

# **Nillumbik Shire Council submission to the Victorian Parliament's Environment and Planning Committee Inquiry into Ecosystem Decline in Victoria**

Nillumbik Shire Council is pleased to make a submission to assist the Victorian Parliament's Environment and Planning Committee in its inquiry into Ecosystem Decline in Victoria.

## **Executive summary**

The intent of this submission is to highlight that Nillumbik Council has limited information about biodiversity in the Shire and ecosystem health. There is evidence from Commonwealth, State and other agencies as well as local observation that biodiversity in Nillumbik makes a significant contribution of ecosystem services to greater Melbourne. Biodiversity in Nillumbik is largely the consequence of stewardship of private landowners and land reserved for nature conservation such as Kinglake National Park and Council's Pantan Hill Bushland Reserves System.

There is a multiplicity of factors impacting biodiversity in Nillumbik in localised ways and many competing outcomes that Council and all landowners must manage including bushfire mitigation, safety of roads and electricity supply, in addition to biodiversity conservation.

Council has management programs on public and private land for biodiversity outcomes including targeted species conservation projects as well as landscape scale projects that: are based on an understanding of priorities for biodiversity conservation; are in response to community concern; and are limited by available resources.

Government could provide more support to Nillumbik (both Council and the community) in terms of funding and legislation to help understand local biodiversity values, better prioritise investment and protect biodiversity for future generations.

A number of recommendations are provided in full for the Committee's consideration at the end of the submission. A summary is provided below:

- Greater focus on local and landscape scale biodiversity monitoring and data collection is needed.
- Government needs to be a leader in reducing greenhouse gas emissions and in implementing adaptation and resilience strategies to protect species from extinction.
- Collaborative eradication of invasive plants and animals across all land tenures needs to be encouraged and incentivised.
- Emphasis on social and environmental considerations is needed for decision making, to ensure that economic considerations are not the dominant driver.
- Facilitation of public and private landowners, working in partnership with First Peoples, is needed to incorporate indigenous land management practices that assist with the restoration of the ecology of habitats.
- Adequate and long-term funds are needed to achieve landscape-scale outcomes.
- Greater opportunities for increasing and diversifying employment through environmental restoration are needed.
- Greater emphasis on public education is needed to build knowledge and expertise with the public to promote ecosystem protection.
- Greater emphasis on restoring ecosystems and promoting their resilience is necessary to mitigate the impacts of current actions and improve conditions for the future.
- Improvements to current environmental regulation are needed.

- Environmental offsetting should only be used as a last resort.

## **Introduction to the Shire of Nillumbik**

The inherent values and management of the landscape of Nillumbik date back thousands of years, under the stewardship of the Wurundjeri-willam clan of the Woi wurrung speaking people and territory.

Today 91% of the Shire of Nillumbik is classified green wedge, and the remaining 9% is contained within the metropolitan urban growth boundary. It is a peri-urban Shire.

The Shire covers an area of 432 square kilometres and contains beautiful rural areas, bushlands, landscapes and open spaces; urban areas with strong neighbourhood character; and relatively low population densities. It stretches from Kinglake National Park to the north and east, Warrandyte State Park and the Yarra River in the south and Plenty Gorge Parklands to the west; and there are a multitude of bushland reserves and water courses throughout the Shire.

We are home to over 1,000 indigenous flora species and 342 indigenous fauna species; as well as 415 introduced flora species and 26 introduced fauna species. Detail is provided in Section 1.2.

The ***Nillumbik Council Plan 2017 – 2021*** provides the overarching remit, and reflects Council's aspiration to make Nillumbik the world's most liveable Shire. This includes strategies and priority actions to review and communicate Council's climate change strategies, and work with the community to review and implement environmental policies to protect biodiversity and conserve natural resources.

Our ***Nillumbik Green Wedge Management Plan 2019*** acknowledges that managing the landscape to mitigate bushfire risk, protect and enhance biodiversity, mitigate and adapt to climate change, promote agriculture and tourism and support rural living requires finding common objectives. Key to implementing the Plan is Council supporting the ability of people to cooperate and share knowledge. It is guided by 10 principles: Leadership; Aboriginal voice; A whole-of-shire approach and recognition of Nillumbik's relationship to metropolitan Melbourne; Managing change for future benefit; Collaboration and connectedness; Celebrate, appreciate and enjoy local identity and the landscape; Social equity; Safety, wellbeing and resilience; Conserve and enhance our heritage; and Sustainability and the precautionary principle. Examples of relevant objectives of the Plan include:

Objective 02.1 Protect and enhance biodiversity, habitats and habitat links

Objective 02.2 Enhance climate change resilience, mitigation and adaptability

Objective 02.3 Reduce the number and impact of bushfire incidents

Objective 02.4 Improve stream condition, water flows, water quality, catchment quality and people's connection to their waterways

Objective 02.5 Conserve remnant vegetation and rural landscapes to maintain the character and natural beauty of the green wedge.

Associated Council actions are listed on page 24 of the Nillumbik Green Wedge Management Plan 2019<sup>1</sup>

## **Inquiry Terms of Reference:**

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<sup>1</sup> Nillumbik Shire Council Green Wedge Management Plan, November 2019

<https://www.nillumbik.vic.gov.au/files/assets/public/council/council-publications/strategies-etc/green-wedge-management-plan-november-2019-web.pdf> p24

This submission provides responses to each of the five matters being considered under the terms of reference of the Inquiry (in sections one to five below). A summary of the associated recommendations provided has been collated and is provided in Section 6 for ease of reference.

Of note, the discussion of biodiversity within Council's submission generally relates to the natural ecosystems and habitats of Nillumbik with its complement of indigenous flora and fauna, including fungi and micro-organisms, and its genetic diversity - rather than the broader definition provided in the Victorian government's biodiversity strategy *Biodiversity 2037*:

*'Biodiversity encompasses all components of the living world: the number and variety of plants, animals and other living things, including fungi and micro-organisms, across our land, rivers, coast and ocean. It includes the diversity of their genetic information, the habitats and ecosystems within which they live, and their connections with other life forms and the natural world.'*<sup>2</sup>

## **1. The extent of the decline of Victoria's biodiversity and the likely impact on people, particularly First Peoples, and ecosystems, if more is not done to address this, including consideration of climate change impacts:**

### **1.1 Challenges around how biodiversity is recorded and ecosystem health is determined**

Located within Metropolitan Melbourne, Nillumbik has high tree cover and significant areas of high biodiversity value which are described in Section 1.2.

The health of the biodiversity and ecosystems of Nillumbik is improving or declining variously in different pockets of the Shire, at different points in time, but these respective trends tend to be largely unknown and undocumented.

To understand this state of the local environment, Council broadly relies on data collated by State government agencies such as the Department of Environment, Land, Water and Planning (DELWP) on flora and fauna distribution and status, and Melbourne Water for data on waterway health. This data is not always comprehensive.

At present, with the exception of one small but important forest health monitoring project that is funded via philanthropic means, and a small threatened orchid project, Council is not resourced via any government funding stream to undertake biodiversity monitoring, and as such the extent of the health and/or decline of Nillumbik's ecosystem, associated trends and likely causes, is difficult to measure.

Evidence-based decision making is critical to improving outcomes for biodiversity. A welcome outcome of this Inquiry would be the enabling of greater focus on local and landscape scale biodiversity monitoring and data collection, to feed into DELWPs Strategic Management Prospects (SMP) decision support tool which has been designed to help biodiversity managers identify and prioritise management options in a transparent, objective and repeatable way – and to identify the most effective and efficient management actions to benefit biodiversity across Victoria.

### **1.2 Nillumbik's natural environment and biodiversity**

Nillumbik's natural environment includes an array of vegetation types including dry forests and woodlands, wet and damp forests, cleared rural land, scattered trees, and waterways; and is home to over 1,000 indigenous flora species including 73 Victorian listed significant species, and 342 indigenous fauna species including 70 Victorian listed significant species

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<sup>2</sup> Department of Environment, Land, Water and Planning 2017 *Biodiversity 2037* p4

such as the Brush-tailed Phascogale, Bandicoot, Sugar Glider, Eltham Copper Butterfly, Swift Parrot and Platypus<sup>3</sup>.

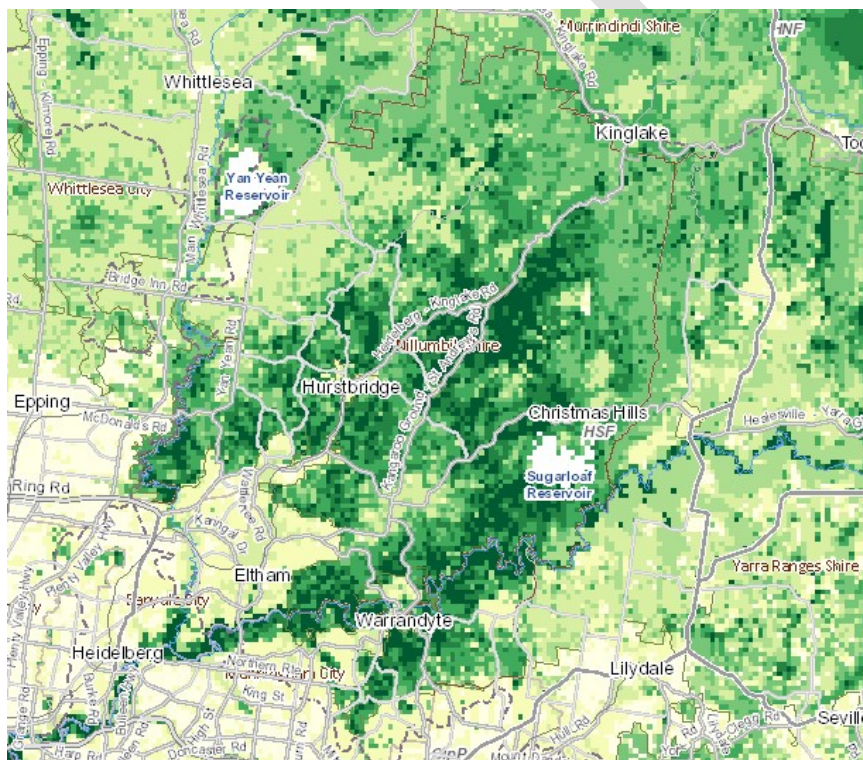
**Appendix 1** contains a list of species in Nillumbik that are listed as threatened flora and fauna species of national significance under the Commonwealth *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*.

Note that there is one species recorded as endemic in Nillumbik (i.e., it only occurs in Nillumbik). This is the EPBC listed Charming Spider Orchid *Caladenia amoena* and the three known populations that are left are all within Nillumbik.

The Rosella Spider Orchid *Caladenia rosella* may also be considered to be endemic as the recovery team have been researching records and cannot confirm any populations outside of those in Nillumbik.

The following map from the State government's Nature Kit illustrates the distribution of areas of high biodiversity within the Shire of Nillumbik. It is an indicator of ecosystem health. The darker the green, the higher the biodiversity values.

**Nature Kit - Strategic biodiversity values Nillumbik Local Government Area, Scale 1:250,000<sup>4</sup>**



These biodiversity values are recognised in the Nillumbik Planning Scheme by an Environmental Significance Overlay which covers an area of approximately 24,000 hectares or 55 per cent of the Shire.

In terms of the importance of Nillumbik's natural environment and its biodiversity to people, it sustains many rural businesses including agriculture, agribusiness, viticulture and tourism ventures – which all rely on a healthy ecosystem to thrive; and it is instrumental in providing the neighbourhood character of our urban suburbs and rural settlements.

<sup>3</sup> Victorian Biodiversity Atlas 2019, Protected Matters Search Tool 2019

<sup>4</sup> From NatureKit, Department of Environment, Land, Water and Planning, July 2018 Scale 1:250,000  
<http://maps.biodiversity.vic.gov.au/viewer/?viewer=NatureKit>

Furthermore, Victoria and Nillumbik's biodiversity is vital for and significant to Indigenous Australians, including environmentally sensitive areas which are important to Indigenous Australian's laws, customs and custodianship.

