



RABBIT MANAGEMENT PLAN

2021-2031

ACKNOWLEDGEMENT OF COUNTRY

Golden Plains Shire spans the Traditional lands of the Wadawurrung and Eastern Maar people. We acknowledge them as the Traditional Owners and Custodians.

Council pays its respects to Wadawurrung Elders past, present and emerging. Council also respects Eastern Maar Elders past, present and emerging.

Council extends that respect to all Aboriginal and Torres Strait Islander People who are part of the Golden Plains Shire.

*Image: Sunset over Bunjil's Lookout in Maude.
Artwork: 'Wabdallah' by Shu Brown*



DOCUMENT CONTROL

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This Rabbit Management Plan is owned and managed by :

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1 EXECUTIVE SUMMARY

Golden Plains Shire Council recognises that wild European Rabbits (*Oryctolagus cuniculus*) are a widespread and destructive agricultural and environmental pest. The species negatively impacts on agriculture, soil stability, native flora and fauna, residential amenity and built infrastructure through grazing and the development of warrens.

Under State legislation, Council has a responsibility to control rabbits on land that it owns or manages and; where possible, to eradicate them.

This Plan is based on the separate Golden Plains Shire Rabbit Management Strategy 2021 and illustrates Council's current rabbit management program and sets out the steps by which Council aims to meet the Vision and Goals of the Strategy.

The Plan is based on industry best practice and research as well as practical experience of Council officers in the field.



Figure 1: Geelong Landcare Network Rabbit Control Workshop.

Vision

Rabbits are effectively controlled on Council land and across the municipality to minimise their impact on agriculture, community and the environment.

Goals

To provide long term reduction in rabbit numbers on Council managed land.

To improve rabbit control outcomes on Council managed land by engaging with adjacent landholders to conduct rabbit control.

To raise community awareness regarding the rabbit problem, increase community knowledge and enable the community to undertake effective rabbit control.

To advocate for and support State Government rabbit control compliance and enforcement.

2 INTRODUCTION

Golden Plains Shire Council recognises that wild European Rabbits (*Oryctolagus cuniculus*) are a widespread and destructive agricultural and environmental pest. The species impacts on agriculture, soil stability, native flora and fauna, residential amenity and built infrastructure through grazing and the development of warrens.

State Legislation: the *Catchment and Land Protection Act 1994*, requires landholders to take reasonable steps to prevent the spread of rabbits and as far as possible, eradicate them

Council generally only hears from residents about the pest when rabbit numbers are high and they're having a noticeable impact on landholder's properties.

Council has a long history of controlling rabbits on land that it owns or manages. This program; supported by a consistent budget allocation, has resulted in significant reductions in rabbits across Council's reserves.

While this Plan focuses on rabbits on Council owned or managed land (Council public reserves and roadsides), it also contains actions to assist with the control of rabbits on private land within townships and adjacent to Council reserves.



Figure 2: Effective Rabbit resistant fencing at the Old Batesford Cemetery Council Reserve.

3 CONTROL METHODS

3.1 Integrated pest animal management

Integrated pest animal management ensures that pest management does not just focus on a single method of control but encompasses a range of approaches and methodologies that exploit the pest's biology and behaviour that contribute most to removal of a species.

An integrated plan should encompass:

- monitoring that allows determination of areas of pest animal activity, pest animal density, pest animal impacts. It provides a baseline to determine the success of the control program;
- implementation of control methods that exploit the pest animals' biology and behaviour;
- prevention works to minimise the risk of reinfestation; and
- evaluation and follow-up

There are numerous methods available for controlling rabbits. This allows land managers flexibility in choosing control methods that suit their circumstances and the aims of their program. There are no 'silver bullet' solutions to a landholder's rabbit problem.

An effective rabbit control program should apply several treatments suited to the situation to tackle the problem. The combined approach should aim to reduce rabbit numbers, remove rabbit harbour and reduce the risk of reinfestation. Only through an integrated control program can land managers hope to get rabbits under control and keep numbers low.

Any rabbit control program should include the destruction of rabbit warrens

as the warren is the key to the success of the rabbit.

