**Nillumbik**

**Invasive Species Action Plan**

***June 2015***

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# Executive summary

The introduction and spread of invasive plants, animals and pathogens is one of the greatest threats to biodiversity, primary production and amenity in Nillumbik (Biodiversity Strategy 2012). Invasive species compete with indigenous plants, animals and other desirable species for resources, spread disease and prey on desired species for food.

The most effective way to manage invasive species is to prevent their initial incursion. Invasive species have the ability to establish rapidly in new areas and require a timely and rapid response. Many invasive species are already widely established in Nillumbik and their eradication across large areas is not achievable with existing resources. Priorities for the control of these species needs to focus resources where the benefits of management are greatest.

Council recognises that the management of invasive species across the Shire requires the engagement and involvement of numerous stakeholders. Creating a shared understanding of invasive species issues, the most effective control techniques and our strategic direction for management is critical to success.

The *Nillumbik Invasive Species Action Plan* aims to prevent new incursions, contain existing populations and adaptively manage widespread species. The Plan seeks to foster a cooperative culture where all relevant stakeholders contribute with the aim of minimising the impacts of invasive species in Nillumbik.

The vision of the *Nillumbik Invasive Species Action Plan* is that:

‘*We are working together to minimise the negative impacts of invasive species’.*

The Plan identifies five goals to realise this vision:

1. Improving agricultural assets on private land through control of invasive species.
2. Improving biodiversity assets on private land through control of invasive species.
3. Minimising the impacts of invasive species on roadsides.
4. Managing invasive species in Council’s bushland and wetland reserves.
5. Managing invasive species information.

In order to do this Council will take a Shire-wide view of invasive species management, implement a biosecurity approach, prioritise the protection of high value environmental and agricultural assets and work in partnership with all stakeholders.

The goals, objectives and actions of the *Nillumbik Invasive Species Action Plan* aim to deliver specific measurable outcomes that complements Nillumbik’s targets for biodiversity enhancement as identified in the *Nillumbik Biodiversity Strategy 2012* and the *Green Wedge Management Plan 2010-2025*.

# Introduction

## About the Plan

Invasive plants, animals and pathogens are having significant impacts on the environmental, cultural, social and economic values of the Shire of Nillumbik. Impacts include loss of biodiversity, reduced agricultural productivity, deterioration of the quality of sporting grounds and playgrounds, damage to aboriginal and heritage sites, issues of safety and site access and increased fuel loads.

This Plan supports a landscape view of invasive species management across the Shire and within the Port Phillip and Westernport Region. The Plan provides a strategic and coordinated approach to invasive species management across the Shire. It lays out the scope, vision, goals, guiding principles and actions that staff, external agencies, contractors and landowners can use to manage invasive species within Nillumbik.

## Vision

The vision of the *Invasive Species Action Plan* is that:

*‘We are working together to minimise the negative impacts of invasive species’*.

## Goals

Nillumbik has five invasive species management goals:

1. Improving agricultural assets on private land through control of invasive species.
2. Improving biodiversity assets on private land through control of invasive species.
3. Minimising the impacts of invasive species on roadsides.
4. Managing invasive species in Council’s bushland and wetland reserves.
5. Managing invasive species information.

## Scope

The Plan is designed to build on the effort and dedication of Council, external agencies and community over the years to provide an effective and coordinated strategy for moving forward in the management of invasive species across the Shire. The Plan provides a response to invasive species management with a focus on the roles and responsibilities of Council. It includes actions to be undertaken directly by Council staff in managing public land and in supporting residents and community groups to mitigate the impact of invasive species on private land.

The Plan ensures that Council:

* Aligns with National and State legislation and policy relating to invasive species.
* Implements best practice in invasive species management on council-owned land.
* Works strategically within council and externally with community and other agencies.
* Maximises opportunities to engage and support private landholders to manage invasive species on their land.

The Plan follows the biosecurity approach as adopted by the Victorian Government ‘*Invasive Plants and Animals Policy Framework’* (DEPI 2010) as an effective way to plan, manage and invest funds in invasive species control. The Plan will guide Council, land owners and external agencies in the:

* **Prevention** of the entry and establishment of new infestations of high threat invasive species.
* **Eradication** of high threat invasive species in the early stage of establishment.
* **Containment** of high threat invasive species that are of limited distribution.
* **Asset based management** of key biodiversity and agricultural assets within the Shire by reducing the impact of high threat invasive species.

The biosecurity approach supports the management of invasive species at all stages of invasion – from preventing the entry of new species to managing widespread infestations.

The Shire’s ‘assets’ are the natural ecosystems and agricultural resources that require protection from the impacts of invasive species to maintain and improve amenity, biodiversity and productivity. In addition, endangered species such as the Rosella Spider Orchid or Brush-tailed Phascogale are also considered a Shire asset in need of protection from invasive species. ‘High threat invasive species’ are those plants, animals or pathogens not native to the region, that due to their proven ability to rapidly establish and flourish in new environments, have the potential to seriously threaten the agricultural production and environmental biodiversity of the Shire.

The invasive species considered in the Plan are those that Council has a legal responsibility to manage on its land as declared under the *Catchment and Land Protection Act 1994* (CaLP Act 1994), or that Council recognises as a significant environmental or agricultural weed or pest in the Shire. Limited resources restrict the number of invasive species that can realistically be managed within Nillumbik. Consequently species and actions are prioritised.

The impacts of native wildlife species are not within the scope of this Plan. Native species such as the Eastern Grey Kangaroo, Brush-tail possum, flocking Sulphur-crested Cockatoo etc., that may occur in large numbers and be considered a problem in some situations, are protected under the *Victorian Wildlife Guarantee Act* (1975) and in the case of the Grey-headed Flying-fox the *Commonwealth’s Environment Protection and Biodiversity Conservation Act* (1999). Any action to control such species comes under the oversight of the Department of Environment, Land, Water and Planning (DELWP).

The Plan provides the framework for invasive species management for the next 5 years. It supersedes the *Nillumbik Rabbit Action Plan* (2009) and *Nillumbik Weed Action Plan* (2008). The Plan will be reviewed in 5 years with invasive species lists amended on an as-needs basis.

## Guiding principles

The *Nillumbik Invasive Species Action Plan* promotes the following principles in the management of invasive species.

1. Risk management
* Management of invasive species that pose the greatest risk.
* Management methods that reduce the risk to biodiversity, cultural and productive assets and to people.
1. Asset based
* Protecting the highest value assets at the greatest risk.
1. Biosecurity approach
* Management of invasive species at all stages of invasion.
* Economic returns for managing invasive species are much higher when infestations are new or small.
1. Landscape scale
* Invasive species can disperse long distances and therefore need to be managed collectively at a landscape scale to achieve long term benefits.
* Managing at a landscape scale means considering invasive species at all scales, from the impact on an individual plant or animal, a reserve or property, the Shire, the State or the Country.
1. Collaborative / Cross-tenure
* Management of invasive species is only achieved at a landscape scale when we work together across different land tenures.
1. Strategic
* Decisions are based on the best available evidence.
* Planning manages risks, is asset based and follows the biosecurity approach.
* Planning is targeted, coordinated and integrated across different programs and different stakeholders.
1. MERI approach
* This is an approach for monitoring, evaluating, reporting on and improving the delivery of natural resource management projects (Australian Government, 2009).
* MERI consists of four elements:
	+ **M**onitoring – Collecting the data
	+ **E**valuation – Interpreting the data
	+ **R**eporting – Presenting the monitoring and evaluation
	+ **I**mprovement – Changing processes based on the monitoring and evaluation.
1. Ethical
* Invasive species are living creatures.
* Control methods should minimise pain (humane control methods).
* Prevention and methods that keep species at lower numbers reduces the need for culling.

## Stakeholders

Developing partnerships is critical to the success of invasive species management programs. Invasive species spread across Shire boundaries and waterway frontage, private and public land and from commercial and private enterprises. The benefits of partnerships for invasive species management can include the sharing of knowledge, experience and resources. It encourages the coordination of activities to achieve more effective outcomes. Helping people to understand the key invasive species issues, involving people in invasive species control using the most effective techniques and focusing people’s energy in the right direction is critical to invasive species management.

**Acronyms:**

ARI: Arthur Rylah Institute

DE: Department of Environment

DELWP: Department of Environment, Land, Water and Planning

CCS: Community Correctional Services

CFA: Country Fire Authority

MAV: Municipal Association of Victoria

PPWCMA: Port Phillip and Westernport Catchment Management Authority

NSC: Nillumbik Shire Council

## Nillumbik Shire

Nillumbik is known as the Green Wedge Shire – the ‘lungs’ of Melbourne. The Shire is characterised by a unique natural environment, rich agricultural land, open spaces and healthy waterways.

Land use inside the Green Wedge consists of 47 per cent rural residential, 20 per cent agricultural, 14 per cent conservation, 6 per cent vacant rural land, 6 per cent recreation, 6 per cent public utilities and 0.6 per cent other, e.g. shops and schools.

There are approximately 200 active agribusinesses within Nillumbik, which provide important local food production, support biodiversity, undertake landscape management and protect cultural values.

The Shire of Nillumbik is home to over 1,000 indigenous flora species, 64 of which are listed as significant species including the Rosella Spider Orchid and Clover Glycine. Supporting and often relying on these plants are 342 indigenous fauna species, 63 of which are listed as significant species including the Brush-tail Phascogale, Lace Monitor, Eltham Copper Butterfly and Wedge-tailed Eagle (*Biodiversity Report 2012*).

The total area of the Shire is approximately 43,000 hectares. Of this DELWP estimates 20,000ha of land is remnant vegetation. The percentage of intact vegetation by land tenure within Nillumbik is as follows:

* 61 per cent private land
* 24 per cent national park/reserve
* Eight per cent other crown land
* Five per cent Melbourne Water
* Two per cent Nillumbik Shire Council

The eastern and northern boundaries of the Shire are dominated by bushland reserves including Kinglake National Park, Parks Victoria reserves along the Yarra and Plenty Rivers, Panton Hill Bushland Reserve System and the Warrandyte-Kinglake Nature Conservation Reserve. In addition, 376km of roadside reserves are classified as high conservation value.

Private land also supports many significant biodiversity values. Within Nillumbik, 2,750 ha of private land is protected under Trust for Nature Conservation Covenants. The extent of valuable conservation land in private ownership indicates that invasive species management must have considerable regard for private land as well as public reserves.

# Invasive Species in Nillumbik

An invasive species is defined as:

“*a species occurring, as a result of human activities, beyond its accepted normal distribution and which threatens valued environmental, agricultural or other social resources by the damage it causes”* (Department of Environment 2014).

Nillumbik is characterised by an environment of relatively intact bushland, rich agricultural land, open spaces and healthy waterways. However, as an urban fringe shire these values are under constant threat from the pressures of invasive species from residential and agricultural development.

Given the huge potential for invasive species establishment in Nillumbik and limited resources available, it is necessary to prioritise action. This requires the assessment of a species current distribution and its ability to establish and spread. This determines whether it is a high threat to biodiversity, agricultural and amenity assets within the Shire. There are three types of invasive species:

* New – a species that is not yet in the Shire, but may be in neighbouring areas or regions of similar climate and conditions. These species would have significant potential to invade and spread if they were to establish within the Shire.
* Emerging – a species that has recently been detected in the region or has been here for some time but has only recently begun to expand its distribution.
* Established – a species that is already established and widespread within the Shire.

Climate change modelling suggests the region will be subject to higher temperatures and lower rainfall that will affect species’ distribution. The potential for more frequent extreme weather such as flood and fire events increases the opportunity for invasive species establishment and expansion as weeds commonly invade disturbed areas at an increased rate.

The challenge for the Shire is to support the protection and restoration of our valuable natural and agricultural assets from the ongoing invasion of a diversity of invasive species. On an annual basis Nillumbik Shire Council spends approximately $1M on the management of invasive species.

## Invasive plants

In Nillumbik it is estimated that over 375 invasive plant species are present. Despite the large number of plants that have already established in Nillumbik, there is potential for even more species to do so. Thousands of plant species are present in Australia, but not yet naturalised in Victoria or Nillumbik. The current rate of new plant naturalisations in Victoria is at least ten per year, with an estimated 825 species already naturalised (Spencer, R 2006).

