

THE CITY OF GREATER GEELONG

# RABBIT CONTROL PLAN

---

2021–2026









# CONTENTS

<b>Mayor's message</b>	<b>4</b>	<b>What we heard</b>	<b>13</b>
<b>Executive summary</b>	<b>5</b>	<b>What shaped this plan</b>	<b>14</b>
<b>Introduction</b>	<b>6</b>	Guiding principles	14
<b>Our region</b>	<b>7</b>	Rabbit control constraints	16
Biodiversity	7	Managing risk	17
Agriculture	7	<b>Our methodology</b>	<b>18</b>
Population growth	7	Rabbit Priority Area Scoring tool	18
Rabbits in our landscape	7	Data collection, monitoring and reporting	18
<b>Our commitment to control rabbits</b>	<b>8</b>	Community engagement and support	18
Rural and Peri-Urban Advisory Committee	8	<b>Our Rabbit Control Plan 2021–26</b>	<b>19</b>
Restoring Rural Landscapes	8	Vision	19
<b>The bigger picture</b>	<b>10</b>	Goals	19
Who's responsible for rabbit control?	10	Objectives	19
<b>The engagement process</b>	<b>12</b>	Action Plan 2021–2026	20
Community consultation	12	<b>References</b>	<b>22</b>
Phase one	12		
Phase two*	12		
Phase three	12		

Council acknowledges Wadawurrung Traditional Owners of this land and all Aboriginal and Torres Strait Islander People who are part of the Greater Geelong community today.

# MAYOR'S MESSAGE



From the moment they were introduced in the 1850s, rabbits have been destructive to our region's natural environment and to our agricultural industry.

They degrade the quality of our ecosystems, compete with livestock for pasture, reduce crop yields, promote the

spread of invasive weeds and sustain other vertebrate pests, such as foxes and feral cats.

They also create problems at reserves, degrading sites with high environmental value and damaging sport and recreational facilities.

The City of Greater Geelong's *Rabbit Control Plan 2021-2026* sets a clear vision and details a variety of integrated strategies for reducing the impacts of rabbits on City-owned land.

The plan also outlines how the City will partner with Landcare groups to support the community to effectively manage rabbits on private land. It will be implemented with the help of funding from the City's Restoring Rural Landscapes program, an exciting new initiative with a major focus on pest plant and animal control.

Thank you to the many members of our community who have offered their insights to help the development of this plan, including local Landcare groups and the City's Rural and Peri-Urban Advisory Committee. Thanks also to the City staff who have brought the plan to this point.

The goals and strategies set out in this document are innovative and we believe they'll set a new bar for other local governments aiming to manage their rabbit populations.



**CR STEPHANIE ASHER**

Mayor, City of Greater Geelong

## Rabbits – an introduced pest

The first rabbits were introduced in 1859 when 24 rabbits arrived in Corio Bay in Geelong on 'The Lightning' on route to Thomas Austin of Barwon Park, Winchelsea.

From Winchelsea, their fast rate of reproduction allowed them to expand into new territories, spreading at an astounding rate of 70 kilometres per year across Victoria.

Rabbit numbers in Australia peaked at over one billion just prior to the release of the first biological control, Myxomatosis, in 1951. Afterwards, numbers dropped to one million, but have been growing since, despite the release of other biocontrol agents over the intervening years.

Currently there are about 400 million rabbits across Australia, with around 20 million in Victoria (Bloomfield, T 2018c).

# EXECUTIVE SUMMARY

As an introduced species, rabbits thrive at the expense of many native plants and animals. They degrade ecosystems and landscapes, damage community infrastructure and impact agricultural production. As a land manager, we have a responsibility to prevent the spread of rabbits and, where possible, eradicate them.

The purpose of this document is to explain how we plan to control rabbits on City-managed land, while supporting the community to reduce their impact more broadly.

We discuss the impact rabbits are having in the Greater Geelong region, and outline our rabbit control commitments. We also set out a methodology to achieve effective rabbit control using an integrated approach and for collaborating with the community to reduce rabbit impacts.

Finally, we set out our vision, goals and actions for the next five years.

In developing this plan, we have considered the following:

- pest animal legislation and our responsibilities as a land manager
- industry best-practice and advice sourced from industry experts, including the Victorian Rabbit Action Network (VRAN), the Centre for Invasive Species Solutions and Agriculture Victoria
- rabbit control constraints and risks
- the views of the community (including Landcare groups and our Rural Peri-Urban Advisory Committee) and stakeholders who participated in our community engagement process (see page 13)
- our role in supporting the rural community to address land management issues
- appropriate ways to prioritise rabbit control, given the size of our municipality, and
- how best to monitor and continuously improve our rabbit control activities.



Figure 1: A rabbit-proof fence protects an indigenous grassland at Mount Brandon (Barwon and Moorabool River Reserve), Highton. Rabbit grazing impacts are evident outside of the fenced area.

# INTRODUCTION

European rabbits (*Oryctolagus cuniculus*) are not a natural part of Australia's ecology. As an introduced species, a thriving rabbit population has a significant impact on agriculture and comes at the expense of many native plants and animals. They degrade landscapes in the Greater Geelong region by:

- digging warrens
- selectively grazing on vegetation and undermining native vegetation
- preventing natural regeneration and damaging revegetated sites (Figure 2)
- promoting the spread of invasive weeds
- aggressively competing with livestock for pasture
- reducing crop yields
- sustaining and supporting other vertebrate pests, such as foxes and feral cats
- causing soil erosion
- increasing waterway siltation
- degrading ecosystem quality and resilience
- degrading cultural heritage sites
- creating unsafe surfaces for vehicles and pedestrians and
- undermining buildings and road structural integrity.

For all the reasons listed above, rabbits are considered to be Australia's most serious herbivore vertebrate pest. Rabbits are listed as a significant threat for 304 species of nationally threatened native plants and animals (Centre for Invasive Species Solutions 2019).

The *Catchment and Land Protection Act 1994* requires all landowners to take reasonable steps to prevent the spread of rabbits and, as far as possible, eradicate them.

This Plan targets rabbits and doesn't address other pest animals such as foxes as we consider rabbits to be causing the most damage to our environmental, recreational and agricultural assets at this time.