And it underpins the health and wellbeing of all of our residents and visitors by providing access to nature, recreation, open spaces, healthy soils, clean air and water. According to the World Health Organisation 2005, the restorative value of biodiversity is attributed to improved physical, mental and spiritual wellbeing – the need for which is expected to increase in the face of increased global pressures such as climate change and pandemics. The COVID-19 pandemic has highlighted the importance of access to nature and natural vistas to human health, as people find ways to cope with lockdown restrictions.

### **1.3 Nillumbik's ecosystem decline / biodiversity management challenges**

Victoria's biodiversity strategy *Biodiversity 2037*<sup>5</sup> identifies species loss in Victoria over time, the causes of this, and the range of challenges in conserving biodiversity into the future.

Biodiversity in Nillumbik faces a range of the challenges documented in *Biodiversity 2037* such as current and future climate change, fire, diminishing water supplies, heavy rainfall events, invasive species, vegetation clearing, soil degradation and debatable best use of land.

In addition, there are processes listed as threatening under the EPBC Act which are impacting on indigenous flora and fauna within the Shire, including:

- Competition and land degradation by rabbits
- Land clearance
- Dieback caused by the root-rot fungus (*Phytophthora cinnamomi*)
- Novel biota and their impact on biodiversity
- Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants
- Loss of climatic habitat caused by anthropogenic emissions of greenhouse gases
- Predation by European red fox
- Predation by feral cats
- Aggressive exclusion of birds from potential woodland and forest habitat by over-abundant noisy miners (*Manorina melanocephala*).

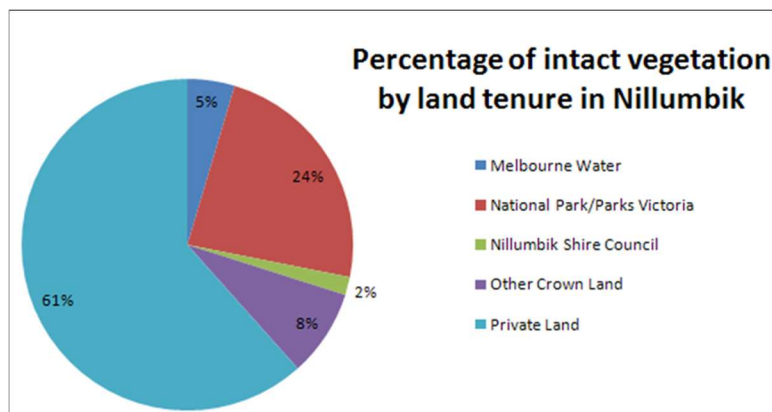
Consideration of the impact of these challenges to biodiversity is important and warranted, as if action is not taken to address these challenges, ecosystem decline will be inevitable.

Council plays an important role in coordinating such action across the landscape, particularly as the number of individual stakeholders is large; as well as having an important role in owning and managing land for conservation purposes (as discussed in Section 1.5).

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<sup>5</sup> Department of Environment, Land, Water and Planning 2017 *Biodiversity 2037*

The following pie-chart shows the distribution of land tenure of relatively intact native vegetation in Nillumbik<sup>6</sup>. Of note, the majority of Nillumbik's biodiversity (61%) is located on land in private ownership. As such community landowners are a very important stakeholder in managing land and proactively planning for ecosystem and biodiversity enhancement.



Some of the key management challenges for Council in undertaking this role include:

- Lack of readily available data about local species and habitats and threatening processes to be able to benchmark impacts. Council is not resourced to collect this information at the scale required.
- Understanding the significance of biodiversity across the landscape and how to allocate limited resources for biodiversity conservation outcomes.
- Working across different land tenures for biodiversity outcomes.
- Balancing the interface between engagement and support for private landowners vs enforcement.
- Managing for competing outcomes. For example, keeping roads safe for road users and ensuring the safety of the electricity supply, results in removal of roadside vegetation which may provide some habitat connectivity for native wildlife.

#### **1.4 The main causes and associated impacts of biodiversity decline within the Shire of Nillumbik, if more is not done to address this, include:**

At a local government level, Council is uniquely positioned to witness firsthand some of the direct impacts of human activity and climate change on native biodiversity and ecosystems, and how these impacts can reduce cultural values, ecosystem values, the productivity of the landscape, and enjoyment by residents.

Significant management effort at a local scale is already required to halt declines where they are occurring and reverse damage already realised - and more effort and resources will be needed to restore and maintain such habitats and to promote healthy ecosystems.

##### **1.4.1 - Climate Change**

Increasing temperatures, lower rainfall, more intense weather events, and increased fire risk impact Nillumbik's ecosystems and threaten residents.<sup>7</sup>

<sup>6</sup> Department of Environment, Land, Water and Planning, Native Vegetation Extent Model, February 2013

<sup>7</sup> CSIRO and Bureau of Meteorology, Climate Change in Australia website (<http://www.climatechangeinaustralia.gov.au>), cited [November 2019].

Without action, more frequent and severe/intense fires within the Shire, for example, may negatively and directly impact wildlife, increase erosion and the spread of invasive weeds, reduce water flows, reduce biodiversity, reduce air quality, destroy natural habitats and recreational spaces, destroy homes and businesses, and increase safety risks to residents and visitors.

Vegetation loss impacts are also likely to be compounded by other impacts of climate change. With higher temperatures and reduced rainfall predicted in the CSIROs climate change models, climate change is predicted to have a marked impact on Nillumbik's biodiversity through many factors, including via changes in vegetation structure such as a decrease in foliage quality, and reduction in range for the majority of vertebrate species.

#### Potential species and diversity loss

The CSIRO has modelled the loss of certain species under changed climatic conditions (reduced rainfall, increased temperatures) and the projected impacts of these changes into the future may be significant. By 2050, assuming continuation of, or an increase in, existing emissions levels, the number of species of plants and animals that currently occur within Nillumbik Shire is predicted to decrease: amphibians (30% decrease), mammals (30% decrease), reptiles (40% decrease) and plants (50% decrease).<sup>8 & 9</sup>

In addition, the diverse plant communities currently found within Nillumbik are predicted to become more homogeneous – the current mosaic of 10 dominant vegetation groups is predicted to be replaced by a single dominant one (eucalypt woodlands with tussock grass understory), which would represent a significant ecosystem decline.

Refer to **Appendix 2** for maps produced by the CSIRO, modelling the impact on species and vegetation communities under a climate change scenario with a Representative Concentration Pathway of 8.5 which models a future with little curbing of emissions and CO<sub>2</sub> concentration continuing to rapidly rise, reaching 940 ppm by 2100.<sup>8 & 9</sup> Scenarios that represent the positive impacts on biodiversity should climate mitigation strategies be implemented have also been modelled.

Government has an important role to play in reducing greenhouse gas emissions to reduce or mitigate these impacts, and in implementing adaptation and resilience strategies to protect species from extinction.

Suggestions for long-term Biodiversity Adaptation actions to help reduce the impacts of climate change on ecosystems and their biodiversity include<sup>10</sup>:

- Facilitate ecosystem resilience and adaptability
  - Maintain and monitor large species populations
  - Manage nationally alien species
  - Restore local indigenous species introduce non-local native species when appropriate
  - Promote species-level genetic diversity

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<sup>8</sup> Williams KJ, Raisbeck-Brown N, Harwood T, Prober S (2014b) Potential degree of ecological change for vascular plants and mammals (1990-2050), A0 map-poster 1.1 – Southern Slopes NRM regions. CSIRO Land and Water Flagship, Canberra. Available online at [www.AdaptNRM.org](http://www.AdaptNRM.org) and <https://data.csiro.au/dap/>.

<sup>9</sup> Williams KJ, Raisbeck-Brown N, Harwood T, Prober S (2014b) Potential degree of ecological change for reptiles and amphibians (1990-2050), A0 map-poster 1.2 - Southern Slopes NRM regions. CSIRO Land and Water Flagship, Canberra. Available online at [www.AdaptNRM.org](http://www.AdaptNRM.org) and <https://data.csiro.au/dap/>.

<sup>10</sup> Unpublished presentation, Dr Kate Fitzherbert (Bush Heritage Australia), Alana Comican (Bush Heritage Australia), Dr Kirsten Williams (CSIRO), Colin Broughton (Nillumbik Landcare Network)

- Manage and restore habitat connectivity to support migration and range shifts, including gaps within the National Reserve System
- Identify, manage and protect refugia to mitigate future change
- Manage ecosystem processes
  - Maintain appropriate disturbance regimes
  - Facilitate dispersal when appropriate
  - Proactively formulate adaptation pathways frameworks, incorporating decision points that will trigger management responses
- Encourage positive land use changes for biodiversity
  - encourage low-input agricultural systems or native pastures over intensive agriculture, to maintain options for native biota and associate ecosystems

Nillumbik Council is already actively undertaking biodiversity adaptation actions such as managing and restoring habitat connectivity through projects such as Rivers to Ranges; managing ecosystem processes such as facilitating the dispersal of the Charming Spider Orchid and encouraging positive land use changes for biodiversity through providing an advisory service for residents together with the Council's Land Management Incentive Program grants.

#### Nillumbik's role in a cooler, greener Melbourne

*Plan Melbourne 2017 – 2050*<sup>11</sup> at Outcome 6 identifies the need for Melbourne to be a more 'sustainable and resilient city' citing Direction 6.4 in making Melbourne cooler and greener through implementation of policy 6.4.1 'support a cooler Melbourne by greening urban areas, buildings, transport corridors and open spaces to create and urban forest'.

Recent work undertaken by DELWP in 2018/2019 has identified, through analysis of vegetation coverage, urban heat and heat vulnerability across Melbourne, that in 2018 the northern region of Melbourne had tree canopy coverage of only 12.1% (6,886 ha) with much of this tree canopy being located on private residential land (46.3%) where impacts of bushfire vegetation clearance exemptions are most observed.

In the context of Nillumbik Shire, DELWP's own research in the area of tree canopy coverage demonstrates the importance the Shire has in providing substantial tree coverage for the northern region (and indeed the broader Melbourne area), where Nillumbik has the highest tree canopy cover by local government area of any local government area in Metropolitan Melbourne.

Given 91% of the Shire is Green Wedge this figure is not surprising, however this acknowledgement of Nillumbik's importance in assisting with the 'heat island effect' across Melbourne does not take into consideration the loss of vegetation across Nillumbik's urban areas, predominantly located in the south of the Shire, that has occurred over time; nor does it take into account the bushfire risk that tree coverage can contribute to.

Refer to **Appendix 3** for the map of tree canopy cover in Melbourne produced by Resilient Melbourne.<sup>12</sup>

### **1.4.2 – Bushfire**

There are two aspects of bushfire that are causes of biodiversity loss:

<sup>11</sup> Department of Environment, Land, Water and Planning *Plan Melbourne 2017-2050*  
<https://www.planmelbourne.vic.gov.au/home>

<sup>12</sup> Resilient Melbourne 2019 *Living Melbourne: our metropolitan urban forest*  
[https://resilientmelbourne.com.au/wp-content/uploads/2019/10/Urban-Forest-Canopy-Map\\_A2\\_HiRes.pdf](https://resilientmelbourne.com.au/wp-content/uploads/2019/10/Urban-Forest-Canopy-Map_A2_HiRes.pdf)



- Direct vegetation loss as a consequence of fire
- Vegetation loss as a result of landscape hazard management for bushfire (dwellings in BMO and Bushfire Prone areas)

#### Direct vegetation loss as a consequence of bushfire

Native vegetation in Nillumbik is generally adapted to bushfire and the cycle of vegetation succession in a natural forest can be dependent on regular fire, commensurate with the vegetation type. The north eastern area of Nillumbik was burned in the 2009 Black Saturday bushfires. There is potential that this type of fire, which burned at such high intensity, can destroy the soil stored seed bank and reduce the diversity of the regenerated vegetation community.

#### Vegetation loss as a result of landscape hazard management

The importance of vegetation (particularly native vegetation) is well established in State Planning Policy. However, changes brought about by the 2009 'Black Saturday' Victorian Bushfires Royal Commission saw a distinct and significant shift in the prioritisation of competing policy objectives with the introduction of (clause 13.02-1S: Bushfire planning) which declares that 'the protection of human life takes precedence over all other policy considerations'.<sup>13</sup>

Managing bushfire risk under both the planning and building systems was strengthened with the provision of exemptions from the need to obtain approval for the removal of vegetation around residential buildings. The legal, as-of-right removal of vegetation allows residents to reduce fuel loads and create 'defendable space', thereby mitigating fire risk on their property. It is noted these exemptions were implemented into all planning schemes across Victoria via clause 52.48 in 2011, and following the restructuring of the Victoria Planning Provisions and all planning schemes on 31 July 2018, the provisions (slightly amended) are now located in and set out in clause 52.12 (Bushfire Protection: Exemptions).