Each control method has constraints and costs which need to be considered in developing any control program. Not all methods are suited to all situations.

3.2 The rabbit recipe

Any program to reduce rabbits in the long term should follow the Victorian Rabbit Action Network's Rabbit Recipe.

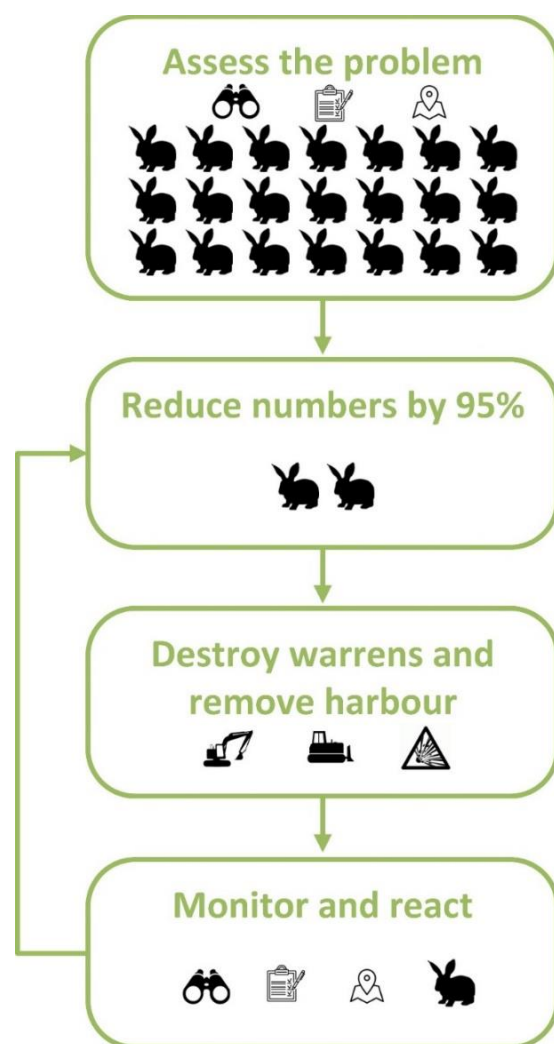


Figure 3: The Rabbit recipe for long term control of rabbits.

Assess the problem

Understanding the rabbit issue is vital to developing any integrated rabbit control program. Spotlight counts, warren and rabbit harbour mapping and observation of rabbit signs (e.g., buck dung piles, scratchings, evidence of grazing, rabbit trails and access points under fences) can inform any program to control the pest.

Reduce numbers

Reduction of rabbit numbers; usually through a baiting program or fumigation, must be done to maximise the effectiveness of subsequent steps in the program. Other methods of reduction in numbers can be undertaken (e.g., fumigation, shooting, ferreting) to suit the circumstances of the infestation.

The method of reduction must aim to reduce rabbit numbers by 95%.

Destroy warrens and remove harbour

The destruction of the warren is the key to any successful ongoing control of rabbits.

Rabbit control programs that do not include the destruction of warrens are just a rabbit harvesting program that kills off a proportion of the population each time the program is run but does not result in long term reductions in rabbit numbers and impacts.

The warren is the key to the success of the rabbit. Destroy the warren to destroy the rabbit.

Devanny N, VRAN (2021)

Warren destruction can be carried out by excavation or ripping or implosion with explosives. In sensitive or difficult sites,

labour intensive hand excavation may be required.

The removal of harbour is also important as harbour provides cover and shelter for rabbits as they construct warrens.

The destruction of warrens can be problematic in areas of cultural heritage sensitivity, along waterways, around structures, in areas of highly erodible soils or areas of high conservation value containing disturbance sensitive native vegetation.

Monitor and react

Follow up monitoring must be undertaken to identify reopened warrens for further treatment, to assess the effectiveness of the program and to identify improvements.

3.3 Timing

Rabbit control should be carried out at the appropriate time to maximise the effect of the program. This is usually when the number of rabbits is lowest (late summer/autumn) and breeding has generally ceased, territories have broken down as food is scarce and biological and natural controls have reduced numbers.