Figure 2: Rabbit grazing impacts on revegetated indigenous species along the Ted Wilson Trail, Hamlyn Heights. Rabbits are constantly eating she-oak (*Allocasuarina verticillata*) growth above the top of the tree guard.



Figure 3: Native poa grasses trimmed by rabbits.

## What is an Integrated Rabbit Control Program?

This plan is underpinned by an Integrated Rabbit Control Program. These programs achieve long-term pest control using a variety of control techniques – such as baiting, ripping, fumigation, implosion and harbour removal – at the right time, to the right standards (DEDJTR 2018).



# OUR REGION



Covering 1,252 km<sup>2</sup>, the Greater Geelong municipality is a very biodiverse region. We have some of the most breathtaking landscapes in Australia – from rugged untouched coastline on the Bellarine Peninsula, to wildflower-infused grassland on the volcanic plain, to majestic open forest in the Brisbane Ranges.

## BIODIVERSITY

Our coastlines, waterways, wetlands, bush and grasslands all provide important habitat for native plants and animals, and are places of rich biodiversity.

Our natural environment has been subject to extensive clearing for agriculture and urban expansion since European settlement. Remaining areas are also under threat from further clearing for development, climate change, and pest plants and animals, such as rabbits.

Rabbits are a 'key threatening process' to protected native flora, fauna and vegetation communities under the *Federal Environment Protection and Biodiversity Act 1999* and the *Flora and Fauna Guarantee Act 1988*.

## AGRICULTURE

The gross value of agriculture production in our region was \$495 million in 2017–18, with poultry, sheep and lambs, and wool contributing 56 per cent of this figure (Department of Agriculture, Water and the Environment 2020). The damage to agriculture from rabbits has been increasing over the past two decades as immunity levels to the Calicivirus (or Rabbit Haemorrhagic Disease) in the rabbit population has been slowly rising (DEDJTR 2018).

## POPULATION GROWTH

The Greater Geelong region is currently experiencing strong population growth and our population is predicted to exceed 393,000 by 2041 (Forecast.id, 2019). This growth will increase the size of the urban-rural interface – known as peri-urban areas – and will expose more people to the harmful impacts of rabbits. It will also put pressure on our existing areas of biodiversity as rabbits are forced to look for new areas to inhabit.

## RABBITS IN OUR LANDSCAPE

Natural landscapes in our region are many and varied. These landscapes vary not only in form, but also in soil type and underlying geology – from poorly draining basalt clays on the volcanic plains around Little River, to the deeper, often sandier soils formed by alluvial processes that are usually found on the Bellarine, or near waterways.

Rabbit populations tend to establish warren systems in deep loams and/or sandy soils as they are easy to dig and free draining. We will therefore prioritise these areas for control measures in an aim to reduce rabbit dispersal across the landscape.

The type of City-managed land we manage where rabbits can be an issue include:

- waterways – Hovells Creek, Waurin Ponds Creek, Barwon River, Moorabool River, Lake Lorne and McLeod's Waterholes
- roadsides and trails – the Bellarine Rail Trail, Ted Wilson Trail, Knights Road, Creswell Road and Manifold Road
- reserves – Haines Reserve, Drysdale Pony Club and Mount Duneed Recreation Reserve.

**“Though the rabbit makes the warren, it's the warren that makes the rabbit.”**

Successful rabbit breeding depends on the availability of burrows and warrens.

The burrow, when first dug, is approximately one metre long and is used for both breeding and shelter from climate extremes and predators. The most successful breeding occurs in larger, more complex warren systems, which are made up of numerous single entrance burrows (Bloomfield T 2018a).

Surface harbour is important for shelter, but will not enable successful breeding (Bloomfield T 2018a).

A long-term, successful control program must treat warrens to prevent rabbits from re-populating the treated area.

# OUR COMMITMENT TO CONTROL RABBITS

We have increased our focus on rabbits in response to strong community advocacy demanding action on pest plant and animals. The Rural and Peri-Urban Advisory Committee has played a vital role in this, as well as the development of our Restoring Rural Landscapes program. Implementing an effective rabbit control program requires a long term commitment of 15 years or more. The City therefore commits to renewing this plan in 2026.

## RURAL AND PERI-URBAN ADVISORY COMMITTEE

Council authorised the formation of the Greater Geelong Rural and Peri-Urban Advisory Committee in May 2018. The objective of the committee is to consider and advise Council on matters relevant to rural and peri-urban constituents.

Pest plant and animal management is a key interest of the committee. A sub-committee, made up of passionate and experienced members, has been established to guide the development of relevant recommendations.

## RESTORING RURAL LANDSCAPES

Restoring Rural Landscapes is a City-funded program that commenced in 2019–20 to increase pest plant and animal control activities. In its first year, the program has focused on controlling pest plant and animals on City-managed land.

Phase one prioritises four target areas within the municipality (Figure 4). Phase two of the program will extend into new zones, while maintaining the works that have occurred within phase one zones. While this work is being undertaken, traditional pest plant and animal control programs are being maintained outside of the target areas.

The four target areas are:

1. Lara zone – Hovells Creek catchment
2. Curlewis/Drysdale zone
3. Swan Bay zone
4. South-west zone – Batesford, Fyansford, Ceres, the Barrabool Hills, Waurin Ponds and Mount Duneed.

The target areas were selected because they contain:

1. High-value landscapes and significant habitats that need to be protected.
2. Many rabbit priority areas – waterways, reserves or roadsides – and large rabbit populations.
3. Many roadsides and reserves, with high-threat noxious weeds.
4. A higher proportion of City-managed reserves than other areas, so we can have a greater influence.
5. Active community groups we can partner with to achieve our joint objectives.

The four target areas contain a total of:

- 160 target roads
- 240km of roadside
- 1400ha of reserves

## CASE STUDY:

### Knights Road, Mannerim (within the Swan Bay Catchment target area)

The roadside located at the south-eastern end of Knights Road, Mannerim, was heavily infested with rabbits. In 2019, prior to control works, warren mapping calculated a high density of warrens (Figure 5).

One of the control challenges at this site is that it supports protected remnant native vegetation (Figure 6). We therefore used fumigation to treat the warrens near the native vegetation, as it creates less disturbance, and only ripped areas where damage would be minimal. This work was done in consultation with the adjoining landowners and the Department of Environment, Land, Water and Planning (DELWP).