The exemptions apply regardless of whether a permit is required to remove vegetation under any other provision of the planning scheme (e.g. clause 52.17: Native Vegetation, Vegetation Protection Overlay, Environmental Significance Overlay or the like). That is, the exemptions trump all other planning permit triggers, meaning that Council does not have the power to prevent the removal of vegetation covered by the exemptions. Nillumbik's Major Activity Centres of Eltham and Diamond Creek are located in the Bushfire Prone Area mapping and are not located in the BMO and the 10/30 rule applies.

Council also understand that the Victorian Auditor-General's Office (VAGO) is undertaking work in this financial year, to 'determine whether the management of native vegetation clearing is protecting state and nationally significant native vegetation in the extended urban growth boundary areas'.

Some of these concerns were addressed by the 2009 Victorian Bushfires Royal Commission, particularly those concerning biodiversity. The Commission identified concerns that the 10/30 rule was not a 'one-size-fits-all solution, and there is concern about whether the rule could be used to permit widespread clearing to the detriment of important environmental or landscape values'.

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<sup>13</sup> Teague, McLeod & Pascoe, 2009 Victorian Bushfires Royal Commission final report, Volume II: Fire Preparation, Response and Recovery, 2009, p.243

### 1.4.3 - Invasive Animals

Invasive animals within Nillumbik, including feral deer, rabbits, foxes, feral cats, and Common Myna, reduce biodiversity through competition with and predation of native fauna, overgrazing of native vegetation, reducing the diversity and regeneration of native bushland (and in some areas denuding it to such an extent that native species have no food source or habitat), degradation of critical habitat niches for threatened species (e.g., destruction of Southern Toadlet habitat by deer), and altering resource and water availability to native species.

Impacts on humans include reduced biodiversity value of land and ecosystem function where invasive species are present, road hazards, and reduced productivity of croplands, pastures and livestock through competition for water and other resources and increased risk and emerging evidence of intra-species disease transmission (e.g., between deer and cattle).

Without ongoing intervention, invasive species impacts will reduce ecosystem function and biodiversity value. Collaborative eradication of pest animals across all land tenures needs to be encouraged and incentivised.

#### Case Study 1: Peri-urban deer management to achieve biodiversity outcomes

Deer are a hot topic in peri-urban areas such as Nillumbik, with deer numbers and coverage increasing exponentially. In response, Nillumbik Council is one of several Councils lobbying the State Government for a tougher stance on deer management, including requesting the release and implementation of the Victorian Deer Management Strategy, Guidelines for peri-urban deer management, and accreditation of deer hunters and controllers to deliver higher standards.

In a deer survey currently being conducted by Council, of the 111 contributions received by 22 April 2020 (the survey is open until 30 December 2020): 80% of respondents think deer are a problem, 77% have seen damage caused by deer in Nillumbik, 71% want deer populations controlled locally, 11% like deer and want them to stay, 65% have seen deer on their own property yet only 12% have undertaken deer control (shooting) on their property - with the majority of these respondents utilising the carcass for food for themselves or their pets; more people see deer along roads than anywhere else, 52% want to know what Council is doing to manage deer, 42% are interested in learning more about how they can control deer on their own property, and 29% want to join a local deer control network to collaboratively plan and control deer within their 'neighbourhood'.

Fortunately, Nillumbik Council is currently the recipient of state government 'Biodiversity Response Planning' grant funding and, at a smaller scale, federal government 'Communities Environment Program' funding which is funding pilot peri-urban deer control programs to achieve biodiversity outcomes within the Warrandyte to Kinglake habitat corridor in the vicinity of Sugarloaf reservoir.

During the first eight months of the deer control (November 2019 to July 2020, over approximately 23 nights), 182 deer have already been removed from the project areas, benefiting Nillumbik and our biodiversity, and also potentially forming the beginning of a containment line to help protect Manningham, Yarra Ranges and Banyule. The projects are also refining best practice in controlling deer in peri urban areas.

This funding is due to cease on 30 June 2021.

#### 1.4.4 - Overabundant Native Animals

An abundance of high quality food, permanent water resources and few natural predators has resulted in an overpopulation of kangaroos. This can result in farmland, property and habitat damage and risks to human safety; but can also result in over-grazing which leads to starvation. This is a wide-spread problem within Nillumbik and requires a collaborative approach between private landowners, Parks Victoria, and state and local governments to have efficacy.

#### 1.4.5 - Weeds

Environmental weeds in Nillumbik invade bushlands, threaten native biodiversity, prevent recruitment, and significantly degrade natural environments and the functioning of ecosystems by competing for light, water, nutrients, space and pollinators. Agricultural weeds impact humans by reducing the productivity of crops and pasturelands, and such weeds are prone to spreading to bushland areas.

The works undertaken by Council over recent years in partnership with other agencies, for example in delivering the Peri Urban Weed Management state funded Rivers to Ranges Project and the weed component of the Biodiversity Response Planning state funded Sugarloaf Link Project for example, have resulted in considerable biodiversity gains via the removal of over 600 hectares of environmental weeds.

Council also invests in weed control along Council roadsides and within Council reserves, and helps to fund weed control on private property through its Land Management Incentive Program, provides tailored weed control advice to landowners, and conducts targeted public weed campaigns, for example on blackberry control.

Nillumbik's private landowners contribution to weed management across the municipality is unquantified but would represent the greatest effort and investment in weed control.

This is all important, and without ongoing funding for intervention management, encouragement and, where appropriate, enforcement, ongoing decline in both native and modified agricultural landscapes will be realised.

The following case study demonstrates Council's communications role in early intervention with new and emerging weeds. Landowners are then able to take direct action to control infestations and either reduce the risk of the weed spreading or achieve local eradication.

#### **Case study 2: South African Weed Orchid – a new threat to Nillumbik's biodiversity**

Of particular importance in Nillumbik is being able to mobilise and resource the early eradication of emerging weeds across private and public land - such as the South African Weed Orchid (*Disa bracteata*), the only non-native orchid species in Victoria, which is a new arrival in Nillumbik and which poses a significant threat to our critically endangered native orchids and other wildflowers.

Council orchestrated a successful community awareness campaign during Spring 2019, timed with the flowering of this weed. A video, calling people to action, was produced to create awareness, get people looking for the weed, and to ask landowners to call council if they spotted the weed. The video reached more than 17,000 people on Facebook and was shared 48 times – a hugely successful result in the Nillumbik context; and a flyer was also delivered to 1,900 post office boxes across Nillumbik's rural areas.

As a result of the campaign, six new outbreaks were identified. It's good news though. Because we're aware of the outbreaks, they can be treated next season. And additional campaign videos have been produced for release in Spring 2020 as we continue the hunt for any other local outbreaks.

#### **1.4.6 - Loss of Complex and Naturally Regenerating Ecosystems**

Healthy ecosystems require complex and heterogeneous habitats that can provide diverse ecological niches supporting many different species. Complex vegetation communities require mixed age classes of trees, including large/old trees and tree hollows, sufficient recruitment for replacement, retention of large woody debris, and a healthy understory vegetation community.

Nillumbik has experienced a loss of diverse and complex habitats as well as regenerating habitats across the Shire in both historical and recent time:

- During the early 1800s, most of the trees throughout the Shire were removed, including those on land not suitable for agriculture. Native vegetation remained only within areas where soils were too poor, the terrain was too steep or logging was not cost effective.
- Ecosystem impacts continued with the Gold Rush in the 1850s, with areas, particularly Watsons Creek, Swipers Gully and Diamond Creek, subject to stream pollution, including arsenic, and the digging of mine shafts across the region.
- After the Gold Rush, intensification of broad acre farming, including cattle, sheep and cropping, continued to impact ecosystems throughout Nillumbik by reducing and eliminating native grasses. The development of northern parts of the Shire for agriculture and orchards introduced further pollutants into the ecosystem, including the use of DDT and other insecticides to increase crop yields.
- However, due to the economy of scale, broad acre farming began to decline in the 1960s and smaller, less intensively managed hobby farms and bush blocks began to increase. This led to improvement in the health of Nillumbik's ecosystems, including revegetation of farmlands with native plants and recolonization of recovered habitats by species able to persist in the remaining intact habitats. Regeneration of native plants along roadsides created habitat corridors throughout the Shire.
- Further efforts to maintain and protect the local environment increased following the designation of Nillumbik as a Green Wedge, establishment of the Urban Growth Boundary, and the introduction of planning controls such as the Environmental Significance Overlay.

Some of the habitats within Nillumbik have demonstrated resilience to human modification and impacts when land was left to recover on its own (e.g., Pantan Hill Bushland Reserves). This has included resilience to the impacts of large-scale fires, including Ash Wednesday and Black Saturday. However, seedbanks have yet to fully recover since 2009 and impacts on some wildlife communities (e.g., reptiles) are still being witnessed. Such habitats around the Shire continue to improve, thanks largely to landowners, active Landcare and Friends of Groups, collaborative, cross-agency projects (e.g., Rivers to Ranges, Gardens for Wildlife), Sustainable Agriculture Rebates, and dedicated Land Management and Biodiversity Officers supporting the community to look after the environment.

Despite the major gains in habitat restoration historically within Nillumbik, vegetation loss continues.

- Council periodically conducts an assessment of aerial photography to track vegetation loss and gain across the Shire. The most recent assessment was undertaken in June 2020. The data reveals that the amount of native vegetation that has been cleared over the course of the last 13 years has varied. Immediately following the 2009 Black Saturday bushfires, there was a significant clearance of burnt vegetation that was recorded as vegetation loss, and also larger scale clearing occurred across the Shire in general. From 2010, native vegetation clearance levels reduced, yet the amount of unauthorised native vegetation clearance remained relatively steady. However between 2015 and 2020, native vegetation loss increased to an average of around 20 hectares per year. This included unauthorised native vegetation losses, and losses that occurred within threatened Ecological Vegetation Classes. Where this native vegetation loss has received a permit it is expected to have been offset via native vegetation offset legislative requirements. This data is summarised in the table below, and provided in more detail in **Appendix 4**, along with the associated methodology.

#### **Nillumbik Shire vegetation loss and vegetation gain 2007 to 2020**

	2007 <sup>1</sup> - 2009 <sup>2</sup>	2009 - 2012 <sup>3</sup>	2012 - 2015 <sup>4</sup>	2015 - 2020 <sup>5</sup>
Total native vegetation loss:	156.9 ha Across 545 properties	49 ha Across 1,206 properties	29.3 ha Across 400 properties	98.85 ha Across 1,274 properties
Total exotic vegetation loss:	n/a	26.2 ha	5.3 ha	28.1 ha
Total regeneration:	n/a	0.9 ha	11.9 ha	16.08 ha
Total revegetation:	n/a	1.4 ha	1.07 ha	13.5 ha

<sup>1</sup> April 2007, <sup>2</sup> November 2009, <sup>3</sup> October 2012, <sup>4</sup> March 2015, <sup>5</sup> March 2020 (Source: Nillumbik Shire Council, 2020)

- On ground observations within Nillumbik's bushland reserves also suggest that despite restorative efforts, key elements of naturally regenerating ecosystems are still lacking (Nillumbik Environmental Works team, 2020 pers. comm.)
  - Large and second generation trees that provide critical habitat and food resources (e.g., fruit and seeds) for species occur only in low numbers.
  - New plant recruitment, necessary for habitat persistence, is also low.
  - Anecdotal evidence of removal of woody debris from public lands for use as firewood is depriving habitats of important ecological niches for insects and other animals, by reducing food resources and shelter.
- In more positive terms, management of small bushland reserves in Eltham for conservation of the EPBC listed Eltham Copper Butterfly (ECB) has demonstrated that the various management techniques employed have resulted in the persistence of the species. This is documented through annual ECB counts undertaken as part of the recovery program for this species for more than 15 years. Refer to **Appendix 5** for a summary of the last six years of ECB larvae counts.