Controlling rabbit populations when they are low is the most cost-effective time to control rabbits. Naturally low numbers of rabbits means that a larger proportion of the remaining population will be killed which reduces the chances of rapid recovery of populations and reinfestation.

As some control methods rely on particular periods in the annual rabbit cycle, the timing of these methods can be complicated by unusual seasonal conditions that see rabbits continuing to breed, maintain territories or disperse outside their 'normal' time for these

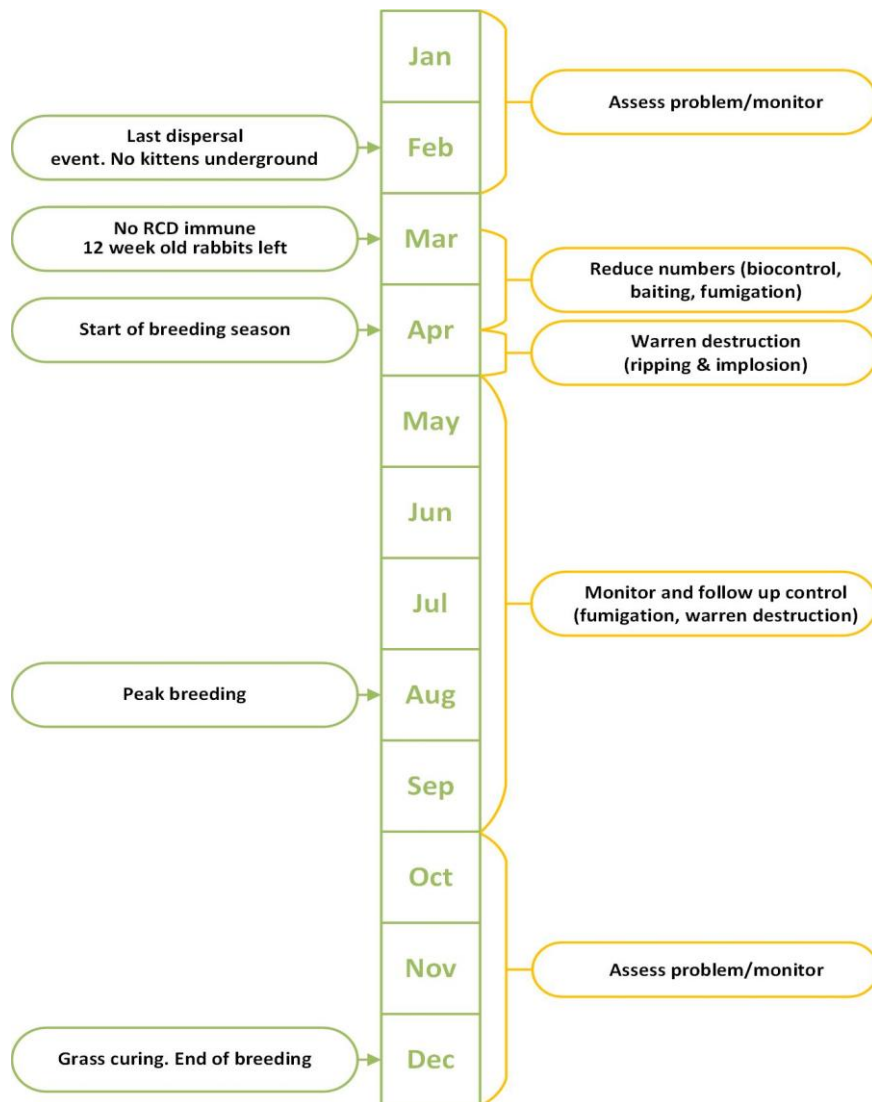


Figure 4: Rabbit control calendar on an 'average' year.

activities. Ongoing monitoring and flexibility in delivery of the relevant control option must be applied to maximise effectiveness.

3.4 Monitoring

The monitoring of rabbit numbers is an integral part of any rabbit control program. Monitoring can take several forms that can be adapted to the location and program. Some can apply complex mathematical treatments to determine abundances.