Since our control efforts commenced in 2019, we have fumigated over 200 warrens (over 640 burrows) and ripped over 25 warren systems on the roadside. These works, combined with the rabbit control efforts of adjoining landowners, have reduced rabbit numbers on the roadside. We are monitoring these results and will perform more control activities as required.



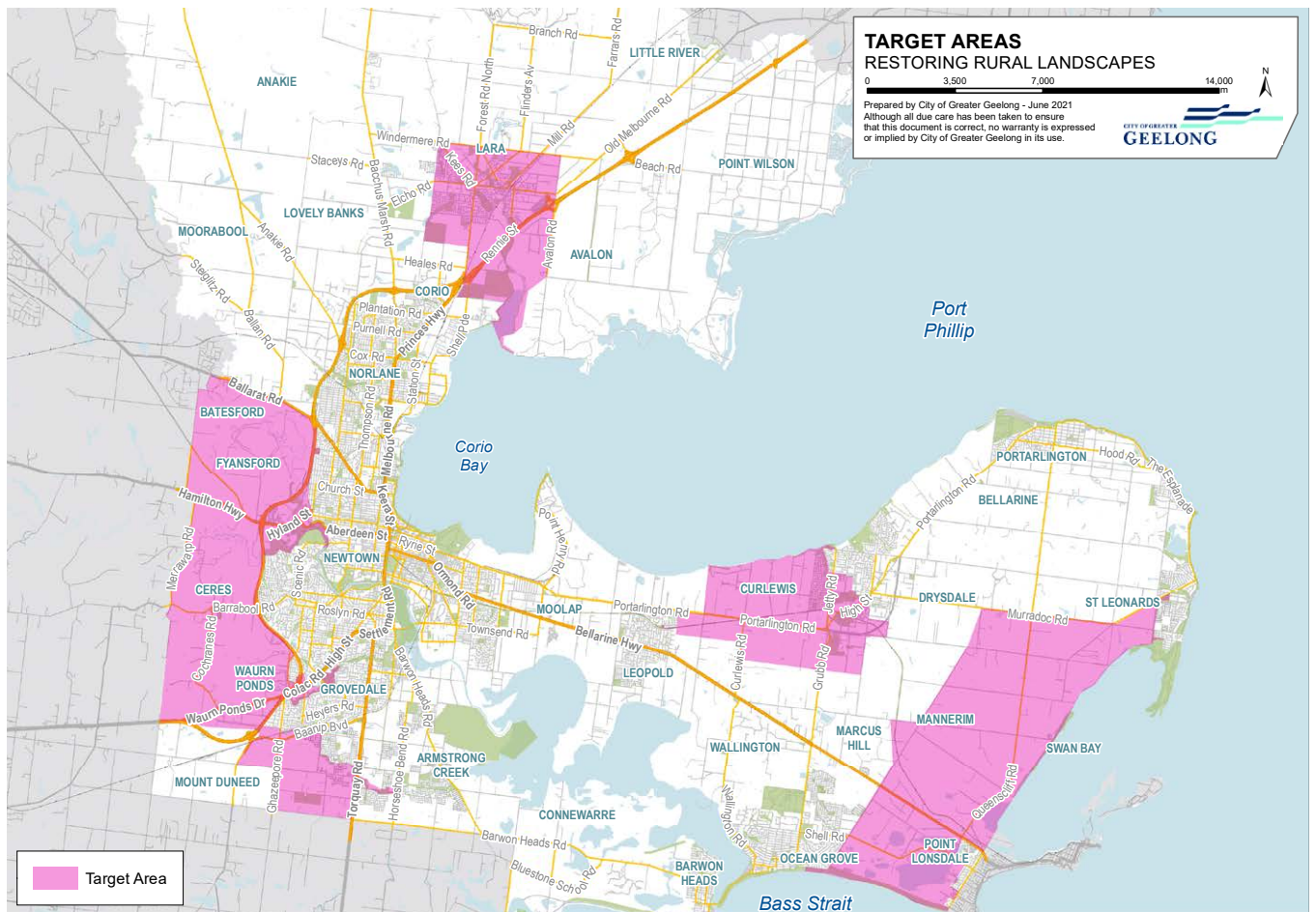


Figure 4: Phase one target areas for the Restoring Rural Landscapes Program

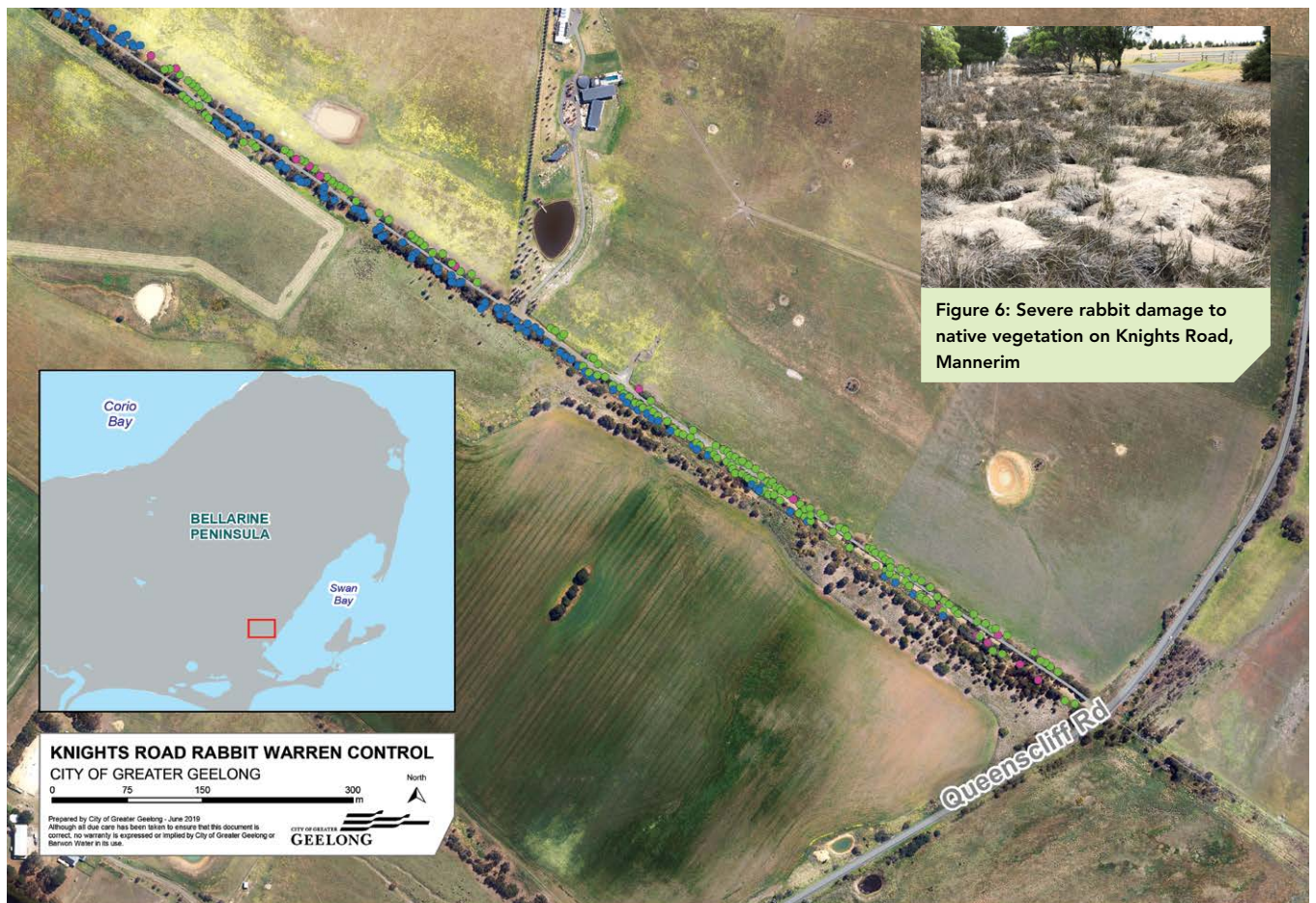


Figure 6: Severe rabbit damage to native vegetation on Knights Road, Mannerim

Figure 5: Each coloured dot represents a warren system located on the Knights Road roadside (2019)

# THE BIGGER PICTURE

This plan has been informed by Australian and Victorian Government legislation and policies, as well as regional efforts to control invasive species.

It aligns with the community-led clever and creative vision, our *2018-22 Council Plan* and other relevant corporate policies and strategies. Its content has been guided by expert advice on managing rabbits and community expectations.

## WHO'S RESPONSIBLE FOR RABBIT CONTROL?

Under the *Catchment and Land Protection Act 1994* all landowners are required to take all reasonable steps to control rabbits on their land. The City identifies priority sites and allocates resources to control rabbits through our annual rabbit control program.

Effective rabbit control over the long term requires an integrated control program with neighbouring landowners all working toward the goal of eradication. This is why we are committed to adopting a whole-of-landscape approach to rabbit control – that is, seeking to collaborate with our neighbours and other stakeholders to achieve prolonged benefit across larger areas.

The key stakeholders involved in rabbit control are:

- Agriculture Victoria – the lead agency responsible for pest animal legislation oversight and enforcement
- the Corangamite Catchment Management Authority – supports land managers and environment groups by giving grants to support on-ground pest plant and animal removal
- Government agencies and committee's of management – these include Parks Victoria, Barwon Water, Regional Roads Victoria, VicTrack, Barwon Coast, Bellarine Bayside and others
- key support and advisory groups – the Victorian Rabbit Action Network (VRAN) and the Rural and Peri-Urban Advisory Committee
- special interest groups – regional Landcare, environmental, 'friends of' and other volunteer groups