#### **Case study 3: Cumulative loss of vegetation arising from major infrastructure projects**

Nillumbik is currently / about to lose many thousands of trees, plus other ground and mid story vegetation, as a direct result of multiple major infrastructure projects that are occurring particularly in the urban areas the Shire. These projects include:

- Major road and rail upgrades, for example North East Link, Yan Yean Road upgrade, Hurstbridge Rail duplication and the Fitzsimmons Lane upgrade

- Ongoing communications upgrades, for example arising from NBN infrastructure installation
- Utility upgrades, for example the Yarra Valley Water Doreen to Diamond Creek 10km new sewerage infrastructure project

Whilst efforts are usually taken during design to minimise the numbers of trees and other vegetation removed, the residual losses are high, and even higher when considering the cumulative scale of loss that will be occurring over a relatively short period of time. This is concerning at a landscape scale, and in some instances at the species level.

Furthermore, native vegetation offset procurement decisions tend to be based on value for money (i.e. cheapest quote) rather than on immediate proximity to the clearance, which can be a missed opportunity in terms of incentivising protection of vegetation that would benefit locally displaced species and help to minimise local ecosystem decline.

Another opportunity to enhance biodiversity outcomes, would be to provide a clear mechanism for major infrastructure projects to fund nearby enhancement vegetation planting and nearby key vegetation protection works as part of their mitigation programs (in addition to any formal offset requirements and outside of – but close to - the immediate project corridor). For example, the Yan Yean Road Stage 2 upgrade will remove Swift Parrot habitat. An opportunity exists to direct funds to enhance the conservation management of nearby Swift Parrot habitat on public land but this appears unlikely to be able to be approved/funded by the proponent under current arrangements.

#### **1.4.7 - Unsustainable Land Management**

Alterations of native vegetation due to intensive farming practices, loss of topsoil, and waterway manipulation have caused direct declines in native biodiversity.

Continued restoration of degraded habitats, adoption of sustainable farming practices, and waterway restoration are needed to reverse damage, allow for ecosystem recovery and promote healthier living for Nillumbik residents.

While many landowners are well equipped to manage their properties for multiple outcomes including biodiversity conservation, others require place-based support and education with respect to best practice land management for biodiversity outcomes.

Council plays an important role in providing local land management advice, education and support and is very active in this space. As detailed earlier, Council provides a valuable tailored land management advice service for local landowners, and a land management incentive program, which are accessed by new owners and long term owners alike. Council also delivers a range of land management education programs, for example on pasture management, equine health, property management planning, and invasive weed control. These programs seek to help halt and reverse ecosystem decline. Ongoing resourcing of these services is essential.

#### **1.4.8 - Urban Development**

The development of land for supporting population growth directly causes ecosystem decline through the loss of habitat and the removal and reduction of large, connected habitats. Impervious surfaces and stormwater have large, negative impacts on the biodiversity of waterways through an increase in pollutants, a decrease in dissolved oxygen levels in the water, and greater damage to water channels through regular and flash flooding. An

increase in urban noise and an increase in night time lighting reduces survival and recruitment of many animals, particularly birds, frogs and insects.

Exacerbating these direct impacts are those associated with overpopulation and concentration of native species into remaining intact habitats (e.g., kangaroos) and reducing available habitat and resources for other native species.

Urban development can also negatively impact people's connections with nature by reducing opportunities to experience diverse and species-rich wildlife communities.

Programs that emphasis and support the use of urban native plantings (e.g., Gardens for Wildlife; <https://gardensforwildlifevictoria.com/>) are needed to encourage diversity in backyard gardens and expand and enrich engagement with nature.

Programs that support urban tree canopy and urban forests are also beneficial to urban biodiversity, especially where they can co-exist with fire mitigation considerations.

### **1.5 Nillumbik Council biodiversity action**

Nillumbik Council is committed, through its Council Plan, Municipal Health and Wellbeing Plan, Green Wedge Management Plan, Biodiversity Strategy and Invasive Species Action Plan, to enhancing human health and wellbeing for current residents and to preserving and enhancing our ecosystems for the benefit of future generations (of both wildlife and people), including through actions that help to offset the challenges and threats discussed in Sections 1.3 and 1.4.

#### **1.5.1 The biodiversity works that Council delivers with in-house resources include:**

- The management of 99 bushland and wetland reserves covering an area of 495 hectares. This is a large area yet this comprises less than 2% of the intact vegetation within Nillumbik.

The primary purpose of these reserves is for the conservation of natural values; however they are also important from social, recreational, cultural and historical perspectives. They are home to an array of native plants and animals, and often provide the last remaining refuges for threatened and endangered species in a fragmented landscape.

Our bushland reserves are under threat from weed invasion, predation by and competition with pest animals, pressure from residential development, altered fire regimes and habitat destruction.

Council develops annual works programs for a number of these reserves, including activities such as weed control, revegetation, fire prevention, trail maintenance, fencing and pest animal management, to protect and enhance their long term biodiversity and community values. Not all of the reserves are able to be managed at conservation management levels due to resourcing limitations.

- Implementation of a street tree planting program which includes planting about 300-350 mostly indigenous or native street trees per year in the urban parts of the Shire.
- Provision of environmental volunteering opportunities via our 22 Friends Groups who volunteer across predominantly urban Council bushland reserves. These include groups that have existed for many years as well as several new Friends Groups that have evolved over the past 12-18 months. The value of this volunteer activity in helping to maintain and enhance reserves to Council is around \$540,000 per year.
- Support for Nillumbik's 11 local landcare groups

- Provision of an advisory service for sustainable land management and biodiversity conservation. In 2019-20, from 1 October to 30 June, Council provided tailored advice via phone, email and property visits to 211 landowners on topics including fox control (24), rabbits (19), deer (54), weeds: blackberry (44) and other weeds (42), erosion (2), revegetation (12), pasture management (9) and sustainable agriculture (5).
- Delivery of council's Land Management Incentive Program via a grant pool of around \$60,000 per year, which has been increased by an additional \$20,000 for 2020-21
- Provision of rates rebates for Trust for Nature covenanted land and for properties that demonstrate sustainable agriculture practices
- Administration of state planning policies that apply to native vegetation
- Provision of an array of environment, land management and sustainability education opportunities and experiences.

#### **Case Study 4: Eltham Copper Butterfly & Urban Fire Risk Management**

Balancing the need to protect threatened species is often in conflict with reducing risks to humans (e.g., bushfire mitigation). Within Nillumbik, the management of Eltham Copper Butterfly habitat is an example where conservation goals coincide with community safety.

More than one quarter of Council reserves are bushland managed primarily for conservation of biodiversity, and to provide the community with an opportunity to connect with nature in these beautiful natural environments.

The Eltham Copper Butterfly (ECB) reserves are a series of small reserves totalling about 13 hectares throughout Eltham managed by Council for the protection of the Eltham Copper Butterfly which is listed as Endangered under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999. Council has a responsibility to protect the habitat of this butterfly as these reserves contain the majority of the remaining populations. However, Council is also responsible for maintaining community safety by ensuring that the reserves don't increase the bushfire risk for adjoining residents.

To achieve a responsible balance between community safety and conservation, Council has a bushfire management plan for the reserves. Interestingly, works to protect ECB habitat are also designed to reduce the risk of bushfire, as this would wipe out the butterfly. For bushfire mitigation, fuel reduction zones are maintained adjacent to private property. But work to conserve the species also helps to mitigate the bushfire risk. The shrubby layer across all the ECB reserves is thinned out because the butterfly has a preference for an open habitat structure. Population numbers of the species are known to decline due to overgrowth of the understory and shrub layer.

This is an example where actions to protect human life and property can also benefit endangered species.

#### **1.5.2 The biodiversity works that Council delivers with government grant funding**

With grant funding, Council also delivers a range of larger scale partnership biodiversity conservation protection projects, across multiple land tenures.

Since 2012, Council has very successfully implemented over \$1.2 million worth of grant-funded investment into biodiversity conservation projects in partnership with Landcare, Parks Victoria, Melbourne Water, State Government departments, the Royal Botanic



Gardens and neighbouring councils. This has brought Council, private landowners and other agencies together to work collaboratively on landscape-scale biodiversity conservation. A list of active and recent grants from the State government, agencies and private foundations is provided in **Appendix 6**.

Ongoing and increased support from state and federal government to continue landscape scale on-ground works, and also to undertake more site specific conservation works, is critical.

Ongoing additional funding is also required to enable monitoring of Nillumbik's biodiversity.

### **Case Study 5: Protecting local orchids from global extinction**

Bringing back species from near extinction is not easy, but teams of people across the world fight to do just that.

For the past four years Council has coordinated a Threatened Orchid Recovery Team which is working on the recovery of a group of threatened orchids, including two species that are now found only in Nillumbik. The Team comprises representatives from Nillumbik Shire Council, Department of Environment Land Water and Planning, Parks Victoria, the Australasian Native Orchid Society, the Royal Botanic Gardens and community members - all are working together to conserve these unique plants.

During 2019-20 the team worked to reduce the threats to current populations; monitored the success of the reintroduction of three species; and hand pollinated and collected seed to enable the Royal Botanic Gardens to grow the Charming Spider-orchid, the rarest of Nillumbik's orchids (there are less than 50 remaining in existence).

It's a long road to recovery, and highly detailed work, but we're providing a brighter future for these orchids and the community who enjoy them.

This work benefited greatly from state government grant funding assistance, which has now ceased.

## **2. The adequacy of the legislative framework protecting Victoria's environment, including grasslands, forests and the marine and coastal environment, and native species:**

### **2.1 Legislative recommendations**

Biodiversity loss cannot always be adequately addressed by government regulation. It requires an engaged and empowered community, invested in acting for the environment, to achieve positive biodiversity results. This is particularly true in Nillumbik where the majority of native biodiversity is on private land.

Our environment is a valuable asset. Greater inclusion of Victorians in the processes that protect, manage and promote it may help to foster the best environmental outcomes.

As such, community involvement in decision making is valuable, and this needs to be backed by engagement and encouragement for positive action in the first instance, but also strong and enforceable legislation with sufficient associated resources to enable effectiveness. Enforcement action should have broad community support and be used as a last resort to achieve a clear community benefit.

### 2.1.1 Environment Protection and Biodiversity Conservation (EPBC) Act

Council considers that the EPBC Act should continue to play a significant role in protecting and managing Australia's environment and heritage, and recognises it as essential legislation.

The success of the Act in achieving its stated objectives is reliant on other Commonwealth and state laws and policies. It provides a central structure for the protection and management of biodiversity and the conservation of that biodiversity for all of Australia. This protection and conservation should not be restricted by land tenure, land use or government boundaries.

Council provided a submission to the independent review of the EPBC Act, and suggested the Act should:

1. Be the central law for Australia's environment and heritage;
2. Have clear, achievable objectives preventing the decline of biodiversity;
3. Continue to regulate and encourage sustainable land management and ecologically sustainable development, whilst ensuring the conservation of biodiversity;
4. Prevent the extinction of species and ecological communities; and
5. Preserve the natural environment.

The reforms to the EPBC Act are welcome and the recent Interim Report highlights the ineffective and inefficient nature of the current Act, including a lack of coordinated, landscape-scale planning, the need for legislative reform, responsibility for species protection at the Commonwealth level and greater effort to restore ecosystems (Samuel 2020<sup>14</sup>).

### 2.1.2 Planning and Environment Act 1987

The Nillumbik Planning Scheme provides considerable protection for local biodiversity.

The Environmental Significance Overlays (ESO) which cover 55% of Nillumbik Shire recognise the value of native vegetation, specifically, *Identification, protection and enhancement of the environmentally significant sites and strengthening of connecting habitat links will assist in the maintenance of biodiversity within the Shire and surrounding areas.*<sup>15</sup>

Together with the Nillumbik ESOs, Victorian Planning Provision Clause 52.17 is designed to ensure that there is no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation.

Although the Guidelines for the Removal, Destruction, or Lopping of Native Vegetation 2017 require a proponent to account for past losses on their properties, there still needs to be a thoughtful consideration of cumulative impacts, including of past developments, which may lead to a continuation in the decline of biodiversity, particularly when applicable to threatened species or communities.

