

Rabbit Action Plan



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Photos by: Amanda Rebbechi



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Executive summary

Rabbits are a major threat to biodiversity and agricultural production in Nillumbik. They have a significant impact on the economy, the environment and community.

The management of rabbits is driven by state and federal legislation and policies including the legal requirement, under the *Catchment and Land Protection Act 1994*, for landowners to control and prevent the spread of rabbits.

This Rabbit Action Plan and all rabbit control activities undertaken by Nillumbik Shire Council operate within this context.

Council has three distinct aspects to its role in rabbit management across Nillumbik – to manage rabbits on Council land, to support the community to undertake effective rabbit control and to assist public and private landholders to achieve coordinated rabbit control.

Rabbits require ongoing management on both public and private land across Nillumbik. Currently eradication of rabbits in Nillumbik is not feasible. Resources are limited and are not sufficient to deal with all rabbit management problems. This plan ensures the strategic allocation of resources.

The overarching vision established by this plan is to achieve effective rabbit control in Nillumbik in order to protect areas of high biodiversity, productive agricultural land and community facilities under threat of damage by rabbits.

Four key objectives guide the strategic implementation of this vision in Nillumbik:

1. To reduce the impact of rabbits on high value biodiversity, agricultural and community assets.
2. To achieve community awareness of the rabbit problem and increase skills and knowledge to enable the community to undertake effective rabbit control.
3. To foster cooperative rabbit control across property boundaries.
4. To better understand the rabbit problem in Nillumbik and achieve continuous improvement in rabbit management.

Effective rabbit control is an integral part of good land management. This plan will be used in conjunction with Council's other land management strategies including the *Weed Action Plan (2008)*.



1. Introduction

The Port Phillip and Westernport Catchment Management Authority (PPWCMA) identifies the long-standing impact of rabbits on biodiversity, farm profitability, soil stability, native vegetation, parks, gardens and water quality as one of the major land management issues in this region.

The *Port Phillip and Westernport Rabbit Action Plan* (PPWCMA 2003), identifies a large proportion of Nillumbik as being a high priority zone for rabbit control and for an enhanced level of government service.

A number of different pest animals occur in Nillumbik including rabbits, foxes, feral cats and deer. This plan

focuses on rabbits as they are widely acknowledged to have the most significant impact on biodiversity and agricultural values in the Shire.

The development of this plan responds to the actions and objectives outlined in the *Nillumbik Environment Strategy* (NSC 2001). This plan has been prepared by Council with input from members of the community, other council's and state agencies. This combined effort is gratefully acknowledged.

This plan aims to target the available resources to the priority areas and to management activities that will be most effective.

2. The rabbit problem

Rabbit distribution and abundance in Nillumbik

The European rabbit (*Oryctolagus cuniculus*) is commonly found across Nillumbik.

Landowners from a range of property types across Nillumbik including farmland, rural residential and national park were contacted as part of this study. All landholders identified rabbits as a significant problem in their area.

The large number of complaints to Council about rabbits on private and public land is also an indication that they are widespread in significant numbers across all areas.

Rabbit impact

Rabbits are among Australia's most serious vertebrate pests because of their impact on native flora and fauna, as well as on agricultural and pastoral industries (DEWHA 2008).

As a major environmental and agricultural pest in Nillumbik they:

- overgraze and damage native vegetation, pasture, parks, gardens, sports fields and horticultural crops
- inhibit regeneration of native vegetation by altering the composition and structure of native vegetation communities and the native fauna they support (in times of drought they will feed on tree foliage and ringbark trees in search of moisture)
- compete with native fauna such as kangaroos and wallabies for food and shelter
- destroy the grassland habitat of ground mammals and birds
- facilitate weed invasion by overgrazing and exposing soils, dispersing seeds and hindering natural regeneration
- cause soil erosion and damage stream banks leading to reduced water quality.

Competition and land degradation by rabbits is listed as a key threatening process under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).



3. Context

The Background Paper accompanying this plan provides further detailed information in relation to legislation, planning and responsibilities associated with rabbit control.

Nillumbik's natural environment

The Shire of Nillumbik covers an area of almost 432 square kilometres and is characterised by rural landscapes, bushland and some suburban residential areas.

The majority of Nillumbik (91 per cent) is Green Wedge land with a range of land uses including rural residential (approximately 47 per cent or 18,664 hectares), agricultural (20 per cent or 8,035ha) and conservation and recreation land in public ownership (20 per cent or 8,035ha).

There are significant areas of agricultural land in Doreen, Arthurs Creek and Strathewen, which are classed as having average agricultural value. The most productive agricultural land is around Kangaroo Ground and while there is some farming in this area, it is predominantly rural residential and vacant rural.

Conservation land is primarily in the east and north of the Shire and includes Kinglake National Park, Parks Victoria reserves along the Yarra and Plenty Rivers, Panton Hill Bushland Reserve System and Warrandyte-Kinglake Conservation Reserve. In addition roadside reserves and private land contain significant areas of high conservation value land.

An approximation of private land with conservation value is 16,796 ha or 43 per cent of the Green Wedge land. A number of sites of national and state biological significance are located on private land. The extent

of valuable conservation land in private ownership indicates that proper management of conservation values including rabbit control must have considerable regard for private land and not just public reserves. An extensive area of Nillumbik still retains native vegetation cover and includes a number of threatened ecological vegetation classes and threatened flora and fauna species listed under the *Flora and Fauna Guarantee Act 1988*. Undisturbed areas are rich in indigenous understorey species, especially terrestrial orchids. Over 100 different orchid species occur within the Shire which represents over 30 per cent of Victoria's orchid species. These ground storey plants are particularly susceptible to destruction by rabbits.

The soil type and steep topography make most areas very susceptible to soil erosion and this can be easily exacerbated by rabbits and inappropriate land management practices.

Community

The Shire of Nillumbik has an estimated population of 62,310 people. There is a community culture of environmental appreciation and responsibility, innovation and creativity. The natural environment of Nillumbik is a significant reason for people deciding to live and work in the Shire. The community has a record of active participation in environmental management, education and works programs in the pursuit of the sustainable management of natural resources and protection of conservation values.

Rabbits have a significant impact on our natural biodiversity. It takes less than one rabbit per hectare to prevent the successful regeneration of many of our common native trees and shrubs. This means that many rabbit-infested patches of remnant vegetation cannot sustain themselves naturally and are in slow decline (Cooke 2008).

On agricultural properties rabbits compete with livestock for available food and damage crops, therefore causing significant economic impacts.

The food and shelter (woodheaps, rubbish piles, buildings) available in urban and semi-urban areas makes rabbits a significant problem in these areas as well. They damage domestic and public gardens and create unsafe surfaces on sports fields.

Rabbit biology

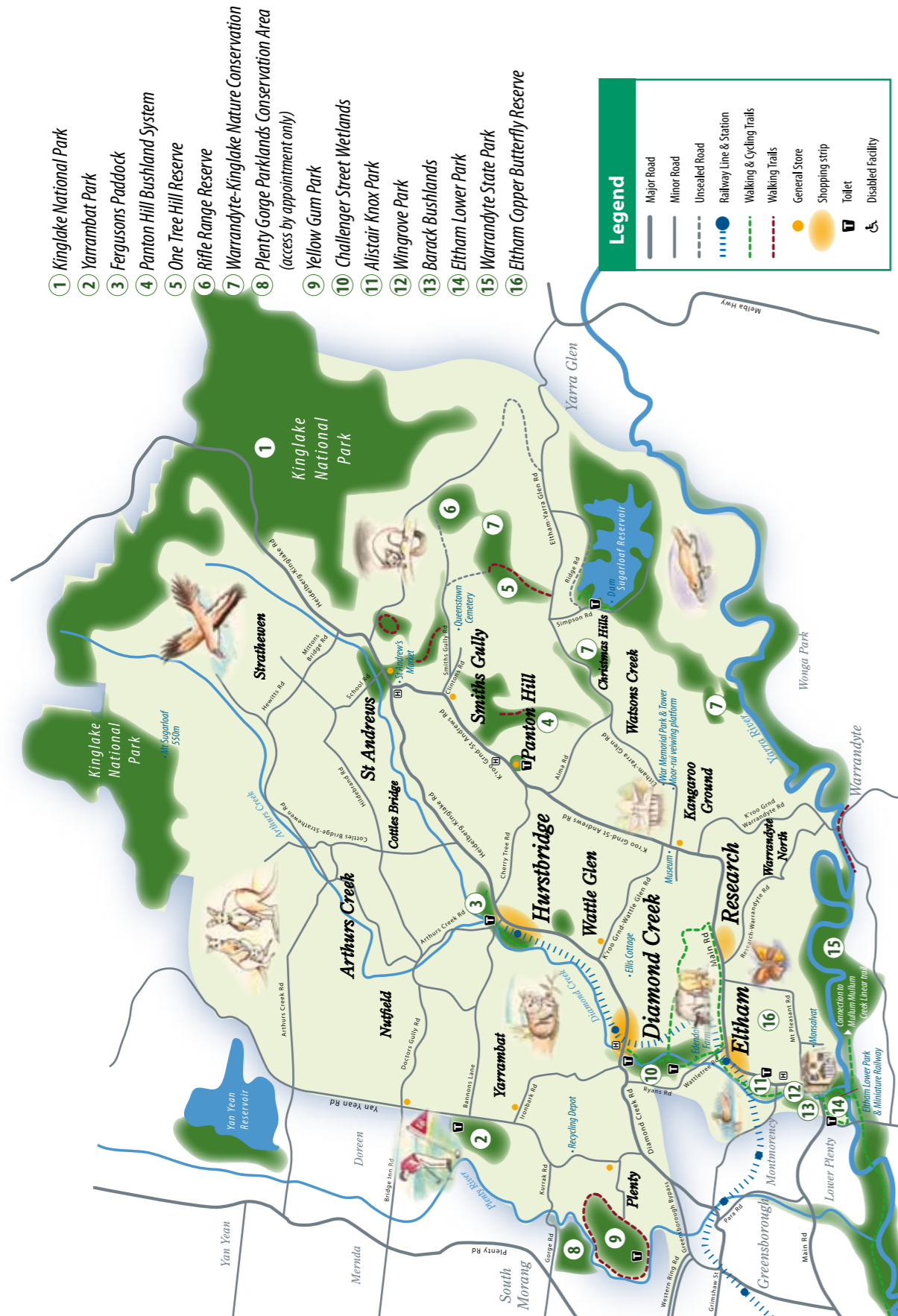
The success of the rabbit in Australia can be attributed to a number of factors, including small body size, which allows the animals to select high-quality feed under favourable conditions, and the use of warrens, which help to protect them from predators and climatic extremes. Rabbits breed rapidly and can take over a wide range of habitats.

Although they have well-defined home ranges, rabbits will search outside these, when food is scarce. Their gestation period is 28-30 days, and an average litter size is six kittens. As many as nine litters are possible in a good season. Breeding is confined to periods of the year when fresh, growing pasture is available.

Foxes are natural predators of rabbits. The potential impacts on rabbit numbers as a result of fox control programs should be considered when implementing any fox control programs.

Six rabbits equal one dry sheep equivalent, meaning that six rabbits will consume the same amount of pasture as one sheep per day (DEWHA 2008a).

Map of Nillumbik Shire showing larger reserves



Legislation and policy context

The key legislation and strategies relevant to rabbit management in Nillumbik are listed below. For further detail about relevant provisions see the Background paper.