Weed plants, seeds and cuttings can enter and spread across the Shire through nursery sales, garden plantings, dumped garden cuttings, on vehicles and machinery, in waterways, by wind, by animals and on clothing.

Invasive plants can destroy habitat, out-compete native plants, choke waterways, reduce farm productivity, harm livestock and reduce the amenity value of public parks and gardens. Bushland, open space and agricultural land are not only under threat from non-native weeds, but also from weedy non-indigenous (non-local) natives introduced as garden plants such as Cootamundra Wattle. These non-indigenous native weeds grow easily in the local environment, can be hard to identify and have the potential to hybridise with local plants.

## Invasive animals

Feral or pest animals are species that have been introduced to Nillumbik since European settlement. Invasive non-indigenous animals can have significant impacts on Nillumbik’s natural environment, as well as being detrimental to agriculture and amenity. They may prey upon indigenous fauna, compete with indigenous animals for resources such as food and shelter, graze on indigenous plant species, reduce crop production and prey on livestock.

Introduced animals have become established in the Shire through escape from captivity and domestication, deliberate release (legal and illegal) and accidental relocation via transport. The species that establish in the wild typically have few natural predators or diseases, high reproductive potential, a generalised diet, are adaptable to a modified landscape and have a climatic match between the place where they become established and the place where they occur naturally. These factors result in populations which do not naturally diminish and can multiply rapidly if conditions are favourable.

There are at least 50 introduced vertebrate species established on the Australian mainland, including 25 mammals, 20 birds, four reptiles and one amphibian (Vertebrate Pest Committee 2007). Of these, 19 mammals and 15 birds are present in Victoria (DSE 2007). Most invasive mammals established in Australia have already established themselves to a greater or lesser extent in Victoria.

Invasive vertebrate animals of major concern within Nillumbik include rabbits, foxes, feral cats, deer, hares, feral goats, feral pigs, Indian mynas, invasive fish, rats and house mice.

Invasive invertebrate animals in Nillumbik include European Wasps, European Honey Bees and Tramp Ants. Also of concern is Grape Phylloxera which can have a significant impact on vineyards and has been found in the Yarra Valley.

DELWP also lists the following animals as new and emerging invasive species in Victoria: Red-eared Slider Turtle, Asian Black-spined Toad, Smooth Newt, Cane Toad, and Northern Palm Squirrel. The Red-eared Slider Turtle has been found in a Melbourne lake and the Asian Black-spined Toad in Sunbury. These are species not yet known to occur in Nillumbik but have the potential to invade rapidly if introduced.

## Invasive pathogens

Invasive pathogens can include diseases, fungi and parasites. Invasive pathogens can have significant impacts on many native plants and animals, agricultural crops and domesticated animals. In many cases invasive pathogens can rapidly spread through natural bushland affecting the health and resilience of indigenous species. In Nillumbik, Cinnamon Fungus (*Phytophora cinnamomi*) 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. Across the Shire the impact of Myrtle Rust (*Uredo rangelii*) on plants regenerating in fire-affected areas is of particular concern with the pathogen being recorded in Manningham over the last few years.

Decline and disappearance of some frog species in Nillumbik may partly be due to a disease caused by a Chytrid fungus. The fungus attacks the frog’s skin affecting its ability to breathe. It is spread through contact with infected frogs and tadpoles. Wombat populations across Nillumbik show evidence of mange. Wombats become infested with the mange mite that burrows under its skin to lay eggs causing irritation and scabs that can become flyblown.

## Pathways of threat

Invasive species are successful because of their ability to disperse from many sources and through many processes. Without managing these pathways of threat, management may be ineffective in the long-term. To determine a priority for response, invasive species mapping and monitoring is critical to identify where invasive species are dispersing from and at what rate. The following factors represent potential pathways for the spread of invasive species into and within Nillumbik:

* Increasing population density and associated movement of people and vehicles can result in the spread of weed species and pathogens.
* The continued selling and planting of invasive plants through nurseries and landscape businesses.
* The movement and spread of pathogens via the nursery industry (e.g. Myrtle Rust).
* An influx of hobby farmers and tree changers with limited knowledge and skills in managing invasive species.
* Dumping of garden cuttings in parks and reserves.
* Unrestricted access to highly significant bushland in reserves by recreational users.
* Movement of machinery used in landscaping, maintenance and earth works including soil disturbance.
* Transporting of stock feed and soil.
* Movement of landscape materials, especially quarry products.
* Properties with threats not managed due to age of owner, disability of residents, inexperience, absence and attitude.
* Occurrence of fire and drought which will impact on species establishment and expansion.
* Movement of weeds and pathogens by animals, spread by water, wind movement and soil disturbance.

## Impacts of invasive species

Invasive species affect our environment, economy and social well-being.

### Environmental impacts

Within natural ecosystems, invasive plants and pathogens alter the vegetative structure and reduce floristic diversity. This change often favours exotic fauna at the expense of indigenous species. It can also contribute to an increase in fuel loads.

Invasive animals are a significant threat to biodiversity through competition, predation, habitat destruction and through the spread of diseases. Small native mammals, ground-nesting birds and some small reptiles are particularly susceptible to predation by foxes and feral cats. Rabbits, deer and feral pigs have a significant impact on native habitat preventing the regeneration of native plants, spreading weeds and causing soil damage and erosion.

### Economic impacts

It is estimated that the annual cost of invasive plants to Australian agriculture is $4 billion through yield losses and product contamination (*Australian Weed Strategy 2007*). Agricultural weeds compete with crops and affect quality and yield of produce. They reduce the carrying capacity of pastures. Invasive plants can poison or cause injury to livestock or contaminate fibre. In all cases their control increases the cost of production. Some water weeds, such as Water Hyacinth (*Eichhornia crassipes*) degrade the quality of waterways which then impacts on agriculture.

Additionally, invasive species cost the economy when their impact on environmental services, health implications, increased fire risk, damage to infrastructure and the value of volunteers who do significant weed control at little or no cost to government, are taken into account. An example is the significant cost for labour and materials for the provision of guards to manage rabbit predation on new plants.

Invasive animals have a significant impact on primary industries through direct loss of productivity and cost of control by land managers. Well-known problem species include European Red Fox and European Rabbit. Foxes prey on livestock (mainly lambs) and poultry, while rabbits compete with livestock for pasture and damage soil cover and composition.

### Social impacts

Social impacts of invasive species are difficult to quantify. However they may include:

* Conflict between neighbours and between sections of the community with differing attitudes to invasive species management.
* Stress to farm businesses due to the financial consequences of invasive species.
* Interference with recreational activities, damage to infrastructure or culturally significant sites.
* Distress caused to farmers when invasive animals injure or kill livestock.
* Development of human health problems following contact with invasive species e.g. asthma associated with exposure to Perennial Ragweed (*Ambrosia psilophorus*).
* Disturbance from nuisance pest animals such as the Indian Myna.

# Framework for management

## Legal responsibilities

In Victoria the primary legislation with respect to invasive species management is the *Catchment and Land Protection Act* *(CaLP) 1994*.

Under the *CaLP Act*, noxious weed species are divided into 4 categories, based on the stage of invasion:

### State prohibited weeds

These invasive plants either do not occur in Victoria, but pose a significant threat if they invade, or are present, pose a serious threat and can reasonably be expected to be eradicated. If present, infestations of a State prohibited weed are relatively small. They are to be eradicated from Victoria if possible or excluded from the State. The Victorian Government is responsible for their eradication, but under Section 70(1) of the *CaLP Act*, it may direct land owners to prevent their growth and spread.

### Regionally prohibited weeds

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

### Regionally controlled weeds

These invasive plants are usually widespread in a region. To prevent their spread, ongoing control measures are required. Land owners have the responsibility to take all reasonable steps to prevent the growth and spread of Regionally controlled weeds on their land.

### Restricted weeds

This category includes plants that pose an unacceptable risk of spreading in this State and are a serious threat to another State or Territory of Australia. Trade in these weeds and their propagules, either as plants, seeds or contaminants in other materials is prohibited.

The DELWP also takes into account the Weeds of National Significance (WONS) status of a species when reviewing the noxious weeds under the CaLP Act. There are currently 32 WONS weeds listed. Unless classified as a State prohibited weed, individual landowners and managers are ultimately responsible for managing these weeds.

In regard to invasive animals, the *CaLP Act* establishes the following categories:

### Restricted pest animals

These are high threat species not yet established in the wild of Victoria, however they are or have the potential to become a serious threat to primary production, the environment or community health in Victoria. The importation, keeping, breeding and trading of restricted pest animals is illegal and is the responsibility of DELWP to enforce.

### Established pest animals

These are established in the wild of Victoria and are a serious threat to primary production, the environment or community health. Landowners have the responsibility to take all reasonable steps to prevent the spread of, and as far as possible eradicate, established pest animals on their land. Council is responsible for managing these invasive pests on council owned and managed land, private landowners for their own properties.

## Enforcement

The DELWP has responsibility for enforcing the noxious weed and restricted animal provisions of the *CaLP Act*. In practice, enforcement and application of penalties is discretionary with the focus being limited to high priority invasive species and in areas where there is strong community agreed action.

Nillumbik Shire Council has enforcement powers under the *Amenity Local Laws (2013) Part 6/ 28 Condition of Land.*

*An owner or occupier of land must ensure that the land: a) does not constitute or is not likely to constitute a danger to health or a source of infestation or contamination to property, in that it is a haven for vermin, (including European Wasps and feral bees), noxious weeds or has overgrown vegetation or a substance thereon which could cause danger to health or property.*

In addition under Section 45E of the *Environment Protection Act (1970*), Council’s Local Laws officers can enforce against dumping of soil and garden waste. Section 45U allows Council to require the covering of trailer and utility loads when soil and green materials are being carried.

The preferred method of enforcement is under the *CaLP Act*.

## Biosecurity approach

Thousands of invasive plants, pathogens and animals have the potential to threaten the biodiversity, agricultural and amenity values of Nillumbik. It is impossible to eradicate them all, and so it is necessary to focus on the high threat species and apply an appropriate level of management to attempt to eliminate or reduce the threat. The biosecurity approach acknowledges that economic returns for managing invasive species are much higher when infestations are new or small compared to the cost of trying to remove a species once it is widespread and established.

Remnant vegetation that is largely intact is considered a high value asset. Farmland that is productive and well managed is considered a high value asset. Rare and threatened species such as the Brush-tail Phascogale or Rosella Spider Orchid are considered high value assets that need to be protected from invasive species.

Table 3 briefly describes the invasive species management categories, these are presented diagrammatically in Figure 1.

**Table 3: Invasive species management categories**

| **Category** | **Aim** |
| --- | --- |
| Prevention | Prevent the establishment of new high threat invasive species in the Shire. |
| Eradication | Eradicate from the Shire newly established invasive species with a restricted distribution and low abundance. |
| Containment | Prevent the further increase in distribution and abundance of invasive species already present throughout the Shire. |
| Management | Invasive species are identified and actively managed within and adjacent to high value assets, but are not actively controlled outside these areas. |

**Figure 1: The biosecurity approach (adapted from DELWP publications)**



A fuller description of the invasive species management categories and the actions relating to them is provided in Appendix 2.

## Priorities for species management

Management priority is based on the threat of the invasive species (high or low) against the feasibility of controlling the threat (easy or hard). High priority invasive species are species which must be removed, medium priority invasive species are species that should be removed, and low priority invasive species are species that could be removed. Invasive species management priorities can be decided using this approach:

**Table 1: Determining invasive species management priorities**

|  | **Invasive species threat** | **Invasive species threat** |
| --- | --- | --- |
|  | **Threat****Low** | **Threat****High** |
| **Feasibility of control** |  |  |
| **Hard** | **Low Priority****(4th)** | **Medium Priority****(2nd)** |
| **Easy** | **Medium Priority****(3rd)** | **High Priority****(1st)** |

## Scale of management

The threat potential of all species can also be considered at different scales including at the local level of an individual property, a particular wetland or bushland reserve, or a Landcare area. For example, while pine trees and cherry plums are classified as an established invasive species across the Shire only to be managed to protect high value assets, if one of them were to appear on an individual property as a new and emerging weed, the owner would treat that pine tree or the cherry plum as an invasive species to be eradicated immediately. Consequently the management plans for individual properties and reserves will reflect the biosecurity approach at a local level that may vary from the Shire-wide application of this Plan. At a Shire-wide level such species would occasionally be subject to special campaigns.

