

Nillumbik Shire Council



NILLUMBIK

# Biodiversity

## STRATEGY

2012

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**Aboriginal Land Statement**

Nillumbik Shire Council acknowledges the Wurundjeri as the traditional custodians of the land now known as the Shire of Nillumbik and values the significance of the Wurundjeri peoples' history as essential to the unique character of the Shire.

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# Executive Summary



This Biodiversity Strategy provides the strategic direction for biodiversity management across Nillumbik to inform programs, standards and targets for the Shire. It also seeks to develop further a coordinated approach to ensure that ecosystems are healthy, resilient, productive and connected across the landscape for future generations. This document identifies threats to ecosystem functions and opportunities to enhance and protect these functions.

The overarching vision for biodiversity in Nillumbik established by this Strategy is:

**‘Nillumbik’s ecosystems are healthy, resilient, productive and connected at a landscape scale for the future.’**

The key objectives which guide the strategic implementation of this vision in Nillumbik are:

- Improve monitoring, knowledge and information relating to significant species, communities and ecological processes.
- Conserve, maintain and enhance ecosystem services and processes.
- Improve decision-making and target investments to conserve biodiversity.
- Create a consistent and practical response to fire management and biodiversity recovery after bushfire.
- Support the community to take action to protect and enhance biodiversity.

To achieve the Strategy’s objectives, a whole-of-Council approach is required in partnership with other councils in the region, government agencies and community, particularly residents and community groups. This Strategy will assist Council to develop and deliver a proactive and integrated approach to protect biodiversity across the Shire. It also includes a detailed list of actions to minimise and remove threats and take opportunities to protect biodiversity in the Shire.

The Strategy highlights significant opportunities to protect and manage the Shire’s biodiversity through:

- **enhanced protection for biodiversity hot spots (core habitat)**
- **a new category of controls for areas surrounding core habitat (buffer habitat)**
- **protection of ‘biolinks’ (habitat corridors)**
- **targeted offsetting via the Native Vegetation Framework**
- **a guide to Nillumbik’s significant flora, fauna and vegetation communities**
- **detailed studies of Nillumbik’s key threatened flora, fauna and vegetation communities**
- **biodiversity standard operating procedures for Council use**
- **remnant vegetation management plans**
- **targeted on-ground works**
- **a system to record changes in environmental values over time**
- **community engagement and environmental education.**



# 2 Introduction



## 2.1 Setting the scene

Australia, in line with much of the world, is continuing to focus on the importance of biodiversity and ecological processes at a time of climate change.

*'Human beings are dependent for their sustenance, health, wellbeing and enjoyment of life on biodiversity. We derive all of our food and many medicines and industrial products from the wild and domesticated components of biological diversity.*

*Biodiversity is the basis for much of our recreation and tourism, and includes the ecosystems which provide us with many services such as clean water.'* (DSE 2011)

Australia's Biodiversity Conservation Strategy 2010–2030 states:

*'Local initiatives are important for achieving ecologically sustainable development. Local government is a valuable and ongoing contributor to efforts to conserve biodiversity through its role in local and regional planning and, increasingly, through its role in environmental management, monitoring and reporting.'* (DSE 2010b)

During the National General Assembly of Local Government in November 1998 it was recognised that, to be effective, biodiversity management should progressively become a core function of local government.

Nillumbik Shire Council and the community have been leaders in biodiversity conservation and has shown a commitment to protect and manage its land and environmental assets. To achieve this, Council employs a range of plans, programs, initiatives, education and partnerships in conjunction with the Environmental Significance Overlay Schedule 1 - Sites of Faunal and Habitat Significance (ESO1), a planning control applied to 61 per cent of the Shire. In addition, the following Planning Scheme zones support the protection of biodiversity in Nillumbik; Public Park and Recreation Zone, Public Conservation and Resource Zone, Rural Conservation Zone, Green Wedge Zone, Special Use Zone and Urban Floodway Zone.

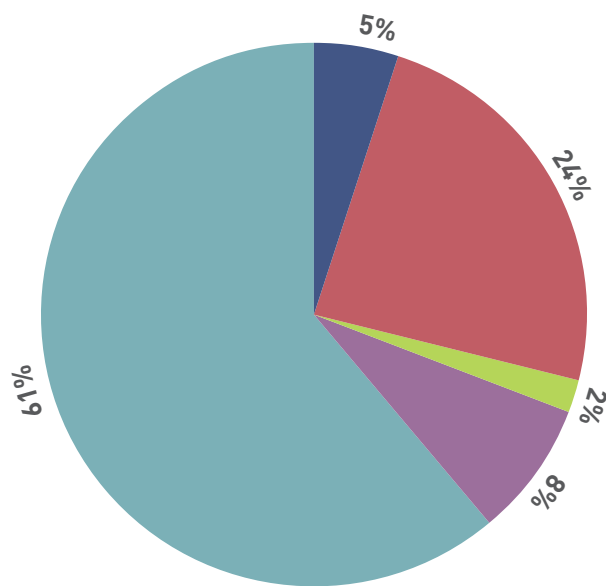
The Shire of Nillumbik supports a diverse array of species and their habitats, spanning the tall Manna Gum forests on the Yarra River, grasslands on the Plenty River, alluvial plains and terraces, incised creeklines and dry valleys nestled amongst skeletal sedimentary hills up to the Kinglake Plateau on the Great Dividing Range.

This unique area packs in over 1,000 indigenous flora species, 64 of which are listed significant species. Many of these are delicate terrestrial orchids, including some not found anywhere else. Supporting and often relying upon these plants is an equally impressive array of 342 indigenous fauna species, 63 of which are listed significant species including the distinctive Brush-tailed Phascogale, Lace Monitor, Common Dunnart, Sugar Glider, Wedge-tailed Eagle, Eltham Copper Butterfly and Platypus. Kangaroos remain a relatively common resident, and a myriad of birds frequent even the most urban backyard.

Biodiversity is the variety of all life forms on Earth – the different plants, animals and micro-organisms and the ecosystems of which they are a part.



## 2.1 Setting the scene (continued)



Source: Department of Sustainability and Environment

### Percentage of intact vegetation by land tenure in Nillumbik



The Black Saturday bushfires of February 2009 had a devastating impact on the community and environment of Nillumbik. The management of bushfire risk will be a component of all future biodiversity planning for Nillumbik.

Biodiversity planning will consider and include objectives, strategies and actions for managing bushfire risk, and will also consider the findings and directions of the Victorian Bushfires Royal Commission.

## 2.2 Nillumbik Biodiversity Strategy

The Nillumbik Biodiversity Strategy provides the strategic direction for biodiversity management across Nillumbik to inform programs, standards and targets for Council. It seeks to make state and regional biodiversity plans locally relevant for implementation, particularly *Victoria's Biodiversity Strategy 2010-2015*.

The five year timeframe for the strategy reflects the need for regular renewal and provides an appropriate timeframe for monitoring and evaluation.

Key legislation relevant to biodiversity includes:

- Federal *Environment Protection and Biodiversity Conservation Act 1999*.
- *Victoria's Native Vegetation Management: A framework for action 2002*
- *Planning and Environment Act 1987*
- *Flora and Fauna Guarantee Act 1998*

This Strategy provides a mechanism for delivering Nillumbik's biodiversity conservation activities over the next five years, with a strong focus on influencing and changing behaviours.

The Strategy also complements and aligns with a number of existing Council policies and strategies including:

- *Green Wedge Management Plan 2010*
- *Weed Action Plan 2008*
- *Rabbit Action Plan 2009*
- *Roadside Management Plan 1997* (currently under review)
- Reserves management including management plans such as *Panton Hill Bushland Reserves Management Plan*, and fire management plans such as those for Professors Hill and The Chase
- Annual Fire Prevention Works Program
- Urban Fringe Weed Management Initiative (UFWMI)
- any ongoing bushfire recovery work/rural extension work
- offsetting projects.