Level	Legislation	Strategies
National Australian Government	<i>Environment Protection and Biodiversity Conservation Act 1999</i>	Australian Pest Animal Strategy 2007 Threat Abatement Plan for Competition and Land Degradation by Rabbits 2008 National Strategy for the Conservation of Australian Biological Diversity 1996 Australia's Biodiversity Conservation Strategy 2010–2020 Draft 2009
State Victorian Government	<i>Catchment and Land Protection Act 1994</i> <i>Flora and Fauna Guarantee Act 1988</i> <i>Local Government Act 1989</i>	Victorian Pest Management: A Framework for Action 2002 Victorian Pest Management: Rabbit Management Strategy 2002 Victorian Pest Management: Public Land Pest Management Strategy 2002 Victoria's Biodiversity Strategy 1997 Victoria's Environmental Sustainability Framework 2005 State of the Environment Report 2008
Regional Port Phillip and Westernport Catchment Management Authority		Port Phillip and Westernport Regional Catchment Strategy 2004–2009 Port Phillip and Westernport Rabbit Action Plan 2003
Local Nillumbik Shire Council	Nillumbik Planning Scheme	Council Plan 2009–2013 Nillumbik Environment Strategy 2001 Green Wedge Management Plan (in preparation) Roadside Management Plan 1997 Individual Reserve Management Plans Weed Action Plan 2008 Open Space Strategy 2005

Roles and responsibilities

Landowners – Under the *Catchment and Land Protection Act 1994* (CaLP Act) a landowner must take all reasonable steps to eradicate rabbits and prevent their spread (Section 20 (1) (f)).

A landowner must also take all reasonable steps to avoid causing or contributing to land degradation, to conserve soil and to protect water resources.

Roadsides – Nillumbik Shire contains approximately 1200km of non-urban road reserves. VicRoads (or local government acting as its agent) has responsibility for managing rabbits on declared roads which includes freeways, highways, main roads and tourist roads.

On other (local) roads the responsibility for rabbit control on road reserves is currently under debate as to whether responsibility lies with local government or with the adjoining landowner. The Victorian Government and the Municipal Association of Victoria -representing local government – are in ongoing discussions about this matter.

Nillumbik Shire Council is responsible for controlling rabbits on land that it owns and manages which includes environmental reserves, sporting and recreation reserves, parks and facilities. Council owns approximately two per cent of the land within the Shire as well as being delegated manager for 21 parcels of Crown land as a designated Committee of Management.

Parks Victoria manages the major parks of Kinglake National Park, Warrandyte State Park, Yarra Valley and Plenty Gorge Parklands as well as conservation reserves such as Warrandyte-Kinglake Nature Conservation Reserve and smaller reserves such as Yarrambat Park.

Council is responsible for assessing planning permit applications. A planning permit may be required for rabbit control works that involve significant soil disturbance/earthworks such as ripping of warrens. Advice should be sought from Council's Statutory Planning Unit by calling 9433 3111.

Department of Sustainability and Environment (DSE) is responsible for management of pest animals on public land. In Nillumbik this includes some areas of public land that are unreserved Crown Land without designated committees of management.

The DSE *Good Neighbour Program* provides additional resources to target rabbit control work in areas which are impacting adjoining private land particularly where neighbours are also undertaking rabbit control.

Department of Primary Industries (DPI) is now the lead agency responsible for pest animal policy as well as oversight of legislation and implementation of programs for pest management on private land. The prevention of new pest species through a biosecurity approach is the focus of the Department's work.

The Department of Primary Industries' website contains information on effective land management including information for new rural landholders and small property management and specific technical information about rabbit control.

Port Phillip and Westernport Catchment Management Authority (PPWCA) has responsibility to develop and implement the *Regional Catchment Strategy* and associated Action Plans. The Authority guides priorities for land, waterway and coastal management through advice to Victorian and Australian governments on regional priorities for funding.

The authority coordinates the Community Grants Program which provides funding support for sustainable land management projects including rabbit management.

VicTrack is responsible for managing rail infrastructure in Victoria including land along and adjacent to railway tracks. Some of this land is leased for specific community or business purposes. In many cases in the metropolitan area, the land adjacent to the rail tracks is leased and managed by the transport service provider and their maintenance company (MetroTrains and Mainco at the time of writing). Pest animal control is undertaken on an as-needs basis.



Melbourne Water has an important role in reducing the impact of rabbits along rivers, streams and in the catchment areas that it manages. In Nillumbik this includes the Diamond Creek, Yarra River, Plenty River, Watsons Creek and Sugarloaf Reservoir.

As the regional waterway manager, Melbourne Water provides funding and technical assistance through the *Stream Frontage Management Program* to assist private landholders with management of degraded rural stream frontages. Rehabilitation of stream verge areas is an urgent priority. Extensive rabbit activity in the bed and banks of a stream or tributary is the responsibility of the Drains and Creeks Management Team.

The Community Grants Program is a joint program between Melbourne Water and the Port Phillip and Westernport Catchment Management Authority.

Melbourne Water contributes funding to the PPWCA Community Grants Program to support community groups, local councils and other public land managers to protect and improve local rivers and creeks.

Under the *Corridors of Green Program*, Melbourne Water funds local councils and other agencies to implement on-ground projects, such as planting along rivers and creeks.

Melbourne Water will consider funding rabbit control work through these grants programs if it is undertaken on a partnership basis with neighbouring landowners and if the work covers a large enough area to make it effective.

Melbourne Water is currently working with Nillumbik Shire Council to implement a joint program along Diamond Creek as part of a capital project.

Enforcement

The Department of Primary Industries has responsibility for enforcement of rabbit control under the CaLP Act, however in practical terms the Department's resources are very limited for this role in Nillumbik.

Nillumbik Shire Council cannot undertake enforcement of the CaLP Act.

A few local councils including Manningham City Council have adopted local laws under the *Local Government Act 1989*, enabling them to prosecute landowners who fail to carry out the required rabbit control work. A few cases have been prosecuted in Manningham, where rabbit numbers have been very high and education and a group approach has not been successful.



4. Current approach in Nillumbik

Council has responsibility to control rabbits on land that it owns and manages. Council also supports private land owners to fulfil their responsibilities to control rabbits on their land and to facilitate coordinated rabbit control across public and private land.

Additional detail of current rabbit control activities is provided in the Background Paper.

Rabbit control on Council land

The majority of rabbit control undertaken by Council is in environmental reserves managed by the Environmental Works Unit. Council has approximately 650 hectares of environmental reserves and 800km of environmentally significant roadsides. Rabbit control is currently undertaken at Hohnes Hill, Heard Avenue, Barrak Bushlands and Professors Hill reserves. Council has approximately 76 environmental reserves.

The Environmental Works Unit has an annual budget of approximately \$15,000 for rabbit control in environmentally sensitive reserves. This does not allow rabbit control in all reserves. Priorities are to follow-up work where rabbit control has been undertaken; reserves with significant flora; creek areas where rabbits are causing soil erosion, and locations where joint projects can be organised.

Rabbit control in other parks, reserves and playgrounds is undertaken by the Infrastructure Maintenance Unit from its general maintenance budget and is usually in response to a specific request.

The Leisure Services Unit has been installing rabbit proof fencing around sporting ovals to prevent rabbit damage of playing surfaces. Currently four ovals have been fenced and it is proposed to continue this program as funds become available.

Rabbit control is currently not a requirement on Council land that is leased to sporting clubs such as horse and pony clubs. The Yarrambat Park Golf Course maintenance contractor undertakes both rabbit baiting and shooting as part of the contract with Council.

Council's Environmental Works Unit supports the efforts of Friends Groups working in Council owned or managed reserves. Friends Groups provide a valuable contribution and without the assistance of these groups Council would not be able to maintain and enhance many of the reserves in Nillumbik. Friends Groups generally do not undertake rabbit control but they may map rabbit warrens and monitor rabbit numbers and impact.

Council support for rabbit control on private land

Many landholders in Nillumbik undertake rabbit control on their properties without any assistance from Council. A number of landholders participate in a Rabbit Action Group or Landcare Group. Council has developed a range of programs, incentives and education initiatives to assist private landholders to achieve more sustainable land management practices including the following:

Community Rabbit Control Program

Broad-scale simultaneous rabbit control across a large area (usually requiring participation of a number of properties) is the most effective way of reducing rabbit populations. To this end, Nillumbik introduced the Community Rabbit Control Program in 1996 to encourage landowners to work together to undertake rabbit control.

Council provides support to private landowners who work with their neighbours as part of a Rabbit Action Group to undertake coordinated rabbit control. Council assistance has varied over the years depending on resources. It has included subsidies for rabbit control works, assistance in forming and operating groups, technical advice and training. Currently Council has approximately \$5,000 per annum to run this program and approximately \$10,000 for a facilitator.

In the past five years, Council has supported between six and fifteen Rabbit Action Groups and Landcare Groups undertaking rabbit control on private properties each year. The map on the following page shows the approximate locations of these groups. The size and activity of these groups varies. The Background Paper provides information about the activities of specific groups.

Generally, groups undertake a pindone carrot baiting program. Most groups also do harbour removal and some fumigation and warren destruction. In most areas baiting will be done a number of times during the summer/autumn period. All groups must use a licensed contractor for baiting and fumigation except where group members hold an Agricultural Chemical Users Permit (ACUP).

In 2007, Council provided training for members of Rabbit Action Groups to complete a Farm Chemical Users Course focussed on rabbit control techniques. This enabled group members to become ACUP accredited.

In 2006, Council received a grant from PPWCMA for the employment of a Community Rabbit Program Officer. This allowed Council to provide additional support to existing Rabbit Action Groups and assistance to establish new groups.

Funding incentives for coordinated rabbit control are provided through Council's Community Rabbit Control Program and the Landcare Support Grants. Council offers a number of other land management support programs outlined below.

Community Weed Control Program

Council provides a subsidy for landowners who use a licenced contractor to control specified noxious and environmental weeds.

Sustainable Agricultural Rebate

Eligible farms can receive a rate rebate to undertake or maintain works on their property to improve land and water resources and address problems of land degradation. This includes rabbit control as well as other pest animal and noxious and environmental weed control, protection of remnant vegetation, revegetation using indigenous plant species, protection and enhancement of waterways and wetlands and control of erosion.

In addition, properties that are classified as a farm for rating purposes are eligible for the farm rate.

Biodiversity Enhancement Program

This program encourages landowners to protect and enhance native vegetation and habitat for fauna. The program provides either a rate rebate for properties that permanently protect biodiversity with a Trust for Nature covenant, or financial assistance to other landowners who undertake agreed biodiversity enhancement works.