Refer to Appendix 1 for an example of the biosecurity approach applied at a local level.

## Data management and reporting

Council is working towards developing a consistent and shared system for mapping, monitoring and reporting on invasive species. Having a shared system helps all areas of Council, community groups and agencies make informed and coordinated decisions about invasive species management at the site level and across the landscape. By linking planning at all levels, the system supports application of biosecurity principles to deliver effective and efficient invasive species management. It provides a framework for Council, other government agencies and the community to collectively plan and share results for true landscape-scale management.

# Invasive species management in Nillumbik

Managing invasive species at a Shire level is challenging. To be responsive and effective, all stakeholders need to be working together. This includes; Council staff and contractors who manage local bushland, wetland, open space, parks, gardens and roadside reserves; external agencies including those who manage reserves, waterways and roadsides within the Shire; private landowners of biodiversity land; farmers of agricultural land; and other urban and rural residential landowners.

## Council land management

What are the main challenges?

* Limited budget to effectively manage large areas of land.
* Community assessment of Council land as a benchmark for invasive species management.
* Dependency of the knowledge and skill of contractors to identify, manage and monitor invasive species.
* A large percentage of intact vegetation within the Shire is managed by private landholders and external agencies.
* Ensuring Council staff have adequate invasive species identification skills.
* The incidence of unplanned events, such as the 2014 Yirrip Reserve bushfire, that requires the input of significant resources.
* The need for continual data collection and sharing to improve our collective knowledge regarding the priority for control of particular species in particular locations.

### Bushland and wetlands reserves

Nillumbik Shire Council is responsible for the management of 99 environmentally significant bushland and wetland reserves covering an area of 495 hectares. Council’s reserves are located on both Council freehold land and Crown Land Reserves where Council is the Committee of Management.

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. These reserves 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.

The significance of these reserves is under constant threat from a range of processes such as weed invasion, predation by and competition with pest animals, pressure from residential development, altered fire regimes and habitat destruction. On an annual basis Council develops works programs for these reserves to manage these threatening processes and improve the condition of the reserves.

During the 2012-2013 financial year, Council spent $728,870 (of which $112,851 was funded by external grants programs) on contractors and materials for wetland and bushland reserve management works such as weed control, rabbit control, revegetation, fire prevention works and recreational trail management.

### Roadsides

Roadsides provide potential conduits for the spread of invasive species, which is further exacerbated by the potential for vehicles, machinery, animal and human traffic to facilitate their movement. Disturbance by machinery and vehicles, water run-off and dumping of soil also increases potential weed and pathogen spread.

Council is responsible for the management and maintenance of approximately 1,200 km of rural and semi-rural roadsides. Roadsides are the areas within the road reserve which are not used by motorised vehicle traffic, including land either side of the road and between carriage ways.

Works on roadsides are planned and prioritised by Council through the *Nillumbik Roadside Management Plan (2012)*. Council has undertaken extensive weed mapping of roadside reserves and developed prioritised invasive plant control based on species invasiveness, vegetation quality and the location of infestation in relation to environmentally significant reserves and agricultural land.

The *Roadside Management Plan 2012* also operates in the context of a range of Council works on road reserves including fire hazard reduction, stormwater management, recreational trail construction and maintenance, road reconstruction and maintenance of the carriageway. In addition, other agencies carry out works on road reserves that Council has limited control over. This includes utility installation and maintenance, and works carried out by VicRoads on roads for which they are responsible.

The major pest animals on roadside reserves are rabbits, foxes and feral cats. However, the species are difficult to manage, as pest animals don’t follow property boundaries and are generally in transit between the roadside and the adjoining private land.

Council also provides support to Landcare groups to direct weed control works on roadsides. Works must be undertaken by an approved contractor in accordance with legislative requirements. Roadside Landcare groups also map and monitor invasive animal species such as rabbits and hares.

### Open space and other land managed by Nillumbik Shire Council

Council is responsible for the maintenance of some shopping precincts, 60 playgrounds, and 33 sports grounds covering approximately 600 hectares of open space. Invasive plant management activities in these reserves are mostly undertaken by Council staff and include weed control by herbicide application and slashing.

### Landfill

Council is responsible for the management of two decommissioned landfill sites at Plenty and Kangaroo Ground which cover a combined area of 31 hectares. As required Council engages contractors to undertake rabbit and weed control across both sites.

## Community engagement

Managing invasive species on private land is complex. Effective, strategic work is dependent on being able to engage and influence private landholders to take action. Council officers work within a strategic framework of targeting private landholders managing high biodiversity and productive properties, of delivering a range of programs that provide knowledge, skills and financial incentives, and encouraging and supporting individuals to work together in local community groups.

While many private landholders are working tirelessly and effectively to manage invasive species on their land, others may find it challenging to find the time between work and family commitments to manage invasive species effectively. In addition there tends to be a relatively high turn-over of property ownership within Nillumbik that requires considerable resources to maintain adequate levels of community awareness on invasive species prevention and management.

To maximise successful engagement, Council needs to understand the circumstances of the different private landholder groups and tailor engagement to those specific groups.

### Private landholders

Private landholders within Nillumbik can be divided into five broad categories:

* Urban landholders – residents living in built up, urban streetscapes on privately owned parcels of land.
* New landholders – people who have relocated to large properties and may lack skill in invasive species identification and management.
* Established landholders (recreational focus) – people owning rural properties for recreational use e.g. horse riding, motor biking.
* Established landholders (environmental focus) – people owning large areas of land primarily to protect their high biodiversity value.
* Established landholders (agricultural focus) – people owning rural land engaged in some form of primary production activity. This may also include conservation land.

**What are the main challenges?**

Within the Nillumbik community there is a significant amount of awareness and understanding of the issues as well as a range of efforts being undertaken on private land to manage invasive species. Relatively few people with limited resources have worked together to achieve outstanding ‘wins’ in the battle against invasive species. To build upon this work, Council needs to address some of the potential barriers to engagement.

Council has adopted a number of programs to engage community in a strategic approach to invasive species management.

### Community groups

Encouraging individual landholders to join with their neighbours in aLandcare group is an effective way to drive a strategic and targeted invasive species control program on private land. Inexperienced landholders receive guidance and advice from their neighbours and are more likely to participate in communal invasive species projects, such as rabbit baiting, due to mutual benefit, enhanced outcomes and some peer pressure.

Council provides assistance to ten Landcare groups through the Community Action Group Grants within the Land Management Incentive Program, and provides supports to the Nillumbik Landcare Network. From August 2012 Council has hosted a Landcare Facilitator, funded by the Victorian Government to assist groups coordinate projects and help the groups grow. From early 2014 an Environmental Geographic Information System (GIS) Officer has also been hosted to work with Landcare groups in mapping invasive species on their properties.

Nine Nillumbik Landcare groups were successful in receiving funding from the DELWP for the Nillumbik’s Conservation Corridors Project under the State Government’s Communities for Nature grant program. The project seeks to engage the local community to protect and improve habitat for a range of threatened plants and animals in the Shire. Support and assistance is provided for on-ground and coordinated management works including invasive species control.

Council supports 22 Friends groups working throughout the Shire on Council-managed reserves. Each group is supported by Council officers to ensure works are aligned with Council’s works plan objectives for reserves. Council provides the volunteers with tools, safety equipment, plants and associated materials, weed removal and onsite assistance where possible.

### Education and resources

Council uses a range of communication tools to engage different audiences.

**Publications and website**

Council’s website provides information about invasive species control. Council has produced a weeds booklet *Common Weeds of Nillumbik* to assist landowners with invasive plant identification and a *Sustainable Gardening in Nillumbik* booklet which includes information about garden escapees. Council’s *Live Local Plant Local* booklet promotes the planting of indigenous species and the importance of controlling environmental weeds, while *Rabbit control in urban and peri-urban areas* provides information on rabbit control.

Council also produces brochures about Friends and Landcare groups, and about Council’s financial assistance programs for land management, including the Land Management Incentive Program. Council has a number of regular publications through which invasive species information can be disseminated: *Nillumbik News, Fringe Focus* and *Nillumbik Environment Network updates.*

**Environmental Activities Program**

Council holds and supports a number of environmental activities and events throughout the year including property management planning courses, weed identification, and the like.

**Mail outs**

Residents living near a council-managed reserve or adjoining a high value environmental or agricultural asset will be targeted to receive information on invasive species identification and management, as well as information on opportunities for involvement.

**Extension Services**

Council’s Land Management Officer provides one-on-one land management advice to private landholders regarding invasive species identification and management. It is a valuable opportunity to build relationships with landowners to increase their awareness of services and assistance available, and to encourage their involvement in a local community Landcare group. Staff also handle phone enquiries regarding invasive species and assist with identification and control recommendations. Council officers also provide extension services to community groups such as Landcare and Friends Groups. Council periodically runs free workshops for residents to build their knowledge and skill.

**Financial incentives**

The Land Management Incentive Program offers flexible grants to support a range of integrated land management activities for private landholders and community groups. Invasive species management will be supported if the species is part of medium or large scale collaborative projects where the identified pest and the proposed control techniques are consistent with recommendations of approved local strategies and programs.

TheSustainable Agriculture Rebate offers a council rate rebate for owners of farms of over 30 hectares who can demonstrate (via a property management plan) that they are managing their land and natural resources in a positive and sustainable way.

A rate rebate is also provided to landowners who have placed a Trust for Nature conservation covenant on their property.

## Other public land management

Melbourne Water, DELWP, Parks Victoria, VicRail and VicRoads all have a responsibility for managing invasive species within Nillumbik. Council actively works with these public land managers to coordinate and collaborate on projects. The Urban Fringe Weed Management Initiative is a successful example of the implementation of this interagency collaboration. The Urban Fringe Weed Management Initiative is a four-year partnership program 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, DELWP, private landowners and community groups. 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 area.
* Control established weeds strategically to protect the biodiversity values of the corridor.

## Industry engagement

### Nursery and landscape industries

Two-thirds of the established weeds in Australia are escaped garden plants, with 55 per cent of these still available for sale (Groves et. al. 2005). The nursery and landscape businesses operating within Nillumbik and surrounds have a critical role in mitigating a major pathway of threat. There are 242 landscape businesses operating in Nillumbik. The majority of landscapers would purchase their plants from the Plantmark wholesale supplier in Thomastown. A total of 37 nursery outlets are operating within the region with seven being major garden centres.

### Aquarium and pet trade

The escape and release of former pets has been identified as a pathway for the introduction of invasive animals into natural environments and productive land. Not only can these former pets become invasive, but so can other organisms associated with pets and pet care. Possible sources of invasive species introduction through the pet trade pathway include:

**Intentional**

* Release of unwanted pets or live pet food (e.g. feeder fish, crickets).
* Outdoor disposal of unwanted plant material associated with aquariums, terrariums, or water gardens.
* Outdoor disposal of pet food containing viable seeds or rootable plant material.

**Unintentional**

* Escape of pets or live pet foods that are poorly contained.
* Introduction of pathogens and parasites that “hitchhike” on pets.
* Introduction of plant material, pathogens, or parasites when pet housing (e.g., aquariums/terrariums, bird cages), toys, feeding dishes, and other supplies are cleaned outdoors.

Many pets and associated organisms that escape or are released into the natural environment are unable to survive due to inappropriate climatic conditions, predation, or the hazards of road traffic. However, under ideal conditions, not only do these organisms survive, they thrive and become invasive species that displace native species, degrade ecosystems and reduce biodiversity and productivity. Access to food via exposed rubbish, pet food, and outdoor cafes can further result in invasive animal success.

When plants (including seeds) associated with pet care enter the natural environment, they can establish and spread to such an extent that they outcompete native plants and cause wide-scale disruptions to ecological systems.

An education campaign to raise awareness targeting high threat invasive species of concern to Council and associated with the pet trade, could be directed towards these local businesses and their customers.

### Contractors and Developers

Contractors and developers operating within Nillumbik have a major role to play in limiting the spread of weeds and pest animals. Weeds seed and material can be transported through contaminated soil or on machinery brought in from other locations. It is important to raise awareness about machinery hygiene practices and the importance of clean fill.

