be very high priority for Council.	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward.
	12. Goal 2, objective 2.2 I think this is an activity to achieve an objective not an objective itself. Recommendation: This is where link with goals/objectives/SWOT/Action Plans would help.	This goal meets 'SMART' specifications and will inform on objective 2.
	13. Goal 2, objective 2.3 Not aware of these – should I be ? - so while it sounds good I can't tell.	These will be elaborated on in the Biolink project and monitoring programs identified in the action plan.
	14. Goal 2, objective 2.4 This is a long time before implement a pest animal program. It's in Action Plan (Action 7) but not till 2022. Recommendation: bring this Action forward focusing on control and management of domestic cats, with incentives/fines/compliance etc	In the lack of state advocacy or meaningful leadership, Council is participating in the development of a regional pest animal strategy with 16 other stakeholder agencies. On completion of this strategy, Council will be able to proceed with local pest animal initiatives within the Shire. In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward.
	15. Goal 3, objective 3.1 Suggested wording: In partnership with community and using the best available science that connectivity plans, actions, resources necessary are finished. and preferably sooner rather than later as this will drive other actions.	Objective has been updated to include 'community partnership.'
	16. Goal 3, objective 3.2 Agree! But identify priority regional initiatives taking account connectivity plans etc. to control pest plants and animals.	Wording of objective updated
	17. Goal 4, objective 4.1, 4.2, 4.3 That the WeedCAP/neighbourhood programs are actively supported and expanded to be a community wide event in some way.	BCS is a high level document. Future programs and initiatives will provide greater detail on specific actions. The BCS action plan supports this program.
	18. Action: Liaise with local aboriginal groups over the annual Council natural resource area works plans **That funds be made available for input from TOs. That a longer term program be discussed with TOs around land management and this could be done in partnership with Trust for Nature**	This is an action in the Action Plan.
	19. Action: Undertake an ecological controlled burn at Mount Cannibal bushland reserve and additional priority reserves as required. **Funding allocated for this burn should be transferred to ecological monitoring of Mt Cannibal given the recent wildfire**	In response to community consultation budget increases were sought in a range of Council reserve projects.
Response 5	Respondent 5 provided feedback on the structure of the strategy, with changes to heading names and location of text.	This has been reviewed and the current structure will remain
	Action plan - looks like the budget for the Biodiversity is too low. The existing funding is $4 million short of proposed implementation costs over the 10 years of this Strategy.	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward.
	Appendix A - Looks good BUT not complete as only goes to the letter 'C'	This was an error when the PDF was created and will be rectified in final version
	Appendix B Indigenous Fauna - WHAT THE... This includes PEST SPECIES including deer, goat, cats, sparrows, rabbit ... NOT INDIGENOUS	Legend in table identifies species that are introduced and are marked accordingly.
	Appendix C - Is there a map that relates to the (Community 30), (Community 24) etc Appendix D This list is fantastic. Perhaps part of the goals could be to grow and support volunteer groups to take on a local Bushland Reserve.	A map can be provided for individual properties upon request. Satisfied with BCS text

	Community comments/feedback	Council's response
	Johns Hill Landcare looks after: Avonsleigh Bush Reserve, Bob James Reserve (Emerald Quarry Reserve), Ridge Road East Reserve	The BCS is a high level document. Cardinia has not provided detailed information about specific community groups.
	Appendix F, G & H This is raw data, needs analysis. Would be good to do again in a few years and do a comparison. Should not be in this Strategy	Correct, this is the raw data from the survey and workshops and will remain in appendix as background data that helped form the strategy
	Appendix J - This list needs to include under: Regional Strategies – PPWCMA Invasive Plants and Animals Strategy	This has been updated.
Response 6	Funding for Gardens for wildlife program	In response to community consultation budget increases were sought in a range of Council reserve projects, threatened species and community conservation initiatives. Officer EFT has been brought forward. Environment education officer will act in an advocacy role to achieve better community education.