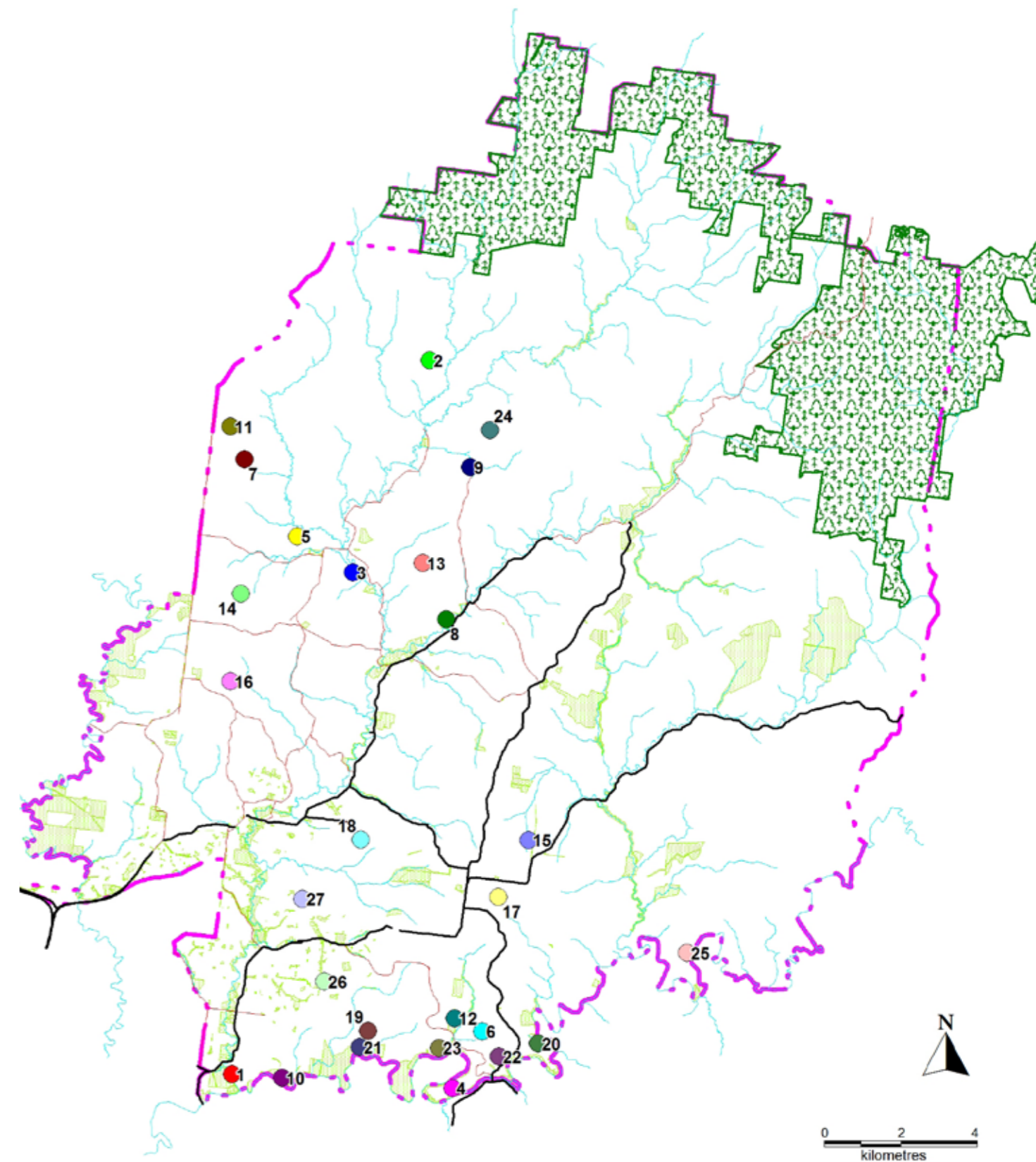
Nillumbik Rabbit Action Groups 2004-2009

The list below includes groups that have been involved in the Community Rabbit Control Program between 2004 and 2009. The level of activity, the area of each group and number of participants are subject to change each year.

Group	Area (ha)	Number participating
1 Antoinette Boulevard	5	8
2 Arthurs Creek	162	17
3 Bannons Lane	126	7
4 Bradleys Lane	51	30
5 Brocks Road	81	5
6 Caloola Drive	16	20
7 Chapel Lane	258	18
8 Cottles Bridge	47	5
9 Cottles Bridge-Strathewen Road	43	6
10 Culla Hill	33	22
11 Daisy Hill	151	20
12 Danita Drive	15	14
13 Dunmoochin	157	23
14 Edward Henty	267	39
15 Garden Hill	195	22
16 Hacketts / De Fredericks Road	1	0
17 Kangaroo Ground	177	18
18 Kangaroo Ground Wattle Glen	27	5
19 Mount Pleasant	284	18
20 Osborne Peninsular Landcare	26	32
21 Overbank Road	124	11
22 Somers Road	9	9
23 The Boulevard	48	17
24 Thomas Road	73	9
25 Upper Catani	28	10
26 View Mount	15	25
27 Wombat Drive	71	27

(Legend for Map on Page 15)

Location of Nillumbik Rabbit Action Groups



Legend corresponds to the Table on Page 14 (the previous page)



Support for community groups

There are currently over 20 active Friends and Landcare Groups in Nillumbik.

Landcare Groups

In the past Council actively supported the Nillumbik Landcare Network until it ceased in mid 2010. Council now supports the WACMAC Landcare Project, as well as providing training and assistance to individual Landcare Groups and funding through the Landcare Support Grants. Landcare Groups promote and facilitate sustainable land management practices on a diverse range of private property in Nillumbik, from broad acre farms to bushland. Common group activities include rabbit control, weed control and revegetation, and rehabilitation of areas affected by soil erosion and salinity.

WACMAC Landcare is a community-based project promoting sustainable land management across the northern rural fringe of Melbourne. It is supported by the Whittlesea Agricultural Society and Arthurs Creek District, Merriang District, Cottles Bridge and Strathewen Landcare Groups as well as the City of Whittlesea and Nillumbik Shire Council. The group employed a coordinator to facilitate demonstration projects, organise events and provide one-on-one technical advice to rural landholders.

The Landcare Support Grants provide locally based incorporated Landcare Groups with grants to develop and implement projects that address land degradation issues and protect and enhance biodiversity. The grant can be used for the purchase of material and equipment, payment of contractors, hire of equipment, promotion or community education.

Landholder extension

The Land Management Officer in the Environmental Planning Unit coordinates the Community Rabbit Control Program and other land management incentives programs, provides sustainable land management advice, and extension to land managers, including technical advice on rabbit control and information about pest animal contractors.

Council also promotes Melbourne Water's Stream Frontage Management Program to local landowners. This program provides funding and technical assistance to assist private landholders with management of degraded rural stream frontages.

WACMAC Landcare provides the Nillumbik community with free Landcare technical advice through individual property visits and regular field days, farm walks, property management planning courses and seminars.

Community education and awareness

Council participates in local field days, festivals and community events to raise awareness and provide information about land management issues to the Nillumbik community. This assists in reaching residents who are not involved in existing networks such as Landcare and Friends Groups.

Community events program and training courses

Council runs regular courses, talks, events and workshops to assist residents in property management planning and in enhancing the natural values of their property.

Programs cover a range of topics, including workshops on property management and whole farm planning as well as property visits and wildlife walks.

Publications, information and website

Council has a number of regular publications which provide information about rabbit control to the community. These include *Nillumbik News* and *Fringe Focus*. Council's website provides information about rabbit control.

School environmental education programs

Council delivers environmental education programs for schools at the Edendale Farm Community Environment Centre. This provides students with information about environmental issues relevant to the local area and to foster an understanding of what students can do to help protect and enhance their local environment.

Partnerships

Environment Advisory Committee

The Environment Advisory Committee is convened by Council and provides advice to Council regarding key environmental issues and the implementation and effectiveness of the Environment Strategy.

Middle Yarra Land Managers Group

Council is an active participant in the Middle Yarra Land Managers Group along with Manningham City Council, Banyule City Council, Maroondah City Council, Shire of Yarra Ranges, Department of Primary Industries, Melbourne Water and Parks Victoria. The group shares information and discusses environmental and sustainable land management issues. A number of joint projects have been undertaken across the region. The group is currently preparing an updated brochure for rabbit control in urban areas.

Collaboration with state government agencies

Council liaises with a number of state agencies to request action at specific sites, arrange joint projects, participate in development of policy and legislation and provide advice on local matters.

Council has undertaken a number of joint projects with Parks Victoria in the vicinity of Warrandyte State Park. Parks Victoria is interested in similar joint projects around the Plenty Gorge Parklands.



5. Analysis of current approach

Many landholders in Nillumbik undertake ongoing effective rabbit control to maintain rabbit numbers at low levels. In some areas rabbit control is only undertaken occasionally, or across a small area and is ineffective. In other areas, no rabbit control is undertaken.

Currently eradication of rabbits in Nillumbik is not feasible. What is realistic and economically feasible and will achieve significant benefits is to undertake sustained rabbit management programs in priority areas, with the aim of reducing rabbit numbers and rabbit impact.

The most appropriate action in any given area will depend on the local circumstances including the characteristics of the area under threat, the nature of the land, available techniques, resources and funding availability and attitude of neighbours. For example, the protection of an endangered plant community or a high value crop may justify the high cost of total eradication and erection of a rabbit proof fence in that area. On the other hand, in a degraded area with no biodiversity value, no productive agricultural activity and no prospect of rehabilitation, there may be little benefit in investing significant resources to manage rabbits (Braysher and Saunders).

A number of improvements could be made to achieve more effective rabbit control in Nillumbik.

Strategic approach

With limited funds and staff time, the allocation of resources in the most effective way is essential. Valuable resources can be wasted if money and time are allocated to short-term and ad-hoc rabbit control efforts. Funds for rabbit control need to be used wisely in the most important areas on long-term, sustained and integrated approaches.

Priority areas

Investment in rabbit control programs should be directed to priority areas including areas with high biodiversity values, productive agricultural land and infrastructure, and assets that are under threat from rabbit damage. The existing Council rabbit control programs do not necessarily target areas of highest priority.

Current resources do not allow rabbit control to be undertaken in all of the high biodiversity environmental reserves managed by Council.

Landholder awareness of responsibilities

Often landowners and residents see it as Council's role to 'fix' the rabbit problem, when it is in fact the landowners legal responsibility to control rabbits on their land. An education and information campaign would raise awareness of landholder responsibilities and encourage action.

Landholder attitude and knowledge

This is the single most important factor in achieving sustained rabbit control. Not only does landholder attitude impact directly on rabbit control, but it can also be frustrating when people feel their efforts are ineffective by the inaction of others.

Some landholders do not manage rabbits on their properties. This may be because they are not aware of their impact, do not see them as a particular problem, are not willing to invest time or money to address the issue, or do not have the skills or experience to undertake rabbit control. Further to this occupiers of rural-residential properties may not see it as necessary to tackle these issues because the land does not provide a major proportion of their income. (NSC 2006)

Education programs and enforcement are valuable in overcoming landholder apathy, ignorance and inaction. Community-building initiatives that bring people together and build networks and goodwill, can successfully tackle complex environmental issues in the local area.

Enforcement

Nillumbik Shire Council does not have the legislative ability to enforce landowners to undertake rabbit control. Under the *Catchment and Land Protection Act 1994*, this is the responsibility of the Victorian Government. Enforcement activity is undertaken by the Department of Primary Industries. The Victorian Pest Management Framework acknowledges that the legislation is ineffective in many cases and improvement in the effectiveness of enforcement is a priority.

State government support

DPI, DSE and the PPWCMA have a significant identified role in rabbit control in the region, however this role is not fully realised. Additional support in the form of technical advice, cooperation on public land issues, enforcement and funding resources for on-ground works would greatly assist in achieving effective rabbit control.

Effective control programs

Many private and public land managers spend considerable time and resources on rabbit control. In some cases, a much better result could be achieved with a different approach as outlined below.

Integrated program

Effective rabbit control requires integration of different methods; any single technique used in isolation is less effective than two or more techniques carefully combined (Cooke 1993). A lot of effort and funding can be wasted if rabbit control is only focussed on a single control method, for example, baiting without removing warrens and above ground harbour. To be successful in the long term, integrated rabbit control must be undertaken including the destruction of warrens and harbour removal. Some techniques may not be appropriate in some areas e.g. bushland where there are risks to off-target animals and harbour is not easily removed.

Sustained program

It is essential to continue rabbit control, even when rabbit numbers are low, to avoid a rapid escalation of the problem back to its original scale or worse. Proper annual maintenance is a much cheaper option than 'crisis control' (Sutton Grange Landcare 1997).

Coordination across property boundaries

Nillumbik has many small properties and this makes effective rabbit control more of a challenge as control programs need to be conducted simultaneously by a number of landholders to have an impact.

The challenge of working across boundaries on private properties has been addressed through rabbit control coordinated by Rabbit Action Groups (RAGs) or Landcare Groups. This is a good model for achieving joint action.

Working with neighbours who are organisations or public agencies can be challenging, as budgets and work programs need to be determined well in advance.

Monitoring

Currently very little monitoring of control programs is being undertaken and the only information about rabbit populations is anecdotal.

Rabbit monitoring at designated sites on an annual or bi-annual basis to track changes in rabbit populations over the long term would assist in monitoring the rabbit problem and understanding the effectiveness of control efforts.