Challenging decisions are regularly made by all levels of government as well as industry and businesses that need to consider all of these factors from environmental, social and economic perspectives.

Greater emphasis on social and environmental considerations could be required in decision making to ensure that economic considerations are not the dominate driver.

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<sup>14</sup> Samuel, G 2020, *Independent Review of the EPBC Act—Interim Report*, Department of Agriculture, Water and the Environment, Canberra, June. CC BY 4.0.

<sup>15</sup> Nillumbik Planning Scheme Schedule 1 to the Environmental Significance Overlay [https://planning-schemes.delwp.vic.gov.au/schemes/nillumbik/ordinance/42\\_01s01\\_nill.pdf](https://planning-schemes.delwp.vic.gov.au/schemes/nillumbik/ordinance/42_01s01_nill.pdf)

Environmental offsetting should only be used as a last resort with genuine effort made by a proponent to avoid or mitigate impacts as a matter of priority. If residual impacts cannot be avoided or mitigated, approval should only be given once a suitable offset has been identified and secured prior to an impact occurring.

Trading the protection of a species or ecological community for its removal elsewhere will not halt the decline of that species or community, but if it is done with rigor and costed correctly, it will hopefully slow that decline and avoid total loss. Offsets need to be calculated and accounted for correctly. Adequate comparison of losses and gains is prudent in ensuring that the loss of biodiversity is compensated for in offsets, and gains should be higher than losses.

### **2.1.3 Flora and Fauna Guarantee (FFG) Act amendment**

The FFG Act amendment provides greater clarity as to what is required, with new provisions that specify relevant considerations consistent with the existing objectives as well as with any instrument made under the Act such as the Victorian biodiversity strategy *Biodiversity 2037*, critical habitat determinations, action statements and management plans.

Having regard to the objectives of the Act strengthens government leadership and accountability, by encouraging consideration of biodiversity across all levels of government. The changes bring a public authority's flora and fauna obligations under the Act into one instrument, removing the need for individual approvals and reducing regulatory burden – transparency and accountability will be crucial to this process.

Consolidation of the different threatened species lists into one list for Victoria using the Common Assessment Method is important as it removes ambiguity and inefficiencies. However, the importance of recognising rare, near threatened, poorly known, and data deficient species is important to stem the potential decline in these species. Further information is required to know what this means in a practical sense, following the changes to the protected flora controls and species listed.

The Local Government Biodiversity Planners Network has advocated for clarity and greater ability for enforcement and compliance of illegal vegetation clearance and the taking of threatened flora or fauna from private land to be pursued under the FFG Act, rather than just the Planning and Environment Act.

This is because most local governments are not in a position to protect significant habitat or species on private land through the application of bespoke overlays due to resourcing constraints, cost, and political/local will. If the intention of the Act is to protect Victorian biodiversity and its significant species, it should require this on both public and private land, and provide for associated enforcement and compliance.

The FFG Act amendment should integrate good decision making to protect all biodiversity in Victoria, regardless of land tenure.

### **2.1.4 Catchment and Land Protection Act (CALP) Act 1994**

The CALP Act was introduced to provide integrated maintenance and enhancement of productive land and water resources at a catchment scale. The benefits of the CALP Act in relation to biodiversity are:

- A holistic approach to land management at a landscape scale
- Encouragement of community participation in managing land and water resources
- A system of controls on noxious weeds and pest animals

In the peri urban area, with small lot sizes relative to broad acre agriculture areas, it is more labour intensive to achieve cooperation across the larger number of landowners on

landscape scale action. The investment by the State government in projects such as Nillumbik's Sugarloaf Link deer, foxes and weed control project is welcome. However continuing investment is required to maintain the level of coordination, and where necessary enforcement resourcing which is required to work with landowners to achieve and maintain landscape scale outcomes.

An example of targeted investment including enforcement in Nillumbik is in control of Serrated Tussock *Nassella trichotoma*. Nillumbik has had very small localised infestations. The State government investment in working with landowners, controlling the weed and the potential for enforcement has resulted in a high level of control of this weed species in Nillumbik which had the potential to become widespread.

### **2.1.5 CFA Act 1958 and Emergency Management Act 2019**

The Emergency Management Act defines the governance arrangements for emergency management in Victoria.

The CFA Act requires Council to take all practicable steps (including burning) to prevent the occurrence of fires on, and minimise the danger of the spread of fires on and from, any land (including roads) vested in its control. Council may acquire any equipment; do anything; expend from its funds any amount that is necessary or expedient for the purpose of fulfilling its duty to prevent the occurrence of fires on and minimise the danger of fires spreading from its land.

The practical expression of this at Nillumbik is the *Municipal Fire Management Plan 2016-19* (MFMP) which guides the activities of 'all those responsible for management of fire risk within Nillumbik.'<sup>16</sup>

The Plan is highly prescriptive in relation to roadside vegetation management. Appendix C of the MFMP (pp19-27) documents the road access and egress risk treatment plan and defines categories of roadside vegetation management to meet specific risks and identifies the roads to be treated. Treatments include:

- Slashing - rearrangement of grass fuel to decrease fire intensity enabling easier suppression.
- Box clearing - clearing of obstructions within a 4.9m canopy above traffic lanes and shoulders to provide adequate clearance and sightlines.
- Hazardous tree assessment - the identification and remove or making safe of trees that are at risk of immediate failure. (Refer: Nillumbik Shire Council has developed a Tree Policy, with accompanying guidelines for further information on the assessment process.)
- Burning - to remove fine fuel, reducing the likelihood of ignition and enabling easier suppression.
- Woody weed removal - removal of exotic vegetation to decrease fuel loads enabling easier suppression.

The associated works program for 2020-2021 includes:

- Fuel reduction, brush cutting and mowing across 82 parks, bushland reserves and open spaces
- 410km of roadside mowing
- 250km of box clearance (removal of vegetation around the required clear zone of the road)
- Assessment of tree hazards along 91km of road and resulting pruning and removal
- Ongoing maintenance to roadside trees affected by the 2009 bushfires

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<sup>16</sup> <https://www.nillumbik.vic.gov.au/Council/Council-news-and-publications/Strategies-policies-plans-and-legislation#m>

- Planned burns across 24 sites
- Fire track maintenance
- Water tank maintenance
- Clearing vegetation from around electric lines.

Council's works program is reviewed and developed each year in consultation with the Municipal Fire Management Planning Committee including the CFA, local brigades, Council, Parks Victoria and other key stakeholders.

Given the extent of native vegetation on roadsides to be managed for bushfire mitigation, loss of native vegetation is inevitable. The contribution of this work to biodiversity decline is not well understood and there is potential that thinning roadside vegetation may support longer term ecosystem health by reducing the intensity of wildfires and preserving the soil seedbank.

### **2.1.6 Other legislation**

Council's vegetation management programs are subject to other legislation and regulation, particularly:

- The Road Management Act 2004
- The Electricity Safety (Electric Line Clearance) Regulations 2015

Council has roadside vegetation management programs to ensure that vegetation does not create a hazard for the road user. Similarly, the electric line clearance regulations require both Council and the local electricity distribution business to ensure that vegetation does not create a hazard in relation to electric lines. These are predominantly on roadsides but may also cross private property.

As a consequence, tree and vegetation removal may be required to ensure the safety of roads and electricity supply.

### **2.1.7 Unintended legislative consequences**

Legislation may at times provide unintended outcomes. The example provided here describes the unintended consequences of applying planning permit exemptions for tree removal for bushfire mitigation in an essentially urban area.

Nillumbik Council has recently advocated to the Victorian Planning Minister regarding the 10/30 and 10/50 rules which are planning permit exemptions specified in Clause 52.12-1: Bushfire Protection Exemptions of the Victoria Planning Provisions.

Council supports empowering residents to prepare their properties for appropriate bushfire protection. Council has noted however, that a 'blanket' approach to bushfire protection exemptions is continuing to result in significant loss of vegetation with associated negative impacts on the valued character of Nillumbik's urban areas, particularly our Major Activity Centres.

The rules allow landowners, in locations identified as Bushfire Prone Areas and where a Bushfire Management Overlay applies, to remove vegetation as-of-right so residents can make their properties safer in the event of a bushfire. The rules were introduced following the 2009 ('Black Saturday') Victorian Bushfires Royal Commission and only apply to buildings used for accommodation that were constructed or approved before 10 September 2009.

Councillors and the community have acknowledged the impacts that exemptions to clear vegetation are having (anecdotally) on neighbourhood character particularly in the urban areas of Nillumbik. Known as the 10/30 and 10/50 rules – these 'rules' allow vegetation removal to occur without the need for a planning permit. There is ongoing concern that these

exemptions are having a detrimental impact on local vegetation, biodiversity and neighbourhood character on the Nillumbik Shire.

The concern relates to a trend in suburban property owners and developers taking advantage of the exemptions to maximise developable yield as opposed to mitigate genuine bushfire risk. This is also apparent in application of the exemptions to maximise views or other development outcomes that may be impeded by the location of existing trees.

Anecdotally the cumulative impact of (at times) substantive vegetation removal from individual properties poses a significant threat to the highly valued 'treed' character of Nillumbik Shire's activity centres as well as the integrity of Nillumbik Shire's biodiversity, including native flora and fauna.

Council has requested a review of the impacts of current exemptions for clearance of vegetation.

### 3. The adequacy and effectiveness of government programs and funding protecting and restoring Victoria's ecosystems:

#### 3.1 Government program and funding adequacy and effectiveness

While government programs and funding opportunities have developed to help protect and restore Victoria's ecosystems, more needs to be done to improve and implement the strategic goals of environmental action and ecosystem restoration:

1. Government funding needs to be strategic, collaborative, continuous, and long term.
  - a. Council has prepared a 'Biodiversity Across Boundaries' advocacy prospectus that outlines investment opportunities to help protect biodiversity, enhance habitat and build climate resilient landscapes across Nillumbik and North-East Melbourne. A copy is provided in **Appendix 7**.
  - b. Landscape scale biodiversity funding such as the *Communities for Nature*, *Peri Urban Weed Management* and *Regional Biodiversity On-ground Action Grants* have been successful in achieving biodiversity gains across priority landscapes, creating partnerships between different tiers of government, agencies and landowners, and have been long-term (average 4 years each grant). However without continuous investment, the biodiversity / ecosystem gains achieved with these projects will quickly take backwards steps.
  - c. Some grants have short delivery time frames (1 year), requiring a patchwork of short term grants to be regularly applied for without appreciation of the long-term actions required for biodiversity protection, or a guarantee that works commenced will be able to continue.
  - d. In the past, environmental projects have not always been strategic and long-term, sometimes due to grant requirements that only new projects are eligible.
  - e. Ongoing and comprehensive biodiversity data collection and monitoring is seldom eligible for government grant funding, despite its importance in evaluating management outcomes and in detecting long-term trends. This needs to change.
  - f. An increasing reliance on volunteers to take on responsibility and management of environmental projects can reduce the potential for effective action and cross-agency collaboration.

- g. Funding is often insufficient to cover the 'true cost' of achieving environmental goals, with the expectation that more should be delivered than what is feasible in the time frame and grant budget allowed.
2. Greater emphasis and effort to engage communities with nature and its protection is one of the aims of *Protecting Victoria's Environment – Biodiversity 2037*. This is commended and specific regular funding directed to local governments will help to realise this goal.
3. Greater emphasis on social and environmental considerations should be required in all government decision making to ensure that economic considerations are not the dominate driver.
4. The provision/delivery of private landholder engagement that encourages the protection of significant species and habitats through education, support and incentives tends to be more effective than pursuing regulation and enforcement penalties after the event. Greater government effort and resources should focus on increasing the opportunities for and willingness of landowners to restore and protect biodiversity on private lands.