# Action Plan

The Action Plan provides a response to invasive species management with a focus on the priorities, roles and responsibilities of Council. It includes actions to be undertaken directly by Council’s operations and services and actions that support resident’s and community groups’ responses.

The vision, goals, 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 goals:

* Improving agricultural assets on private land through control of invasive species.
* Improving Biodiversity assets on private land through control of invasive species.
* Minimising the impacts of invasive species on roadsides.
* Managing invasive species in Council’s bushland and wetland reserves.
* Managing invasive species information.

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.

Some actions 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, Responsibility, Timeframe and Status.

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

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

**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**

Comms Communication

EP Environmental Planning

EM Emergency Management

EW Environmental Works

GV Governance

IM Infrastructure Maintenance

IT Information Technology

LS Leisure Services

OS Open Space Maintenance

SP Strategic Planning

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

**Status** provides an update on how the implementation of the action is tracking.

## Goal 1

### Improving agricultural assets on private land through control of invasive species

#### Program objectives

* To support private landholders to proactively manage invasive species on their land, prioritising the protection of high value agricultural assets.
* To support the eradication of new and emerging invasive species from private land where these are identified as a threat to the productivity of agriculture in the area.
* To educate and inform the community about invasive species.
* To target different community audiences with specific projects, programs or customised messages.

#### Program description

Programs are designed to encourage the adoption of best practice in the agricultural landscape and to support sustainable agricultural enterprises into the future.

Invasive species and their management are a significant financial burden in agriculture. The implementation of the biosecurity approach with targeted and cross tenure priorities will aim to reduce the pressures from such species. Specifically agricultural programs will focus on:

* Invasive species that are listed under the Prevention and Eradication categories within the ‘agricultural land’ column of the Shire-wide Invasive Species Priority List (Appendix 2).
* Invasive species that are listed under the Containment category within the ‘agricultural land’ column of the Shire-wide Invasive Species Priority List (Appendix 2), but only in situations where they threaten high value or key agricultural assets.
* Invasive species that are listed under the Asset-Based Management category within the ‘agricultural land’ column of the Shire-wide Invasive Species Priority List (Appendix 2), but only in situations where they threaten high value agricultural assets.

#### Stakeholders

Landcare, Landholders, Nillumbik’s Conservation Corridors Steering Committee, Nillumbik Landcare Network, Agricultural Advisory Committee, Environmental Advisory Committee, Council, Melbourne Water, Department of Environment & Primary Industries, VicRoads, Parks Victoria and private contractors.

#### Potential target projects

* Christmas Hills, Strathewen and St Andrews deer control
* Chilean Needle Grass Outliers Targeted Control Project
* Patersons Curse Targeted Control Project (Yarrambat)
* Buttermans Track area targeted weed control project
* Community rabbit control groups
* Nillumbik Roadside weed program
* Landcare demonstration site
* Weed mapping

| **No.** | **Actions** | **Responsibility** | **Timeframe** | **Status** |
| --- | --- | --- | --- | --- |
|  | **Research and investigation** |  |  |  |
| A1 | Pilot on-ground assessment and mapping of the extent of infestation by species (in consultation with relevant agencies, Landcare Groups and the Agriculture Advisory Committee). | Environmental Planning | June 2015 | In progress |
| A2 | Continuously review the priority invasive species and priority control zones (in consultation with relevant agencies, Landcare Groups and the Agriculture Advisory Committee). | Environmental Planning | Ongoing | In progress |
|  | **Coordination** |  |  |  |
| A3 | Continue to support Landowners, Landcare groups and Nillumbik Landcare Network to manage invasive species. | Environmental Planning | Ongoing | In progress |
| A4 | Coordinate Council and agency works with private landholder works. | Environmental Planning | Ongoing | In progress |
|  | **Community awareness** |  |  |  |
| A5 | Work in partnership with DELWP to increase community awareness about species listed under the Prevent and Eradicate categories (Appendix 2). | Environmental Planning | Ongoing | To commenceNovember 2015 |
| A6 | Coordinate with and support awareness raising activities of the Nillumbik Landcare Network through its website, walks and field days organised by individual landcare groups.  | Environmental Planning | Ongoing | In progress |
|  | **Extension and technical support** |  |  |  |
| A7 | Hold targeted invasive species management field days that relate to agricultural land. | Environmental Planning | 2 per year | In progress |
| A8 | In conjunction with the Nillumbik Landcare Network, conduct whole property planning courses. | Environmental Planning | 1 per year | In progress |
| A9 | Undertake private property site inspections to provide advice in relation to improved agricultural land management with the additional potential of providing assistance via Council’s incentive programs. | Environmental Planning | 25 per year | In progress |
| A10 | Continue to provide technical and administrative support to the Nillumbik Landcare Network. | Environmental Planning | June 2015 | In progress |
| A11 | Provide advice and assistance for landholders to develop property management plans. | Environmental Planning | 10 per year | In progress |
|  | **Incentives** |  |  |  |
| A12 | Provide small grants in targeted areas to landholders for actions to manage invasive species on their land.  | Environmental Planning | 30 per year | In progress |
| A13 | Provide medium grants to assist groups of adjoining landowners to cooperatively manage invasive species across their properties. | Environmental Planning | 20 per year | In progress |
| A14 | Provide grants to Landcare Groups for invasive species management each year. | Environmental Planning | 3 per year | In progress |
| A15 | Continue to administer and assess the Sustainable Agricultural Rebate (SAR) for large (30ha+) agricultural properties across Nillumbik and review a proportion of SAR Property Management Plans each year. | Environmental Planning | 15 per year | In progress |
| A16 | Monitor and review the effectiveness of the Land Management Incentive Program. | Environmental Planning | Annually | In progress |

**Sources of potential funding and other resources**

Partner with Nillumbik Landcare Network to seek, administer and utilise other sources of funding for management of invasive species on private land.

Victorian Bushfire Appeal Fund (VBAF) grants available until December 2014.

Landcare equipment hire/borrow opportunities (e.g. Landcare tool trailers).

Work in partnership with the Urban Fringe Weed Management Initiative.

Advise landowners (if eligible) to apply for funding through Melbourne Water’s Stream frontage program.

**Monitoring and Reporting**

Report on the effectiveness of the project through the Nillumbik State of Environment Report.

Collate project information in Nillumbik’s GIS in partnership with Nillumbik Landcare Network and Environmental Works.

## Goal 2

### Improving Biodiversity assets on private land through control of invasive species

#### Program Objectives

* To support private landholders to proactively manage invasive species on their land, prioritising the protection area’s high value biodiversity and or significant species.
* To support the eradication of new and emerging invasive species from private land where these are identified as being a threat to the integrity of that natural asset.
* To educate and inform the community about invasive species.
* To target different community audiences with specific projects, programs or customised messages.

#### Project description

*The Biodiversity Strategy 2012*, documents the strategic direction for biodiversity conservation in the Shire. The Invasive Species Action Plan complements this direction by setting the direction for invasive species management in biodiversity areas. Specifically projects are designed around:

* Actions focusing on all invasive species that are listed under the Prevent and Eradicate categories within the ‘bushland column’ of the Shire-wide Invasive Species Priority List (Appendix 2).
* Invasive species that are listed under the Contain category within the ‘bushland column’ of the Shire-wide Invasive Species Priority List (Appendix 2), but only in situations where they threaten assets with medium to high value biodiversity.
* Invasive species that are listed under the Asset-Based Management category within the ‘bushland column’ of the Shire-wide Invasive Species Priority List (Appendix 2), but only in situations where they threaten assets with high value biodiversity.

#### Stakeholders

Landcare, Landholders, Nillumbik’s Conservation Corridors Steering Committee, Nillumbik Landcare Network, Environmental Advisory Committee, Council, Melbourne Water, Department of Environment & Primary Industries, VicRoads Parks Victoria and private contractors.

#### Potential target projects

* Arthurs Creek, Christmas Hill, Strathewen and St Andrews deer control.
* Targeted fox control program.
* Nillumbik’s Conservation Corridors Project.
* Buttermans Track area targeted weed control project.
* Community rabbit control groups.
* Eltham Copper Butterfly Recovery Project
* Landcare demonstration site.
* Targeted Boneseed, Bridal Creeper, Bluebell Creeper, Sweet Pittosporum, Watsonia and Blue Periwinkle control.
* The trial of different control methods for the reduction of high threat grassy weeds in high quality bushland areas.
* Set up and monitoring of Myrtle Rust sentinel sites.
* Weed mapping and identification of priority areas for control.
* Set up of an online register for the reporting of species listed under the *Prevent and Eradicate categories* (Appendix 2).

| **No.** | **Actions** | **Responsibility** | **Timeframe** | **Status** |
| --- | --- | --- | --- | --- |
|  | **Research and investigation** |  |  |  |
| B1 | Undertake on-ground assessment and mapping of the extent of infestation by species. | Environmental PlanningLandcare | Ongoing | In progress |
| B2 | Continuously review the priority invasive species and priority control zones.  | Environmental PlanningEnvironmental WorksLandcareEnvironmental Advisory Committee | Quarterly | In progress |
|  | **Coordination** |  |  |  |
| B3 | Continue to support and coordinate land management actions with Landowners, Landcare groups, Nillumbik Landcare Network, Nillumbik Conservation Corridors Project and other agencies such as DELWP, Parks Victoria, Melbourne Water, VicRoads, VicTrack and the Port Phillip & Westernport Catchment Management Authority. | Environmental Planning | Ongoing | In progress |
| B4 | Coordinate Council and agency land management works with private landholder works. | Environmental PlanningEnvironmental WorksMelbourne WaterParks Victoria | Ongoing | In progress |
|  | **Community awareness** |  |  |  |
| B5 | Promote priority invasive species through Landcare Groups, Friends Groups, Nillumbik Landcare Network, Nillumbik Conservation Corridors, Nillumbik News and Fringe Focus. | Environmental PlanningEnvironmental Works | Quarterly | To commence April 2015 |
| B6 | Promote the uptake of Trust for Nature Conservation Covenants to protect high quality bushland. | Environmental Planning | Ongoing | To commence April 2015 |
|  | **Extension and technical support** |  |  |  |
| B7 | Hold two targeted invasive species management field days that relate to private bushland management each year. | Environmental PlanningNillumbik Conservation Corridors Project | 2 per year | In progress |
| B8 | Undertake private property site inspections to provide advice in relation to improved bushland management with the additional potential of providing assistance via Council incentive programs. | Environmental Planning | 25 site inspections per year | In progress |
| B9 | Continue to provide support to the Nillumbik Conservation Corridors Project. | Environmental Planning | Until June 2016 | In progress |
| B10 | Provide support for the development of bushland management plans. | Environmental Planning | 5 plans per year | In progress |
| B11 | Provide technical support to landowners including pest species identification and bushland management advice. | Environmental Planning | As required | In progress |
|  | **Incentives** |  |  |  |
| B12 | Provide assistance and funding to landholders to assist management of invasive species.  | Environmental Planning, Melbourne Water, Nillumbik Conservation Corridors Project | Ongoing  | In progress |
| B13 | Provide small grants to landholders for actions to manage invasive species within private bushland. | Environmental Planning | 15 grants per year | In progress |
| B14 | Provide medium grants to assist groups of adjoining landowners to cooperatively manage invasive species across their properties. | Environmental Planning | 10 grants per year | In progress |
| B15 | Provide grants to Landcare Groups for invasive species management. | Environmental Planning | 2 grants per year | In progress |
| B16 | Partner with Nillumbik Landcare Network and Nillumbik’s Conservation Corridors project to seek, administer and utilise other sources of funding for management of invasive species on private land. | Environmental Planning | Ongoing | In progress |

**Sources of potential funding and other resources**

Council’s Land Management Incentive Program provides some financial assistance to undertake weed control.

Landcare equipment hire/borrow opportunities (e.g. Landcare tool trailers).

Council’s Land Management Officers are able to provide extension and technical advice to landowners.

Nillumbik’s Conservation Corridors project grant (until June 2016).

Landowners (if eligible) can apply for funding through Melbourne Water’s Stream Frontage program.

Funding sources and grants from external programs run by organisations such as the Department of Environment, Land, Water and Planning and the Port Phillip and Westernport CMA.

Private landowner contributions.

**Monitoring and Reporting**

Report on the effectiveness of target projects through the Nillumbik State of Environment Report.