## 2.2.1 The guiding principles

The strategy is guided by the core principles outlined in *Victoria's Biodiversity Strategy 2010-2015*, which are provided below:

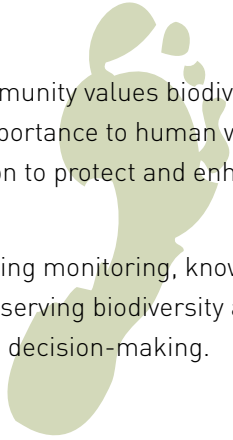
ECOLOGICAL PRINCIPLES	RISK MANAGEMENT PRINCIPLES	SUSTAINABLE DEVELOPMENT PRINCIPLES
<ul style="list-style-type: none"> <li>• Biodiversity conservation is a central pillar of ecologically sustainable development.</li> <li>• Biodiversity is best conserved in situ (within species' natural habitat).</li> <li>• Central to the conservation of biodiversity is the need for a 'comprehensive, adequate and representative' system of ecologically viable protected areas, integrated with the sympathetic management of other areas, including urban, agricultural and industrial areas.</li> <li>• Conservation is enhanced by knowledge and understanding of species, populations and ecosystems.</li> <li>• We share the earth with many other life forms that have intrinsic value and warrant our respect, whether or not they are of immediate benefit to us.</li> </ul> 	<ul style="list-style-type: none"> <li>• The 'precautionary principle' (Principle 15 of the Rio Declaration on Environment and Development, to which Australia has agreed) provides a general guide to dealing with the uncertainty and risk involved in conserving biodiversity. It states that 'where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation'.</li> <li>• The causes of a significant reduction or loss of biological diversity must be anticipated, managed at the source or prevented.</li> <li>• Prevention is better than cure. Protecting ecosystems from damage is far more cost-effective than attempting rehabilitation once the damage is done. Besides, some ecosystem changes and losses of biodiversity (for example, extinctions) can never be overcome.</li> </ul>	<p>Look forward</p> <ul style="list-style-type: none"> <li>• The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.</li> </ul> <p>Share responsibility</p> <ul style="list-style-type: none"> <li>• Along with the community, all levels of government have a clear interest and responsibility in conserving biodiversity. Furthermore, the shared responsibility of conservation groups, resource users, indigenous peoples, and the general community (including industry and other natural resource users) is vital for successful conservation.</li> </ul> <p>Take wise, balanced and fair decisions</p> <ul style="list-style-type: none"> <li>• The close, traditional association of Australia's indigenous peoples with land and ecosystems should be recognised.</li> <li>• Processes for and decisions about the allocation and use of Victoria's resources should be efficient, equitable and transparent.</li> <li>• Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equity considerations.</li> <li>• Decisions should recognise the need to develop a strong, growing, diversified and competitive economy.</li> </ul> <p>Use smart tools</p> <ul style="list-style-type: none"> <li>• Cost-effective and flexible policy instruments should be adopted, including improved valuation, pricing and incentive mechanisms.</li> </ul>

## 2.2.2 The vision

Nillumbik Shire Council's vision that 'Nillumbik's ecosystems are healthy, resilient, productive and connected at a landscape scale for the future' underpins this Biodiversity Strategy over the next five years. More specifically the Strategy focuses on four key outcomes that describe the environmental, social, economic and cultural aspects of biodiversity conservation.

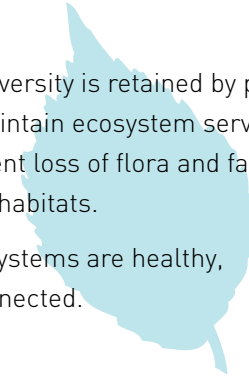
### Human

- The Nillumbik community values biodiversity, understands its importance to human wellbeing, and is willing to take action to protect and enhance biodiversity in Nillumbik.
- Systems for improving monitoring, knowledge and information for conserving biodiversity are accessible and used for sound decision-making.



### Environment

- Nillumbik's biodiversity is retained by protecting core areas to maintain ecosystem services and prevent permanent loss of flora and fauna populations and habitats.
- Nillumbik's ecosystems are healthy, resilient and connected.



## 2.2.3 The framework for action

The Biodiversity Strategy fits into an already existing policy and planning framework within Council. The Strategy has been divided into the following key action areas.

1. Strategic
2. Ecological management
3. Working together

Each key action area provides a focal point for the Council to align skills, knowledge, expertise and partnerships. Actions that will be delivered over the next five years are presented under each key action area. These actions have been developed through internal and external consultation and are designed to ensure effective implementation of the Strategy.

The actions will achieve the critical changes required over the coming five years and have been derived from the Strategy's objectives. These actions focus on:

- identification of biodiversity assets to allow programs and on-ground works to be effectively targeted to strategic and high value areas
- adaptive management (learning by doing), which involves learning and improving management techniques by reviewing and monitoring the outcome of actions then adapting them
- leveraging funding opportunities via government and non-government agencies for protection and enhancement of remnant vegetation
- effective partnerships to better coordinate biodiversity management across large areas which may cover multiple tenures. This is especially important in areas identified as biolinks.





## 2.3 What is biodiversity and why is it important?

Biodiversity is the variety of all life forms on Earth – the different plants, animals and micro-organisms and the ecosystems of which they are a part.

Biodiversity is measured at three main levels:

- Genetic diversity: the variety of genetic information contained in all living things. It varies within and between populations of organisms that make up a single species or wider groups.
- Species diversity: the variety of species on Earth.
- Ecosystem diversity: the variety of Earth's habitats, ecosystems and ecological processes.

Maintenance of biological diversity requires much more than protection of wildlife and habitats in conservation reserves.

It serves to promote sustainable use of biological resources.

An environment rich in biological diversity offers the broadest array of options for sustainable economic activity, nurturing human welfare and adapting to change.

Taking action to protect and conserve biodiversity is vital to ensure ecosystems continue to function and are retained for future generations. Healthy land, waterways and ecosystems are fundamental for:

- protection of present communities and species of plants and animals
- mitigation of potentially devastating environmental problems including salinity, erosion, climate change and flooding
- improved amenity value
- influencing the health of human communities
- improved local productivity
- conservation of heritage values
- improved human wellbeing and connection to nature
- regulation of climate and moderation of temperature extremes
- air and water purification.

**'Conserving biodiversity is an essential part of safeguarding the biological life support systems on Earth. All living creatures, including humans, depend on these systems for the necessities of life ... If we continue to live unsustainably, we risk the degeneration of the ecological systems that support our life and our nation's productivity. We also risk eroding the legacy we leave future generations. Collectively we have a civic responsibility to help sustain our living planet. Conserving biodiversity is central to living sustainably.'**

(DSE 2010b)



## 2.4 Biodiversity in Nillumbik



According to the Victorian Department of Sustainability and Environment's (DSE) flora and fauna database records, Nillumbik has been subject to more survey and data-gathering effort than any other municipality in the state (Viridans Pty Ltd 2007). This data comes from a range of sources: DSE quadrat surveys, the North East Regional Organisation of Councils (NEROC) report (*Sites of Faunal and Habitat Significance in North East Melbourne*), DSE Biosite data and a wealth of incidental records contributed by professionals (including a local demographic with expert ecologists) and the community. Further to these database records, many data sets, studies and strategies have been developed by a range of agencies that identify and describe biodiversity within the Shire. In addition, there is a very long history of conservation in the Shire, with private landholders investing in private land conservation, with this trend continuing to increase.

The Shire of Nillumbik Planning Scheme identifies that Council 'plays a pivotal role in protecting the region's biodiversity'. This role is determined by Nillumbik's natural environment: 'Strategic habitat links which continue into surrounding municipalities connect extensive areas of native vegetation. A significant number of rare and endangered species are found in these native environments.' Accordingly, the Environmental Significance Overlay requires an applicant to obtain a planning permit to subdivide land, construct a building, carry out works or remove, destroy or lop vegetation.

In the early 1990s NEROC (now disbanded) commissioned Dunmoochin Biological Surveys (Cam Beardsell) to undertake a study of significant faunal sites and habitats in north-east Melbourne. This resulted in the NEROC report, published in 1997. The purpose of the study was to provide accurate and comprehensive information on sites of faunal significance and species of native terrestrial vertebrates that require conservation management. Of the 104 sites identified across north-east Melbourne, 63 sites occur in

the Shire of Nillumbik. The NEROC report also identified 15 biodiversity 'hotspots' in Nillumbik, classified as Ecological Reference Areas and Critical Conservation Areas, and three sites of national significance for their fauna: Yarrambat Morang wetland; Plenty-Janefield and Diamond Creek headwaters. The waterways that divide the catchments across Nillumbik play a critical role, particularly for many endangered plants and animals.

DSE has identified 84 'biosites' (sites of biodiversity significance) in the Shire. Twelve are of national significance, 33 are of state significance, 38 are of regional significance and one is of local significance (DSE 2007b). There are 14 nationally threatened species, nine migratory species and one threatened ecological community listed for protection under the *Environment Protection and Biodiversity Conservation Act 1999*. Of the EPBC Act listed species found within the Shire, six flora species and three fauna species have National Recovery Plans ([www.environment.gov.au/sprat](http://www.environment.gov.au/sprat)).

There are also 42 species listed under the *Flora and Fauna Guarantee Act 1998* (FFG Act) and 120 listed by DSE as rare or threatened in Victoria, all of which have been identified as resident or reliant upon habitats that occur within the Shire at some time. A total of four FFG Act listed flora species and 19 FFG Act listed fauna species have approved Action Statements ([www.dse.vic.gov.au](http://www.dse.vic.gov.au)). These species include:

- Powerful Owl (*Ninox strenua*)
- Masked Owl (*Tyto novaehollandiae novaehollandiae*)
- Swift Parrot (*Lathamus discolor*)
- Painted Honeyeater (*Grantiella picta*)
- Regent Honeyeater (*Anthochaera phrygia*)
- Brush-tailed Phascogale (*Phascogale tapoatafa tapoatafa*).