For more accurate results alternative monitoring techniques are required when rabbit numbers get below 10 per vehicle spotlight count (Jodie Davis, Parks Victoria, pers comm 2009). Vehicle spotlight counting of rabbits has historically been the method of choice for measuring rabbit abundance. It is a simple method for obtaining indices of rabbit abundance over large areas. In this technique, rabbits are counted at night from a slow, constant-speed vehicle over a fixed route with the aid of a hand-held spotlight (Parks Victoria, 2010).

Effective community rabbit control program

The RAGs that are most effective are those with an enthusiastic coordinator, high levels of participation, self-direction, technical knowledge and practical skills.

The formation of new groups requires significant facilitation and resources. High priority areas should be the focus for any investment in formation of new groups.

Council needs to be clear about what support can be provided and how incentives are decided so that groups have realistic expectations of the Council assistance they will receive.

In the past, Council has received external funding to employ a Community Rabbit Control Program Facilitator. Without this funding, Council does not have a dedicated staff member to work with groups and limited financial assistance is available for group subsidies. The program also relies on contractors. Some rabbit action groups have had an issue with the reliability of contractors, which makes it hard for ongoing community commitment. Also, groups have found that there are not enough contractors to do the work and residents are doing the work themselves.

Humane rabbit control

Rabbit control techniques have the potential to cause animals to suffer. To avoid unnecessary suffering the most humane techniques must be used towards controlling rabbits with the least harm or risk to non-target animals, people and the environment while also being effective in the situation where it will be used.

The NSW Department of Primary Industries has developed a model code of practice for the humane control of rabbits which outlines the humaneness of control techniques. It states that rabbit-proof fencing is humane however there are high costs to establishing and maintaining a fence. Shooting is also humane, however not feasible in urban areas. Baiting is an important part of integrated rabbit control programs, however other control methods are more humane.

Risks to wildlife and off-target animals

Wildlife and off-target animals such as cats, dogs and stock can be exposed to poisons either directly, by eating baits intended for rabbits (primary poisoning) or through eating the tissue of a poisoned, dead rabbit (secondary poisoning). A lack of understanding of pindone baiting can lead to misuse. The use of wire mesh cages (bait stations) reduces the chance of poisoning to wildlife and other off-target species. These stations need to be well designed and maintained regularly to ensure animals are not caught in them.

6. Action plan

Vision

To achieve effective rabbit control in Nillumbik in order to protect areas of high biodiversity, productive agricultural land and community facilities under threat of damage by rabbits.

Goal 1

To reduce the impact of rabbits on high value biodiversity, agricultural and community assets.

Objective

- To maintain rabbit populations at low impact levels in areas of high biodiversity, productive agricultural land and community facilities that may be damaged by rabbits.

Goal 2

To achieve community awareness of the rabbit problem and increase skills and knowledge to enable the community to undertake effective rabbit control.

Objectives

- Undertake community education about rabbits and their management.
- Support landholders to undertake effective rabbit management on their properties.

Goal 3

To foster cooperative rabbit control across property boundaries.

Objectives

Maintain partnerships between Council and:

- landholders/land managers
- community
- industry
- public agencies.

Goal 4

To better understand the rabbit problem in Nillumbik and achieve continuous improvement in rabbit management.

Objectives

- Develop effective tools for rabbit management planning.
- Achieve adequate resourcing for rabbit management.
- Utilise new research and best practice management in rabbit management.

Strategic approach to rabbit management in Nillumbik

The key principles underpinning this strategy for rabbit management are:

Asset protection

Limited resources are available for rabbit management therefore it is important to focus on the priority areas which are under threat. Natural areas with high biodiversity value and farmland supporting agricultural production will be given priority by Council. Other important assets that are vulnerable to rabbit impact will also be given priority.

Adaptive management (learning by doing)

Continuous improvement in policy and practices for rabbit management will be achieved by learning from the outcomes of our actions. By setting clear objectives and monitoring current approaches, we will build an understanding of what is working well. There is still a lot to learn about rabbit management in semi-urban areas, so we need to learn and adapt as we go.

Coordination and collaboration

Rabbit management is most effective when undertaken across a large area. By building partnerships with private land owners, public agencies, Landcare and other community groups, we can work together to coordinate our management efforts and achieve far more than we would on an ad-hoc individual basis.

Actions

Priority

A = essential, required by legislation
 B = should be done
 C = desirable, but dependent on resources

Key:

EP = Environmental Planning
 EW = Environmental Works
 PM = Parks Maintenance
 Comms = Communications
 IT = Information Technology
 LS = Leisure Services
 GV = Governance

Goal 1. To reduce the impact of rabbits on high value biodiversity, agricultural and community assets

Objective 1. To maintain rabbit populations at low impact levels in areas of high biodiversity, productive agricultural land and community facilities that are under threat of damage by rabbits.

Action	Responsibility	Priority	Timeframe
1.1. Prioritise areas for rabbit control across Nillumbik, according to biodiversity value, productive land value, community value and the level of threat from rabbits.	EP, EW, PM and LS	A	ongoing
1.2. Link these priorities with Council's asset management system, Open Space Strategy and reserve master plans.	EP and IT	A	1-2 years
1.3. Implement rabbit control programs on Council-managed land with high biodiversity value. For example, Panton Hills Bushland Reserve System.	EW	A	ongoing
1.4. Implement rabbit control programs on Council-managed land with high value community facilities that may be damaged by rabbits. For example, golf courses and sporting fields.	PM and LS	A	ongoing
1.5. Provide training and information for all relevant Council staff and contractors about this priority approach to rabbit management.	EW, EP and PM	A	1-2 years
1.6. Encourage private landholders to undertake rabbit control in priority areas or adjacent to priority areas. Target incentives to these areas.	EP and EW	A	ongoing
1.7. Encourage public agencies to implement rabbit control programs in the priority areas they manage. For example, Watsons Creek which is identified as having excellent environmental significance its entire length.	EP and EW	B	1-5 years
1.8. Require leasees of Council land to implement rabbit control programs by including a clause in lease contracts.	GV	A	1-5 years

Goal 2. To achieve community awareness of the rabbit problem and increase skills and knowledge to enable the community to undertake effective rabbit control.

Objective 1. Undertake community education about rabbits and their management.

Action	Responsibility	Priority	Timeframe
2.1. Develop a standard information package about rabbit management techniques.	EP	A	1-2 years
2.2. Provide ongoing information to the community about rabbit impact and responsibilities for rabbit management. Utilise a range of media and communication techniques to reach as broad an audience as possible (<i>Nillumbik News</i> , <i>Diamond Valley Leader</i> , Council website, community information stands, newspaper articles, <i>Fringe Focus</i> , targeted letter drops and displays at public events)	EP	A	ongoing
2.3. Provide all new landholders in the Green Wedge area with information about rabbit impact and management.	EP and Comms	B	ongoing
2.4. Undertake an information campaign targeting landholders on rural residential properties, who may not be aware of problems caused by rabbits and their responsibility to manage them.	EP	B	2-5 years

Objective 2. Support landholders to undertake effective rabbit management.

Action	Responsibility	Priority	Timeframe
2.1. Provide technical advice to landholders to assist them in implementing best practice rabbit management on their properties. This may include field days, advising on the safe and effective use of all techniques.	EP	A	ongoing
2.2. Promote and implement integrated rabbit control.	EP and EW	A	ongoing
2.3. Provide incentives to self-directed groups undertaking rabbit control in priority areas.	EP	B	ongoing
2.4. Encourage and provide incentives to landholders to join Landcare or Rabbit Action Groups in their area.	EP	B	ongoing
2.5. Encourage and support the control of weeds that provide shelter for rabbits and other pest animals.	EP	B	ongoing
2.6. Encourage property owners to undertake rabbit control as part of a strategic approach to land management, guided by a property management plan.	EP	B	ongoing
2.7. Investigate a fast tracking process for Planning Permits to support landholders wanting to rip warrens as part of an integrated rabbit control program.	EP	B	1 year

Goal 3. To foster cooperative rabbit control across property boundaries.

Objective 1. Maintain partnerships between Council and landholders/land managers.

Action	Responsibility	Priority	Timeframe
3.1. Facilitate and participate in collaborative rabbit control, across public and private land in priority areas.	EP, EW and PM	A	ongoing
3.2. Investigate the creation of a Council program to support rabbit control on private properties adjacent to high priority Council reserves. This may be similar to the DSE Good Neighbour Program.	EP and EW	A	1-3 years
3.3. Facilitate joint rabbit control programs across Council, private and other public land in reserves where management plans specify. For example, the Panton Hill Bushland Reserve System.	EW and EP	A	ongoing

Objective 2. Maintain partnerships between Council and community.

Action	Responsibility	Priority	Timeframe
3.4. Support Rabbit Action Groups and Landcare groups undertaking rabbit control in high priority areas according to the Priority Areas Scoring Tool (p29).	EP and EW	B	ongoing
3.5. Provide training and professional development opportunities for Council staff, Rabbit Action Groups, Landcare and community leaders.	EP, EW and PM	A	1-5 years
3.6. Provide support for Rabbit Action Group and other Landcare group members to get ACUPs to enable groups to undertake rabbit control works more cost effectively.	EP and EW	B	1-5 years
3.7. Council to establish formal partnerships with training providers who offer ACUP training	EP	B	1-5 years
3.8. Utilise the Environment Advisory Committee and WACMAC to liaise between Council and the community about rabbit management issues.	EP	B	ongoing

Objective 3. Maintain partnerships between Council and industry.

Action	Responsibility	Priority	Timeframe
3.8. Pursue partnerships with training providers such as NMIT and Greening Australia to provide rabbit management education.	EP and EW	C	1-5 years
3.9. Pursue opportunities to partner with research organisations such as CSIRO, Invasive Animals CRC and universities to trial new approaches to rabbit management in the peri-urban environment.	EP	C	3-5 years

Objective 4. Maintain partnerships between Council and public agencies.

Action	Responsibility	Priority	Timeframe
3.10. Maintain strong communication networks with agencies managing high biodiversity land to share information about proposed rabbit programs and encourage joint initiatives.	EP and EW	B	ongoing
3.11. Continue to participate in the Middle Yarra Land Managers Group in order to share expertise, undertake joint community education programs and cross-border or regional programs for rabbit control.	EP	B	ongoing
3.12. Liase with Parks Victoria and the City of Whittlesea, to discuss potential for a joint rabbit management program around Plenty Gorge Parklands, including education of a significant number of new residents in this area.	EP	B	1-5 years
3.13. Advocate for a regional or state-wide advisory service by the state government, providing technical advice and education for best practice pest animal control.	EP	C	3-5 years
3.14. Advocate for more resourcing for collaborative rabbit control programs on Victorian Government land in Nillumbik	EP	B	ongoing
3.15. Advocate for increased resourcing by the state government for enforcement of serious cases under the CaLP Act.	EP	C	1-5 years
3.16. Advocate for additional resources and incentives from the state government for managing rabbits on properties with high biodiversity values.	EP	B	1-5 years



Goal 4. To better understand the rabbit problem in Nillumbik and achieve continuous improvement in rabbit management.

Objective 1. Develop effective tools for rabbit management planning.

Action	Responsibility	Priority	Timeframe
4.1. Use the Priority Areas Scoring Tool to determine priority areas for rabbit control (refer to p.29).	EP, EW, PM and LS	A	1-3 years
4.2. Use the Priority Areas Scoring Tool to determine the Rabbit Action Groups with potential to be highly effective.	EP	B	1-5 years
4.3. Monitor rabbit population dynamics at priority locations, to develop a better understanding of trends in populations and impact, and the effectiveness of control efforts. Use Bureau of Rural Sciences booklet <i>Rabbits: A threat to conservation and natural resource management. How to rapidly assess a rabbit problem and take action</i> , and do annual spotlight counts in areas where rabbit numbers are low.	EW, RAG and Landcare	A	ongoing
4.4. Develop a process to ensure rabbit control work, such as ripping, satisfies the Nillumbik Planning Scheme in relation to the Aboriginal Cultural heritage policy. This is particularly relevant in the vicinity of waterways, where there are potential sites of Indigenous cultural significance that have not yet been surveyed and identified.	EP and EW	B	1-5 years
4.5. Regularly review the Community Rabbit Control Program and update operational guidelines.	EP	B	annually
4.6. Investigate the development of a code of practice for rabbit control in Nillumbik with reference to the <i>model code of practice for the humane control of rabbits</i> .	EP	B	3-5 years
4.7. Investigate the feasibility of the adoption of a Nillumbik Shire local law for the enforcement of rabbit control	EP	B	1-3 years

Objective 2. Achieve adequate resourcing for rabbit management.