Monitor the effectiveness of programs through the Land Management Incentive Program

## Goal 3

### Minimising the impacts of invasive species on roadsides

#### Project Objectives

* Council implements the Broad Weed Management Objectives as outlined in the Roadside Management Plan 2012.
* Minimise the impacts of pest animals on roadsides through appropriate and effective integrated methods and minimise impacts on remnant vegetation and native wildlife habitat.

#### Project description

Council is responsible for the management and maintenance of approximately 1,200 kilometres or rural roadsides.

The Broad Weed Management Objectives outlined in the Roadside Management Plan are used by Council staff in implementing the Roadside Weed Control Program. This adopts a prioritised approach, based on available funding, with the highest priority for roadside weed control being impacts of public safety, access and egress, visibility of signage and fire risks. The second priority is to focus on new and emerging weeds, and the third priority is to focus on high threat established weeds on high conservation roadsides. At this point the available funding only allows the roadside weed control program to focus on the first and second priorities of the broad weed management objectives, and partly the third weed control priority, such as treating Nassella species.

#### Stakeholders

Landcare, Landholders, Nillumbik Landcare Network, Environmental Advisory Committee, Council, Melbourne Water, Department of Environment & Primary Industries, VicRoads and Parks Victoria.

#### Potential target projects

* Chilean Needle targeted weed control.
* Weed mapping and identification of priority areas for control.
* Landcare roadside partnership.

| **No.** | **Actions** | **Responsibility** | **Timeframe** | **Status** |
| --- | --- | --- | --- | --- |
|  | **Coordination** |  |  |  |
| R1 | Undertake phased mowing where weedy grasses are mixed with significant flora and there is a prospect of timing the mowing to reduce the spread of weedy seeds. | Open Space | Ongoing | In progress |
| R2 | Continue to implement the broad weed management objectives as outlined in the Roadside Management Plan. These broad weed management objectives are used as the basis for setting specific weed management objectives and actions.  | Open Space | 2017 | In progress |
| R3 | Work with Landcare Groups to prioritise targeted weed control. | Open Space & Environmental Planning | Ongoing | In progress |
|  | **Community awareness** |  |  |  |
| R4 | In targeted areas erect weed alert signage. | Open Space & Environmental Planning | Ongoing | In progress |
| R5 | Incorporate weed mapping information into the data management system and communicate with the community via the website. | Open Space | Ongoing | To commence February 2016 |
|  | **Incentives** |  |  |  |
| R6 | Actively seek funding opportunities or sources to enable Council’s roadside weed control program to more effectively address high and medium weed management priorities as outlined in the Roadside Management Plan.  | Open Space & Environmental Works | Ongoing | In progress |
| R7 | Work with adjoining landowners and landcare groups to implement landscape-scale pest animal control programs including roadsides.  | Open Space, Environmental Works & Environmental Planning | Ongoing | In progress |

**Sources of potential funding and other resources**

Urban Fringe Weed Management Initiative

**Monitoring and Reporting**

Monitor the effectiveness of the program through the reporting on the *Roadside Management Plan 2012*.

## Goal 4

### Council bushland and wetland reserves

#### Project Objectives

* The biodiversity values and ecological integrity of Council’s bushland and wetland reserves are enhanced and protected.
* Environmental works within reserves and wetlands are strategically planned to enhance and protect the conservation, social and cultural values of these areas.
* Landowners and land managers adjoining bushland and wetland reserves are engaged to establish a coordinated, landscape scale approach to protecting and enhancing biodiversity and conservation values.
* Friends Groups working within Council’s bushland reserves and wetlands are engaged and supported to take action to protect and enhance conservation values.

#### Project description

Nillumbik Shire Council is responsible for the management of 99 bushland and wetland reserves covering an area of 495 hectares. Weed and pest encroachment from adjoining public or private land impacts on conservation, social or cultural values of reserves. Weeds and pests spreading from Council reserves to adjoining public or private land also needs to be addressed.

#### Stakeholders

Friends Groups, Parks Victoria, DELWP, Melbourne Water, VicRoads, adjoining private and public land owners.

#### Potential target projects

* Water Sensitive Urban Design Maintenance Guidelines.
* Conservation management Plans.

| **No** | **Actions** | **Responsibility** | **Timeframe** | **Status** |
| --- | --- | --- | --- | --- |
|  | **Research and investigation** |  |  |  |
| BW1 | Continue to implement the Bushland and Wetland Reserves Prioritisation and Planning Guidelines for setting pest animal and weed control objectives for reserves. | Environmental Works | Ongoing | In progress |
| BW2 | Develop Conservation Management Plans for all Bushland and Wetland Reserves which identify invasive species and implement the levels of service outlined in the Bushland and Wetland Reserves Prioritisation and Planning Guidelines.  | Environmental Works | June 2018 | In progress |
| BW3 | Prepare Works Plans for bushland and wetland reserves. | Environmental Works | Annually | In progress |
|  | **Coordination** |  |  |  |
| BW4 | Coordinate Council’s Rabbit Control Program at a landscape scale and actively seek opportunities to work with adjoining landowners and agencies. | Environmental Works & Environmental Planning | Annually | In progress |
| BW5 | Prepare a new project proposal for the continuation of the Urban Fringe Weed Management Initiative (or similar initiative) in partnership with the Warrandyte to Kinglake Habitat Corridor Public Land Managers Network | Environmental Works | February 2015 | In progress |
|  | **Community Awareness** |  |  |  |
| BW6 | Continue to support the 22 Friends Groups working on Council land to implement on-ground conservation works by providing contractor and planning support, tools, equipment, training and advice.  | Environmental Works | Ongoing | In progress |
| BW7 | Support Friends of the Eltham Copper Butterfly (ECB) to implement the Backyards for Butterflies program as part of the Eltham Copper Butterfly Recovery Program to work with private landowners adjoining ECB Reserves to remove weeds that may impact on ECB habitat.  | Environmental Works | June 2016 | To commence March 2015 |

**Sources of potential funding and other resources**

Melbourne Water Corridors of Green grant

Urban Fringe Weed Management Initiative Grant

Communities for Nature grant

**Monitoring and reporting**

Report on the effectiveness of the programs through the Nillumbik State of Environment Report.

Monitoring the implementation of the Conservation Management Plans.

## Goal 5

### Managing invasive species information

#### Program Objectives

* To ensure a consistent method of capturing and presenting information relating to invasive species location, distribution and control across the Shire.
* To engage stakeholders in invasive species management.

#### Project description

Having a landscape scale understanding of invasive species distribution and density can inform control programs or community education and engagement.

Different methods of capturing information relating to invasive species can make interpreting and using the information difficult, so this needs to be addressed.

#### Stakeholders

Landcare Groups, Friends Groups, Parks Victoria, DELWP, Melbourne Water, VicRoads, adjoining private and public land owners.

#### Potential target projects

* Nillumbik’s Conservation Corridors Project.
* Weed mapping and identification of priority areas for control.
* Integration of Landcare and contractor data.

| **No.** | **Actions** | **Responsibility** | **Timeframe** | **Status** |
| --- | --- | --- | --- | --- |
|  | **Coordination** |  |  |  |
| I1 | Streamline an approach to capturing invasive species information/data for all areas of Council. | Environmental Works, Environmental Planning, Open Space & Information Technology | May 2015 | In progress |
|  | **Community awareness** |  |  |  |
| I2 | Promote priority invasive species through Landcare, the Nillumbik Landcare Network, Nillumbik News and Fringe focus. | Environmental Planning | Monthly | To commence September 2015  |
| I3 | Provide Nillumbik’s Weed Booklet at Council’s information stands, through Landcare and at community events. | Environmental Planning | Ongoing | In progress |
| I4 | Update Council’s website to provide clear information on invasive species, including photos, control information and identification details (Appendix 2). | Environmental Planning | December 2015 | To commence May 2015 |
| I5 | Investigate the practicalities and costs of expanding the Murrindindi Weed App into Nillumbik. | Environmental Planning | March 2015 | To commence February 2015 |
| I6 | Promote the Land Management Incentive Program for targeted projects and Landcare groups. | Environmental Planning | 4 times per year | In progress |
|  | **Extension and technical support** |  |  |  |
| I7 | Undertake staff training to improve and maintain skills in identification of invasive species that are listed under the *Prevention* and *Eradication* categories (Appendix 2). | Environmental Planning,Environmental Works & Open Space | 2 per year | To commence May 2015 |
|  | **Incentives** |  |  |  |
| I8 | Provide small grants through the Land Management Incentive Program to manage invasive species. | Environmental Planning | 30 per year | In progress |
| I9 | Provide medium grants to assist groups of adjoining landowners to cooperatively manage invasive species across their properties. | Environmental Planning | 20 per year | In progress |
| I10 | Provide grants to Landcare Groups for invasive species management. | Environmental Planning | 3 per year | In progress |

**Sources of potential funding and other resources**

Port Phillip & Westernport Catchment Management Authority

**Monitoring and Reporting**

Report on the effectiveness of the programs through the Nillumbik State of Environment Report.

## Funding priorities

The level of service Council can provide to undertake invasive species management depends on the amount of funding available from Council and external sources. The following priorities related to invasive species control appear for the most part in the *Nillumbik Biodiversity Strategy* (BS) or the *Environmental Education Strategy* (EES). Others have been added in recognition of the impact of invasive species on agricultural land and other assets.

This list of priorities does not include consideration of funding for work required to train operational staff, review operational procedures or incorporate invasive species management (reporting and controlling) in open space reserves and sportsgrounds. These of course are very important in achieving the objectives of this plan.

### Priorities for Council funding:

* Prioritise pest plant, pathogen and animal control programs in high biodiversity Council reserves and private land where there is an identified immediate and unacceptable threat to a biodiversity asset (BS).
* Continue to recruit staff with excellent technical knowledge and resources to provide education and expert advice to landholders and community groups (BS).
* Update and align existing environmental education programs and resources related to invasive species identification and management to align with Education and Sustainability principles (EES modified).
* Provide innovative and targeted educational programs and material to raise community awareness (BS/EES modified).
* Organise training in invasive species identification and management for landholders and community groups to develop skills and knowledge (BS modified).
* Build partnerships and strong networks between all land managers to facilitate a coordinated approach to invasive species management (BS – modified).
* Make funding incentives available for invasive species management to Friends and Landcare groups and landholders in areas identified as supporting high biodiversity and agricultural values (BS modified).
* Seek funding for invasive species management on Council land (BS).
* Seek funding for targeted invasive species management on Council land to compliment Landcare activities and protect high agricultural assets. Support establishment and operation of Friends and Landcare groups in areas identified as supporting high biodiversity values (BS).
* Support ongoing ecological management of Council’s environmentally significant reserves (BS).

BS = Biosecurity Strategy EES = Environmental Educations Strategy

## Monitoring and reporting

### Reporting to the community

Information generated for the *Nillumbik Invasive Species Action Plan Progress Report* will be reported through the *Nillumbik State of Environment Report* [and](http://and) made available on the Council website.

### Review of the Nillumbik Invasive Species Action Plan

The Plan 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. The status of invasive species will be reviewed on a regular basis by staff based on feedback from community, contractors and staff observations.

# Appendices

## Appendix 1

This is an example of the biosecurity approach at a local level (i.e. property or reserve level) on a high biodiversity property. The new and emerging invasive species are particular to the location of the private property and targeted for prevention and eradication on that parcel of land. High threat established invasive species on the property are targeted for containment to prevent their spread.