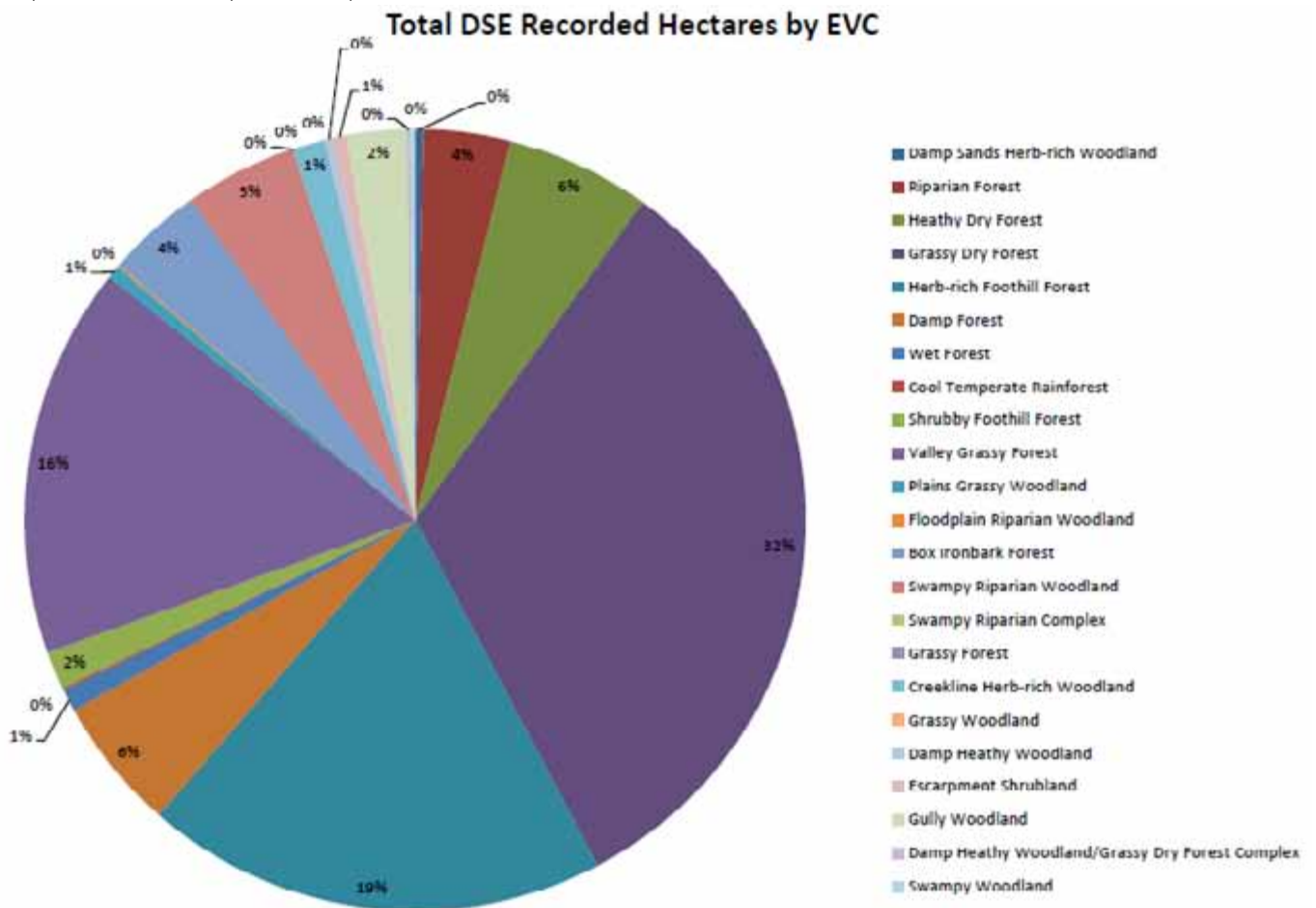
## 2.4 Biodiversity in Nillumbik (continued)

The Port Phillip and Westernport Native Vegetation Plan (Port Phillip and Westernport Catchment Authority 2006) Ecological Vegetation Classes mapping (Appendix 4 in the Background Paper) shows that a large proportion of Nillumbik is covered with remnant indigenous vegetation in a range of classes of varying conservation status. The main classes in the Shire are Grassy Dry Forest, Valley Grassy Forest, Heathy Dry Forest, and Herb-rich Foothill Forest. None of these classes are listed as threatened.

Small areas of other classes also exist in the Shire including:

- Box-Ironbark Forest (vulnerable)
- Gully Woodland (vulnerable)
- Riparian Forest (vulnerable)
- Plains Grassy Woodland (endangered)
- Creekline Herb-rich Woodland (endangered)
- Swampy Riparian Complex (endangered).

### Ecological Vegetation Classes (EVCs) in Nillumbik (% cover)



Source: Department of Sustainability and Environment



## 2.5 Biodiversity is in decline

In 2007 the United Nation's Convention on Biological Diversity recognised climate change and the loss of biological diversity as the two most important global environmental challenges facing humans.

'Two hundred years of human activity has severely affected Victoria's species and ecosystems. In a time of severe drought, major bushfires and the impact of climate change, the already difficult task of balancing the sustainable management of land, water and biodiversity, whilst also achieving economic growth and sound social outcomes, becomes very complex. Despite the conservation efforts of governments, non-government organisations, communities and individuals over many decades, the health of our species and ecosystems continues to decline.'

*Victoria's Biodiversity Strategy 2010-2015: Consultation Draft*

Across Victoria large-scale clearance, combined with a plethora of threats such as weeds and feral animals, has had devastating impacts on wildlife and ecosystems. In Victoria 44 per cent of native plants and more than 30 per cent of animal species are already either extinct or threatened with extinction (CSIRO 2004).

Over recent decades, all levels of government and community have been working to prevent the loss of native species and their habitats. However, available evidence suggests there is a continuing decline in biodiversity. Species extinctions, weed invasion, salinisation, soil erosion, pest outbreaks and declining native vegetation and water quality and quantity are among a range of symptoms of ecosystems losing the capacity to repair themselves.

### Biodiversity in decline in Victoria (CSIRO 2004, DSE 2005, DSE 2007a, DSE 2009b)

	Vascular Plants	Bryophytes and Fungi	Vertebrate Fauna	Invertebrates
Total number of known species in Victoria	4200		793	
Presumed Extinct	49	2	24	6
Critically Endangered			37	20
Endangered	270	13	52	28
Vulnerable	475	20	72	79
Rare	804	34		
Data deficient or poorly known	228	77	24	38
Near Threatened			68	7
<b>Total number affected in Victoria</b>	<b>1826</b>	<b>146</b>	<b>277</b>	<b>178</b>

## 2.6 Threats to biodiversity

The Commissioner for Environmental Sustainability found that 'climate change, population growth and settlements, and consumption associated with economic growth are the overarching driving forces of environmental degradation' (CES 2008).

Human interaction with natural ecosystems has a long history in Nillumbik, with significant impacts during settlement for mining, agriculture and urban development.

There are many threats that drive the loss of biodiversity within the Shire. The most significant threats to biodiversity in Nillumbik are:

- increasing residential development pressure
- habitat destruction, modification and fragmentation
- agricultural land use
- environmental weeds
- climate change
- altered fire regimes
- exotic fauna
- soil compaction
- pathogens
- lack of understanding about ecological processes
- encroachment into areas of conservation significance
- altered water quality and flows.

## 2.6.1 Increasing residential development pressure

Residential development of previously vacant bush blocks and subdivision of existing residential blocks is a key threat to biodiversity. These processes result in loss of remnant vegetation and increased pressure on native flora and fauna through increased weeds, modification of hydrology, the introduction of exotic pest animals and implementation of land management required to reduce fire threats. These pressures result in a loss of suitable habitat for many species including threatened and endangered species.



## 2.6.2 Habitat destruction, modification and fragmentation

Residential development in the rural areas of the Shire also affects biodiversity. Areas of remnant vegetation are at risk from continued gradual degradation and loss on both private and public land. The causes include competition from pest plants, lack of regeneration to replace ageing plants, and deliberate destruction and clearance related to development including the construction of access roads. Subdivision of large rural properties for residential purposes can alter hydrology of the area, lead to fragmentation of habitat and directly affect biodiversity through habitat loss and disturbances associated with construction and urban land use such as pets and non-indigenous plantings.



### 2.6.3 Agricultural land use

Agriculture can result in gradual degradation of remnant vegetation. The causes include competition from non-indigenous plants, grazing pressure, compaction and erosion. Vegetation clearance or modification of the land for agriculture can replace indigenous with non-indigenous flora and greatly reduce the value of the land as habitat for indigenous fauna. Poor land management can result when owners with a non-agricultural background have little understanding of the stock-carrying capacity of Nillumbik's poor soils.

...competition from non-indigenous plants, grazing pressure, soil compaction and erosion.