- Wadawurrung Traditional Owners Aboriginal Corporation
- private land owners.

Table 1 Legislation and policy guiding rabbit control in the City of Greater Geelong

LEVEL	LEGISLATION AND POLICY
Federal	<i>Agricultural and Veterinary Chemicals Code Act 1994</i>
	<i>Australian Pest Animal Strategy 2017-27</i>
	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
State	<i>Aboriginal Heritage Act 2006</i>
	<i>Agricultural and Veterinary Chemicals (Control of use) Act 1994</i>
	<i>Biosecurity Strategy for Victoria</i>
	<i>Catchment and Land Protection Act 1994</i>
	<i>Drugs, Poisons and Controlled Substances Act 1981</i>
	<i>Flora and Fauna Guarantee Act 1988</i>
	<i>Invasive Plants and Animals Policy Framework</i>
	<i>Local Government Act 1989</i>
	<i>National Parks Act 1975</i>
	<i>Planning and Environment Act 1987</i>
	<i>Prevention of Cruelty to Animals Act 1986</i>
	<i>Wildlife Act 1975</i>
	<i>Protecting Victoria's Environment - Biodiversity 2037</i>
Regional	<i>Corangamite Regional Catchment Strategy 2013-2019</i>
Local	<i>Biodiversity Strategy 2004</i>
	<i>Environment Management Strategy 2020-30</i>
	<i>Greater Geelong: A Clever and Creative Future</i>
	<i>The City of Greater Geelong Council Plan 2018-22</i>





### “Breeding like rabbits”

Rabbits are rapid breeders and a single pair of rabbits can increase to 184 individuals within 18 months.

Rabbits mature at 3–4 months and continuously breed as long as green feed is present. The gestation period is 28–30 days and the average litter size is four to six kittens. Female rabbits (doe) are fertile immediately after giving birth and mating often occurs within 0.5 to 2 hours after giving birth. A doe can average 28 kittens per year (DEDJTR 2018).

The spread of rabbits into new territories is related to dominance hierarchies in rabbit social groups. Young rabbits are pushed away from the burrow before they are two months old and forced to find a new home. The spread of rabbits is therefore a social behaviour that never stops (Bloomfield T 2018c, DEDJTR 2018).

Figure 7: Rabbit damage along Knights Road, Mannerim one of the most rabbit infested locations in the municipality.



# THE ENGAGEMENT PROCESS



Figure 8: Community consultation session in progress at the Leopold Community Hub

We carried out extensive community engagement – from November 2018 to August 2020 – taking the opportunity to collate a diverse range of ideas, concerns, issues and opportunities.