Action	Responsibility	Priority	Timeframe
4.8. Seek additional funding for rabbit management in Nillumbik.	EP and EW	A	1-3 years
4.9. Allocate a sufficient budget for sustained rabbit control in all high biodiversity reserves and for the protection of sporting and recreation assets where rabbit damage is interfering with the optimal functioning of these facilities.	EW and LS	A	1-3 years
4.10. Seek funding for joint projects in conjunction with neighbouring councils.	EP	B	1-5 years
4.11. Encourage community environment groups to incorporate rabbit control works on private properties in any funding applications to regional, state or federal bodies for environmental works.	EP and EW	A	1-3 years

Objective 3. Utilise new research and best practice management in rabbit management.

Action	Responsibility	Priority	Timeframe
4.12. Ensure staff are trained and able to provide expert advice about rabbit management and effective control methods.	EW and PM	A	1-3 years
4.13. Keep informed about research outcomes from the Invasive Animals CRC and other sources.	EP, EW and PM	B	ongoing
4.14. Utilise Council's tender and contract management process to ensure preferred contractors adhere to best practice techniques and methods for rabbit control for works on Council land	EP, EW and PM	A	ongoing
4.15. Advocate to the State and Federal Governments to invest in research into methods to control rabbits	EP	A	ongoing



Funding priorities

The level of service Council can provide to undertake rabbit control on Council land and to support community rabbit management depends on the amount of funding available from Council and externally.

Council has a legal responsibility to control rabbits on land that it owns and manages, under the *Catchment and Land Protection Act 1994*, and this should be the first priority for Council resources. In order to facilitate community awareness and action, it is also desirable for Council to have a role in community education and in supporting landholders to undertake effective rabbit control. Finally, to achieve optimum outcomes in Nillumbik coordinated rabbit control across priority areas of private and public land is required and this will be greatly assisted with Council involvement.

Priorities for Council funding:

1. Prioritise rabbit control programs in high-biodiversity Council reserves and at community facilities where rabbit damage is an immediate and unacceptable threat.
2. Recruit staff with excellent technical knowledge and resources to provide education and expert advice to landholders.
3. Launch an education campaign to raise community awareness.
4. Organise training for landholders to develop skills and knowledge.
5. Build partnerships and strong networks between all land managers to facilitate a coordinated approach to rabbit control.
6. Make funding incentives available for rabbit control to Rabbit Action Groups and Landcare Groups adjacent to high-biodiversity Council reserves.
7. Support for establishment and operation of Rabbit Action Groups in priority areas.

Priority Areas Scoring Tool

This table is intended to assist in determining the priority areas for rabbit control on both Council and other land.

Criteria	Options and weightings	Score
Biodiversity significance	Very high biodiversity (4) High biodiversity (2) Medium biodiversity (1)	
Productive agricultural land	Highly productive (4) Moderately productive (2)	
Community value and significance	Regional significance (4) District significance (3) Local significance (2) Neighbourhood significance (1)	
Community use affected by rabbit damage	May affect safe use of asset (2) Asset use may be impaired (1)	
Extent of modification of the site	Intact remnant landscape (3) Moderately disturbed (2) Highly modified (1)	
Extent of damage by rabbits	Potential (3) Early stage (2.5) Moderate stage (2) Advanced stage (1.5) Complete and reversible (1) Complete and irreversible (0.5)	
Partnership approach	Key neighbouring landholders involved (2) Some involvement by neighbours (1)	
Is the work part of an integrated land management approach on the site and/or surrounding areas?	Yes (2)	
		Total /24

The table below provides the criteria for determining the potential of rabbit action groups. The highest score indicates the greatest potential.

Criteria	Options and weightings	Score
Group effectiveness	Highly motivated and knowledgeable (2) Motivated – minimal support needed (1) Dependent on council to operate (0)	
Level of participation (# of properties, total area)	High participation (2) Moderate participation (1) Isolated landowner controlling rabbits (0)	
Commitment to ongoing program	Long term 5+ years (2) Medium term 3+ years (1)	
Integrated approach	Range of appropriate control methods (2) Two control methods (1)	
Skills for rabbit control	Practical skills, ACUP qualified (2) Practical skills (1) Contractor required (0)	
		Total /10



7. Potential resources and support

Program/Resource	Managed by	Support available
<i>Good Neighbour Program</i>	DSE	Rabbit control on high priority public land managed by DSE and Parks Victoria, to support community-based programs on adjoining private land. Funds work on Parks Victoria land along the Yarra River and Diamond Creek.
Community Grants	PPWCMA & Melbourne Water	Funding for community-based projects by incorporated groups and local councils.
Regional Catchment Investment Plan	PPWCMA	Funding through PPWCMA from the Australian and Victorian Governments for large (approx \$100,000) partnership projects.
Stream Frontage Management Program	Melbourne Water	Support for landholders for conservation works along waterways.
Caring For Country	Australian Government	Investment funding for Landcare and other community groups and local government partnership projects over \$20,000, which address national priorities.
Middle Yarra Land Managers Group		Cross-border programs. Shared learning and advice.
Greening Australia		Habitat Management Conservation Course annually. Other courses will run with funding support.
Botanic Guardians Scheme	DSE	Support for community groups working to protect rare or threatened flora.
Threatened Species Network	WWF	Funding for on-ground conservation projects to conserve threatened species and ecological communities.
Invasive Animals Cooperative Research Centre		Research and development of best practice techniques for rabbit management. http://www.invasiveanimals.com/
Landcare Notes	DPI	Useful technical information for individual landowners. http://new.dpi.vic.gov.au/home > rabbits
Resources for RAG coordinators		Coman, B (1994) <i>District Rabbit Control – A Revised Booklet on the Practical Aspects of Rabbit Control with Particular Emphasis on the Concept of Group Action</i> North Harcourt-Sedgwick and Sutton Grange Landcare Groups. DEWHA (2008) Background Document for the Threat Abatement Plan for competition and land degradation by rabbits.
Monitoring Booklet		Cooke, B (2009) <i>Rabbits: A threat to conservation and natural resource management – How to rapidly assess a rabbit problem and take action</i> Bureau of Rural Sciences & Australian Wool Innovation and Meat and Livestock Australia.

Reporting and review

Progress towards the implementation of this action plan will be reported annually to Council and the plan will be reviewed after five years. The Environmental Planning Unit has responsibility for reporting and review.

Goal	Performance indicators
Goal 1: To reduce the impact of rabbits on high value biodiversity, agricultural and community assets	<p>Progress towards implementation including:</p> <ul style="list-style-type: none"> • identification, prioritisation and mapping of biodiversity, productive land and community assets (percentage complete) • percentage of Council rabbit control funding being used in priority areas • percentage of relevant staff trained • percentage of Council leases with rabbit management clauses
Goal 2: To achieve community awareness of the rabbit problem and increase skills and knowledge to enable the community to undertake effective rabbit control.	<ul style="list-style-type: none"> • The number of rabbit management education activities available to the community – articles, events, information packages. • The number of groups undertaking rabbit control in priority areas. • Amount of properties engaging with Council's Land Management Incentives Program. • The number of properties with land management plans.
Goal 3: To foster cooperative rabbit control across property boundaries	<ul style="list-style-type: none"> • The number of joint rabbit control programs. • The amount of Rabbit Action Groups and Landcare Groups undertaking rabbit control in priority areas. • The number of training activities offered.
Goal 4: To better understand the rabbit problem in Nillumbik and achieve continuous improvement in rabbit management	<ul style="list-style-type: none"> • The number of monitoring activities undertaken at priority locations. • Reduction in rabbit damage in priority areas.

Appendix 1: References

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- Willis, C for Department of Primary Industries (2003), *Middle Yarra Rabbit Control Program Final Report*.

Appendix 2: Abbreviations

Council Business Units

EW	Environmental Works
EP	Environmental Planning
IM	Infrastructure Maintenance
LS	Leisure Services

Other organisations

CRC	Cooperative Research Centre
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DEWHA	Department of Environment, Water, Heritage and Arts
DSE	Department of Sustainability and Environment
DPI	Department of Primary Industries
MW	Melbourne Water
MYLM	Middle Yarra Land Managers
NMIT	Northern Metropolitan Institute of TAFE
NSC	Nillumbik Shire Council
PPWCMA	Port Phillip and Westernport Catchment Management Authority
PV	Parks Victoria
WACMAC	Whittlesea, Arthurs Creek, Merriang and Cottles Bridge Landcare

Other

ACUP	Australian Chemical Users Permit
CaLP	<i>Catchment and Land Protection Act 1994</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
GNP	Good Neighbour Program
GWMP	Green Wedge Management Plan
RAG	Rabbit Action Group



Appendix 3: Background Paper

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1. Legislation and policy review

National

Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

Competition and land degradation by rabbits is listed as a key threatening process under this Act.

Threat Abatement Plan for Competition and Land Degradation by Rabbits 2008

This plan prepared under the EPBC Act establishes a national framework to manage the impacts of rabbits on biodiversity. It identifies research, management and other actions needed to ensure the long-term maintenance of native species and ecological communities affected by competition and land degradation caused by rabbits.

The accompanying document *Background document for the threat abatement plan for competition and land degradation by rabbits (DEWHA 2008)*, provides valuable information on rabbit characteristics, biology and distribution, impacts on environmental, economic, social and cultural values and current management practices and measures.

The report indicates that broad-scale eradication of rabbits from Australia is not feasible using the methods and resources currently available although integrated control methods can be effective on a relatively large scale, for example the Bounceback program in South Australia. Reducing the severity of the damage that rabbits cause must initially be undertaken in discrete, manageable areas and control efforts should be targeted to protect sites where rabbits pose the greatest threat to biodiversity.

Sustained control of rabbits has been achieved in some large areas using integrated control that combines well-planned timely poisoning, warren ripping and warren fumigation particularly after rabbits have been reduced by drought or disease.

Australian Pest Animal Strategy 2007

This high level strategy outlines actions to reduce the impact of pest species in the most cost-effective manner and to prevent establishment of new pest animal species. The Vertebrate Pests Committee has responsibility for implementation of the strategy.

Invasive Animals Cooperative Research Centre

This centre creates new technologies and integrated strategies to reduce the impact of invasive animals on Australia's economy, environment, and people.

Rabbit Management Advisory Group

Recently formed, this independent group of landholders, industry, scientific and government experts aim to maximise the benefits of new research and development and advocate newly developed rabbit control technologies.

The group established the *RabbitScan Challenge*, allowing all Australians to map rabbits in their area on a new website www.rabbitscan.net.au during May 2009, as this year is the 150th anniversary of release of wild pest rabbits in Australia.

National Strategy for the Conservation of Australian Biological Diversity (1996)

The European rabbit has caused enormous damage to the southern half of Australia and is one of a number of introduced species that have caused significant damage to biological diversity (including species extinctions). The report recommends actions to improve knowledge of population dynamics and control methods for pest species and to introduce coordinated and well-resourced control programs.

Australia's Biodiversity Conservation Strategy 2010-2020 (Draft 2009)

Invasive species such as rabbits are identified as one of the main threats to biodiversity. The strategy acknowledges that eradication of most invasive species is generally not achievable and that management should focus on reducing their impact as cost effectively as possible.