**Heat threat Species Management Action**

| **New and Emerging Species** | Prevent | Eradicate | Contain | Asset based management |
| --- | --- | --- | --- | --- |
| Chilean Needle-grass *(Nassela neesiana)* |  |  |  |  |
| Bridal Creeper *(Asparagus asparagoides)* |  |  |  |  |
| Montpellier Broom *(Genista monspessulana)* |  |  |  |  |
| Radiata Pine *(Pinus radiata)* |  |  |  |  |
| Briar Rose *(Rosa rubiginosa)* |  |  |  |  |
| Plum (*Prunus spp.)* |  |  |  |  |
| Sweet Pittosporum *(Pittosporum undulatum)* |  |  |  |  |
| Spanish Heath *(Erica lusitanica)* |  |  |  |  |
| Boneseed (*Chrysanthemoides monilifera subsp. monilifera* |  |  |  |  |
| Bluebell Creeper (*Billardiera hertophylla* |  |  |  |  |
| Early Black Wattle *(Acacia decurrens)* |  |  |  |  |
| Sallow Wattle *(Acacia longifolia)* |  |  |  |  |
| Flinders Ranges Wattle *(Acacia iteaphylla)* |  |  |  |  |
| Cootamundra Wattle *(Acacia baileyana)* |  |  |  |  |
| Blackberry *(Rubus fruticosus Agg)* |  |  |  |  |
| Freesia *(Freesia spp.)* |  |  |  |  |
| European Wasps |  |  |  |  |
| Rabbit |  |  |  |  |
| Fox |  |  |  |  |
| **Established High Threat Species** |  |  |  |  |
| Sweet Vernal-grass *(Anthoxanthum odoratum)* |  |  |  |  |
| Quaking Grass *(Briza maxima)* |  |  |  |  |
| Annual Veldt Grass *(Ehrharta longifolia)* |  |  |  |  |
| Yorkshire Fog *(Holcus lanatus)* |  |  |  |  |
| Hare’s Tail Grass *(Lagurus ovatus)* |  |  |  |  |

## Appendix 2

### Shire-wide Invasive Species Priority Lists

There are literally hundreds of invasive species that pose a threat to the biodiversity and agricultural values of Nillumbik. With limited resources, it is necessary to ensure that the following lists of invasive species take a shire-wide approach, are realistic in terms of the category of management and are working lists to be reviewed on a regular basis. Refer to the Council website for the most up-to-date list of Nillumbik Invasive Species.

Key to Invasive Species Status in terms of National (Weeds of National Significance- WoNS) or State (CaLP Act) classification:

WoNS = Weed of National Significance S = State Prohibited

P = Regionally prohibited C= Regionally controlled

R = Regionally restricted EP = Established pest

EW = Nillumbik Environmental Weed

### Prevention

Species in this category are not present within the Shire of Nillumbik. Council’s objective is to prevent the introduction, spread and establishment of these high threat species. Actions for this category are as follows:

* Ensure the species identification skills of target groups i.e. staff, contractors, and Landcare groups are high.
* Monitor regularly for these particular species, particularly in areas of high biodiversity, amenity and agricultural value.
* If any new incursions of these species are discovered, immediately include the species under the “Eradication” category of management.
* Report any new incursion to DELWP and seek support for urgent eradication

Some species are categorised differently in Nillumbik depending on whether they exist in bushland or on agricultural land. For example the Common Olive (Olea europaea) is listed on the Eradication list in relation to Bushland, this is not appropriate in agricultural situation where that species is a potential crop. In these situations, the appropriate field in one of the final two columns is populated as ‘No’.

| **Scientific name** | **Common name** | **Status****CaLP Act Category and/or WoNS** | **Status****Prevent if affecting Bushland** | **Status****Prevent if affecting Agriculture** |
| --- | --- | --- | --- | --- |
| **Flora** |  |  |  |  |
| *Acacia erioloba* | Giraffe Thorn | S | Yes | Yes |
| *Acacia karroo* | Karoo Thorn | S | Yes | Yes |
| *Acacia nilotica (L.) Delile subsp. indica (Benth.) Brenan* | Prickly Acacia | R | Yes  | Yes  |
| *Alhagi maurorum* | Camel Thorn | S | Yes | Yes |
| *Alternanthera philoxeroides* | Alligator Weed | WoNS, S | Yes | Yes |
| *Alternanthera pungens Kunth.* | Khaki Weed | P |  Yes |  Yes |
| *Ambrosia psilostachya DC.* | Perennial Ragweed | S  | Yes | Yes |
| *Amsinckia spp.* | Amsinckia | C | Yes  |  Yes |
| *Annona glabra L.* | Pond Apple | R |  Yes |  Yes |
| *Asphodelus fistulosus L.* | Onion Weed | R |  Yes |  Yes |
| *Cabomba caroliniana* | Cabomba | WoNS, R | Yes | Yes |
| *Calicotome spinosa* | Spiny Broom | P | Yes | Yes |
| *Carduus nutans L.* | Nodding Thistle | S  | Yes | Yes |
| *Carthamus lanatus L.* | Saffron Thistle | C | Yes  |  Yes |
| *Cenchrus longispinus* | Spiny Burr Grass | P |  Yes |  Yes |
| *Centaurea calcitrapa L.* | Star Thistle | P |  Yes |  Yes |
| *Centaurea nigra L.* | Black Knapweed | S  | Yes | Yes |
| *Centaurea solstitialis L.* | St Barnaby's Thistle | P |  Yes |  Yes |
| *Cestrum parqui L'Her.* | Chilean Cestrum | P |  Yes |  Yes |
| *Chondrilla juncea L.* | Skeleton Weed | P |  Yes |  Yes |
| *Cryptostegia grandiflora R. Br.* | Rubber Vine | R |  Yes |  Yes |
| *Cuscuta spp.* | Dodder | R |  Yes |  Yes |
| *Diplotaxis tenuifolia* | Sand Rocket | R |  Yes |  Yes |
| *Dittrichia graveolens (L.) Greuter* | Stinkwort | R |  Yes  |  Yes |
| *Echium vulgare L.* | Viper's Bugloss | R |  Yes |  Yes |
| *Emex australis*  | Spiny Emex | P |  Yes |  Yes |
| *Equisetum spp.* | Horsetail | S  | Yes | Yes |
| *Eragrostis curvula* | African Love-Grass | R |  Yes |  Yes |
| *Fallopia japonica* | Japanese Knotweed | S | Yes | Yes |
| *Fallopia sachalinensis* | Giant Knotweed | S | Yes | Yes |
| *Fallopia x bohemica* | Japanese Knotweed Hybrid | S  | Yes | Yes |
| *Festuca gautieri* | Bear-Skin Fescue | S  | Yes | Yes |
| *Hieracium aurantiacum* | Orange Hawkweed | S | Yes | Yes |
| *Hieracium spp.* | Hawkweed | S  | Yes | Yes |
| *Iva axillaris* | Poverty Weed | S  | Yes | Yes |
| *Lagarosiphon major* | Lagarosiphon | S  | Yes | Yes |
| *Lavandula stoechas* | Topped Lavender | R | Yes | Yes |
| *Lepidium draba L.* | Hoary Cress | C |  Yes |  Yes |
| *Leucanthemum vulgare Lam.* | Ox-Eye Daisy | C |  Yes |  Yes |
| *Malvella leprosa* | Ivy-Leaf Sida | S  | Yes | Yes |
| *Melianthus comosus* | Tufted Honeyflower | C |  Yes |  Yes |
| *Mimosa pigra L.* | Mimosa | R |  Yes |  Yes |
| *Orobanche ramose* | Branched Broomrape | S | Yes | Yes |
| *Parkinsonia aculeata L.* | Parkinsonia | R |  Yes |  Yes |
| *Parthenium hysterophorus* | Parthenium Weed | WoNS, S | Yes | Yes |
| *Pennisetum macrourum* | African Feather-Grass | P | Yes | Yes |
| *Physalis hederifolia A. Gray* | Prairie Ground Cherry | C |  Yes |  Yes |
| *Picnomon acarna (L.) Cass.* | Soldier Thistle | P |  Yes |  Yes |
| *Proboscidea louisianica (Mill.) Thell.* | Devil's Claw (Purple Flower) | P |  Yes |  Yes |
| *Proboscidea lutea (Lindl.) Stapf* | Devil's Claw (Yellow Flower) | P |  Yes |  Yes |
| *Prosopis spp.* | Mesquite | WoNS, S | Yes | Yes |
| *Prunus laurocerasus* | Cherry Laurel |   | Yes | Yes |
| *Prunus spinosa* | Blackthorn | EW | Yes | Yes |
| *Reseda luteola L.* | Wild Mignonette | R |  Yes |  Yes |
| *Rhaponticum repens (L.) Hildalgo* | Hardheads | P |  Yes |  Yes |
| *Salpichroa origanifolia* | Pampas Lily-Of-The-Valley | C | Yes | Yes |
| *Salvinia molesta* | Salvinia, Water Fern, Giant Salvinia | WoNS, S, EW | Yes | Yes |
| *Senecio pterophorus DC.* | African Daisy | C |  Yes |  Yes |
| *Solanum elaeagnifolium* | Silverleaf Nightshade | P | Yes | Yes |
| *Solanum linnaeanum Hepper and P.-M.L. Jaeger* | Apple Of Sodom | C |  Yes |  Yes |
| *Solanum rostratum Dunal* | Buffalo Burr | P |  Yes |  Yes |
| *Tamarix aphylla (L.) H. Karst.* | Athel Pine | R |  Yes |  Yes |
| *Tribulus terrestris L.* | Caltrop | P |  Yes |  Yes |
| *Vachellia erioloba* | Giraffe Thorn | S  | Yes | Yes |
| *Vachellia karroo* | Karoo Thorn | S  | Yes | Yes |
| *Verbascum thapsus L.* | Great Mullein | R |  Yes |  Yes |
| *Xanthium strumariam L.* | Noogoora Burr | C |  Yes |  Yes |
|  |   |   |   |   |
| **Terrestrial fauna** |   |   |   |   |
|  | Cane Toad |   | Yes | Yes |
|  | Red-eared Slider Turtle |   | Yes | Yes |
|  | Asian Black-spined Toad |   | Yes | Yes |
|  | Smooth Newt |   | Yes | Yes |
|  | Fire Ant |   | Yes | Yes |
|  | European Bumble bee |   | Yes | Yes |
|  | Northern Palm Squirrel |   | Yes | Yes |

### Eradication

Species in this category are not yet well established across the Shire, but have the potential to cause severe damage. It is still cost effective and feasible to eradicate any infestations. They are the highest priority for action within Nillumbik. Actions for this category are as follows:

* Report any infestation of State Prohibited species to DELWP.
* Immediately remove, if an infestation is detected
* Undertake regular ongoing surveillance and monitoring.

| **Scientific name** | **Common name** | **Status****CaLP Act Category and/or WoNS** | **Status****Eradicate if affecting Bushland** | **Status****Eradicate if affecting Agriculture** |
| --- | --- | --- | --- | --- |
| **Flora** |  |  |  |  |
| *Acacia baileyana x decurrens* | Cootamundra Wattle x Early Black Wattle hybrid |   | Yes | Yes |
| *Acacia podalyriifolia* | Queensland Silver Wattle |   | Yes | Yes |
| *Acacia prominens* | Gosford Wattle |   | Yes | Yes |
| *Acanthus mollis* | Bear's Breach |   | Yes | Yes |
| *Ailanthus altissima* | Tree of Heaven | C | Yes | Yes |
| *Anredera cordifolia* | Madeira vine |   | Yes | Yes |
| *Arundo donax* | Giant Reed |   | Yes | Yes |
| *Asparagus officinalis* | Asparagus |   | Yes | No |
| *Asparagus scandens* | Asparagus Fern |   | Yes | Yes |
| *Carpobrotus aequilaterus* | Angled Pigface |   | Yes | Yes |
| *Coleonema pulchellum* | Pink Diosma |   | Yes | Yes |
| *Datura ferox L.* | Thorn Apple (long-spine) | C | Yes | Yes |
| *Datura iNoxiousia* | Thorn Apple (recurved) | P | Yes | Yes |
| *Datura stramonium L.* | Thorn Apple (common) | C | Yes | Yes |
| *Disa bracteata* | South African Orchid |   | Yes | Yes |
| *Eichhornia crassipes* | Water Hyacinth | S, EW | Yes | Yes |
| *Equisetum spp.* | Horsetail | S | Yes | Yes |
| *Eragrostis mexicana subsp. virescens* | Mexican Love-grass |   | Yes | Yes |
| *Eriobotrya japonica* | Loquat |   | Yes | No |
| *Ficus carica* | Fig |   | Yes | No |
| *Gazania linearis* | Gazania |   | Yes | Yes |
| *Gazania spp.* | Gazania |   | Yes | Yes |
| *Grevillea juniperina x victoriae* | Grevillea 'Poorinda Constance' hybrid |   | Yes | Yes |
| *Hakea laurina* | Pincushion Hakea |   | Yes | Yes |
| *Hypericum tetrapterum var. tetrapterum* | St Peter's Wort | C | Yes | Yes |
| *Hypericum triquetrifolium* | Tangled Hypericum | S | Yes | Yes |
| *Jacobaea vulgaris* | Ragwort |   | Yes | Yes |
| *Kniphofia uvaria* | Red-hot Poker |   | Yes | Yes |
| *Lantana camara* | Lantana | R, EW | Yes | Yes |
| *Melaleuca styphelioides* | Prickly Paperbark |   | Yes | Yes |
| *Mesembryanthemum spp.* | Ice Plant |   | Yes | Yes |
| *Nassella charruana* | Lobed Needle-grass | P | Yes | Yes |
| *Nassella hyalina* | Cane Needle-grass |   | Yes | Yes |
| *Nassella tenuissima* | Mexican Feather-grass |   | Yes | Yes |
| *Olea europaea subsp. europaea* | Common Olive |   | Yes | No |
| *Paraserianthes lophantha subsp. lophantha* | Cape Wattle |   | Yes | Yes |
| *Phoenix canariensis* | Canary Island Date-palm |   | Yes | No |
| *Robinia pseudoacacia* | Locust Tree |   | Yes | Yes |
| *Ulex europaeus* | Gorse | WONS, C | Yes | Yes |
| *Xanthium spinosum* | Bathurst Burr | C | Yes | Yes |
| **Pathogens** |   |   |   |   |
| *Uredo rangelii* | Myrtle Rust |   | Yes | Yes |