Spotlighting is commonly used to provide a means of estimating relative population

size. Spotlight counts can be conducted from vehicles or on foot along pre-determined transects to try to ensure sufficient coverage. While the methodology is simple it has shortcomings such as timing, observer bias and suffers from the influence of weather, visibility and landscape constraints.

Sight counts are conducted during daylight hours. However, as rabbits are primarily active in the early evening, daylight counts may miss a substantial proportion of the population.

Warren counts have been found to be useful in estimating rabbit abundance. Research has shown high correlation between active burrows and population size (Mitchell, B. and Balogh, S. (2007)). Simple warren count data can be augmented by active entrance counts and counts of rabbits at the warren.

Dung counts can be useful in estimating populations of nocturnal animals as dung is readily visible during the day. The accuracy is affected by factors such as defecation and accumulation rates and dung visibility.

Other rabbit signs such as trails, scratchings and bait station visitation can be used but only provide indexes of abundance.

3.5 Humane rabbit control

There is an expectation that rabbit control treatments will aim to provide methods of control that minimise animal suffering while maximising the efficacy of the program. The most humane method that will achieve the control program outcomes must be used.

The requirement to humanely control rabbits is contained in the *Prevention of Cruelty to Animals Act 1979*.

The Code of Practice for the humane control of rabbits (Sharp T and Saunders G 2012) provides guidance on the various methodologies for rabbit control and their humaneness.

Each method of control has issues around its use to control rabbits and so the most humane methods are often difficult to deliver, dangerous to off target animals or not cost effective (Pestsmart 2020a).

Council is aware of issues with some rabbit control methods and is always

keen to apply new or innovative methods to control rabbits that are more humane.

3.6 Exclusion fencing

Exclusion fencing is considered the most humane method of controlling rabbits. It is, however, very expensive and requires regular maintenance to ensure its effectiveness. Effective fencing cannot be achieved in all situations due to landscape, access and bounding properties. Exclusion fencing can exclude desirable native fauna (e.g., echidnas) from entering or leaving the excluded area so consideration should be given to where it used and what native species it may impact.

Installation of devices (e.g., swing gates) for use by native animals to access the reserve while still excluding rabbits should be investigated.

3.7 Baiting

Baiting with Sodium fluoroacetate (1080) or Pindone laced baits is considered a key part of most rabbit control programs.

However, the use of poisons in rabbit control programs is problematic as both 1080 and Pindone are considered as inhumane due to the suffering of the animal prior to death (Sharp T and Saunders G, 2012).

Pindone is considered less humane than 1080 due to the length of suffering of a Pindone poisoned rabbit. There is an antidote to Pindone (Vitamin K) but no antidote to 1080.

1080 is quick acting due to its toxicity but off target deaths; more particularly associated with domestic dogs taking 1080 laced fox baits, are common and the lack of an antidote means that an animal that has ingested the poison will die.

Therefore, poisoned animals will experience pain and suffering to some degree prior to death for either poison. Therefore, it is important that poisoning programs are well designed and carefully conducted to minimise suffering and off target damage.

Baiting is generally carried out when food resources and rabbit numbers are low and territorial boundaries are reduced. Additionally, the territoriality, neophobic and social structure of rabbits must be considered when planning baiting programs so that all rabbits have the potential to be exposed to baits.

Baiting is usually conducted using Pindone or 1080 laced oats or chopped carrot. Bait is laid along trails of disturbed earth with a bait layer trailer. The rabbits are attracted to the soil disturbance and take up the feed. Free feeds of unbaited oats or carrots are required to habituate rabbits to take up the feed as a rabbit needs to take a couple of feeds of Pindone bait for it to be fatal. Trails need to be laid to maximise the exposure of as many rabbits to the feed and bait as possible.

Baiting stations may be used in areas where off target impacts need to be reduced. These are, however, considered less effective due to the dominance structure of rabbits whereby a dominant rabbit will exclude others from the bait.

If a more humane method of control of rabbits via baiting becomes available, it should be adopted.