## COMMUNITY CONSULTATION

### Phase one

- November 2018 – Rabbit control community feedback form
- 6 December 2018 – Bellarine community workshop
- December 2018 – Feedback form distributed via Geelong Landcare Network contact list

### Phase two

- August 2019 – Three open-house style community workshops (Leopold, Lara and Geelong)
- August–September 2019 – online survey on our 'Have Your Say' web page, with hardcopies available on request (72 responses received)

### Phase three

- July–August 2020 – Online survey on our 'Have Your Say' web page to receive feedback on the contents of the draft plan (51 participants)
- July–August 2020 – submissions (mail, email, phone) were received by 17 community and stakeholder groups and 3 community members.
- Please note, this engagement was tailored to suit Covid19 restrictions in place at the time which didn't allow for face to face consultation.



# WHAT WE HEARD

## Phase One and Two – consultation prior to the draft plan

We heard from 108 people during the first two phases of consultation.

The main findings were:

- respondents felt that rabbit numbers have increased in their local area over the past three years.
- rabbit burrowing and grazing behaviours were identified as having the most damaging impacts.
- respondents were concerned about the impacts on native flora and fauna.
- In a multiple-choice survey question: What are your main concerns about rabbits?
  - › 90 per cent of respondents were concerned about rabbit impacts to natural areas
  - › 63 per cent of respondents were concerned about rabbits not being controlled on public land
  - › of least concern was potential off-target impacts of baiting with Pindone.
- When asked about ‘hotspot’ areas for rabbits across the municipality, the majority of respondents answered public land.
- The method most commonly used by respondents to control rabbits was Pindone baiting, followed by warren fumigation and harbour removal.
- Taking an integrated control approach was recommended by the community.
- 40 per cent of all comments focused on how we could support the community to control rabbits.

## Phase Three – consultation on the draft plan

In total, 51 respondents provided feedback via the online survey, (42 completed and 9 partially completed), and we received submissions from 17 stakeholder and community groups and 3 community members.

Most respondents who completed the “Likert scale” surveys were supportive of the Plan. “Strongly agree” was the highest response received for all of the six questions followed by “agree” which was the second highest response for each question.

A total of 296 individual comments were provided via

the survey and submissions. While the overall response to the plan was generally positive, some comments revealed opposing views in the community relating to:

- our vision and goals, primarily Goal 1
- our proposed control methods and the associated risks
- restricting control methods to protect native vegetation.

Other topics frequently commented on included:

- the importance of partnering with Landcare
- support for private landowners
- communication and engagement
- compliance and enforcement
- suggested changes to actions

## Updates to the Plan

Following the final phase of consultation, we made some updates to the Plan relating to the following topics:

- Revising Goal 1
- Pindone use
- Immunocontraception (and other non-lethal control technologies)
- Biocontrol agents
- Native vegetation (and other constraints)
- Controlling other pest animals
- Size of the target areas
- Extend the timing of the Plan

For further detail on what we heard refer to the engagement reports available at [yoursay.geelongaustralia.com.au/DRCP](https://yoursay.geelongaustralia.com.au/DRCP)

# WHAT SHAPED THIS PLAN

As well as the extensive community engagement process, this plan has been shaped by a number of other factors, including our guiding principles, current challenges and constraints, risk management and best practice rabbit control.

## GUIDING PRINCIPLES

When addressing rabbit control challenges across the municipality, we will:

PRINCIPLE	OUR COMMITMENT
<b>Commit</b>	<p>We are committed to providing adequate, long-term resourcing to achieve effective rabbit control on City-managed land and support landowners and community groups to control rabbits on private land.</p> <p>This commitment is born of:</p> <ul style="list-style-type: none"><li>• our legal responsibility to prevent the growth and spread of rabbits</li><li>• our social responsibility to support the community in their attempts to control pest animals</li><li>• the need to address the devastating effects rabbits have on the environment and other community assets.</li></ul>
<b>Prioritise and deliver</b>	<p>We'll evaluate and rank management zones and specific sites each year to identify the priority areas.</p> <p>We'll prioritise rabbit control in areas where there is existing community action, significant rabbit impacts, high-value biodiversity and/or other community assets present.</p> <p>We'll deliver effective rabbit control by utilising a range of control techniques (dependant on site constraints) to maximise our long-term successes.</p> <p>To be industry leaders, we'll apply and adapt best practice rabbit management and trial new techniques.</p>
<b>Mitigate and evaluate</b>	<p>We'll mitigate risks to the public, cultural heritage, wildlife and native vegetation by systematically identifying hazards and applying controls on a site-by-site basis. We will implement our risk management system to identify and address risks associated with all rabbit control tasks.</p> <p>We will identify and prioritise the most effective techniques, within the constraints of each site. If site constraints prevent the use of a particular control technique, then we'll commit to applying alternative techniques or innovative solutions rather than allowing the problem to get worse.</p> <p>We'll monitor results and measure successes to better understand the effectiveness of the program. We'll adapt the program and refine processes to increase program effectiveness and efficiency.</p> <p>We'll seek to apply monitoring techniques that enable us to measure improvements to assets and not rely entirely on rabbit counts as an indicator of success.</p>



PRINCIPLE	OUR COMMITMENT
<b>Collaborate and empower</b>	<p>We'll establish new and foster existing relationships with land management partners and government agencies.</p> <p>We'll collaborate with other land managers and the community to achieve greater value for investment. We'll also continue to seek advice from industry experts and rabbit action networks.</p> <p>As collaboration is a critical component of an effective, long-term rabbit control program, this will be our focus. Effective collaboration will also build trust and improve relationships with stakeholders and the community.</p> <p>We'll support and empower community groups and rural landowners to undertake effective rabbit control.</p>
<b>Communicate and engage</b>	<p>We'll communicate plans, experiences, learnings and results with stakeholders and the community. Our messages will focus on how and why effective rabbit control benefits the community.</p> <p>We'll listen to the community about where and how rabbits are impacting them. We'll also celebrate our successes with them.</p> <p>We'll create resources to engage with and educate the community about the impacts of rabbits and the importance of employing an integrated control program when managing rabbits on their property.</p> <p>We'll empower community groups and landowners to effectively control rabbits on a landscape wide by running training and incentive programs and encouraging a coordinated approach.</p>



Figure 10: Rabbits dictate what species of vegetation survives and regenerates – only boxthorn and blanket weed are thriving at the location above.