### Containment

Species in this category are well established across most of their predicted range and eradication is not a viable option, however the impacts of the species are severe enough to warrant setting a medium priority for action. Action will utilise the biosecurity approach and will often involve:

* Removing the invasive individuals that have the greatest capacity to spread (e.g. seed-bearing plants).
* Removing any satellite infestations while small.
* Working from the outside of an infestation inwards.

| **Scientific name** | **Common name** | **Status****CaLP Act Category and/or WoNS** | **Status****Contain if affecting Bushland** | **Status****Contain if affecting Agriculture** |
| --- | --- | --- | --- | --- |
| **Flora** |  |  |  |  |
| *Agave americana* | Agave, Century plant |   | Yes | Yes |
| *Allium vineale*  | Wild Garlic | R | Yes | Yes |
| *Amaryllis belladonna* | Belladonna Lily |   | Yes | Yes |
| *Arbutus unedo* | Irish Strawberry Tree |   | Yes | Yes |
| *Bambusa spp.* | Bamboo |   | Yes | Yes |
| *Billardiera heterophylla* | Bluebell Creeper |   | Yes | Yes |
| *Cardamine aff. flexuosa* | Flick Weed |   | Yes | Yes |
| *Chamaecytisus palmensis* | Tree Lucerne |   | Yes | Yes |
| *Chasmanthe floribunda* | African Cornflag |   | Yes | Yes |
| *Chrysanthemoides monilifera subsp. monilifera* | African Boneseed | WONS, C | Yes | Yes |
| *Cirsium arvense* | Perennial Thistle | C | Yes | Yes |
| *Convolvulus arvensis* | Common Bindweed | C | Yes | Yes |
| *Cordyline australis* | New Zealand Cabbage-tree |   | Yes | Yes |
| *Cortaderia selloana* | Pampas Grass |   | Yes | Yes |
| *Crocosmia X crocosmiiflora* | Montbretia |   | Yes | Yes |
| *Cynara cardunculus subsp. flavescens* | Artichoke Thistle | C | Yes | Yes |
| *Cytisus scoparius* | English Broom | C | Yes | Yes |
| *Daktulosphaira vitifoliae* | Grape Phylloxera |   | No | Yes |
| *Delairea odorata* | Cape Ivy |   | Yes | Yes |
| *Dimorphotheca fruticosa* | Trailing African Daisy |   | Yes | Yes |
| *Echium plantagineum* | Paterson's Curse | C | Yes | Yes |
| *Erica arborea* | Tree Heath |   | Yes | Yes |
| *Erodium botrys* | Big Heron's-bill |   | Yes | Yes |
| *Fraxinus angustifolia subsp. angustifolia* | Desert Ash |   | Yes | Yes |
| *Fraxinus sp.* | Ash |   | Yes | Yes |
| *Galenia pubescens var. pubescens* | Galenia |   | Yes | Yes |
| *Genista linifolia* | Flax-leaf Broom | C | Yes | Yes |
| *Genista monspessulana* | Montpellier or Cape Broom | C | Yes | Yes |
| *Grevillea robusta* | Silky Oak |   | Yes | Yes |
| *Hymenachne amplexicaulis* | Hymenachne | WoNS R | Yes | Yes |
| *Hypericum androsaemum* | Tutsan | C | Yes | Yes |
| *Hypericum perforatum subsp. veronense* | St John's Wort | C | Yes | Yes |
| *Ixia maculata* | Yellow Ixia |   | Yes | Yes |
| *Juncus acutus subsp. acutus* | Spiny Rush |   | Yes | Yes |
| *Ligustrum lucidum* | Large-leaf Privet |   | Yes | Yes |
| *Ligustrum sp.* | Privets |   | Yes | Yes |
| *Ligustrum vulgare* | European Privet |   | Yes | Yes |
| *Lycium ferocissimum* | African Box-thorn | WONS, C | Yes | Yes |
| *Malus spp.* | Apple |   | Yes | No |
| *Melaleuca armallaris* | Honey myrtle |   | Yes | Yes |
| *Moraea flaccida (Sweet)*  | Cape Tulip (one-leaf) | C | Yes | Yes |
| *Moraea miniata* | Cape Tulip (two-leaf) | C | Yes | Yes |
| *Nassella neesiana* | Chilean Needle-grass | R | Yes | Yes |
| *Nassella trichotoma* | Serrated Tussock | C | Yes | Yes |
| *Opuntia robusta*  | Wheel Cactus | P | Yes | Yes |
| *Phytolacca octandra* | Red-ink Weed |   | Yes | Yes |
| *Pinus pinaster* | Cluster Pine |   | Yes | Yes |
| *Pinus radiata* | Radiata Pine |   | Yes | No |
| *Pittosporum undulatum* | Sweet Pittosporum |   | Yes | Yes |
| *Populus alba* | White Poplar |   | Yes | No |
| *Populus nigra 'Italica'* | Lombardy Poplar |   | Yes | No |
| *Prunus spp.* | Cherry-plum |   | Yes | Yes |
| *Quercus spp.* | Oak |   | Yes | No |
| *Rosa rubiginosa* | Sweet Briar |   | Yes | Yes |
| *Rubus anglocandicans* | Common Blackberry |   | Yes | Yes |
| *Rubus fruticosus spp. agg.* | Blackberry | WoNS, C | Yes | Yes |
| *Rubus polyanthemus* | Forest Blackberry |   | Yes | Yes |
| *Rubus spp.* | Rubus sp. |   | Yes | Yes |
| *Rubus ulmifolius var. ulmifolius* | Elm-leaf Blackberry |   | Yes | Yes |
| *Rubus vestitus* | Blackberry |   | Yes | Yes |
| *Salix cinerea* | Grey Sallow |   | Yes | Yes |
| *Salix spp. (except Salix alba var. caerulea (Sm.) Sm., Salix alba x matsudana, Salix babylonica L., Salix X calodendron Wimm., Salix caprea L. 'Pendula', Salix matsudana Koidz 'Aurea', Salix matsudana Koidz 'Tortuosa'., Salix myrsinifolia Salisb., and Salix X reichardtii A. Kern.)* | Willows | R | Yes | Yes |
| *Schinus molle* | Pepper Tree |   | Yes | Yes |
| *Senecio angulatus* | Climbing Groundsel |   | Yes | Yes |
| *Senecio jacobaea* | Ragwort | C | Yes | Yes |
| *Solanum mauritianum* | Wild Tobacco Tree |   | Yes | Yes |
| *Solanum pseudocapsicum* | Madeira Winter-cherry |   | Yes | Yes |
| *Tradescantia fluminensis* | Wandering Trad |   | Yes | Yes |
| *Tritonia crocata* | Orange Tritonia |   | Yes | Yes |
| *Vinca major* | Blue Periwinkle |   | Yes | Yes |
| *Watsonia meriana var. bulbillifera* | Wild Watsonia, Bulbil Watsonia | C | Yes | Yes |
| **Terrestrial Fauna** |  |  |  |  |
| *Canis lupus familiaris* | Wild Dog |   | Yes | Yes |
| *Oryctolagus cuniculus* | European Rabbit | EP | Yes | Yes |
| *Sus scrofa* | Feral pig | EP | Yes | Yes |
| *Capra hircus* | Feral goat | EP | Yes | Yes |
| **Pathogens** |  |  |  |  |
| *Daktulosphaira vitifoliae* | Grape Phylloxera |   | No | Yes |
| *Phytophthora cinnamomi* | Cinnamon Fungus |   | Yes | Yes |

### Asset-based management

Species in this category are well established across Nillumbik, with eradication or containment being unrealistic. Species that are listed under asset-based managenment are a low priority for action, except in the protection of high value biodiversity or agricultural assets. Actions for this category are as follows:

* Incorporate control of the species into work plans for the protection of high value assets.
* Otherwise remove in the course of routine maintenance, depending on the resources available.

New and emerging high threat invasive species are targeted for prevention and eradication. Established high threat invasive species are either contained to prevent further spread or managed to protect high value assets.