3.8 Warren fumigation

Warren fumigation aims to kill rabbits within the warren. A number of different fumigants are available; however, Chloropicrin is considered to be highly inhumane and is not used. Phosphine,

generated through the use of aluminium phosphide tablets placed in the warren, is commonly used.

Phosphine is a systemic poison which depresses the central nervous system and respiratory function (Pestsmart 2020b). It is highly toxic to humans therefore, operators performing warren fumigation must take adequate precautions to safeguard against accidental exposure.

The precise nature and extent of suffering of rabbits after inhalation of phosphine is unknown. However, Phosphine is considered to be more humane than the alternative chloropicrin because it causes less intense suffering (Pestsmart 2020c).

Alternative fumigation methods using carbon dioxide or carbon monoxide are considered more humane but suffer from the ability to deliver the fumigant at the required concentrations or via an appropriate method of delivery in the field.

If a more humane method of control of rabbits in the warren becomes available, it should be adopted.

3.9 Warren destruction

The destruction of rabbit warrens is an essential part of any rabbit control program and is the key to the control of the pest. All other methods are only differing ways of harvesting/killing rabbits and only serve to reduce numbers.

By destroying the homes of rabbits, reinfestation is reduced thereby increasing the effectiveness of follow up programs.

Warren ripping/excavation or implosion should be carried out when the soil is dry to maximise the fracturing of the soil.

Ripping or excavation collapses and crushes the warren, quickly dispatching any rabbits remaining inside. The destruction of the warren destroys the home of any rabbits who were not inside the warren thereby depriving them of shelter from weather and predators and reducing their chance of survival in the long term.

The use of explosives can be very effective in imploding warrens in the right soil types such as sandy loams. It also minimises damage to native vegetation. Explosives kill rabbits by the

blast and through crushing or suffocation from the collapse of the soil.

In most cases the time to death is thought to be quick especially when complete destruction of the warren is achieved. Implosion alters soil stability making it hard for rabbits to re-establish the warren.

Warren ripping or blasting is considered more humane when carried out when rabbit numbers are at their lowest (late Summer/Autumn).

Warren destruction can also be undertaken using an oxygen-LPG detonation (e.g., Rodenator). The warren is filled with an oxygen-LPG mix and ignited. The resulting concussive force is sufficient to humanely kill rabbits and collapse the majority of the warren



Figure 5: Use of a 20-tonne excavator to rip a long established and deep warren.

depending on soil type and warren depth.

Warren destruction by heavy machinery can cause significant soil disturbance leading to erosion. It may also significantly damage native vegetation. Implosion minimises soil and native vegetation damage but is not suited to all soil types and locations.

In sensitive or difficult sites, labour intensive hand excavation to collapse a warren may be required combined with alternative methods such as wire netting to reduce rapid reinfestation.

The destruction of warrens can be problematic in areas of cultural heritage sensitivity, along waterways, around structures and in areas of highly erodible soils or areas of high conservation value

containing disturbance sensitive native vegetation.

3.10 Shooting

The use of professional shooters who can achieve an accurate head shot is considered a humane method of controlling rabbits as the suffering of the rabbit is very brief. However, shooting is not able to be carried out in built up areas. Nor are appropriately experienced, skilled and responsible shooters readily available.

3.11 Ferreting

The use of ferrets with dogs and long nets can be a useful adjunct to fumigation or other control works in that they act to reduce rabbit numbers and potentially achieve a higher kill.



Figure 6: Pinned down wire netting combined with manual warren collapse used on a dam wall to minimise reinfestation where implosion/ripping cannot be used.

The ad-hoc use of ferrets by enthusiasts does little to reduce rabbit populations.

3.12 Trapping

Trapping using leg hold traps (serrated or soft hold) is considered to cause significant suffering and distress to rabbits and non-target animals and is not widely used nor recommended. The use of serrated tooth leg hold traps is banned in Victoria.

Trapping using either cage traps or soft net traps causes less injury and enables the release of non-target animals with minimal harm. However, cage or soft net traps are not considered cost effective for controlling large rabbit populations. Additionally, the captured rabbits need to be humanely dispatched by either an authorised person at an animal shelter/veterinary clinic/council pound or shot by a professional shooter.