### 2.6.4 Environmental Weeds

Weed invasion by introduced and non-indigenous native species is one of the most easily recognisable and most serious threats to biodiversity across Nillumbik. These species compete with and often out-compete indigenous plants. Control of weeds in otherwise 'intact' remnant vegetation can produce a rapid beneficial change. Weed encroachment into areas of high biodiversity is most evident where the areas have boundaries with residential or farm land and along access routes.

Weed seeds are spread through the Shire by many natural and human-induced processes, including:

- wind and water
- vehicles
- machinery used in landscaping, maintenance or other earth works
- transporting of stock feed and soil
- landscape materials, especially quarry products
- recreational activities such as horse-riding, mountain-biking, bushwalking
- human and animal movement.



## 2.6.5 Climate change

Higher temperatures and reduced rainfall are predicted in climate change models. Current projections predict an increase in global average temperatures of 2.2 °C to 5 °C under a more extreme climate projected for 2070 (A1F1 Emission Scenario by the Intergovernmental Panel on Climate Change) (CSIRO 2007). Climate change is predicted to have a marked impact on biodiversity through many factors such as changes in vegetation structure including a decrease in foliage quality, and reduction in range for the majority of vertebrate species.

In Nillumbik increased temperatures are expected to result in changes to vegetation composition. It is likely that changes in structure, productivity and foliage quality will have flow-on effects to other aspects of biodiversity. Climatologists suggest that climate change will result in a drying climate and more intense and frequent fires, with the following impacts on biodiversity (Ecology Australia 2009).

- Smaller areas of refugia as a result of larger scale fires, slowing the re-colonisation of burnt areas and the recovery of populations, and possibly resulting in local extinctions.
- Increased fire mortality of drought-stressed plants, notably eucalypts.
- Reduced post-fire recruitment of flora.
- Loss of core areas of biodiversity.

Several post-fire reports including Abzeco's *Threatened species management plan for Kinglake National Park* (Just and Beardsell, April 2010) indicate that these impacts occurred as a result of the February 2009 bushfires. This has significant implications for conservation planning in Nillumbik.

## 2.6.6 Altered fire regimes

Fire is a natural part of the Australian environment and has been so for millions of years. Natural ignition (lightning) and indigenous burning practices have shaped our ecosystems over tens of thousands of years.

Many of the plants and animals in Nillumbik have evolved to survive fire events, and are reliant on bushfire to regenerate and maintain their health. In Nillumbik many ecosystems are dependent on appropriate fire regimes (fire intensity, frequency, season, extent and type). Successful suppression of bushfire over decades leading to the 2000s, and changed land use patterns, have altered fire regimes.

Lack of appropriate fire regimes is a major threat to biodiversity in Nillumbik. Inappropriate fire regimes cause disruption to sustainable ecosystem processes and a resultant loss of biodiversity. The *Flora and Fauna Guarantee Act 1988* lists Altered Fire Regimes as a potentially threatening process.

Altered fire regimes can cause changes in vegetation types by transforming vegetation structure and floristic composition. Too frequent fires can lead to fire-sensitive species being unable to reach reproductive maturity, while infrequent fire intervals can result in species reliant on fire for reproduction being unable to set seed or germinate.

With careful planning fire can play an important role in maintaining species richness within Nillumbik's ecosystems.



## 2.6.7 Exotic fauna

Exotic vertebrates can significantly affect ecological processes with wide-ranging implications for biodiversity. Direct predation by cats, dogs, foxes, pigs and rats can be devastating to many indigenous animals, most particularly to ground-dwelling and foraging species. Deer cause soil disturbance and place grazing pressure on native flora. Rabbits have had a severe impact on Nillumbik's biodiversity, particularly during the last drought. Exotic invertebrates such as slugs, snails, Portuguese millipedes and Redlegged Earth Mites are known to cause serious damage to native orchids, lilies, daisies and a range of other indigenous flora.

## 2.6.8 Soil compaction

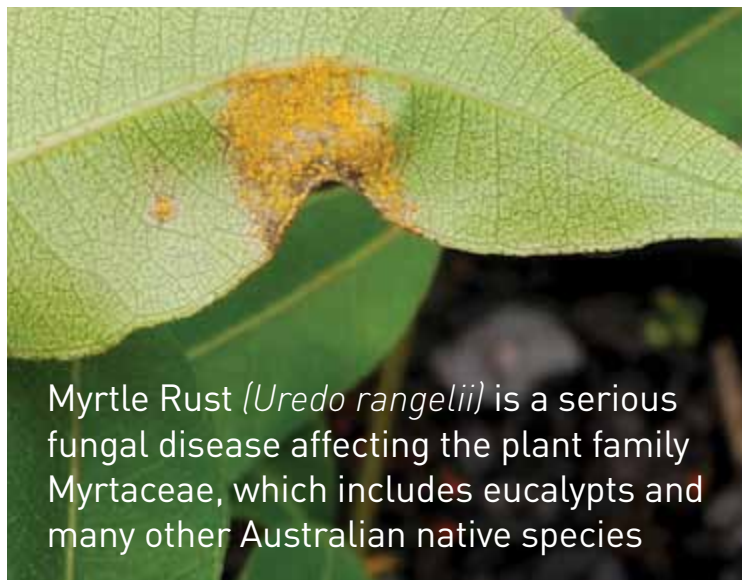
Livestock and recreational uses can cause significant damage to biodiversity through grazing, soil disturbance, soil compaction and erosion. Bushland areas should be protected from these activities as they are likely to lead to incremental habitat destruction, modification and fragmentation.

## 2.6.9 Pathogens

Pathogens such as Cinnamon Fungus (*Phytophthora cinnamomi*) and Myrtle Rust (*Uredo rangelii*) can have widespread and devastating impacts on a range of plant species across Nillumbik. Cinnamon Fungus has been recorded at several sites in Kinglake National Park and Strathewen and has been traced back to horticultural sources and contaminated crushed rock products. This highly invasive pathogen is readily spread via human passage, horses, vehicles including mountain bikes, earth-moving equipment, contaminated soil, rock and nursery-grown plants. It threatens natural vegetation across the Shire.