The report identifies the complexity of interactions between species and the potential for unseen consequences. For example, removing rabbits can result in a rapid increase in weeds which in turn affects native vegetation.

State

Catchment and Land Protection Act 1994 (CaLP Act)

Under this legislation, rabbits are declared an established pest animal (Section 67) and a land owner must take all reasonable steps to prevent the spread of and as far as eradicating established pest animals (Section 20 (1) (f)).

The CaLP Act also specifies that a land owner must take all reasonable steps to prevent the spread of established pest animals on a roadside that adjoins the land owner's land (Section 20 (2)). This does not apply where the road is a freeway or arterial road within the meaning of the *Road Management Act 2004*.

Flora and Fauna Guarantee Act 1988

This legislation aims to conserve Victoria's native fauna and flora and manage potentially threatening processes.

The reduction in biomass and biodiversity of native vegetation through grazing by the Rabbit (*Oryctolagus cuniculus*) is listed as a potentially threatening process under the Act.

Within Nillumbik, four species of flora and nine species of fauna are listed as threatened under the *Flora and Fauna Guarantee Act 1988*.

These species are:

Flora

Species name	Common name
<i>Caladenia amoena</i>	Charming Spider Orchid
<i>Caladenia rosella</i>	Rosella Spider Orchid
<i>Glycine latrobeana</i>	Clover Glycine
<i>Eucalyptus crenulata</i>	Buxton Gum

Fauna

Species Name	Common Name
<i>Ninox strenua</i>	Powerful Owl
<i>Tyto novaehollandiae</i>	Masked Owl
<i>Lathams discolor</i>	Swift Parrot
<i>Grantiella picta</i>	Painted Honeyeater
<i>Xanthomyza phrygia</i>	Regent Honeyeater
<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale
<i>Miniopterus schreibersii</i>	Common Bent-wing Bat
<i>Paralucia pyrodiscus lucida</i>	Eltham Copper Butterfly
<i>Acrodipsas brisbanensis cyrilus</i>	Large Ant-Blue Butterfly

(Sourced from www.nillumbik.vic.gov.au)

Most of these species have had action statements prepared to guide their recovery. The locations and potential habitat of these species should be priority areas for rabbit control. The destruction of habitat and reduced regeneration due to rabbit grazing is likely to impact negatively on bird and mammal species. On the other hand, rabbits provide a food source for raptors including the Powerful Owl and Masked Owl. Rabbit control programs should take account of these factors.

Prevention of Cruelty to Animals Act (1986)

This legislation aims to prevent cruelty and encourage considerate treatment of animals. It does not apply to activities under the CALP Act, such as rabbit control.

Victorian Pest Management: A Framework for Action (2002)

This overarching strategy outlines objectives for government as a land manager and in supporting private land managers. It establishes principles for government funding of pest management on private land.

As part of the Victorian Pest Management Framework (VPMF), specific management strategies were developed for weeds, rabbits, wild dogs, foxes, feral pigs and feral goats and public land management.

The Department of Primary Industries (DPI) is now responsible for all policy and on-ground operations related to pest and weed management on private land.

The VPMF is currently under review and is to be replaced by the *Invasive Plant and Animal Policy Framework* currently being developed by DPI's Biosecurity Victoria Division.

Victorian Pest Management: Rabbit Management Strategy (2002)

This strategy identifies rabbits as the most serious vertebrate pest in Victoria and outlines strategies for rabbit management. These include principles for setting priorities, support for CMA Rabbit Action Plans, the importance of partnerships and effective coordination, the need to target incentives to protection of biodiversity values and the importance of monitoring and evaluation.

The Victorian Government's *Rabbit Busters Program* funded the development of local rabbit action plans. Under this program there was a 93 per cent decrease in rabbit numbers in Warrandyte between 1996 and 2002. The program showed that a planned, integrated approach could significantly reduce rabbit populations.

Victorian Pest Management: Public Land Pest Management Strategy (2002)

This strategy aims to minimise the impact of pests on public land and their establishment on adjacent private land.

- **Integrated Pest Management System (IPMS)**
This system provides information about the range and density of pest plant and animal species across Victoria. DPI advises that it is more accurate for new and emerging pest species than it is for widespread pest plant and animal species, such as rabbits.

- **Good Neighbour Program (GNP)**
This program is administered by the Department of Sustainability and Environment (DSE) and incorporates activities on public land managed by DSE and Parks Victoria. The Good Neighbour Program funds projects targeting control of animals such as rabbits, foxes, pigs, goats and wild dogs, as well as priority weed species.

In Nillumbik the *Good Neighbour Program* has recently funded rabbit control works on Parks Victoria land along the Yarra River and Diamond Creek.

Victoria's Biodiversity Strategy (1997)

The key management approaches recommended in urban areas and urban fringes are:

- to assist local government, developers, communities and urban infrastructure providers to protect and manage sites of significance
- to promote and facilitate urban community involvement in the stewardship of biodiversity values
- to focus resources on the more ecologically viable remnants.

Using incentives and programs such as Land for Wildlife is also recommended to assist landowners to protect remnant vegetation on private land.

This strategy is currently being reviewed. In addition the *Land and Biodiversity at a Time of Climate Change White Paper* is currently being finalised.

Victoria's Environmental Sustainability Framework (2005)

This framework aims to reduce the extent and impact of pest species on biodiversity in accordance with targets in the Regional Catchment Strategy.

State of the Environment Report (2008)

The report highlights the ongoing impact of pest animals and recommends that "the Victorian Government should investigate options for developing further partnerships with the broader community to achieve weed and pest animal control, since these problems occur across tenures."

Victorian Environmental Assessment Council investigations

The Victorian Environmental Assessment Council is currently undertaking two investigations relevant to public land. The first is to investigate Crown land and public authority land outside of largely-intact landscapes across Victoria and to identify opportunities for ecological linkages. The second is to investigate Crown land and public authority land in metropolitan Melbourne, (including Nillumbik) to assess values of this land and report on appropriate future uses relevant to Melbourne's liveability and natural values.

Regional

Port Phillip and Westernport Regional Catchment Strategy 2004-2009

The risk posed by rabbits to the economic values of agricultural production in the region is identified as being generally low compared to some other catchment management issues. However, it is recognised that they pose a more serious risk to other land and environmental values and to soil health on land which can not be ploughed and when restoring degraded land.

Under the goal of healthy land used appropriately and productively the strategy sets a target for long-term rabbit control achieved on 400,000 ha of rural land by 2008.

The water chapter of the strategy assesses the condition of the waterways of the region. The condition of rivers and streams in the Shire is generally poor although Watsons Creek is identified as being in excellent condition for its entire length. Rabbit control along Watsons Creek should be a priority to help to maintain its condition.

Port Phillip and Westernport Rabbit Action Plan (2003)

This plan seeks to minimise rabbit impact on environmental and economic values by keeping rabbit populations low and under long-term control. Long-term control is defined as the number of rabbits at which there is no measurable impact on land stability, productivity and biodiversity.

The plan identifies zones prone to rabbit infestation. All of Nillumbik, except the urban areas, is identified as having high proneness to rabbits and is a high priority zone for an enhanced level of government service.

The Port Phillip and Westernport Catchment Management Authority provided grant funding to support the Nillumbik Rabbit Control Program and develop this local rabbit action plan.

Local

Nillumbik Council Plan 2009-2013

The vision for the environment in the *Council Plan 2009-2013* is a sustainable and well managed natural and built environment. Relevant objectives include support for volunteers, encouraging cooperation between landowners on how to manage their land and improving management of vegetation on Council land.

Nillumbik Environment Strategy – Actions for a Sustainable Future (2001)

The strategy outlines specific actions for rabbit management as follows:

- Control of pest animals on Council's environmentally significant reserves.
- Determine areas severely impacted by rabbits.
- Map areas under long-term rabbit control and RAGs.
- Seek funding for rabbit control.
- Support community rabbit control with priority for properties adjacent to and near environmentally significant reserves.

The number of community Rabbit Action Groups and number of properties accredited as rabbit free are performance indicators in the report.

Green Wedge Management Plan (currently in preparation)

Community consultation has found differing opinions about the future of the Green Wedge area. There is strong agreement that remnant vegetation should be protected. Opinions vary as to whether further rural residential subdivision should be allowed and there is agreement that farming should be supported and agricultural production retained.

91 per cent of the Shire of Nillumbik is Green Wedge land with a range of land uses. Approximately 47 per cent (18,664 hectares) of the Green Wedge in Nillumbik is categorised as rural residential land use, which is significantly greater area than any other land use. 20 per cent is agricultural land and 20 per cent (8,035ha) is conservation and recreation land in public ownership.

There is significant agricultural land use in Doreen, Arthurs Creek and Strathewen which is classed as having average agricultural value. The most productive agricultural land is around Kangaroo Ground and while there is some farming in this area, it is predominantly rural residential and vacant rural. The eastern border of the Shire is classed as average to poor or very poor agricultural value. This includes St Andrews, Christmas Hills, Panton Hill and Smiths Gully.

Conservation land is primarily in the east and north of the Shire and includes Kinglake National Park, Parks Victoria reserves, along the Yarra and Plenty Rivers, Panton Hill Reserves and Warrandyte-Kinglake Conservation Reserve. In addition, roadside reserves and private land contain significant areas of high conservation value land.

An approximation of private land with conservation value is attained by the proportion of private land affected by the Environmental Significance Overlay Schedule 1 (sites of faunal and habitat significance) which shows 16,796 ha or 43 per cent of the Green Wedge land. A number of sites of national and state biological significance are located on private land. The extent of conservation value land in private ownership indicates that proper management of conservation values, including rabbit control, must have considerable regard for private land and not just public reserves.



Ecological vegetation classes

An extensive area of Nillumbik still retains native vegetation cover. This coverage is extensive in the less settled and hillier eastern and north-eastern sections of the Shire. Active ecological vegetation classes in these areas include Heathy Dry; Damp Forest; Herb-rich Foothill Forest, and Grassy Dry Forest. A number of threatened vegetation classes also exist in this area including Box Ironbark Forest (vulnerable) and Gully Woodland (vulnerable).

In areas of Nillumbik that have been more extensively cleared, ecological vegetation classes defined as vulnerable or endangered, include Plains Grassy Woodland (endangered); Creepline Herb-rich Woodland (endangered); Valley Grassy Forest (vulnerable); Riparian Forest (vulnerable) and Box Ironbark Forest (vulnerable).

773 species of native flora have been recorded in Nillumbik. Undisturbed land is identified as particularly important for plant diversity. In such areas, the Shire is rich in small indigenous species - especially terrestrial orchids. Over 100 different orchid species occur within the Shire, which represents over thirty per cent of Victoria's orchid species. These medium-sized plants are particularly susceptible to destruction by rabbits.

Sites of biological significance (Biosites)

Another indicator of environmental attributes in Nillumbik is the occurrence of significant biological sites (Biosites). These sites, mapped by the Department of Sustainability and Environment, define a physical area containing one or more biological

assets and are considered to be of biological significance when a site contains assets which make a substantial contribution to the occurrence or conservation of that asset within the broader area. Biosites are rated as having international, national, state, regional and local significance.

84 Biosites are listed in the Shire of Nillumbik. Of the 72 Biosites within the Green Wedge, ten are of national significance, 32 are of state significance, 29 are of regional significance and one is of local significance.

There is a considerable overlap between the Biosites identified by DSE as being of national and state significance and the Critical Conservation Areas and Ecological Reference Areas identified by the NEROC report. However, a number of notable Biosites are not predominantly within these areas, including Red Shirt Gully, Cottle Bridge (Biosite 5262: National significance); St Andrews Caledonia Reserve (Biosite 5275: National significance); Round the Bend Co-operative (Biosite 4706: State significance) and Christmas Hills (Biosite 1625: State significance).

Sites of Faunal and Habitat Significance in North East Melbourne (NEROC Report) (1997)

The NEROC Report identifies areas of faunal and habitat significance across the Shire as well as Ecological Reference Areas and Critical Conservation Areas.