### Key rabbit control considerations:

Rabbits populations benefit from:

- land managers with a poor understanding of rabbit biology and ecology in the local environment
- landscapes with abundant spiny woody weeds, such as gorse and boxthorn, and other surface harbour
- well-established warren systems
- poorly-planned, small-scale and disconnected control programs
- short-term program funding commitments and
- a lack of commitment to creating a sustainable, long-term change in the landscape.

Conversely, research in Victoria has shown that well-run and coordinated control programs – including broad-scale warren ripping – were able to reduce rabbit populations by 80–97 per cent. These rabbit numbers were also maintained at these low levels for 20 years (Bloomfield T 2018a, McPhee and Butler 2010., Forsyth et al., 2016).

## RABBIT CONTROL CONSTRAINTS

Rabbit control activities on City-managed land are always going to be constrained by a range of factors, as described below in Table 2.

Table 2: Rabbit control constraints

CONSTRAINT	DESCRIPTION	LEGISLATION
<b>Community perception / understanding</b>	<p>There are some in the community who are against lethal means of controlling rabbits such as baiting.</p> <p>At this point in time lethal control methods are the only practical means for managing rabbits and baiting is recommended as an essential part of an integrated control program.</p> <p>Our long-term objective is to use baits less as warrens systems are treated and rabbits are not able to quickly repopulate our reserves.</p> <p>We choose to use Pindone when baiting rabbits as it has an antidote, requires multiple doses to be lethal and is slow acting so most rabbits die below ground.</p> <p>We use Pindone in accordance with the product label and have developed a risk management process to ensure we mitigate risks to people, domestic animals and wildlife.</p>	<p><i>Prevention of Cruelty to Animals Act 1986</i></p> <p><i>Wildlife Act 1975</i></p>
<b>Cultural heritage</b>	<p>Many of our reserves are within, or close to, areas of Aboriginal cultural heritage significance. To avoid damaging these sites, we need to be cautious about carrying out rabbit removal works that will impact the soil, such as warren ripping. We work with Traditional Owners to achieve effective rabbit control in areas of cultural significance.</p>	<p><i>Aboriginal Heritage Act 2006</i></p>
<b>Increasing resistance to biocontrol agents</b>	<p>Releasing biocontrol agents can achieve short-term reductions in rabbit numbers over large geographical areas. However, in rabbit populations, rapid rates of reproduction allow resistant genes to quickly build up, so that numbers can replenish. Therefore, while they are important, biocontrol agents can only have a limited role in minimising rabbits.</p>	
<b>Lack of coordinated action</b>	<p>Areas treated for rabbits can quickly be reinfested by rabbits from untreated areas. It is therefore essential that neighbours work together and coordinate their actions.</p>	
<b>Native vegetation as harbour for rabbits</b>	<p>Rabbit warrens are sometimes located beneath native vegetation. As native vegetation is protected in Victoria, planning processes will be followed prior to undertaking warren removal works. Our priority is always to avoid or minimise impacts to native vegetation, and any native vegetation removed will be recorded. We will aim to restore any native vegetation impacted by rabbit control activities.</p>	<p><i>Planning and Environment Act 1987</i></p> <p><i>Environment Protection and Biodiversity Conservation Act 1999</i></p> <p><i>Flora and Fauna Guarantee Act 1988</i></p>



CONSTRAINT	DESCRIPTION	LEGISLATION
<b>Wildlife and pets</b>	We perform rabbit control to protect and enhance the habitat available for native wildlife. Our rabbit control programs are performed in accordance with best practice guidelines from the relevant authorities.	<i>Wildlife Act 1975</i>
<b>Roadsides</b>	Local governments have only recently become legally responsible for managing noxious weeds and pest animals on roadsides. Without ongoing rabbit control, these roadsides have consequently come to support large infestations.	<i>Catchment and Land Protection Act 1994</i> <i>Road Management Act 2004</i>
<b>Weed harbour</b>	Rabbits often dig warrens beneath weeds that offer protection from predators, such as African boxthorn or gorse. Weed harbour must be removed for warrens to be effectively treated.	<i>Catchment and Land Protection Act 1994</i>
<b>Risk management</b>	There are a range of risks associated with undertaking rabbit control on our reserves. These include occupational health and safety risks in relation to working with chemicals and machinery. Controls are put in place that effectively mitigate these risks prior to works commencing at a site.	<i>Occupational Health and Safety Act 2004</i> <i>Agricultural and Veterinary Chemicals Code Act 1994</i> <i>Agricultural and Veterinary Chemicals (Control of Use) Act 1992</i>
<b>Underground services</b>	Buried pipes or cables are often located within roadsides or reserves so a "Dial Before You Dig" enquiry is required prior to the treatment of warrens. No ripping or implosion is permitted within the vicinity of these services.	

## MANAGING RISK

In all rabbit control activities, we aim to identify processes and control measures well before we start work. Our goal is to be a leader when it comes to managing safety and risk.

We will continue to address risks by applying a variety of risk management tools, including:

- risk registers
- risk assessments
- site hazard identifications
- risk management plans and hazard maps
- safe work method statements
- safe operating procedures and
- contractor safety checklists.



Figure 11: Pindone baiting location 2020.

### Our pindone baiting program includes the following mitigation measures:

- fence off baiting areas or close reserves.
- warning signs
- daily removal of uneaten baits and rabbit carcasses.
- mail out to neighbouring properties.
- remind local veterinary clinics to have Vitamin K1 (pindone antidote) in stock.
- monitoring for and testing of deceased wildlife.

# OUR METHODOLOGY

## INTEGRATED RABBIT CONTROL

We can only implement effective rabbit control if we use a variety of control methods at the optimal time. Knowing the values and constraints of our sites, and the impacts rabbits are having on these values, is also essential.

In developing this plan, we have sought advice from rabbit control experts and started an annual monitoring program on our key reserves. The information we've gathered so far has helped us identify the following best-practice control process.