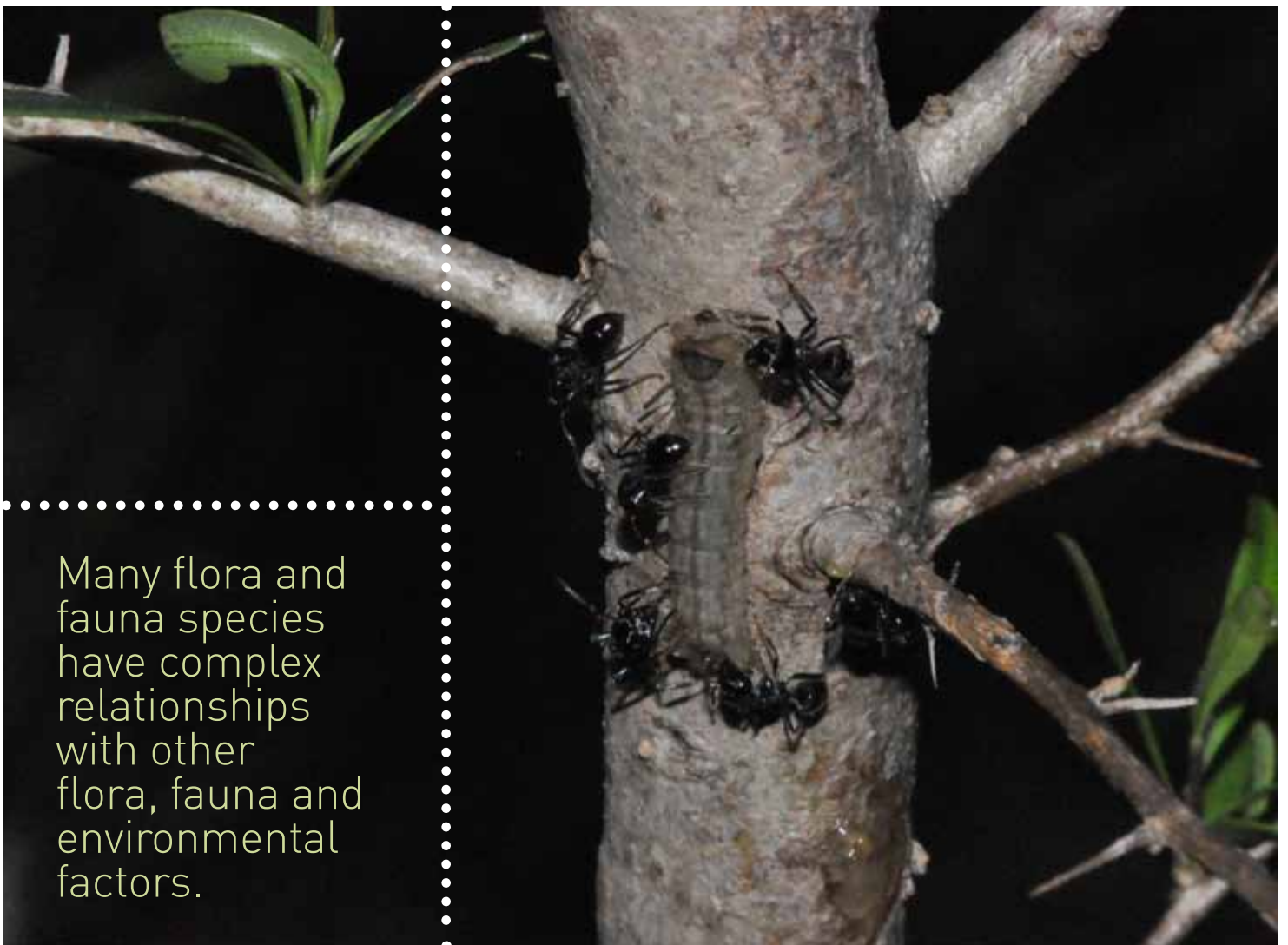
### Myrtle Rust

Myrtle Rust is a serious fungal disease affecting the plant family Myrtaceae, which includes eucalypts and many other Australian native species. Myrtle Rust has only recently been found in Victoria and is of serious concern because the fungus spreads very easily and because the Myrtaceae family is a dominant plant group in both natural ecosystems and the plantation industry. It is spread by movement of infected plant material from nursery stock, plant cuttings and germplasm, movement of contaminated equipment, wind, water and gravity, animals, humans and vehicles. It attacks young, soft, actively growing leaves, shoot tips and young stems as well as fruits and flower parts of susceptible plants. In Nillumbik, the impact this pathogen may have on plants regenerating in fire-affected areas is of particular concern.



Myrtle Rust (*Uredo rangelii*) is a serious fungal disease affecting the plant family Myrtaceae, which includes eucalypts and many other Australian native species





Many flora and fauna species have complex relationships with other flora, fauna and environmental factors.

### 2.6.10 Lack of understanding about ecological processes

Many flora and fauna species have complex relationships with other flora, fauna and environmental factors. These relationships are required for them to survive and prosper. For example, the Rosella Spider Orchid cannot survive or reproduce without assistance from a number of species including a small black native bee, wattles, peas, fungi, mosses and lichens. Without a clear guide to the habitat requirements for significant flora, fauna and vegetation communities, even well-meant environmental management can present indirect threats.

### 2.6.11 Encroachment and co-existence

It is important for residents within or bordering bushland areas to be aware of the biodiversity with which they coexist. If residents do not understand their biodiversity assets, they won't necessarily appreciate them and may encroach on them in a number of ways, such as:

- dumping green waste or other materials
- inappropriate fence construction
- inappropriate planting and cultivation

- dumping fill materials and moving rocks
- inappropriate landscaping and filled edges, inappropriate species, and lack of owner management of landscaping
- discharge of waste water and changes to surface drainage
- uncontrolled domestic animals
- excessive clearance for fire protection.

These actions can lead to detrimental changes including increased weed cover, changed physical conditions for plants and smothering of plants. They also hamper management activities within core habitat areas, such as fuel reduction and ecological burning, and weed and pest animal control.

### 2.6.12 Altered water quality and flows

Water quality declines as a result of altered flow rates, pollution, soil erosion and nutrient enrichment. This can result from cleared and agricultural land, unsealed roads and tracks, residential sites, septic tanks and grey water discharge points. The process can lead to the loss of many flora species and greatly assists the establishment and spread of invasive exotic flora species and pathogens. The construction of dams on drainage lines has a major impact on stream flows during dry periods and can severely impact on our major waterways.

## 2.7. Current thinking in biodiversity management

*Victoria's Biodiversity Strategy 2010-2015* identifies current thinking in biodiversity management, as outlined below.

Ecological systems are inherently complex and dynamic. Natural resource management must not only address the complexity of ecological systems but also the interplay of social, economic and organisation systems. To increase effectiveness in this context retaining a strong and clear focus on outcomes is essential to drive policies and practice across the sector. This section outlines some key outcome-focused concepts that currently drive biodiversity management.

### 2.7.1 Asset-based approach

Asset-based approaches in natural resource management represent a shift in focus from management activities to outcomes for natural resources and conservation values. Biodiversity assets can be species and ecosystems or a geographic area relevant for management decisions. For example, on land an asset may be a patch of remnant habitat, a river reach or a group of wetlands, whereas in the marine environment an asset may be a series of rock platforms, an embayment or a deep water zone.

Once an asset is delineated it is possible to:

- identify the asset's components and their value relative to other similar assets
- consider the asset's ecological circumstances, including specific threats and the likelihood and consequences of these impacting on the asset
- assess the feasibility and cost-effectiveness of actions to mitigate these threats or impacts.

Consideration of ecological circumstances and threats must also include the broader context to understand fully the reasons for impacts and appropriate responses. For example, changes associated with water regimes or disturbances associated with invasive species or chemical pollutants in the broader environment may have an impact on the asset.

### 2.7.2 Pattern and process

Within the context of biodiversity, pattern refers to the range and distribution of species, communities and habitats in an area, while process refers to how they interact with each other and the environment. Historically, biodiversity conservation has focused on pattern, because it is both the easiest component of biodiversity to grasp and the necessary precursor to understanding process. This has led to a focus in traditional conservation policy and practice on protecting the best examples of pattern (e.g. comprehensive reserve system) and measuring success by avoiding irretrievable losses of species and habitats.

Although avoiding losses of species and habitats is essential in strategies for conservation, good conservation outcomes are dependent on the ecological processes that sustain species, including access to sufficient habitat and resources to survive fluctuations associated with disturbance regimes. Knowledge of ecological processes is limited, and the ability to include processes in the framing of policy objectives and program practice is poorly developed. Fortunately, better consideration of processes is increasingly possible due to advances in landscape-scale remote sensing datasets, computer modelling capacity and spatial analysis tools. A further and more immediate challenge is to raise awareness of the fundamental importance of ecological processes, and to create the policy drivers and organisational capacity to bring this into consideration at all levels of natural resource management (McGregor et al 2008).



### 2.7.3 Minimising loss and maximising ecosystem function

Taking better account of both pattern and process in framing policy and program objectives leads to the recognition of twin drivers for biodiversity conservation.

1. Minimising loss of biodiversity; that is, ensuring that the greatest possible amount of pattern is retained over time.
2. Maximising the functionality of ecosystems; that is, ensuring that ecological processes both maintain biodiversity and meet the needs of humans through the provision of ecosystem services such as production of fibre and food, land protection, water storage and release, and carbon sequestration.

### 2.7.4 Species persistence

The ability of a species to persist depends on the inherent suitability of the habitat, the species' competitive abilities, and unpredictable fluctuations in habitat resources due to natural events. The ability of a species to persist through time and space is dependent on the net outcome of all the populations and their circumstances. This is always the case, even in fully natural systems such as those that prevailed prior to European settlement. When historic loss of the extent of habitat and ongoing degradation of the condition of habitat have reduced the number and feasibility of options for a species, the remaining habitat may become critically compromised, endangering a species. New drivers such as human-induced climate change will add greatly to the pressure on persistence.

### 2.7.5 Managing for outcomes

A focus on net outcomes requires more sophisticated decision-making tools and creates scope for the development of innovative management options for achieving those outcomes. The ability for natural resource management (NRM) processes to consider net outcomes, either generic ones such as native vegetation extent and condition, specific ones such as species persistence, or holistic ones such as ecosystem function, enables options and consequences to be put in perspective.

In the regulatory arena, an enhanced focus on net outcomes requires that decisions about impacts on biodiversity consider not only avoidance and minimisation of losses, but also the need for offsets (that is, compensatory outcomes for residual unavoidable losses) if they are to deliver no net loss of conservation outcomes. Victoria's Native Vegetation Management: A Framework for Action policy document pioneered this approach to natural resources in Victoria, and similar approaches are increasingly being adopted across Australia and elsewhere.

### 2.7.6 Resilience

There is a strong focus on building the underlying resilience of ecosystems across the state, recognising the dependence of all human activities on a sustainable natural-resource base. This approach involves supporting individuals, institutions and communities to manage change, the adoption of risk and adaptive management approaches, effective knowledge management and landscape-scale management of land, water and biodiversity.



# 3 Action Plan



The Action Plan provides a response to biodiversity conservation with a focus on the roles and responsibilities of Council. It includes actions to be undertaken directly by Council's operations and services and actions that support residents' and community groups' responses.

The biodiversity vision, objectives and actions in this document were derived through interdepartmental discussions and review, and community feedback.

The Action Plan has been divided into the following key areas.

- Strategic
- Ecological management
- Working together

These actions have been developed through considerable internal and external consultation and are designed to ensure effective implementation of the plan. The implementation of these actions will involve the community, Council and external organisations. All actions will be reviewed regularly and revised where necessary.

They will need to be supported financially by Council. All efforts will be made to seek external funding or in-kind support where appropriate. Larger projects associated with the Strategy will be included in Council's Strategic Resource Plan and Major Projects Plan to ensure appropriate budget allocations are provided.

The table of actions are separated into Number, Action, Timeline and Responsibility.