#### **4. Legislative, policy, program, governance and funding solutions to facilitate ecosystem and species protection, restoration and recovery in Victoria, in the context of climate change impacts:**

1. Investment must be made to create resilient ecosystems that are adaptive and responsive to a changing environment, particularly in response to a changing climate and increased risk of natural disasters, and in response to emerging and growing threats to biodiversity such as increasing numbers and spread of deer, that are often exacerbated by climate impacts such as fire and drought.
2. With climate change it is acknowledged that all species might not persist; open and transparent decision-making is required where attempts will no longer be made to save a particular species or community, or to mitigate a threatening process, due to climate change impacts. Ongoing research on these impacts and the adaptation of species and communities, including by universities and other research bodies, should be funded and supported.
3. The state government biodiversity strategy, *Biodiversity 2037* moves away from species specific protection to a stronger landscape and community focus. This approach is helpful, particularly in light of landscape scale climate change impacts.
4. From a local government perspective, councils such as Nillumbik rely heavily on grant funding from state government, and to a lesser extent from federal government and philanthropic organisations, to fund on-ground biodiversity/climate response works and to employ associated staff. Such works include threatened species protection, biodiversity enhancement, refuge enhancement, and invasive species threat reduction – usually at a landscape scale and in partnership with multiple stakeholders.
5. It is critical that such funding continues, that it is sufficient, and that it is continuous, i.e, that there are not gaps between funding cycles.

## 5. Opportunities to restore Victoria's environment while upholding First Peoples' connection to country, and increasing and diversifying employment opportunities in Victoria:

It is crucial that environmental protection be prioritised before restoration. However, it is a fact that environmental restoration is a key component in conserving biodiversity and is likely to become more pressing in the face of population growth, land clearing, invasive species, threatening processes and climate change impacts.

Standards for restoration of Nillumbik and Victoria's environment should:

- Allow public and private landowners to work in partnership with our First Peoples to incorporate indigenous land management practices, particularly traditional burning practices, with the aim of restoring the ecology of habitats.
- Engaging with First Peoples to ensure traditional knowledge of ecosystem management is incorporated into policy decisions to restore environments.
- Continue to engage stakeholders across different land tenures to ensure a standardised level of ecosystem management is applied across the landscape.
- Ensure a secure and sustained investment over the long term for biodiversity management programs
- Consider remnants of biodiversity in the urban and peri-urban environs in addition to the rural areas as biodiversity within all these settings can be considerable. Urban and peri-urban areas provide unique opportunities for the public to restore habitat on private property. For example, Council is pleased to partner with the State government and the community in programs such as *Gardens for Wildlife* that seek to increase biodiversity in urban areas whilst encouraging people to connect with nature.

Opportunities for increasing and diversifying employment through environmental restoration are broad:

- First Peoples bring valuable knowledge and practice to environmental management such as the use of fire and food within the landscape. Employing First Peoples within planning, management and advocacy roles is important in improving restoration outcomes. This is becoming more evident, for example, with approaches to catastrophic bush fire events, which is a real and current issue for the community of Nillumbik.
- Environmental restoration can also provide employment through on ground works, ecosystem tourism, bush foods, fibres and medicine and renewables. It underpins healthy environments including climatic conditions, healthy waterways and ecosystem services which are strong players in the employment fields of fisheries, agriculture, viticulture, apiculture, recreation, scientific research and aquatic tourism.
- Opportunities exist, that should be harnessed by government, to view environmental conservation and restoration works as valuable employment generating sectors - for example when seeking to stimulate the economy via government investment.

## 6. Any other related matters.

A collated summary of the recommendations and key points raised throughout Councils submission is provided below.



## Recommendations

Based on the Terms of Reference in this Parliamentary Inquiry, Nillumbik Shire Council recommends:

### 1. BIODIVERSITY MONITORING AND ASSESSMENT

#### 1.1. Greater focus on local and landscape scale biodiversity monitoring and data collection is needed:

- a. A single threatened species list should be created for Victoria using the Common Assessment Method to remove ambiguity and inefficiencies.
- b. Emphasis should be placed on building knowledge about rare, near threatened, poorly known, and data deficient species to stem the potential decline in these species.
- c. Landowners have a large role to play in monitoring biodiversity and should be part of a collaborative effort across the state.

### 2. SUSTAINABILITY PRACTICE

#### 2.1. Government needs to be a leader in reducing greenhouse gas emissions and in implementing adaptation and resilience strategies to protect species from extinction.

### 3. COLLABORATIVE APPROACHES

#### 3.1. Collaborative eradication of invasive plants and animals across all land tenures needs to be encouraged and incentivised:

- A collaborative and ongoing approach between private landowners, Parks Victoria, and state and local governments is necessary for pest management to have efficacy.
- Government agencies need to be good neighbours and adopt a leadership role in responsible and timely invasive species management on Crown Land
- A tougher stance on deer management is needed, including the release and implementation of the Victorian Deer Management Strategy, Guidelines for peri-urban deer management, and accreditation of deer hunters and controllers to deliver higher standards and facilitate more cost effective control of deer on private land.
- A spectrum of techniques are needed to achieve positive land and ecosystem management, ranging from engagement, education and incentivisation to targeted enforcement.

#### 3.2. Emphasis on social and environmental considerations is needed for decision making to ensure that economic considerations are not the dominate driver.

#### 3.3. Facilitation of public and private landowners, working in partnership with First Peoples, is needed to incorporate indigenous land management practices that assist with the restoration of the ecology of habitats.

### 4. RESOURCING FOR ENVIRONMENTAL PROTECTION

#### 4.1. Adequate and long-term funds are needed to achieve landscape-scale outcomes:

- Government could provide more support to Nillumbik (both Council and the community) in terms of funding and legislation to help understand and quantify

local biodiversity values (including assets and threats), better prioritise investment and protect biodiversity for future generations.

- Adequate and continued funding is needed to achieve long-term biodiversity outcomes, including threatened species protection, biodiversity enhancement, refuge enhancement, and invasive species threat reduction. Such outcomes require a long-term landscape scale approach in partnership with multiple stakeholders.
- Continuing investment is required to maintain the level of coordination, for example via extension of the Peri Urban Weed Management and Biodiversity Response grant programs, and where necessary State legislation enforcement resourcing, for work with landowners to achieve and maintain landscape scale outcomes.
- A clear mechanism for major infrastructure projects to fund nearby enhancement vegetation planting and nearby key vegetation protection works as part of their mitigation programs would assist with providing ongoing local habitat, e.g., associated with Yan Yean Road upgrade.

#### **4.2. Greater opportunities for increasing and diversifying employment through environmental restoration are necessary:**

- Employment through on ground works, ecosystem tourism, bush foods, fibres and medicine and renewables can improve the health of environments, including improving climatic conditions, promoting healthy waterways and ecosystem services, that can in turn provide opportunities for employment in the fields of fisheries, agriculture, viticulture, apiculture, recreation, scientific research and aquatic tourism.
- Governments should harness existing opportunities in environmental conservation and restoration works as valuable employment generating sectors - for example when seeking to stimulate the economy via government investment.

## **5. EDUCATION**

### **5.1. Greater emphasis on public education is needed to build knowledge and expertise with the public to promote ecosystem protection:**

- Landowners require ongoing place-based support and education with respect to best practice land management for biodiversity outcomes.
- Programs that emphasise and support the use of native plantings and wildlife refuges are needed to encourage diversity in urban backyard gardens and expand and enrich engagement with nature.

## **6. RESTORATION AND RESILIENCE**

### **6.1. Greater emphasis on restoring ecosystems and promoting their resilience is necessary to mitigate the impacts of current actions and improve conditions for the future:**

- A clear mechanism for major infrastructure projects needs to be provided to fund nearby enhancement vegetation planting and nearby key vegetation protection works as part of their mitigation programs, in addition to formal offset requirements.
- Programs that support urban tree canopy and urban forests are beneficial to urban biodiversity, especially where they can co-exist with fire mitigation considerations, and should be supported.

- Remnants of biodiversity in the urban and peri-urban environs need to be protected, in addition to rural areas, as biodiversity within all these settings can be considerable, e.g., restoration and protection of Eltham Copper Butterfly urban habitat.
- Urban and peri-urban areas provide unique opportunities for the public to restore habitat on private property and should be part of landscape-scale planning.

## 7. ENFORCEMENT AND REGULATION

### 7.1. Improvements to the current environmental regulation are needed:

- Environmental legislation and governance needs to be clear and enforceable, backed by engagement and encouragement for positive action in the first instance.
- Legislation needs to be strong and enforceable with sufficient associated resources to enable effectiveness.
- Reforms to existing legislation (e.g., the EPBC Act) are encouraged.
- The Local Government Biodiversity Planners Network recommends clarity and greater ability for enforcement and compliance of illegal vegetation clearance and the taking of threatened flora or fauna from private land to be pursued under the FFG Act, rather than just the Planning and Environment Act.

### 7.2. Environmental offsetting should only be used as a last resort:

- Council supports the legislative intent that genuine effort be made by a proponent to avoid or mitigate impacts as a matter of priority and approval should only be given once a suitable offset has been identified and secured prior to an impact occurring if residual impacts cannot be avoided or mitigated.
- Offsets need to be calculated and accounted for correctly with adequate comparison of losses and gains to ensure that biodiversity loss is compensated for, and gains should be higher than losses.

## References

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<https://www.nillumbik.vic.gov.au/Council/Council-news-and-publications/Strategies-policies-plans-and-legislation>

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## **Conclusion**

Nillumbik Shire Council has welcomed this opportunity to contribute to the inquiry into ecosystem decline in Victoria.

Should you require any clarification or additional information, please do not hesitate to contact Kirsten Reedy, Coordinator Environment, on 9433 3111 or via email at [environment@nillumbik.vic.gov.au](mailto:environment@nillumbik.vic.gov.au)

## Appendix 1 - Records of species occurring in Nillumbik listed under the Environment and Biodiversity Conservation Act (EPBC) 1999<sup>17</sup>

### 15 listed threatened fauna species of national significance

Regent Honeyeater (Endangered)	Grey-headed Flying-fox (Vulnerable)
Painted Honeyeater (Vulnerable)	Macquarie Perch (Endangered)
Regent Parrot (Vulnerable)	Australian Grayling (Vulnerable)
Swift Parrot (Endangered)	Murray Cod (Vulnerable)
Plains-wanderer (Vulnerable)	Dwarf Galaxis (Vulnerable)
Australasian Bittern (Endangered)	Growling Grass Frog (Vulnerable)
Spot-tailed Quoll (Endangered)	Eltham Copper Butterfly (Endangered)
Greater Glider (Vulnerable)	

### 7 listed threatened flora species of national significance

Round-leaf Pomaderris (Critical)	Matted Flax-lily (Endangered)
Charming Spider-orchid (Endangered)	Clover Glycine (Vulnerable)
Little Pink Spider-orchid (Endangered)	River Swamp Wallaby-grass (Vulnerable)
Crimson Spider-orchid (Vulnerable)	

### 8 listed migratory fauna species

Those animals that migrate to Australia and its external territories, or pass through or over Australian waters during their annual migrations.