The European Rabbit is identified as a particular threat to conservation values in the Shire.

Nillumbik Shire Council Roadside Management Plan (1997)

The Shire's roadside vegetation has been assessed as having either high, moderate or low conservation value.

The plan incorporates a Code of Practice for Construction and Maintenance Works on Roadside Reserves. This includes an impact assessment matrix for assessing the level of impact of proposed works and the roadside values that will be affected.

Nillumbik Shire Council Rabbit Control Strategy for Municipal Lands (1995)

This strategy established a hierarchy for municipal lands (high, medium or low priority) depending on the significance of their flora and fauna and proximity to national or state parks. Rabbit control management plans were to be prepared and implemented for each reserve, beginning with the high priority reserves and covering all reserves within four years. Follow-up works were to be ongoing.

The strategy also highlighted the need for a community program to engage private landholders, particularly those adjoining Council reserves, to achieve integrated rabbit control.

No official evaluation of this strategy has been undertaken, however it appears the current works program undertaken by Environmental Works in high conservation value reserves is based on this strategy and the community rabbit control program has been developed following the recommendation of this report.

Review of the Nillumbik Community Rabbit Control Program (2005)

This review found that the Community Rabbit Control Program is heavily reliant on external funding, which varies from year to year and is generally only available on an annual basis, making long term planning and coordination with other agencies difficult.

Support for existing Rabbit Action Groups takes considerable time, leaving limited resources for establishment of new groups or for broader education. This review identified the need for monitoring, to determine the effectiveness of the overall program and individual group efforts.

This review included a survey of rabbit action group members which found:

- most members do baiting as the only form of rabbit control on their properties
- many people think rabbit control issues are not effectively communicated by Council
- a high proportion of people had noticed a significant change in the landscape with increased regeneration of native species although many had not noticed a change
- many people suggested that the program would be more effective with higher participation rates, increased enforcement, and coordinated rabbit control on adjoining public land.

Nillumbik Land Capability Study (1998)

The study identifies five different land systems within the Shire based on rainfall, topography, geology and indigenous vegetation. The majority of the Shire has thin soils with poor structure, low inherent fertility and high susceptibility to erosion. Rabbits are likely to exacerbate the erosion potential.

Open Space Strategy (2005)

This strategy categorises open space in Nillumbik according to its significance, use and ownership. Reserve significance is defined as either regional, district, local or neighbourhood. Rabbit control is a management objective for conservation use land.

Draft Panton Hill Bushland Reserve System Management Plan (2007)

This reserve system has very high environmental significance. Rabbit impact is one of the processes degrading the environmental values and threatening natural regeneration and soil structure. Fencing of threatened species sites is recommended to remove rabbit grazing pressure. The report recommends preparation of a rabbit control strategy, prioritising rabbit control and facilitating coordinated rabbit control with neighbours.

This reserve system and surrounding land fit the criteria as a high priority for a joint Council-private-public program for rabbit control.

Indigenous heritage study

This study identifies land within 200m of creeks and rivers as having potential Indigenous cultural significance and undisturbed land is of particular significance. Only five per cent of the Shire has been subject to a formal archaeological survey.

Nillumbik Planning Scheme – Municipal Strategic Statement

There is a community culture of environmental appreciation and responsibility, innovation and creativity in Nillumbik. The natural environment is a significant influence for many people's decision to live and work in the Shire. The community has a record of active participation in environmental management, education and works programs in pursuit of the sustainable management of natural resources and protection of conservation values in the Shire.

Rabbits are a major environmental and agricultural problem across the Shire contributing to significant erosion problems particularly on stream banks. Rabbits also severely impact on natural regeneration of bushland and significantly reduce flora diversity. Rabbits are also responsible for reducing pasture productivity and impact on horticultural enterprises including viticulture.

The major conservation reserves in the region are managed by Parks Victoria. Significant areas managed by Nillumbik Shire Council include the Panton Hill Bushland Reserve System, Professors Hill and The Chase Reserve in North Warrandyte. Council also manages wetlands and riverbank parklands along the Diamond and Watsons creeks and several environmentally significant urban reserves including the Eltham Copper Butterfly Reserve and the Kalbar Road Spider-Orchid Reserve.

Most of the soils in the Shire are dispersive and very susceptible to sheet or rill erosion on slopes and gully erosion in drainage lines. Rabbits exacerbate this susceptibility.

22.05 Aboriginal cultural heritage policy

This policy aims to provide proper identification of sites of Aboriginal cultural heritage and to ensure that new uses, developments and works do not impede or detract from such sites. This policy requires that 'Any planning application in an area which is relatively undisturbed (i.e. no known history of vegetation clearance and/or activities which involve the modification of existing land surfaces either by soil removal, soil movement or filling) and is within 200 metres of a river or creek should include an archaeological survey conducted by a suitably qualified archaeologist'.

Please note: a planning permit may be required for rabbit control works that involve soil disturbance such as ripping of warrens. This will depend on the planning overlays that apply to the area, the depth of soil disturbance and the impact on native vegetation. Advice should be sought from Council's Statutory Planning Unit.

Middle Yarra Rabbit Control Program Final Report (2003)

This program was funded by Nillumbik, Manningham and Banyule councils during 2002-2003. The report indicates that the successful ongoing groups were those with good coordinators and high level of neighbour involvement. These groups saw significant environmental improvements and the benefit of reduced costs and effort from undertaking long term integrated control. Unfortunately the majority of groups were hampered by lack of neighbour involvement, people seeing rabbits as Council's responsibility and lack of awareness or concern about the environmental damage caused by rabbits. These groups needed a high level of support from the coordinator.

The report recommended that education programs be expanded and enforcement be used as needed to avoid group dissolution due to individual reticence.

2. Roles and responsibilities

Landowners

Under the Catchment and Land Protection Act, a landowner must take all reasonable steps to eradicate rabbits and prevent their spread (Section 20 (1) (f)).

A landowner must also take all reasonable steps to avoid causing or contributing to land degradation, to conserve soil and to protect water resources.

Roadsides

VicRoads (or local government acting as its agent) has responsibility for managing rabbits on declared roads including freeways, highways, main roads and tourist roads.

On other (local) roads, the responsibility for rabbit control on roadsides is currently under debate, as to whether responsibility lies with local government, or with the adjoining landowner. The state government and the Municipal Association of Victoria representing local government are in ongoing discussions about this matter.

Nillumbik Shire Council

Nillumbik Shire Council is responsible for controlling rabbits on land that it owns and manages which includes environmental reserves, sporting and recreation reserves, parks and facilities. Council owns approximately two per cent of the land within the Shire as well as being delegated manager for 21 parcels of Crown land as a designated Committee of Management. The Shire contains approximately 1200km of non-urban road reserves.

Parks Victoria

Parks Victoria manages the major parks of Kinglake National Park, Warrandyte State Park, Yarra Valley and Plenty Gorge Parklands, as well as conservation reserves such as Warrandyte-Kinglake Nature Conservation Reserve and smaller reserves such as Yarrambat Park. Pest management is the responsibility of the land manager within the allocated annual budget.

In addition, the *Good Neighbour Program* targets rabbit control work in areas which are impacting on adjoining private land, particularly where neighbours are also undertaking control works.

Department of Sustainability and Environment

Department of Sustainability and Environment is responsible for management of pest animals on public land. In Nillumbik this includes some areas of public land that are unreserved Crown land without designated committees of management.

Department of Primary Industries

Department of Primary Industries is now the lead agency responsible for pest animal policy, as well as oversight of legislation and implementation of programs for pest management on private land. The prevention of new pest species through a biosecurity approach is the focus of the Department's work.

The Department is currently preparing the Invasive Plant and Animal Policy Framework to replace the Victorian Pest Management Framework.

The Department of Primary Industries' website contains information on effective land management including information for new rural landholders and small property management and specific technical information about rabbit control.

Port Phillip and Westernport Catchment Management Authority

Port Phillip and Westernport Catchment Management Authority has responsibility to develop and implement the Regional Catchment Strategy and associated Action Plans. The CMA guides the priorities for land, waterway and coastal management through advice to state and federal government on regional priorities for funding.

The PPWCMA's Community Grants Program provides funding support for sustainable land management projects, including rabbit management projects.

VicTrack

VicTrack is responsible for managing rail infrastructure in Victoria, including land along and adjacent to railway tracks. Some of this land is leased for specific community or business purposes. In many cases in the metropolitan area the land adjacent to the rail tracks is leased and managed by the transport service provider and their maintenance company (Connex and Mainco at the time of writing). Pest animal control is undertaken on an as-needs basis.

Melbourne Water

Melbourne Water has an important role in reducing the impact of rabbits along rivers and streams and in the catchment areas that it manages. In Nillumbik this includes the Diamond Creek, Yarra River, Plenty River, Watsons Creek (and tributaries of) and Sugarloaf Reservoir.

As the regional waterway manager, Melbourne Water provides funding and technical assistance through the Stream Frontage Management Program, assisting private landholders with management of degraded rural stream frontages. Rehabilitation of stream verge areas is an urgent priority. If there is extensive rabbit activity in the bed and banks of a stream or tributary, then it is the responsibility of Melbourne Water's Drains and Creeks Management.

The Melbourne Water and PPWCMA Community Grants support community groups, councils and other public land managers to protect and improve local rivers and creeks.

Under the Corridors of Green Program, Melbourne Water funds local councils and other agencies to implement on the ground projects, such as planting along rivers and creeks.

Melbourne Water will consider funding rabbit control work through these grants programs if it is undertaken on a partnership basis with neighbouring landowners and if the work covers a large enough area to make it effective.

Melbourne Water is currently working with Council to implement a joint program along Diamond Creek as part of a capital project.

Enforcement

DPI has responsibility for enforcement of rabbit control under the CaLP Act, however in practical terms the Department's resources are very limited for this role in Nillumbik. Nillumbik Shire Council cannot undertake enforcement of the CaLP Act.

Some other local councils such as Manningham City Council, have adopted local laws under the *Local Government Act 1989*, enabling them to prosecute landowners who fail to carry out the required control work. Only a few cases have been prosecuted in Manningham when rabbit numbers have been very high and education and a group approach has not been successful.

3. Rabbit control in other places

Hume City Council Pest Animal Action Plan 2004-2007

The plan outlines management principles and actions to reduce the impact of foxes and rabbits and includes a template for determining works priorities for Council land. A set of criteria with weightings is used to determine a score – high scores represent high priority sites. There is also a table with a series of questions to determine the most appropriate management approach, a flowchart to decide the best control method and technical guidelines giving pros and cons and specific advice for each control method. This plan is currently up for review.

Hume has a budget of \$35,000 per annum for integrated rabbit control covering approximately 13 reserves. Current control methods include Pindone baiting, harbour removal, warren fumigation, exclusion fencing and ferreting. Hume encourages a coordinated approach through local media, extension activities, stakeholder meetings, community education and direct mailouts.

Support for rabbit control on private land includes two rural rate rebate schemes, biodiversity enhancement grants, community education program and landholder extension. Hume has recently administered a pilot Community Rabbit Action Grant funded by Melbourne Airport. This concept is being further explored.

Manningham City Council Rabbit Control Program

Manningham City Council has a budget of \$45,000 per annum for rabbit control on Council land, covering approximately 22 reserves and roadsides. In addition, the council funds a position to work with private landholders on rabbit control.

Manningham is one of only a few other councils to have a community rabbit control program. Manningham funds 50 per cent of the cost of control programs and encourages groups to undertake integrated control, and use other control methods

such as long netting and ferreting (the use of ferrets to enter rabbit warrens and force them out of their secure homes) instead of baiting.

Manningham's Vermin and Noxious Weeds Local Law enables council to enforce rabbit control. Uncooperative landholders who have a significant rabbit problem can be threatened with enforcement action under this local law. Only a few cases have been prosecuted to date. A land management plan is required to be prepared when an offence is identified. The wording of the local law is as follows:

Vermin and Noxious Weeds 7.13

An owner or occupier of land must not allow to exist on that land:

- (a) rats, ants or other vermin or pests; or
- (b) a noxious weed.