**Number** is assigned to the action for ease of reference.

**Action** details the action to be undertaken.

**Timeframe** refers to the timeline in which Council aims to achieve the action.

**Responsibility** refers to the main Council unit that will be primarily responsible for implementing the specified action, including applying appropriate resources to ensure effective implementation.

## Internal Section and Units

EP	Environmental Planning
EW	Environmental Works
OS	Open Space Maintenance
Comms	Communications
IT	Information Technology
LS	Leisure Services
GV	Governance
SP	Strategic Planning
IM	Infrastructure Maintenance
EM	Emergency Management



## 3.1 Strategic

### Objectives

- Improve monitoring, knowledge and information relating to significant species, communities and ecological processes.
- Improve decision-making and target investments to conserve biodiversity.
- Create a consistent and practical response to fire management and biodiversity recovery after bushfire.

### Overview

Biodiversity is protected through a range of Federal and State Acts. These pieces of legislation are not discretionary and must be given priority in any strategic planning process. Biodiversity management requires a coordinated and strategic approach to be effective. Council already has a range of programs and strategies in place to help protect biodiversity. This Strategy develops a proactive approach.

Strategic actions are actions that involve further policy and program development with an emphasis on Council leading the way. These actions may result in changes to the planning scheme, policy development to provide further information, and direction and offsetting programs to meet net gain requirements.

Council recognises the importance of playing an advocacy role to gain support from the Victorian Government in resourcing and implementing biodiversity projects. This includes assistance in implementing Victoria's Native Vegetation Management Framework and consideration for delineating Box-Stringybark Woodland in Nillumbik as a separate EVC.

### Current Situation

The Nillumbik *Council Plan 2009-2013* has three strategies in its Our Environment section that relate to this Biodiversity Strategy's first objective: 'Improve monitoring, knowledge and information relating to significant species, communities and ecological processes'. However, there is no strategy that directly mentions the importance of biodiversity within the Shire.

The NEROC study spanned 11 years (1986-1997) and identified 104 significant sites in an area of c.1,000km<sup>2</sup>, including the municipalities of Banyule, Darebin, Whittlesea and Nillumbik. Known as the NEROC report, the study has been well regarded and continues to have a major influence on planning decisions within these municipalities. The findings of NEROC were used as the basis for Schedule 1 to Nillumbik's Environmental Significance Overlay (ES01).

The NEROC report is an extremely useful and informative document that clearly describes habitat values of north-east Melbourne and how ecosystems in this region function across the landscape. As a planning tool it was never intended to clearly ascribe values at the level of individual

properties, but rather to describe how species utilise and rely upon the wider landscape.

The habitat quality and connectivity information in the NEROC report provides the basis for which a number of planning controls could be created. It also provides a regional listing of significant flora species intended to inform the management of biodiversity in the Shire. This regional flora listing should be adopted as a consideration associated with a relevant planning control.

A review of the Environmental Significance Overlay Schedule 1 - Sites of Faunal and Habitat Significance (ES01) is being undertaken to identify core habitat areas that support a wide range of flora and fauna species and important habitat. These areas are considered likely to be relied upon by rare or threatened flora and fauna, and vegetation quality is above the state's average as identified by DSE. The purpose of the ES01 Review is to identify areas of remnant vegetation and recommend strategic restrictions to better protect, maintain and enhance these areas.

Council has implemented a range of actions and management plans to enhance vegetation and control threats to biodiversity within the Shire, including land management incentives, support for Friends Groups, and management of significant roadsides and reserves. These plans provide a good basis for biodiversity protection with prioritised actions and reviews to ensure that they are undertaken successfully. It is important that Council continues to fund these plans so that long-term works can be completed and monitored.

Other important strategies, policies and programs that have an impact on biodiversity include:

- *Green Wedge Management Plan 2010*
- *Weed Action Plan 2008*
- *Rabbit Action Plan 2009*
- *Roadside Management Plan 1997* (currently under review)
- reserves management including management plans such as *Panton Hill Bushland Reserves Management Plan*, and fire management plans such as those for Professors Hill and The Chase
- Annual Fire Prevention Works Program
- Urban Fringe Weed Management Initiative (UFWMI)
- Community Recovery Action Plans for Strathewen, St Andrews and Christmas Hills
- any ongoing bushfire recovery work/rural extension work
- offsetting projects.

## 3.1 Strategic (continued)

### Issues

In the past decade, the biodiversity sector has grown, and processes for management, protection and legislation have been further developed. There are a range of government and non-government agencies working in the sector often undertaking complementary activities. Key issues for strategic action in the biodiversity sector include:

- improving information available to inform strategic decision-making through appropriate planning tools and mechanisms
- employing market mechanisms such as net gain to financially support conservation of vegetation within Nillumbik and prevent a net loss
- ensuring that biodiversity conservation is fully considered when undertaking bushfire management or fuel modification works
- increasing advocacy for biodiversity protection, resourcing and funding.

	ACTION	RESPONSIBILITY	TIMEFRAME
S1	Continue to support the review of the ES01 to define areas of core habitat, buffer habitat and biolink areas within the Shire.	EP & SP	2012-2013
S2	Initiate a review of areas outside the current ES01 which contain core habitat or remnant vegetation.	EP	2011
S3	Identify remnant vegetation on public and Council land in Nillumbik suitable for use as offsets under the Native Vegetation Framework.	EW & EP	2012-2013
S4	Support and encourage residents to access the Victorian Government's Native Vegetation Credit Register.	EP	2012
S5	Create a list of Nillumbik's key significant flora as part of the ES01 Review Stage 3. This will be a subset of the list in Appendix 2 (Background Paper).	EP	2012
S6	Create a list of Nillumbik's key significant fauna as part of the ES01 Review Stage 3. This will be a subset of the list in Appendix 3 (Background Paper).	EP	2012
S7	Incorporate recommendations from the 2009 Victorian Bushfires Royal Commission into the current Roadside Review.	EW	2011
S8	Investigate the modification of current Council programs to target revegetation and natural regeneration on private properties in buffer areas and priority corridors/biolinks, taking into consideration the requirements of the Bushfire Management Overlay.	EP	2011
S9	Investigate better promotion of native vegetation through the Nillumbik Planning Scheme.	EP/SP	2013
S10	Provide training for relevant Council staff including engineering and enforcement to allow them to provide expert advice about biodiversity assets, threatening processes and offset opportunities.	EW	2012

## 3.1.1 Strategic (continued)

	ACTION	RESPONSIBILITY	TIMEFRAME
S11	Prioritise and target on-ground works as identified in the ES01 Review Stage 3 recommendations.	EP/EW	2012
S12	Advocate for listing of Box-Stringybark Woodland as an Ecological Vegetation Class with DSE to ensure adequate protection under the Planning Scheme.	EP	2012
S13	Develop an 'over-the-counter' offset trading scheme to address the needs of non-referred applications and Council's own offsetting requirements.	EP	2012
S14	Develop an internal Council operating procedure to guide offsetting within Nillumbik, including reference to managing offsets received from outside Nillumbik, to encourage local residents to offset in Nillumbik, and manage internal offsetting.	EP	2012
S15	Investigate possible methods to discourage the subdivision of large rural properties and encourage consolidation of smaller lots especially in core habitat areas.	SP	2012
S16	Ensure that when Council's internal standard operating procedures are reviewed they take into account requirements for biodiversity conservation.	ALL	2012
S17	Create a guide for managing remnant vegetation on private properties.	EP	2013
S18	Develop management plans for significant areas of remnant vegetation as identified in the ES01 Review Stage 3 recommendations.	EP/EW	2013
S19	Advocate that DSE provides information regarding management of threatened species within Nillumbik, with emphasis on better protection of threatened orchids.	EP	2013
S20	Review the Biodiversity Strategy every five years to ensure best practice and relevance are maintained. The next review should be broadened to include: <ul style="list-style-type: none"> <li>• Council's internal procedures and decision-making processes</li> <li>• cultural values, including the role of Indigenous communities in the ecological management of the land</li> <li>• community engagement in the protection and enhancement of biodiversity</li> <li>• adaptive management systems.</li> </ul>	EP	2016
S21	Provide adequate resources for the Green Wedge Management Plan actions relating to biodiversity and monitor them over their life to ensure key performance indicators are met.	EP	Ongoing
S22	Encourage Council to include a strategy to conserve, maintain and enhance Nillumbik's biodiversity for future generations in future Council plans.	EP	Ongoing
S23	Advocate for greater resources for biodiversity projects on high priority biodiversity locations in Nillumbik, irrespective of land tenure.	EW/EP	Ongoing
S24	Ensure operating procedures and regulation of permitted works provide effective erosion control.	IM	Ongoing
S25	Continue to seek funding opportunities for the implementation of on-ground works.	ALL	Ongoing

## 3.2 Ecological management

### Objective

- Conserve, maintain and enhance ecosystem services and processes.

### Overview

It is well documented that Nillumbik has extensive biodiversity assets, with many studies undertaken to support this. However, our knowledge of these biodiversity assets is still lacking, particularly regarding the current status of threatened species and habitats and actions needed to protect these species.