| **Scientific name** | **Common name** | **Status****CaLP Act Category and/or WoNS** | **Status****Take action if affecting Bushland Assets** | **Status****Take action if affecting Agricultural Assets** |
| --- | --- | --- | --- | --- |
| **Flora** |  |  |  |  |
| *Acacia baileyana* | Cootamundra Wattle |  | Yes | Yes |
| *Acacia decurrens* | Early Black Wattle |   | Yes | Yes |
| *Acacia elata* | Cedar Wattle |   | Yes | Yes |
| *Acacia floribunda* | White Sallow Wattle |   | Yes | Yes |
| *Acacia howitti* | Sticky Wattle |   | Yes | Yes |
| *Acacia iteaphylla* | Flinders Ranges Wattle |   | Yes | Yes |
| *Acacia longifolia var. longifolia* | Sallow Wattle |   | Yes | Yes |
| *Acacia pravissima* | Ovens Wattle |   | Yes | Yes |
| *Acacia retinodes var. retinodes* | Wirilda |   | Yes | Yes |
| *Acacia saligna* | Golden Wreath Wattle |   | Yes | Yes |
| *Acer negundo* | Box-elder Maple |   | Yes | Yes |
| *Acer pseudoplatanus* | Sycamore Maple |   | Yes | Yes |
| *Acetosa sagittata* | Rambling Dock |   | Yes | Yes |
| *Acetosella vulgaris* | Sheep Sorrel |   | Yes | Yes |
| *Agapanthus praecox subsp. orientalis* | Agapanthus |   | Yes | Yes |
| *Agrostis capillaris var. capillaris* | Brown-top Bent |   | Yes | Yes |
| *Agrostis spp.* | Bent Grasses |   | Yes | Yes |
| *Alisma lanceolata* | Water plantain |   | Yes | Yes |
| *Allium triquetrum* | Angled Onion | S | Yes | Yes |
| *Alternthus sp* | Amaranth |   | Yes | Yes |
| *Anagallis arvensis* | Scarlet Pimpernel |   | Yes | Yes |
| *Anthoxanthum odoratum* | Sweet Vernal-grass |   | Yes | Yes |
| *Araujia sericifera* | Cruel Plant |   | Yes | Yes |
| *Arctotheca calendula* | Cape Weed |   | Yes | Yes |
| *Asparagus asparagoides* | Smilax/Bridal Creeper | WONS, R | Yes | Yes |
| *Aster subulatus* | Aster-weed |   | Yes | Yes |
| *Atriplex prostrata* | Hastate Orache |   | Yes | Yes |
| *Avena barbata* | Bearded Oat |   | Yes | Yes |
| *Avena fatua* | Wild Oat |   | Yes | No |
| *Avena sativa* | Oat |   | Yes | No |
| *Briza maxima* | Large Quaking-grass |   | Yes | Yes |
| *Briza minor* | Lesser Quaking Grass |   | Yes | Yes |
| *Bromus catharticus* | Prairie Grass |   | Yes | No |
| *Bromus diandrus* | Great Brome |   | Yes | No |
| *Bromus hordeaceus subsp. hordeaceus* | Soft Brome |   | Yes | No |
| *Capsella bursa-pastoris* | Shephard’s Purse |   | Yes | Yes |
| *Carduus pycnocephalus* | Slender Thistle |   | Yes | Yes |
| *Carduus tenuiflorus* | Winged Slender-thistle | C | Yes | Yes |
| *Centaurium spp* | Centaury |   | Yes | Yes |
| *Chamaecytisus proliferus* | Tree Lucerne |   | Yes | Yes |
| *Chenopodium album* | Fat Hen |   | Yes | Yes |
| *Cirsium vulgare* | Spear Thistle | C | Yes | Yes |
| *Conium maculatum* | Hemlock | C | Yes | Yes |
| *Conzya sp* | Fleabanes |   | Yes | Yes |
| *Coprosma repens* | Mirror-bush |   | Yes | Yes |
| *Cotoneaster sp* | Cotoneasters |   | Yes | Yes |
| *Crataegus monogyna* | Hawthorn | C | Yes | Yes |
| *Cupressus macrocarpa* | Monterey Cypress |   | Yes | Yes |
| *Cynodon dactylon var. dactylon* | Couch |   | Yes | Yes |
| *Cynosurus cristatus* | Crested Dog's-tail |   | Yes | Yes |
| *Cynosurus echinatus* | Rough Dog's-tail |   | Yes | Yes |
| *Cyperus eragrostis* | Drain Flat-sedge |   | Yes | Yes |
| *Dactylis glomerata* | Cocksfoot |   | Yes | No |
| *Daucus carota* | Carrot |   | Yes | Yes |
| *Digitalis purpurea* | Foxglove |   | Yes | Yes |
| *Digitaria sanguinalis* | Summer Grass |   | Yes | Yes |
| *Dipogon lignosus* | Common Dipogon |   | Yes | Yes |
| *Dipsacus fullonum spp. Fullonum* | Wild Teasel | C | Yes | Yes |
| *Dodonaea viscosa 'Purpurea'* | Purple Hop-bush |   | Yes | Yes |
| *Egeria densa* | Dense Waterweed |   | Yes | Yes |
| *Ehrharta calycina* | Perennial Veldt-grass |   | Yes | Yes |
| *Ehrharta erecta var. erecta* | Panic Veldt-grass |   | Yes | Yes |
| *Ehrharta longiflora* | Annual Veldt-grass |   | Yes | Yes |
| *Elytrigia repens* | English Couch |   | Yes | Yes |
| *Erica lusitanica* | Spanish Heath |   | Yes | Yes |
| *Eucalyptus cladocalyx* | Sugar Gum |   | Yes | Yes |
| *Euphorbia lathyris* | Caper Spurge |   | Yes | Yes |
| *Euphorbia sp.* | Spurges |   | Yes | Yes |
| *Festuca arundinacea* | Tall Fescue |   | Yes | Yes |
| *Foeniculum vulgare* | Fennel | R | Yes | Yes |
| *Freesia alba x Freesia leich* | Freesia hybrid |   | Yes | Yes |
| *Freesia sp.* | Freesias |   | Yes | Yes |
| *Fumaria sp.* | Fumitory |   | Yes | Yes |
| *Galium aparine* | Cleavers |   | Yes | Yes |
| *Geranium dissectum* | Cut-leaf Cranes Bill |   | Yes | Yes |
| *Geranium molle* | Dove's Foot |   | Yes | Yes |
| *Gladiolus spp.* | Gladiolus |   | Yes | Yes |
| *Gladiolus tristis* | Evening-flower Gladiolus |   | Yes | Yes |
| *Grevillea rosmarinifolia hybrids* | Rosemary Grevillea hybrids |   | Yes | Yes |
| *Hainardia cylindrica* | Common Barb-grass |   | Yes | Yes |
| *Hakea salicifolia* | Willow hakea |   | Yes | Yes |
| *Hedera helix* | Ivy |   | Yes | Yes |
| *Helminthotheca echioides* | Ox-tongue |   | Yes | Yes |
| *Hemerocallis fulva* | Day Lily |   | Yes | Yes |
| *Holcus lanatus* | Yorkshire Fog |   | Yes | No |
| *Homeria sp.* | Cape Tulip | C | Yes | Yes |
| *Hordeum leporinum* | Barley-grass |   | Yes | No |
| *Ilex aquifolium* | English Holly |   | Yes | Yes |
| *Ipomoea indica* | Morning Glory |   | Yes | Yes |
| *Iris germanica* | German Iris |   | Yes | Yes |
| *Iris sp.* | Iris |   | Yes | Yes |
| *Ixia polystachya* | Variable Ixia |   | Yes | Yes |
| *Juncus bulbosus* | Bulbous Rush |   | Yes | Yes |
| *Lactuca serriola* | Prickly Lettuce |   | Yes | Yes |
| *Lonicera fragrantissima* | Winter Honeysuckle |   | Yes | Yes |
| *Lonicera japonica* | Japanese Honeysuckle |   | Yes | Yes |
| *Malva neglecta* | Dwarf Mallow |   | Yes | Yes |
| *Marrubium vulgare* | Horehound | C | Yes | Yes |
| *Medicago lupulina* | Black Medic |   | Yes | Yes |
| *Melaleuca hypericifolia* | Hillock Bush |   | Yes | Yes |
| *Mentha pulegium* | Pennyroyal |   | Yes | Yes |
| *Mentha spicata* | Spearmint |   | Yes | Yes |
| *Misgurnus anguillicaudatus* | Oriental Weatherloach |   | Yes | Yes |
| *Myosotis discolor* | Yellow-and-blue Forget-me-not |   | Yes | Yes |
| *Myriophyllum aquaticum* | Parrot's Feather |   | Yes | Yes |
| *Narcissus tazetta* | Tazetta |   | Yes | Yes |
| *Nasturtium officinale* | Watercress |   | Yes | Yes |
| *Onopordum acanthium* | Scotch Thistle, Heraldic Thistle | P | Yes | Yes |
| *Onopordum acaulon L.* | Stemless Thistle | P | Yes | Yes |
| *Onopordum illyricum L.* | Illyrian Thistle | P | Yes | Yes |
| *Opuntia stricta* | Common Prickly-pear | C | Yes | Yes |
| *Opuntia vulgaris* | Drooping Prickly-pear | C | Yes | Yes |
| *Oxalis pes-caprae* | Soursob | R | Yes | Yes |
| *Oxalis spp.* | Oxalis sp. |   | Yes | Yes |
| *Papaver somniferum* | Opium Poppy |   | Yes | Yes |
| *Parentucellia viscosa* | Yellow Bartsia |   | Yes | Yes |
| *Paspalum dilatatum* | Paspalum |   | Yes | Yes |
| *Paspalum distichum* | Water Couch |   | Yes | Yes |
| *Passiflora caerulea* | Blue Passion-fruit |   | Yes | Yes |
| *Passiflora mollissima* | Banana Passion-fruit |   | Yes | Yes |
| *Pennisetum clandesrinum* | Kikuyu |   | Yes | Yes |
| *Pennisetum villosum* | Long-style Feather Grass |   | Yes | Yes |
| *Phalaris aquatica* | Toowoomba Canary-grass |   | Yes | Yes |
| *Phalaris coerulescens* | Blue Canary-grass |   | Yes | Yes |
| *Phalaris minor* | Lesser Canary-grass |   | Yes | Yes |
| *Phalaris spp.* | Canary Grass |   | Yes | Yes |
| *Phleum pratense* | Timothy Grass |   | Yes | Yes |
| *Poa pratensis* | Kentucky Blue-grass |   | Yes | Yes |
| *Polygala myrtifolia* | Myrtle-leaf Milkwort |   | Yes | Yes |
| *Polygonum arenastrum* | Wireweed |   | Yes | Yes |
| *Ranunculus repens* | Creeping Buttercup |   | Yes | Yes |
| *Ranunculus spp.* | Buttercup sp. |   | Yes | Yes |
| *Rhamnus alaternus* | Italian Blackthorn |   | Yes | Yes |
| *Scolymus hispanicus* | Golden Thistle | C | Yes | Yes |
| *Senecio vulgaris* | Common Groundsel |   | Yes | Yes |
| *Setaria spp.* | Fox-tail Grasses |   | Yes | Yes |
| *Silybum marianum* | Variegated Thistle | C | Yes | Yes |
| *Sisymbrium orientale* | Indian Hedge-mustard |   | Yes | Yes |
| *Solanum nigrum s.s.* | Black Nightshade |   | Yes | Yes |
| *Sonchus asper s.l.* | Rough Sow-thistle |   | Yes | Yes |
| *Sonchus oleraceus* | Common Sow-thistle |   | Yes | Yes |
| *Sporobolus africanus* | Rat-tail Grass |   | Yes | Yes |
| *Stenotaphrum secundatum* | Buffalo Grass |   | Yes | Yes |
| *Taraxacum Sect. Ruderalia* | Garden Dandelion |   | Yes | Yes |
| *Tradescantia fluminensis* | Wandering Creeper |   | Yes | Yes |
| *Trifolium spp.* | Trifolium sp. |   | Yes | Yes |
| *Typha latifolia* | Lesser Reedmace |   | Yes | Yes |
| *Ulmus procera* | Common Elm |   | Yes | Yes |
| *Urtica dioica* | Giant Nettle |   | Yes | Yes |
| *Verbascum blattaria* | Moth Mullein |   | Yes | Yes |
| *Verbascum virgatum* | Twiggy Mullein |   | Yes | Yes |
| *Verbena bonariensis s.l.* | Purple-top Verbena |   | Yes | Yes |
| *Verbena incompta* | Purple-top |   | Yes | Yes |
| *Vicia sativa subsp. cordata* | Common Vetch |   | Yes | Yes |
| *Vulpia bromoides* | Squirrel-tail Fescue |   | Yes | Yes |
| *Vulpia muralis* | Wall Fescue |   | Yes | Yes |
| *Vulpia myuros f. megalura* | Fox-tail Fescue |   | Yes | Yes |
| *Vulpia myuros f. myuros* | Rat's-tail Fescue |   | Yes | Yes |
| *Vulpia spp.* | Fescues |   | Yes | Yes |
| *Zantedeschia aethiopica* | White Arum Lily |   | Yes | Yes |
| **Terrestrial Fauna** |  |  |  |  |
| *Acridotheres tristis* | Common Myna |   | Yes | Yes |
| *Alauda arvensis* | European Skylark |   | Yes | Yes |
| *Anas platyrhynchos* | Northern Mallard |   | Yes | Yes |
| *Cervus elaphus* | Red Deer |   | Yes | Yes |
| *Persicaria maculosa* | Redshank |   | Yes | Yes |
| *Rattus norvegicus* | Brown Rat |   | Yes | Yes |
| *Rattus rattus* | Black Rat |   | Yes | Yes |
| *Streptopelia chinensis* | Spotted Turtle-Dove |   | Yes | Yes |
| *Sturnus vulgaris* | Common Starling |   | Yes | Yes |
| *Turdus merula* | Common Blackbird |   | Yes | Yes |
| *Vulpes vulpes* | Red Fox |   | Yes | Yes |
| *Oryctolagus cuniculus* | European Rabbit | EP | Yes | Yes |
| *Lepus europeaus* | European Hare |   | Yes | Yes |
|  | Feral cats | EP | Yes | Yes |
|  | European wasps |   | Yes | Yes |
|  | Tramp ants |   | Yes | Yes |
|  | Indian Myna  | EP | Yes | Yes |
| **Aquatic Fauna** |  |  |  |  |
| *Carassius auratus* | Goldfish |   | Yes | Yes |
| *Cyprinus carpio* | Carp |   | Yes | Yes |
| *Gambusia holbrooki* | Eastern Gambusia |   | Yes | Yes |
| *Misgurnus anguillicaudatus* | Oriental Weatherloach |   | Yes | Yes |
| *Oncorhynchus mykiss* | Rainbow Trout |   | Yes | Yes |
| *Perca fluviatilis* | Redfin |   | Yes | Yes |
| *Rutilus rutilus* | Roach |   | Yes | Yes |
| *Salmo trutta* | Brown Trout |   | Yes | Yes |

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