Our integrated rabbit control program will involve the following steps:

1. **Assess** rabbit populations, the damage they are causing, their warren systems (which should be mapped) and site-specific risks and constraints – environmental, cultural and safety.
2. **Bait** to reduce rabbit numbers prior to warren and harbour removal.
3. **Remove** harbour such as woody weeds, rubbish, rock and soil stockpiles.
4. **Destroy** warrens via ripping, implosion or other methods – the technique chosen will vary according to site constraints, such as the presence of native vegetation, closeness of cultural heritage sites and underground utility assets.
5. **Monitor** the effectiveness of the program, measuring both rabbit numbers and biodiversity, and modify where necessary.
6. **Maintain** success by fumigating, re-ripping, spot baiting and long netting, as required.

The success of this process will be reviewed annually, and changes made as required.

In addition to the above, we'll also support the Australian and Victorian Governments when they release new biocontrol agents.

Rabbit proof fencing will also be used to protect high value assets from rabbit grazing impacts and treated areas from re-infestation.

## RABBIT PRIORITY AREA SCORING TOOL

We will prioritise how each of our reserves will be treated when planning our annual rabbit control program. Each of our reserves and roadsides will be scored against a set of criteria and ranked. Factors we will assess include:

- site location
- site significance (environmental, agricultural, social, cultural or recreational assets)
- rabbit population size and impact
- impact to communities and neighbouring properties
- rabbit control actions planned, or being undertaken, on neighbouring properties.

When resources allow, we will treat all known rabbit priority areas annually. When there's not sufficient resources, we'll treat sites in order of priority, only stopping once funding runs out, or the season ends.

## DATA COLLECTION, MONITORING AND REPORTING

To assess the effectiveness of the control program and identify opportunities to improve it, priority sites will be monitored annually, and warren locations mapped. The results of the program will be summarised then reported to Council and the community at the end of each year.

## COMMUNITY ENGAGEMENT AND SUPPORT

To support the community to better address rabbit issues, we will do the following:

- produce a range of community education materials
- introduce incentive programs to assist landowners
- support Landcare and rabbit action groups to run field days and other activities and
- publish a rural landowner education toolkit, as part of the Restoring Rural Landscapes Program.



# OUR RABBIT CONTROL PLAN 2021–2026

## VISION

Apply an integrated approach to rabbit control, supported by the community, that enables natural regeneration on our reserves, and restores natural and rural landscapes. We aspire to have no active rabbit warrens on City managed land.

## GOALS

1. Apply an integrated control program to have rabbits and warrens under effective control\* on all City-managed land in the Restoring Rural Landscape target areas by 2026.
2. To identify the extent of the rabbit infestations across all City managed land to identify our next target areas by 2025.
3. To partner with all Landcare groups in programs that will engage and equip rural landowners to control rabbits by 2026.

\*Rabbit numbers low enough to enable regeneration in natural areas - warrens ripped preferably, or fumigated if constraints present, and harbour removed.

## OBJECTIVES

PRINCIPLE	OBJECTIVE
<b>Commit</b>	Sufficiently resource rabbit control to achieve and maintain our goals.
<b>Prioritise and deliver</b>	Rabbit control prioritised in areas where there is existing community action, significant rabbit impacts, high-value biodiversity and/or other community assets.  Use the full suite of available control techniques to maximise impact.  Act where we can achieve the best results.
<b>Mitigate and evaluate</b>	Identify hazards and adopt control measures to minimise risk of harm.  Monitor results and measure success to better understand the rabbit problem and adapt the program.
<b>Collaborate and empower</b>	Establish new relationships, and foster existing ones, with our land management partners and government agencies.  Support and empower community groups and rural landowners to undertake effective rabbit control.
<b>Communicate and engage</b>	Share our plans, results and learnings with the community and partner agencies.  Create resources that engage the community about rabbits, the damage they cause and control methods.

## ACTION PLAN 2021–2026

PRINCIPLE	ACTION	TIMING	MEASURE OF SUCCESS
Commit	1. Approve an annual budget that supports effective rabbit control across all City-managed land for the life of this plan and beyond.	Annual	Adequate resources for the effective implementation of this plan allocated.
	2. Extend the term of the Rural and Peri-Urban Advisory Committee.	Ongoing	The term of the committee is extended.
	3. Advocate to the Victorian Government to commit more resources for extension, enforcement and biological control.	Ongoing	Meet once a year, or as situations arise.
	4. Review the Plan in 2026 and consider including other pest animals.	2026	Reviewed plan adopted and implemented.
Prioritise and Deliver	5. Map rabbit warrens on priority sites.	June 2022	All rabbit warrens on priority sites mapped
	6. Survey all City managed land to identify the extent of rabbit infestations.	2025	All infestations identified and prioritised.
	7. Use a site prioritisation tool for City-managed land to target resources effectively.	Annual	All sites ranked and priority sites identified each year.
	8. Undertake extensive works program on priority sites, applying all steps of our integrated rabbit control program (see page 18), installing fencing where appropriate.	Annual	Effective control achieved on priority sites and natural regeneration occurring.
	9. Deliver restoration projects on sites that have been impacted by rabbit control activities. This may include intensive weed control to encourage natural regeneration, and revegetation.	Annual	Two restoration projects each year.
	10. Trial new and innovative rabbit control techniques including non-lethal technologies.	As opportunities arise	Trial any new control technique approved by the Centre for Invasive Species.
Mitigate and Evaluate	11. Develop and implement a site-specific risk management framework for rabbit control that considers public safety, occupational health and safety, cultural heritage, native vegetation and wildlife risks.	August 2021	No rabbit-control-related incidents involving public safety, occupational health and safety, cultural heritage, native vegetation or wildlife.
	12. Require contractors adhere to our site-specific risk management framework for rabbit control and undertake regular audits.	Ongoing	No rabbit-control-related incidents involving public safety, occupational health and safety, cultural heritage, native vegetation or wildlife.
	13. Develop a monitoring program that incorporates new technologies to assess the effectiveness of our control program.	2022	A monitoring program will be in place by 2022.
	14. Review and adapt the rabbit control program at the end of each season.	Annual	Continuous improvement in rabbit control resulting in a greater reduction in rabbit impacts and numbers each year.
	15. Ensure land handed over to the City by developers is free from rabbits and rabbits warrens, and is made rabbit-proof where required.	Ongoing	Rabbit control conditions applied to all new developments.