Latham's Snipe	White-throated Needletail
Fork-tailed Swift	Satin Flycatcher
Rufous Fantail	Red-necked Stint
Sharp-tailed Sandpiper	Wood Sandpiper

### 41 listed marine species

Species reliant on coastal and marine areas

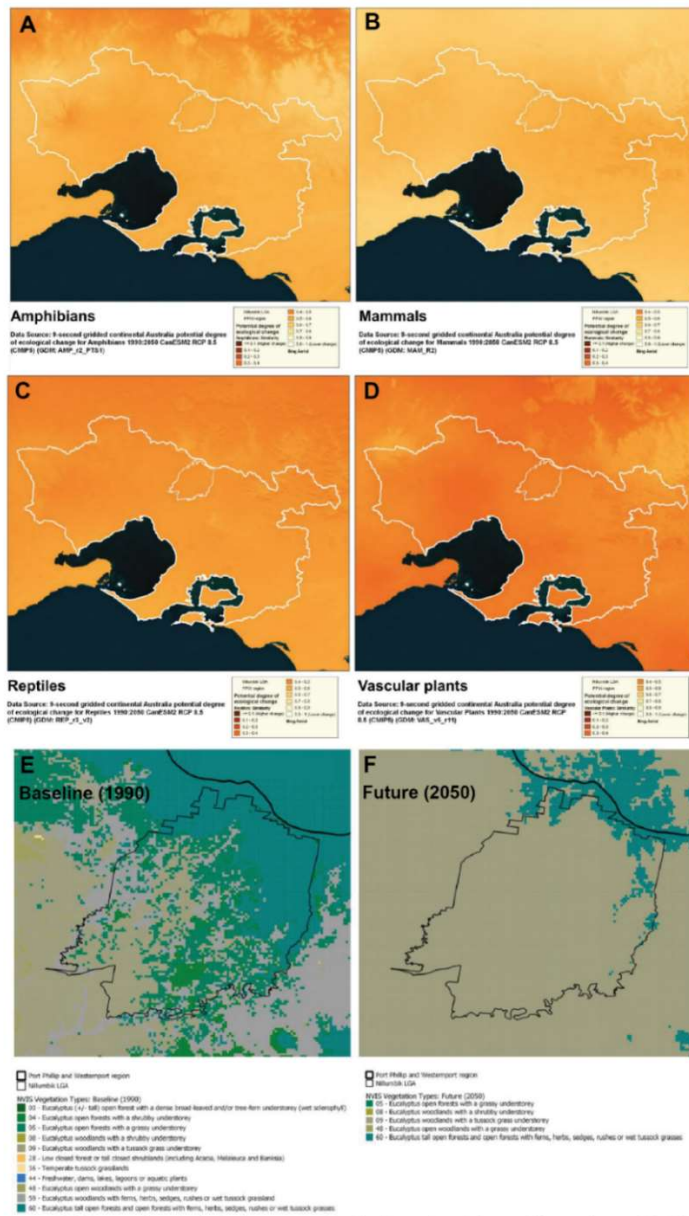
Australian magpie lark	Latham's Snipe	Silver gull
Australian pelican	Little egret	Silvereye
Australian white ibis	Little Raven	Southern boobook
Baillon's crake	Musk duck	Spotless crake
Black-faced cuckoo-shrike	Nankeen kestrel	Straw-necked ibis
Blue-winged parrot	Painted snipe	Swamp harrier
Brown goshawk	Rainbow bee-eater	Swift Parrot
Buff banded rail	Red-necked Stint	Tree martin
Cattle Egret	Rufous fantail	Nankeen night heron
Clamorous reed-warbler	Sacred kingfisher	White-throated needletail
Fan-tailed cuckoo	Satin flycatcher	White-throated nightjar
Flame robin	Satin flycatcher	Wood Sandpiper
Fork-tailed swift	Sharp-tailed Sandpiper	
Horsfield's cuckoo	Shining bronze-cuckoo	

<sup>17</sup> Source: Victorian Biodiversity Atlas 2019, Protected Matters Search Tool 2019

## Appendix 2 - Maps illustrating CSIRO modelling of selected species and vegetation community change at Representative Concentration Pathway 8.5<sup>18</sup>

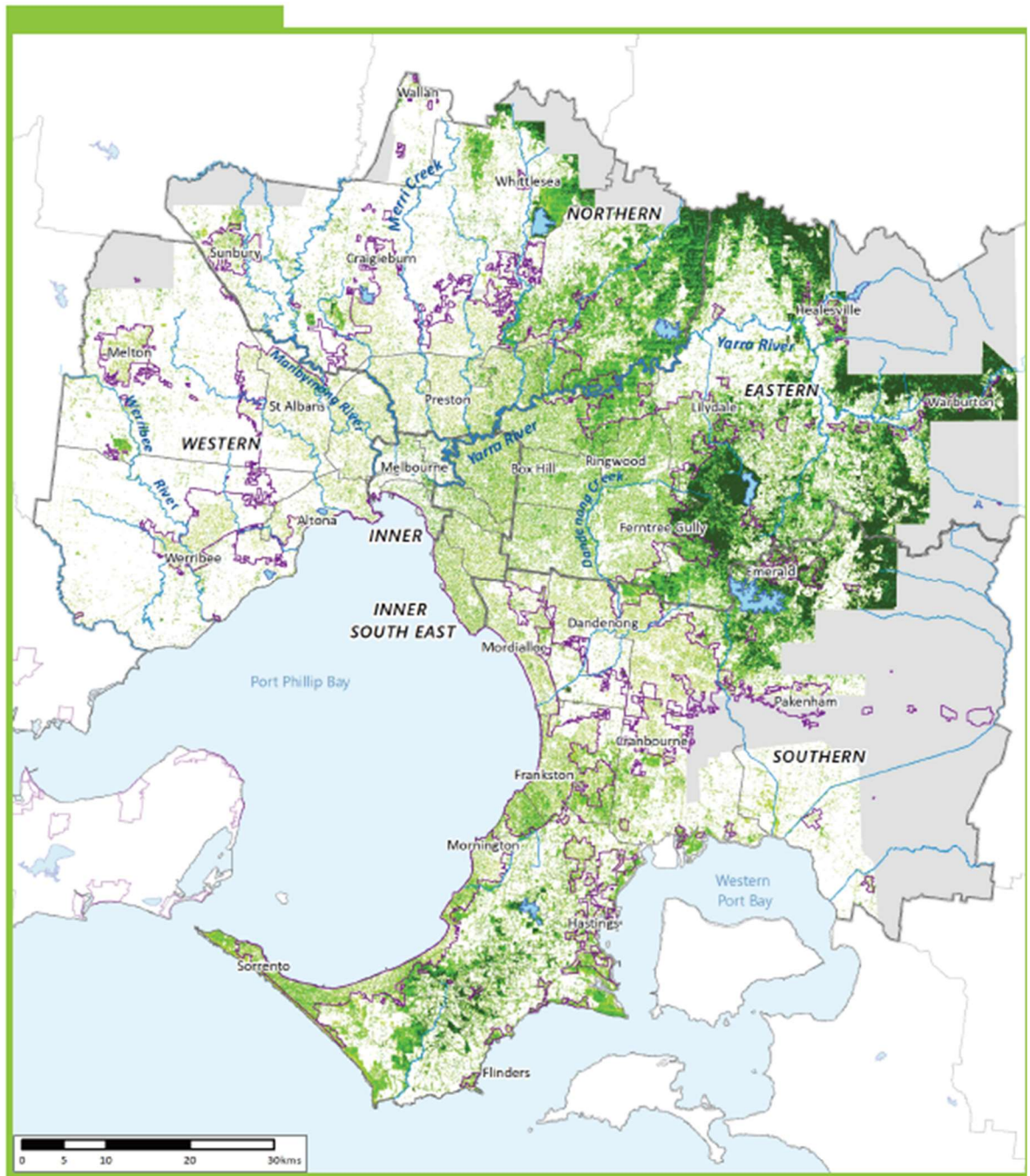
Potential degree of ecological change associated with projected future climate (2050) in Nillumbik for (A) amphibian, (B) mammals, (C) reptiles and (D) vascular plants. Potential (significant) loss in the diversity of plant communities in Nillumbik associated with climate change from 1990 (E) to 2050 (F).

Assumes RCP 8.5 which reflects global inaction and continuation of or increase in existing emissions levels. Darker colours represent greater percentage loss of species numbers with continued climate change.



<sup>18</sup> Williams KJ, Raisbeck-Brown N, Harwood T, Prober S (2014b) Potential degree of ecological change for vascular plants and mammals (1990-2050), A0 map-poster 1.1 and Potential degree of ecological change for reptiles and amphibians (1990-2050), A0 map-poster 1.2 – Southern Slopes NRM regions. CSIRO Land and Water Flagship, Canberra. Available online at [www.AdaptNRM.org](http://www.AdaptNRM.org) and <https://data.csiro.au/dap/>.

### Appendix 3 - Melbourne's urban forest<sup>19</sup>



- | Legend                                | Vegetation Heights |
|---------------------------------------|--------------------|
| — Metropolitan Partnership Boundaries | 0.3 - 3m           |
| □ Local Government Areas              | 3 - 10m            |
| □ Urban Extent as of 2015             | 10 - 15m           |
| — Major Rivers and Creeks             | > 15m              |
| ■ Lakes and Reservoirs                |                    |
| ■ Tree height data not available      |                    |

Melbourne's urban forest

<sup>19</sup> Resilient Melbourne 2019 *Living Melbourne: our metropolitan urban forest*  
[https://resilientmelbourne.com.au/wp-content/uploads/2019/10/Urban-Forest-Canopy-Map\\_A2\\_HiRes.pdf](https://resilientmelbourne.com.au/wp-content/uploads/2019/10/Urban-Forest-Canopy-Map_A2_HiRes.pdf)  
 Nillumbik Shire Council submission to the Parliamentary Inquiry into Ecosystem Decline-  
**DRAFT 14 August 2020**

## Appendix 4 - Monitoring of Vegetation loss and gain<sup>20</sup>

On four occasions between 2007 and 2020, the change in Nillumbik vegetation cover has been quantified. The methodology involved desk top visual assessment of aerial photography, with GIS software dividing the photography into grids (1 minute grids or smaller). Each grid was analysed to determine the extent (if any) of vegetation loss or increase. Areas of native vegetation expansion that appear uniform in diversity and/or linear in extent were classified as 'regeneration', other presentations were classified as 'revegetation'. Cleared areas of vegetation were classified as native except where there was certainty that they were predominantly exotic. Where vegetation loss or gain was detected, a polygon was drawn around the area, with separate polygons utilised for regeneration, revegetation, native vegetation loss and exotic vegetation loss. These polygons were quality checked by a second person to provide data confidence.

This information forms a GIS dataset that has been assessed against other Council data sets such as planning zones, suburb boundaries, vegetation classifications, and planning permits issued.

<b>Table 1: Nillumbik Shire vegetation loss / removal and vegetation gain 2007 to 2020</b>				
	2007 <sup>1</sup> - 2009 <sup>2</sup> (19 months)	2009 - 2012 <sup>3</sup> (36 months)	2012 - 2015 <sup>4</sup> ( 29 months)	2015 - 2020 <sup>5</sup> (60 months)
Total regeneration:	n/a	0.9ha	11.9 ha	16.08 ha
Total revegetation:	n/a	1.4ha	1.07 ha	13.5 ha
Total native vegetation loss	156.9 ha <i>Across 545 properties</i>	49ha <i>Across 1,206 properties</i>	29.3 ha <i>Across 400 properties</i>	98.85 ha <i>Across 1274 properties</i>
Total exotic vegetation loss	n/a	26.2ha	5.3ha	28.1 ha
Native Vegetation loss by zoning:				
-RCZ 1 (Rural Conservation Zone)	0	-	0.36 ha	0.16 ha
-RCZ 2	0.13 ha	-	0.06 ha	0.02 ha
-RCZ 3	70.79 ha	-	11.7 ha	29.82 ha
-RCZ 4	21.18 ha	-	3.86 ha	32.21 ha
-RCZ 5	13.32 ha	-	0.4 ha	4.76 ha
-RCZs combined		30.3 ha		
-GWZ (Green Wedge Zone)	20.56 ha	1.3 ha	2.9 ha	3.65 ha
-GRZ 1 (General Residential Zone)	n/a	7.3 ha	6.5 ha	14.58 ha
Total native vegetation loss without a planning permit (which may or may not have been required, location dependent)	68.8 ha	28.1 ha	25.05 ha	62.78 ha

<sup>1</sup> April 2007, <sup>2</sup> November 2009, <sup>3</sup> October 2012, <sup>4</sup> March 2015, <sup>5</sup> March 2020

<sup>20</sup> Arial survey analysis of change in vegetation cover, undertaken for Nillumbik Shire Council in-house (2007-2009), Ecology Australia (2012-2015), and Indigenous Design (2009-2012 and 2015-2020)



Table 2: Area of approved and non-approved native vegetation loss / removal between 2007 and 2020					
Permit status	Native vegetation removal (ha) 2007 – 2009	Native vegetation removal (ha) 2009 – 2012	Native vegetation removal (ha) Oct 2012 – Mar 2015	Native vegetation removal (ha) Mar 2015 – Mar 2020	% Change from 2007/09 – 2015/20
Approved	82.26	14.3	3.12	35.85	-56.41%
Exempt	5.81	5.0	0.04	0.223	-96.16%
Not approved/no permit issued (may or may not require a permit)	68.83	28.1	25.05	62.78	- 8.79%
Permit status unknown	-	1.6	-	-	
<b>Total:</b>	<b>156.9 ha</b>	<b>49.0 ha</b>	<b>30.85 ha</b>	<b>98.85 ha</b>	<b>-37%</b>