There are continual pressures on our natural environment and the landscape is changing rapidly. Much of the data collected for the municipality is now over 20 years old, and so it is necessary to access and develop more current information to help guide management.

### Current Situation

Council is responsible for the management of approximately 200 hectares of environmentally significant bushland reserves and 235 kilometres of significant roadside vegetation. Council actively seeks to enhance and protect the biodiversity values and ecological integrity of these reserves through prioritised and targeted weed and rabbit control programs, revegetation, fire management and species recovery programs.

As approximately 61 per cent of remnant vegetation is on private land, private landholders equally play an important role in the management of significant bushland across the Shire.

A number of private landholders actively enhance and protect the biodiversity values on their land through controlling weeds, pest animals, revegetation and by placing Section 173 agreements or Trust for Nature conservation covenants on their properties. Council works with private landholders through community engagement programs including the Land Management Incentive Program and Environmental Events Program.

Council also implements a number of species recovery programs for rare and threatened species including Eltham Copper Butterfly (*Paralucia pyrodiscus lucida*), Clover Glycine (*Glycine latrobeana*) and Rosella Spider Orchid (*Caladenia rosella*), within its environmentally significant reserves. These programs involve works such as monitoring, weed control, exclusion fencing, pest animal control and community engagement and education.

Nillumbik's Land Management Incentive Program have recently been reviewed to ensure that they provide targeted on-ground outcomes and contribute effectively to achieving the *Council Plan 2009-2013*, *Green Wedge Management Plan* and relevant environmental strategies. Recommended changes to the programs included combining all existing incentives, grants and education programs into a new overarching program to address key issues. Projects can then be developed to address land degradation and

protect and enhance biodiversity. The grants can be used for the purchase of materials and equipment, payment of contractors, hire of equipment, promotion and community education. Changes to the program are the subject of ongoing community consultation.

The Urban Fringe Weed Management Initiative is a new four-year partnership program funded by the Victorian Government which seeks to adopt a 'biosecurity approach' to weed control across the Kinglake to Warrandyte Habitat Corridor. The program involves many stakeholders and land managers including Council, Parks Victoria, Melbourne Water, DSE, private landowners and community groups, whilst focused on public land the program adopts a tenure-blind landscape-scale approach to weed control. Coordination across property boundaries and the scale of the project will allow the project partners to:

- prevent new weeds entering the corridor
- contain the range of established weeds and prevent their dispersal into environmentally significant areas
- control established weeds strategically to protect the biodiversity values of the corridor.

### The issues

Adaptive management requires that Council learns and improves management techniques by reviewing and monitoring the outcome of actions then adapting them. Changing environmental factors and new knowledge in the field of biodiversity studies mean that any ongoing programs must be reviewed to ensure they are not only effective but represent the best possible approach.

Benchmarking of important remnant vegetation and fauna habitat and a system to measure change in biodiversity values over time are keys to adaptive management. By periodically measuring biodiversity values in core habitat areas the effectiveness of management practices can be accurately assessed.

This knowledge then needs to be adapted and used to inform the implementation of best management practice on-ground programs which protect significant species and communities. These on-ground works programs need to be supported financially and within the broader community.

Weeds, pests and diseases are 'tenure-blind' and have significant impacts on both public and private land. There needs to be a greater focus on the adoption of the biosecurity approach to managing weeds and pests across property boundaries and early detection mechanisms for new and emerging threats.

There is also a limited understanding of ecosystem processes and the dynamics within these ecosystems. Options for enhancing existing habitat at any particular location or time must be informed by the dynamic relationship between species and the relationship with their surrounding environment.



## 3.2 Ecological management (continued)

	ACTION	RESPONSIBILITY	TIMEFRAME
EM1	Identify the significant flora, fauna and vegetation communities of Nillumbik.	EP	2012
EM2	Develop detailed studies of the habitat requirements for key biodiversity assets.	EP	2012
EM3	Refer to and where necessary act upon the recommendations provided in the Post-fire Weeds Triage Manual (Draft).	EW/EP	2011/12
EM4	Consolidate relevant biodiversity information from data collected by Council, government agencies, community groups' newsletters, individuals and other sources to compile a list of already occurring research. Identify gaps in research.	EP/EW	2013-2014
EM5	Encourage research and monitoring of Nillumbik's flora and fauna by government agencies, universities, schools and the general community to fill these gaps.	EP/EW	2013-2014
EM6	Develop a list of key ecological processes specific to each of Nillumbik's Ecological Vegetation Classes or key species, which will be monitored to assist land managers.	EP	2012
EM7	Develop a monitoring system to record biodiversity values over time.	EP/EW	2013
EM8	Continue to review and update Nillumbik's weed lists on a regular basis so that new and emerging weeds are listed.	EP	Ongoing
EM9	Continue to support the conservation of endangered species such as the Eltham Copper Butterfly, Clover Glycine and Rosella Spider Orchid in Council's environmentally significant reserves.	EW	Ongoing
EM10	Target weed control programs to high threat, and new and emerging weeds.	EW/EP	Ongoing
EM11	Collaborate with DPI and industry bodies on monitoring and management of Myrtle Rust.	EP/EW/OS	Ongoing
EM12	Implement a hazardous tree register according to Victorian Bushfire Royal Commission Recommendation 31.	OS	Ongoing
EM13	Support the implementation of landscape-scale biolink projects such as the UFWMI Kinglake to Warrandyte Habitat Corridor Project, Panton Hill Reserve system and habitat corridor along Diamond Creek.	EW/EP	Ongoing
EM14	Continue to develop conservation management plans for Council's environmentally significant reserves.	EW	Ongoing
EM15	Continue to ensure Council's burn plans take into account biodiversity as well as management of fuel loads in the timing, intensity and frequency of burns.	EW	Ongoing
EM16	Continue to manage pest plants and animals where they threaten biodiversity values on Council-owned or managed land and support control on other land across the Shire.	EW/EP	Ongoing
EM17	Ensure Council's operating procedures minimise risk of introducing or spreading pathogens.	IM	Ongoing
EM18	Ensure operating procedures and regulation of permitted works provide effective erosion control.	IM	Ongoing
EM19	Encourage the use of nest boxes and retention of hollow-bearing trees.	EW/EP	Ongoing

## 3.3 Working together



### Objective

- Support the community to take action to protect and enhance biodiversity.

### Overview

Our biodiversity assets are spread across the municipality over a range of land tenures. To be effective, a coordinated approach across large areas is necessary. This is especially important in areas identified as habitat corridors.

By building partnerships with private landowners, public agencies and community groups, Council can work to coordinate management efforts in areas such as pest plant and animal management.

It is also important that awareness of biological diversity becomes a central factor in the community's everyday decisions. For biodiversity conservation to be effective, actions to conserve biodiversity need to be adopted across the community.

### Current Situation

Council actively engages in many partnerships with other councils, government departments and agencies to protect and enhance biodiversity. These partnerships provide local conservation programs that are significant in the context of the region and Australia as a whole.

To engage the wider community, Council participates in tree planting, festivals, local field days, Yarra Catchment Advisory Round Table, and community events, and provides seminars and environmental newsletters to raise awareness and provide information about land management, biodiversity and conservation issues to Nillumbik residents.

Council also provides support for Friends and Landcare Groups on public and private land throughout the Shire.

Council also has an extensive environmental education program which aims to educate the community to take action. The *Environmental Education Strategy 2011* outlines biodiversity education as one of its main components.

### The issues

'Awareness of biodiversity and its fundamental importance to human life is limited.' (DSE 2010)

Many members of the community have little knowledge of the plants and animals that exist across Nillumbik or of the essential services that biodiversity provides. It is important that the broader community understands that the human way of life and the economy are dependent on a healthy environment.

There is a need to avoid and not create isolated 'islands' of vegetation and developments that return only trees, in order to maintain and enhance biolinks across the Shire.

Biodiversity is often best appreciated and promoted when people are provided with the opportunity to be in direct contact with nature.