PRINCIPLE	ACTION	TIMING	MEASURE OF SUCCESS
Collaborate and Empower	16. Partner with Landcare groups to develop assistance programs, equipping landowners to control and monitor rabbits.	June 2022	Assistance program introduced.
	17. Partner with Landcare groups and the Victorian Rabbit Action Network to deliver collaborative events for landowners in the region.	Annual	Support two rabbit collaborative events in the Geelong region – one on the Bellarine Peninsula and one elsewhere.
	18. Partner with Landcare and industry experts to organise a rabbit forum to encourage best practice rabbit management.	December 2024	Rabbit forum is held, with presentations from industry experts.
	19. Maintain regular correspondence with Landcare groups and agencies.	Annual	Attend four Landcare group meetings a year.
	20. Establish demonstration sites at prominent locations within Restoring Rural Landscape zones to demonstrate successful rabbit control programs and illustrate the positive improvement to the environment.	June 2022	Three demonstration areas established, monitored and results promoted.
	21. Collaborate with the Wathaurung Aboriginal Corporation to enter into an Aboriginal Cultural Heritage Land Management Agreement for priority reserves.	December 2023	Agreement is signed and implemented.
	22. Reconvene Public Land Rabbit Control Group with government agencies.	Annual	Hold two meetings per year (December and June).
	23. Identify and report rabbit infestations on private land to Agriculture Victoria and advocate for a rabbit compliance program.	Annual	Agriculture Victoria regularly informed about heavily-infested properties.
	24. Connect with universities and government agencies.	Ongoing	Discuss partnership opportunities with two universities/TAFE institutions and the Centre of Invasive Species.
Communicate and Engage	25. Develop a rabbit control communication plan.	Ongoing	Report to councillors once a year. Report annually to the community. Report to the City's Rural and Peri-Urban Advisory Committee quarterly. Promote rabbit control plan at two rural events each year. Promote community control programs using our communication channels. Update the rabbit control web page as required – approximately three times a year – and include maps and annual program information.
	26. Create a rural land management education toolkit that covers rabbit and weed control.	June 2022	Education toolkit created and distribution started. Investigate and trial the use of online applications.

# REFERENCES

- Brown, A. (2012) *Glovebox Guide for Managing Rabbits – PestSmart Toolkit*. Invasive Animals Cooperative Reserch Centre, Canberra, ACT.
- Bloomfield, T. (2018a) *Detailed guidelines for developing site-specific best practice control plans for managing rabbits*. Environment First.
- Bloomfield, T. (2018b) *The optimal approach for rabbit management – a synthesis of rabbit management*. Environment First.
- Bloomfield, T. (2018c) Personal communications.
- Centre for Invasive Species Solutions (2019) *PestSmart, European Rabbit*. <http://www.pestsmart.org.au/pest-animal-species/european-rabbit>
- Cooke, B., McPhee S., and Hart, Q. (2008) *Rabbits: a threat to conservation and natural resource management*. Bureau of Rural Sciences. Australian Government, Canberra.
- Danks, R. (2019) Personal communications.
- Department of Agriculture, Water and the Environment (2020) *About my region – Geelong, Victoria*. <https://www.agriculture.gov.au/abares/research-topics/aboutmyregion/vic-geelong#agricultural-sector>
- Department of Economic Development, Jobs, Transport & Resources (DEDJTR) Biosecurity Victoria Division (2018) *Leadership in Rabbit Control Course – Training Notes/Manual*. Victorian Government, 1 Spring St, Melbourne.
- Department of Environment, Water, Heritage and Arts (2008a) *Background Document for the Threat Abatement Plan for Competition and Land Degradation by Rabbits*. Commonwealth of Australia
- Department of Jobs, Precincts and Regions (2019a) *Integrated rabbit control for rural and natural landscapes*. <http://agriculture.vic.gov.au/agriculture/pests-diseases-and-weeds/pest-animals/invasive-animal-management/established-invasive-animals/integrated-rabbit-control-for-rural-and-natural-landscapes>
- Department of Jobs, Precincts and Regions (2019b) *Integrated rabbit control in urban and semi-urban areas*. <http://agriculture.vic.gov.au/agriculture/pests-diseases-and-weeds/pest-animals/invasive-animal-management/established-invasive-animals/integrated-rabbit-control-in-urban-and-semi-urban-areas>
- Department of Natural Resources and Environment (2002) *Victorian Pest Management: Rabbit Management Strategy*.
- Department of Primary Industries (2009) *Invasive Plants and Animals Policy Framework*.
- Forecast.id (2019) *City of Greater Geelong population forecast*. <https://forecast.id.com.au/geelong/about-forecast-areas>
- Forsyth, D. et al (2016) *Long-term monitoring of Victorian rabbit populations – unpublished client report*. Prepared for Agriculture Victoria, Department of Economic Development, Jobs, Transport and Resources.
- McFarlane, G. 2019 personal communications
- McPhee S.R. and Butler K.L (2010). *Long-term impact of coordinated warren ripping programmes on rabbit populations*. Wildlife Research, 37, pp 68–75.
- McPhee S. R. (2010). *Monitoring the impact of rabbit haemorrhagic disease (RHD) and conventional rabbit control in Victoria*. Annual report 2010, Department Primary Industries, Victoria.
- Victorian Rabbit Action Network (2018) *Resources*. <https://rabbitaction.com/further-resources>
- Williams, K., Parer, I., Coman, B., Burley, J. & Braysher, M. (1995) *Managing vertebrate pests: rabbits*. Australian Government Publishing Service, Canberra.





Conservation volunteers installing a new rabbit-proof fence to protect a future direct seeding site at Mt Brandon.



---

**CITY OF GREATER GEELONG**

WADAWURRUNG COUNTRY

PO Box 104

Geelong VIC 3220

**P:** 5272 5272


**E:** [contactus@geelongcity.vic.gov.au](mailto:contactus@geelongcity.vic.gov.au)

[www.geelongaustralia.com.au](http://www.geelongaustralia.com.au)

© City of Greater Geelong 2021

**LATEST NEWS:**

 [@CityofGreaterGeelong](#)

 [@GreaterGeelong](#)

 [@CityofGreaterGeelong](#)

 [CityofGreaterGeelong](#)