Table 3: Area (ha) of each Ecological Vegetation Class (EVC) lost / removed between 2007 and 2020					
Ecological Vegetation Class	Conservation Status	Area removed 2007-09 (ha)	Area removed 2009-12 (ha)	Area removed 2012-15 (ha)	Area removed 2015-20 (ha)
Box-Ironbark Forest	Vulnerable	6.72	1.3	0.259	3.318
Creekline Herb-rich Woodland	Vulnerable	8.43	1.0	0.075	3.083
Damp Forest	Least Concern	0.41	0.1	0	0.548
Floodplain Riparian Woodland	Endangered	0.21	0.2	0	11.285
Grassy Dry Forest	Least Concern	61.24	21.3	18.416	32.325
Grassy Woodland	Depleted	0	0	0	0.356
Gully Woodland	Vulnerable	2.64	0.5	0.043	0.248
Heathy Dry Forest	Least Concern	2.99	1.2	0.215	0.657
Herb-rich Foothill Forest	Least Concern	19.12	5.8	3.862	8.061
Plains Grassy Woodland	Endangered	1.56	0.4	0.312	1.26
Riparian Forest	Least Concern	3.75	0.8	0.526	2.248
Swampy Riparian Complex	Endangered	6.92	3.7	3.651	12.014
Valley Grassy Forest	Vulnerable	39.68	12.7	4.067	23.28
Wet Forest	Least Concern	0.16	0	0	0
Riparian Scrub/Swampy Riparian Woodland Complex	Vulnerable	0	0	0.406	0.008
Escarpment Shrubland	Endangered	0	0	0.103	0.063

**Table 3: Area (ha) of each Ecological Vegetation Class (EVC) lost / removed between 2007 and 2020**

Ecological Vegetation Class	Conservation Status	Area removed 2007-09 (ha)	Area removed 2009-12 (ha)	Area removed 2012-15 (ha)	Area removed 2015-20 (ha)
Damp Heathy Woodland	Depleted	0	0	0.061	0.107
Unknown		3.07			

**Table 4: Total area of native vegetation loss/removal between 2007 and 2020 by suburb**

Locality	2007-2009		2009-2012		2012-15		2015-20	
	Number of properties	Native vegetation removal Area (ha)	Number of properties	Native vegetation removal Area (ha)	Number of properties	Native vegetation removal Area (ha)	Number of properties	Native vegetation removal Area (ha)
Arthurs Creek	12	17.57	11	0.6 ha	3	1.716	60	2.61
Bend Of Islands	12	1.56	11	1.2 ha	0	0	0	0
Christmas Hills	57	25.6	21	5.6 ha	6	0.572	32	24.71
Cottles Bridge	18	2.46	8	1.1 ha	2	0.274	49	1.14
Diamond Creek	11	0.93	174	7.6 ha	83	6.365	324	15.39
Doreen	8	7.43	11	0.5 ha	4	0.109	44	0.90
Eltham	31	2.81	334	5.2 ha	101	1.604	40	3.07
Eltham North	0	0	39	0.4 ha	32	0.34	32	0.30
Greensborough	0	0	94	0.5 ha	11	0.105	80	0.32
Hurstbridge	30	4.49	46	0.7 ha	6	0.382	60	1.195
Kangaroo Ground	85	35.6	70	8.6 ha	11	2.854	49	10.05
Kinglake	2	0.05	0	0	0	0	0	0
Kinglake West	2	0.49	0	0	1	0.179	1	0.055
North Warrandyte	35		78	1.6 ha	8	0.634	7	0.534
Nutfield	3	1.21	7	0.3 ha	1	0.033	16	1.068
Panton Hill	61	16.68	19	1.6 ha	15	1.296	73	5.367
Plenty	24	4.47	98	4.3 ha	21	1.502	70	8.518
Research	22	2.9	53	1.0 ha	25	1.251	16	0.520
Smiths Gully	19	1.9	5	0.1 ha	5	0.882	35	1.93
St Andrews	62	9.26	33	2.8 ha	16	2.891	143	13.43
Strathewen	13	13.78	23	2.5 ha	12	3.458	27	3.065
Watsons Creek	4	0.5	6	0.2 ha	2	0.792	3	0.171
Wattle Glen	15	1.29	31	0.9 ha	5	0.113	26	1.126
Yan Yean	0	0	0	0	3	0.013	3	0.016
Yarrambat	18	4	34	1.8 ha	27	4.63	84	3.358
<b>Total</b>	<b>545</b>	<b>156.9 ha</b>	<b>1206</b>	<b>49.0 ha</b>	<b>400</b>	<b>31 ha</b>	<b>1274</b>	<b>98.85 ha</b>

## Appendix 5 Eltham Copper Butterfly larvae counts – all Nillumbik reserves

This table shows the results of the last six years of ECB larvae counts calculated on a plant be plant basis.

Site	2014		2015		2016		2017		2018		2019	
	Larvae	Plant	Larvae	Plant	Larvae	Larvae	Larvae	Plant	Larvae	Plant	Larvae	Plant
WC	70	22	502	125	620	207	570	152	432	164	266	136
EC	56	19	189	48	204	77	444	84	554	162	270	104
YVW	25	13	59	18	94	32	88	24	64	21	58	24
PT	79	24	342	95	264	97	267	116	757	256	581	209
PS	22	7	28	14	2	2	14	5	76	22	89	25
LC			30	7	100	15	132	19	107	25	38	19
WSK					15	4	1	1	65	14	18	7
JJG									219	52	146	41
DR			27	6	37	13	84	26	119	30	48	18

## Appendix 6 – Current and recent Nillumbik biodiversity programs funded by Grants

Project/grant name	Funding body	Amount \$	Date from	Description
Sugarloaf Link	DELWP	500,000	2018-2021	Biodiversity Response Planning Grant – deer, fox and weed control to protect biodiversity in Christmas Hills, Bend of Islands, Watsons Creek area of Warrandyte to Kinglake habitat corridor
Kangaroo Ground deer control	DISER	20,000	2020-21	Communities Environment Program grant – deer control in Kangaroo Ground
Collaborative deer control project	DISER	37,000	2020-21	Communities Environment Program grant – to assist private landowners to work collaboratively to control deer
Wine-lipped Spider Orchid enhancement at Professors Hill Reserve	DISER	20,000	2020-21	Communities Environment Program grant – to construct a deer proof fence to protect these orchids
Tree homes for Wildlife	DISER	3,750	2020-21	Communities Environment Program grant – to install 21 Phascogale nest boxes across seven properties
Gardens for Wildlife Program	DELWP	28,000	2019-20	Caring for our Local Environment (COLE) grant to establish a Nillumbik Gardens for Wildlife program
Conservation futures	DELWP	300,000	2017-2020	Regional Hubs Biodiversity on-ground grant – to protect and enhance habitat for nine local threatened flora and fauna species
Nillumbik Threatened Orchid program	DELWP	21,190	2016-2017	Community engagement and site preparation for reintroductions
Habitat improvement and monitoring of Nillumbik's iconic threatened species	DELWP	23,230	2016-2017	Habitat improvement and monitoring of Nillumbik's iconic threatened species
Forest Health Monitoring Project (Year 1)	Norman Wettenhall Foundation	9,925	2017-2019	A multi-year audio and camera forest health monitoring program at 30 locations across Nillumbik
Forest Health Monitoring Project (Years 2-4)	Helen Macpherson Smith Trust	82,000	2018-2021	A multi-year audio and camera forest health monitoring program at 30 locations across Nillumbik
Recovery and conservation of the Charming Spider Orchid <i>Caladenia amoena</i>	DELWP	50,000	2017-2020	Recovery and conservation of the Charming Spider Orchid <i>Caladenia amoena</i>
Finding and saving Southern Toadlets and other frogs in Nillumbik	DELWP	27,152	2017-2020	Biodiversity on-ground actions – community grants – Southern Toadlet conservation

Project/grant name	Funding body	Amount \$	Date from	Description
Rivers to Ranges	DELWP	500,000	2016-2020	Peri-urban Weed Management Partnerships grant - to reduce the threat of weeds to key biodiversity assets on public land, improve habitat corridor function at a landscape scale, increase coordination in the protection of biodiversity across land tenures and between land managers, and to leverage additional resources for the protection of biodiversity
Cultivating Community Stewardship - caring for the significant biodiversity of Panton Hill and Smith's Gully	DELWP	49,000		Biodiversity On Ground Action grant - Growing membership for Friends Groups, on-ground biodiversity conservation work – nestboxes, dunnart tiles, maintenance of significant orchid patches, Education
Corridors of Green	Melbourne Water	19,632	Annual	Swipers Gully, Rotin Crt, Peppers Paddock, Plenty River, Hurstbridge/ The Island
Community Grants	Melbourne Water	6,195	Annual	Plenty River, Karingal Yallock
Roadside weeds and pests program	DEDJTR	30,518	Annual	Roadsides across the rural area

## Appendix 7



### Project prospectus: Biodiversity across Boundaries

Protecting biodiversity, enhancing habitat and building climate resilient landscapes north-east of Melbourne

Seeking \$2,000,000 of government funding for biodiversity conservation on public and private land in Melbourne's north-east.

The landscape on the north-east edge of Melbourne contains a uniquely diverse hotspot of native plants and animals. Many are found nowhere else. However, this area is under threat from the combined impact of climate change, urban development, rural development and invasive plants and animals.

There is a long history of successful environmental partnership projects in the area including *Rivers to Ranges* and *Conservation Futures*. With both these projects finishing in June 2020 further funding is required to protect previous investment and continue to protect these vital habitats.

#### 4 ecosystems of focus or to protect

- Dry forests and woodlands
- Plains woodlands and grasslands
- Wet and damp forests
- Urban ecology

- One of the most intact habitat corridors in the Greater Melbourne region, connecting the Yarra River to the Kinglake Ranges
- Supports a rich diversity of native species including over 1,000 plant species and over 340 animal species
- Provides a vital migratory stepping stone for Critically Endangered Swift Parrots
- Sustains many rare native orchids found nowhere else, including Endangered Rosella Spider-orchids and Charming Spider-orchids
- Boasts one of the largest populations of Endangered Eltham Copper Butterfly
- Provides a refuge to threatened Brush-tailed Phascogale and other species after the Black Saturday Bushfires
- Wet forests to the north and extensive network of waterways will provide important refuge in the face of climate change

ENVIRONMENT  
SERVICES

  
Nillumbik  
The Green Wedge Shire

**Outcome:**

**A healthy and resilient environment supported by a connected community**

<b>Knowledge and monitoring</b> <ul style="list-style-type: none"><li>• Forest health monitoring</li><li>• Threatened species monitoring</li><li>• Weed and pest animal monitoring</li><li>• Project partner knowledge sharing</li><li>• Climate futures adaptation planning</li></ul>	<b>On-ground action</b> <ul style="list-style-type: none"><li>• Threat reduction<ul style="list-style-type: none"><li>◦ Weed control</li><li>◦ Pest animal control (rabbits and foxes)</li><li>◦ Exclusion fencing</li></ul></li><li>• Habitat enhancement (e.g. enhancement planting, ecological burns, artificial habitat creation)</li><li>• Threatened species propagation and reintroductions</li><li>• Revegetation</li></ul>	<b>Community engagement</b> <ul style="list-style-type: none"><li>• Community involvement in strategic planning</li><li>• Volunteering and citizen science</li><li>• Education materials and communications</li><li>• Engagement events</li><li>• Traditional owner involvement</li></ul>
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**Partnerships and collaboration**

The lynch pin of this project is the relationships between the project partners. The role of the project coordinator will be to facilitate collaborative partnerships and strategically coordinate works across land management boundaries. A role of the partnership is also to advocate for complementary and in-kind support.

**Proposed timeline: 4 years**

**Cost: \$2 million over 4 years**

- strategic project management and a project coordinator
- on-ground conservation works on public and private land
- monitoring
- community engagement
- traditional owner involvement

For more information contact Kirsten Reedy on 03 9433 3541

**Potential Partners**

- Nillumbik Shire Council
- City of Whittlesea
- Manningham Council
- Parks Victoria
- Melbourne Water
- Landcare Networks and community
- Department of Environment, Land, Water and Planning



ENVIRONMENT SERVICES



DRAFT