Urban Feral Animal Action Group Sydney North Rabbit Management Plan 2007-2012

This plan sets out the responsibilities of the 13 councils, the Moss Vale Rural Lands Protection Board and major public landowners across the whole of the Sydney North Region, to achieve cooperative rabbit control and to maintain populations at low levels. Each agency must submit an annual action plan and the implementation of these plans are reviewed annually by the group.



4. Consultation

Rabbit Action Groups and Landcare Groups

Questions for Rabbit Control Group Coordinators

- Do you have any data or trends about the number of rabbits in your area? Is the data improving, the same each year, or getting worse?
- Do you use monitoring, spotlight counts or other methods to check rabbit numbers?
- Is the program effective?
- What rabbit control techniques does the group use?
- What area (approximately) does the program cover?
- How many properties are involved? Is it easy to get people involved?
- Are there situations where you would choose to not undertake rabbit control?
- Is there anything you would do differently with more funds?
- Is rabbit eradication feasible anywhere in your area?
- Do you have any suggested improvements to the RAG process?
- Do you have any suggested changes to the overall rabbit management in Nillumbik?
- The rabbit action plan may be presented in a similar format to Council's Weed Action Plan. Do you have any feedback on the Weed Action Plan?

Group	Area (approx)	Techniques	Rabbit Control Program
Arthurs Creek (not an official Landcare program)	280acres baiting +60acres shooting +140acres Doreen satellite group	Pindone baiting Harbour removal (as much as possible) Fumigation of burrows Shooting occasionally	17 properties currently participate in the program. Baiting is undertaken simultaneously with Dunmoochin. Regular informal monitoring when driving after dark and on dusk or dawn walkabouts. Anecdotal evidence of reduced amounts of rabbit sightings, dung piles and scratching suggest it is having some success. Bait stations are used, bait is brought in during the day and bait is laid away from trees to avoid non-target impact. All new members have a lesson about using this environmental approach. Myxomatosis reduced rabbit numbers, but they have increased again in the last six years. The control program has been running for three years and there are noticeably lower numbers of rabbits in the last two years. Public land including Bassetts Reserve and Ryders Flat Reserve is an issue, responsibilities are unclear and rabbits are numerous. Council's contribution to the program is a rewarding incentive.
Dunmoochin Landcare	265acres	Pindone baiting Harbour removal Warren removal by hand if possible (no access to big machines available)	Process and environmental approach is the same as Arthurs Creek (above). Ten-12 properties are involved. The group is currently doing a study of kangaroo versus rabbit impact using exclusion plots. A one-page procedure for baiting in environmentally-sensitive areas would be useful. Dunmoochin Landcare is happy to help new groups with techniques for involving landowners and suggestions on process.
Nutfield RAG	120 acres	Pindone baiting Shooting on some properties	A pindone carrot baiting program has been used over the last two years and has worked well in reducing rabbit numbers. Many rabbits arrive from neighbouring properties that are not interested in being part of the control program. Four to six properties have been involved in the program over the last two years. The group has been disappointed with the lack of involvement by other properties. Some are interested, but don't want to use poison. Alternative techniques such as LPG may encourage broader participation. The group believes that extensive promotion and campaigns highlighting property owners' responsibilities would be useful.

Group	Area (approx)	Techniques	Rabbit Control Program
North Warrandyte-Kangaroo Ground Road RAG	25+ acres	Harbour removal Warren destruction Fencing Pindone baiting	There has been a definite trend in the reduction of rabbit numbers since structured rabbit programs began four years ago, with particular benefits being gained from the baiting program. No monitoring has been undertaken. 12 properties are currently involved in the program. The group would not undertake rabbit control if native wildlife was under significant risk or threat. The group believes that more support in enforcing landowners to take responsibility for their properties and the eradication of the rabbits would be useful. Group members undertake many hours of work on their properties doing rabbit control works and prevention activity. One group member recently spent \$1,300 on rabbit proof fencing and other protection work.
Osborne Peninsula Landcare		Pindone baiting Fumigation Warren destruction	This rabbit control program has been operating for three years. Council and Parks Victoria conduct baiting, fumigation and implosions. Vegetation regrowth particularly on roadsides has been outstanding since the program began. There has been no need for tree guards on new seedlings whereas three-four years ago, nothing survived without guards. Currently, monitoring of rabbit numbers is conducted during evening walks. The group is very interested in learning and trialling monitoring techniques to make the program more effective. Approximately 30 residents participate in the program. Rental properties, unoccupied blocks and properties with rabbit proof fencing don't participate. There has been good ongoing participation due to a very active group and coordinator responding quickly to all concerns raised. The total cost of rabbit control is \$5,000 – \$6,000 per year. Council has contributed 20-30 per cent of this cost. The program is very time intensive (approximately 40 hours) for the group coordinator – sending letters, getting quotes, organising contractors, building bait stations, checking the job is done well and following-up on the program. With more funds the group would do more warren closure and fumigation follow up – after six days, six weeks and six months – as suggested by Jodie Davis from Parks Victoria. It would be helpful if funding from Council is confirmed before Christmas and that Council send letters to all residents to educate those that aren't involved in Landcare.

Other public land managers

Land	Manager	Contact	Rabbit Control
Warrandyte State Park Warrandyte-Kinglake NCR Yarra Valley Parklands	Parks Victoria	Ranger	<p>The ongoing control program has helped to reduce rabbit numbers over the past few years and aims to hold numbers at a sustainable level.</p> <p>Control methods include pindone baiting with bait stations (no longer bait trails due to risk to wildlife), fumigation, ripping, implosion, harbour removal (particularly blackberry and gorse) and rabbit proof fencing of threatened species sites.</p> <p>Monitoring is undertaken by spotlight counts.</p> <p>The budget for rabbit control is determined annually and is variable. \$6,000 was received through recurrent funds in 2008-2009, and \$10,000 each for Warrandyte State Park and Yarra Valley Parkland through the <i>Good Neighbour Program</i>.</p> <p>Funds are allocated across the park according to environmental values and neighbour activity.</p> <p>Communication with Council regarding RAG activities has decreased since Council's Rabbit Control Officer left.</p> <p>An increasing potential for partnership projects with Melbourne Water is very positive.</p>
Kinglake National Park	Parks Victoria		The <i>1996 Kinglake National Park Management Plan</i> does not mention rabbits as a significant pest species in the park.
Plenty Gorge Parklands	Parks Victoria	Ranger	<p>Control methods include pindone baiting with bait stations, implosion, ferretting in small exclusion plots and rabbit proof fencing of threatened species sites.</p> <p>Spotlight counts are conducted one-two times per year.</p> <p>Recent control has also focussed on areas that complement the revegetation work being done by Melbourne Water.</p> <p>Parks Victoria is very interested in working with Nillumbik and Whittlesea councils to develop a joint rabbit management program.</p>



Council land managers

Land	Manager	Rabbit Control
Yarrambat Park Golf Course	Leisure Services	Council has a contract with BSF Golf Management for the maintenance of the golf course. They undertake rabbit control using both baiting and shooting. The frequency is unknown.
Sporting Grounds 28 sports fields, 5 equestrian venues.	Leisure Services (facility management)	Complaints about rabbits from sporting clubs are referred to Environmental Works for action however it is understood that Environmental Works does not have a budget for rabbit control on sporting facilities and this is not their responsibility.
Eltham-Diamond Creek bike path, 58 playgrounds, Plenty River Trail, Acqueduct Trail,		Where rabbits are damaging the playing surface of ovals the best solution is seen to be rabbit proof fencing. Fences have been constructed around four ovals and more will be undertaken as funds are available. This is effective so long as the gates are kept closed.
Parks, playgrounds, roadsides, sporting grounds, horse and pony clubs.	Infrastructure Maintenance (facility maintenance)	<p>Rabbits are a problem but there is no budget for rabbit control. If rabbit control is required then funds have to be reallocated from somewhere else.</p> <p>One project is currently active with Environmental Works and Melbourne Water along Diamond Creek.</p>

Land	Manager	Rabbit Control
Environmental reserves and wetlands (650ha) and environmentally significant roadsides (800km)	Environment and Strategic Planning	<p>Rabbits are a huge problem. Rabbit control at Hohnes Hill, Heard Ave, Barrak Bushlands and Professors Hill reserves is being undertaken and a joint project with Melbourne Water along the Diamond Creek in the Nillumbik Park area of Diamond Creek is also being conducted. A potential future project along the Diamond Creek in Eltham.</p> <p>(Wingrove Park, Eltham Lower Park and Barrak Bushlands) is being considered. Rabbit warrens are being tagged and mapped in Pantom Hill reserves.</p> <p>The type of control includes fumigation, warren destruction, rabbit proof fencing and baiting. Control is generally undertaken a couple of times a year. The budget for these works in 2008-09 is \$15,533. Monitoring is undertaken by Environmental Works officers during routine site visits or by contractors where annual contracts are in place.</p> <p>Control works are prioritised by (1) follow-up where previous works have been undertaken (2) reserves with significant flora species (3) creek areas where rabbit activity impacts on soil erosion etc. (4) areas where joint projects can be organised.</p> <p>Constraints include budget, coordination with adjoining landowners (private and state), effectiveness of rabbit control works were adjoining landowners don't participate, follow-up control where stakeholders like Melbourne Water undertake a project but don't budget for follow-up.</p> <p>Coordination with other groups is generally just with Melbourne Water as they are the major neighbour. It would be great to have joint projects with private property owners adjoining reserves.</p> <p>Funding from DPI for fumigation training for staff and contractors is available this year.</p>
Edendale Farm and Community Centre	Environment and Strategic Planning	Pindone carrot baiting was undertaken five years ago. No rabbits have been seen for last three years. Now staff are starting to see signs of them again. It's likely they are living in harbour and warrens along and adjacent Diamond Creek.
Ex-Landfill area (20ha)	Infrastructure Maintenance	This area has now been capped and there are far fewer rabbits due to a decrease in grass as a food source and rubble piles as harbour. The area is to be sown with native grasses, it may be rabbit-proof-fenced at this stage to prevent an increase in rabbits.

5. Record of people consulted in preparation of Rabbit Action Plan

Position	Organisation
Northern Yarra Catchment Care Coordinator	PPWCMA
Leisure Services	Nillumbik Shire Council
Infrastructure Maintenance	Nillumbik Shire Council
Environmental Works Coordinator	Nillumbik Shire Council
Edendale Farm	Nillumbik Shire Council
	Arthurs Creek RAG
	Dunmoochin Landcare
	Nutfield RAG
Land Management Officer	Hume City Council
Land Management Officer	Nillumbik Shire Council
Environmental Planning Coordinator	Nillumbik Shire Council
	DPI
Land Management Officer	Bass Coast Shire
	North Warrandyte-Kangaroo Ground RAG
	Osborne Peninsula Landcare
Land Management Officer	Whittlesea City Council
	Shire of Yarra Ranges
Biodiversity Education Officer	Banyule City Council
Rabbit Officer	Manningham City Council
Manager, Environment	VicTrack
	Municipal Association of Victoria
Ranger	Moss Vale Rural Lands Protection Board
Waterway Planner – Capital Projects	Melbourne Water
	Greening Australia
Grants and Partnerships	Melbourne Water
Warrandyte SP, Warrandyte-Kinglake NCR, Yarra Valley Parklands	Parks Victoria
Plenty Gorge Parklands	Parks Victoria
Local Government Facilitator	PPWCMA
Environmental Works	Nillumbik Shire Council



Civic Drive, Greensborough
PO Box 476, Greensborough 3088
Telephone 9433 3111
Facsimile 9433 3777
Website www.nillumbik.vic.gov.au
Email nillumbik@nillumbik.vic.gov.au

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