### 3.3 Working together (continued)

	ACTION	RESPONSIBILITY	TIMEFRAME
WT1	Further develop and enhance Council's engagement programs such as the website, festival stands and newsletters to include information on the Shire's biodiversity assets.	EP	2012
WT2	Engage with Melbourne Water in relation to properties the agency owns or leases within the Shire to ensure best practice land management outcomes are achieved.	EP/EW	2012
WT3	Continue to develop training programs as part of the Environmental Events Program for community groups and residents focusing on habitat management, revegetation, weed control and sustainable land management.	EW/EP	2012
WT4	Post new and emerging weed information on Council's website and provide email bulletins to give timely information to residents, Council weed control crews, contractors and community groups.	EP	2013
WT5	Encourage private landholders to fence off remnant vegetation and waterway access in grazing areas.	EP	Ongoing
WT6	Encourage residents to remove or reduce grazing in steep and low fertility areas, particularly during the summer drought period.	EP	Ongoing
WT7	Provide advice on alternative land uses to traditional farming practices.	EP	Ongoing
WT8	Implement the Land Management Incentive Program to promote sustainable land management.	EP	Ongoing
WT9	Encourage community groups to incorporate biodiversity enhancement works on private properties in any funding applications to regional, state or federal bodies for environmental works.	EP	Ongoing
WT10	Continue to foster links and partnerships with other councils and agencies such as Port Phillip and Westernport Catchment Management Authority, DSE, Parks Victoria, Melbourne Water, VicRoads, DPI and Trust for Nature.	EP/EW	Ongoing
WT11	Design and provide programs to encourage residents to value Nillumbik's biodiversity.	EP/EW	Ongoing
WT12	Facilitate and participate in collaborative cross-tenure pest plant and animal control programs.	EP/EW	Ongoing
WT13	Monitor community participation in programs under the Land Management Incentive Program to ensure they are reaching target areas for biodiversity.	EP	Ongoing
WT14	Continue to fund and support community groups, focusing on projects in significant habitat areas including engagement with neighbours.	EP/EW	Ongoing
WT15	Continue to seek opportunities for joint projects with other councils, public land managers and private landowners to provide cost-effective regional benefits to biodiversity such as the UFWMI.	EP/EW	Ongoing
WT16	Use the Environment Advisory Committee and future local Landcare networks to provide advice and liaise between Council and the community about biodiversity issues.	EP	Ongoing
WT17	Continue to participate in the Middle Yarra Land Managers Group to share expertise and undertake joint community education programs, and cross-border and regional programs for biodiversity enhancement and protection.	EW/EP	Ongoing
WT18	Seek to influence the local biodiversity plans produced by community groups with biodiversity knowledge and priorities gained through development of this Strategy.	EP/EW	Ongoing

### 3.3 Working together (continued)

	ACTION	RESPONSIBILITY	TIMEFRAME
WT19	Investigate the creation of a pictorial weed poster or booklet for residents to enable easy identification of high threat and controlled weeds.	EP	Ongoing
WT20	Continue the Internal Land Management Group.	EP, EW & OS	Ongoing
WT21	Implement actions in the Weed and Rabbit Action Plans.	EP, EW & OS	Ongoing
WT22	Support implementation of the Community Environmental Recovery Action Plans for St Andrews, Strathewen and Christmas Hills.	EP	Ongoing
WT23	Work with DSE to ensure a coordinated approach to fire management across public land in Nillumbik.	EW/EP	Ongoing
WT24	Support farmers to protect and enhance biodiversity whilst still being productive, through the management of biodiversity in non-productive areas.	EP	Ongoing



## 3.4 Funding priorities

The level of service Council can provide to undertake biodiversity management depends on the amount of funding available from Council and external funding sources.

### 3.4.1 Priorities for Council funding

- Prioritise pest plant and animal control programs in high-biodiversity Council reserves and private land where there is an identified immediate and unacceptable threat to a significant biodiversity asset.
- Continue to recruit staff with excellent technical knowledge and resources to provide education and expert advice to landholders and community groups.
- Provide educational programs and materials to raise community awareness.
- Organise training for landholders and community groups to develop skills and knowledge.
- Build partnerships and strong networks between all land managers to facilitate a coordinated approach to biodiversity management.
- Make funding incentives available for habitat restoration works to Friends and Landcare groups and landholders in areas identified as supporting high biodiversity values.
- Seek funding for biodiversity management on Council land.
- Support establishment and operation of Friends and Landcare groups in areas identified as supporting high biodiversity values.
- Support ongoing ecological management of Council's environmentally significant reserves.

## 3.5 Monitoring and reporting

### 3.5.1 Biodiversity Strategy Progress Report

Council will utilise Council's Business Planning process to generate an annual Biodiversity Strategy Progress Report. The report will include information on how Council's biodiversity actions are progressing.

### 3.5.2 Reporting to the community

Information generated for the Biodiversity Strategy Progress Report will be made available at [www.nillumbik.vic.gov.au](http://www.nillumbik.vic.gov.au).

### 3.5.3 Review of Biodiversity Strategy

The Biodiversity Strategy will be reviewed every five years to revise the vision and objectives, accommodate new actions and revise existing actions. The community will be invited to have input into the review.



# 4

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# APPENDIX 1 • ABBREVIATIONS

## ORGANISATIONS

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CRC	- Cooperative Research Centre
CSIRO	- Commonwealth Scientific and Industrial Research Organisation
DEWHA	- Department of Environment, Water, Heritage and Arts (currently DSEWPaC - Department of Sustainability, Environment, Water, Populations and Communities)
DSE	- Department of Sustainability and Environment
DPI	- Department of Primary Industries
MW	- Melbourne Water
MYLM	- Middle Yarra Land Managers
NEROC	- North East Regional Organisation of Councils
NLN	- Nillumbik Landcare Network
NSC	- Nillumbik Shire Council
PPWCMA	- Port Phillip and Westernport Catchment Management Authority
PV	- Parks Victoria
TEN	- Teachers Environment Network
WACMAC	- Whittlesea, Arthurs Creek, Merriang and Cottles Bridge Landcare
CaLP	- <i>Catchment and Land Protection Act 1994</i>
EPBC Act	- <i>Environment Protection and Biodiversity Conservation Act 1999</i>
GNP	- Good Neighbour Program
GWMP	- <i>Green Wedge Management Plan</i>
ESO	- Environmental Significance Overlay
ES01	- Environmental Significance Overlay – Schedule 1
EVC	- Ecological Vegetation Classes
BSW	- Box-Stringybark Woodland
The Framework	- Victorian Native Vegetation Framework
LMIP	- Land Management Incentive Program
RMP	- Roadside Management Plan
VBRC	- Victorian Bushfires Royal Commission, 2009



## APPENDIX 2 • GLOSSARY OF TERMS

### **Biodiversity**

The variety of all life forms; the different plants, animals and microorganisms, the genes they contain and the ecosystems of which they form a part.

### **Bioregion**

Biogeographic areas that capture the patterns of ecological characteristics in the landscape or seascape, providing a natural framework for recognising and responding to biodiversity value.

### **Bioregional Conservation Status**

An assessment of the conservation status of the native vegetation type in the context of a particular bioregion, taking account of how commonly it originally occurred, the current level of depletion due to clearing, and the level of degradation of condition typical of remaining stands. There are six categories of bioregional conservation status: Presumed Extinct, Endangered, Vulnerable, Depleted, Rare and Least Concern.

### **Broad Vegetation Types (BVT)**

A classification that provides a simplified view of vegetation based on land system or biophysical attributes (such as geology, rainfall, elevation, soil type and landform). Each broad vegetation type will contain a mixture of EVCs, often in a recognisable pattern, although any one EVC can occur in more than one BVT.

### **Conservation Significance**

A state classification of the relative ecological importance of protecting and restoring a particular piece of indigenous vegetation. There are four categories of conservation significance (Very High, High, Medium and Low) determined by assessing various factors in the Port Phillip and Western Port Native Vegetation Plan and the Framework.

### **Ecological Vegetation Class (EVC)**

A type of native vegetation classification that is described through a combination of its floristic, life form and ecological characteristics. Each EVC includes a collection of floristic communities. In 2006 approximately 300 EVCs were defined and mapped in Victoria, with about 100 of these located within the Port Phillip Western Port region.

### **Habitat corridor**

Habitat corridors are pathways of natural or created habitat. The corridors occur within larger areas developed by humans either through farming or urban development. Habitat corridors attract wildlife and act as safe passages for wildlife between neighbouring natural areas. They are often along creek riparian zones that run through urban areas. However, they can be road reserves, railway lines and other linear easements.

### **Habitat Hectare**

A site based measure of quality and quantity of native vegetation.

### **Indigenous plants**

Plants including trees, shrubs, herbs, and grasses that come from the local area; a local native plant.

### **Native vegetation**

Plants including trees, shrubs, herbs, and grasses that are indigenous to a particular defined area.

### **Net gain**

The outcome for native vegetation and habitat where overall gains are greater than overall losses.

### **Offset**

Any works or other actions to make reparation for the loss of native vegetation. The gains achieved must be permanent, ongoing and linked to a specific clearing site.

### **Open space grey areas**

Areas within open space corridors which have no remnant vegetation, although the area may have natural landform, be close to conservation assets or be within a habitat link. These areas are usually difficult to manage by mowing and therefore have low maintenance levels. They can be considered an eyesore and a fire hazard and may attract vandalism or rubbish dumping.

### **Regeneration**

Restoration of natural ecosystems through the natural cyclic processes of renewal and self-maintenance of species and their populations.

### **Rehabilitation**

Any attempt to restore elements of structure or function to an ecological system without necessarily attempting complete restoration to any specific prior condition.

### **Restoration**

The return of a community to its pre-disturbance or natural state in terms of abiotic (non-living) conditions, community structure and species composition.

### **Revegetation**

Replanting vegetation in either restoration or rehabilitation works.

### **Tenure**

Ownership of land; that is, private, Crown, agency or municipal ownership.