3.13 Biological control

Current biocontrol agents Myxomatosis and Rabbit Haemorrhagic Disease (Rabbit Calicivirus Disease (RCD)) are present in the rabbit population in most areas and so re-releases of the disease are not commonly used as a control method. Their prevalence in a rabbit population is a function of population numbers, seasonal conditions and the presence of the virus vector (e.g., mosquitos, rabbit fleas).

Following the spectacular success of Myxomatosis on its release in the 1950's, the virulence of the biocontrol agent is gradually declining and resistance of rabbits to the infection is increasing. A large proportion of rabbits carry antibodies to RHDV and myxomatosis and if exposed to the biocontrol are likely to survive.

Myxomatosis causes a slow death of up to 4 weeks with considerable suffering by the infected animal. Infected rabbits found with the disease should be quickly and humanely destroyed if possible, to minimise suffering.

With up to 50% of rabbits being naturally immune to RCD; as a biocontrol agent it has only had limited effect on rabbit numbers. RCD infected rabbits die relatively quickly, and suffering is limited. New strains of RCD are occasionally released by authorities and landholders can participate in these releases.

If a more humane method of control of rabbits via biological control becomes available, it should be adopted.

3.14 Harbour removal

The removal of rabbit harbour is considered an essential part of any rabbit control program and when combined with warren destruction can rapidly reduce rabbit numbers and provide long term control.

Removing harbour removes cover for rabbits thereby depriving them of shelter and exposing them to predators.

Rabbit harbour can include dense infestations of woody weeds (e.g., Gorse, Boxthorn), dense standing long grass, sheds, structures, wood piles and burn off/rubbish heaps. Rabbit harbour is often infested with rabbit warrens and the removal of harbour can reduce the reinfestation of destroyed warrens. Rabbits can also find harbour in dense native vegetation. The removal of native vegetation to destroy rabbits is permitted provided the removal is only to the minimum extent necessary to complete the required works.

3.15 Rabbit repellents

Commercially available rabbit repellents and animal repellent devices are readily available (e.g., D-ter Animal and Bird Repellent). Repellents are generally a spray based on a sensory (olfactory or taste) deterrent that requires regular application to remain efficacious.

Repellent devices rely on battery or solar power and the use of strobe lights and sonic or ultrasonic sounds emitted on the detection of an animal.

Both methods may have application in domestic settings where regular reapplication or attention is required but are unlikely to be useful in a larger conservation reserve setting but this should be investigated further.

3.16 Future control methods

Ongoing research into more effective and humane control methods for rabbits is being undertaken by research institutions. Work on macropods, foxes and rats have using immunocontraceptive vaccines and hormone treatments have shown promise but difficulties in effective and timely delivery (e.g., dart delivery, oral baits) of the agent will need to be overcome before these agents become readily available. In line with Council's target to reduce rabbit numbers, new and innovative humane approaches to rabbit control should be adopted as they become available.

4 COUNCIL'S CURRENT PROGRAM

Council has a long history of undertaking control of rabbits on land that it owns or manages. The program has developed over a number of years using an adaptive management approach to take advantage of new learnings and methodologies as they become available.

The approach has not been predicated on an existing plan or strategy and has aimed at simply keeping rabbit numbers reasonably low to meet Council's legislative requirement, minimise the impact on native vegetation, aid in revegetation efforts and minimise complaints from neighbouring landholders. The program aims to manage rabbit numbers to reduce impacts rather than the highly desirable but largely unachievable goal of elimination.

The program has been based on annual monitoring of rabbit warrens in Council reserves.

The program has resulted in a significant reduction in the number and the size of warrens in most Council reserves with most warrens now reduced from large, old, multi chamber infestations to much smaller warrens.

Control of rabbits is not easy and there is no 'silver bullet' that eliminates rabbits. Control and possible elimination of rabbits can often take many control attempts over a number years before a warren is eliminated.

Council's Environment and Sustainability Team are responsible for the implementation of pest animal control across Council land.

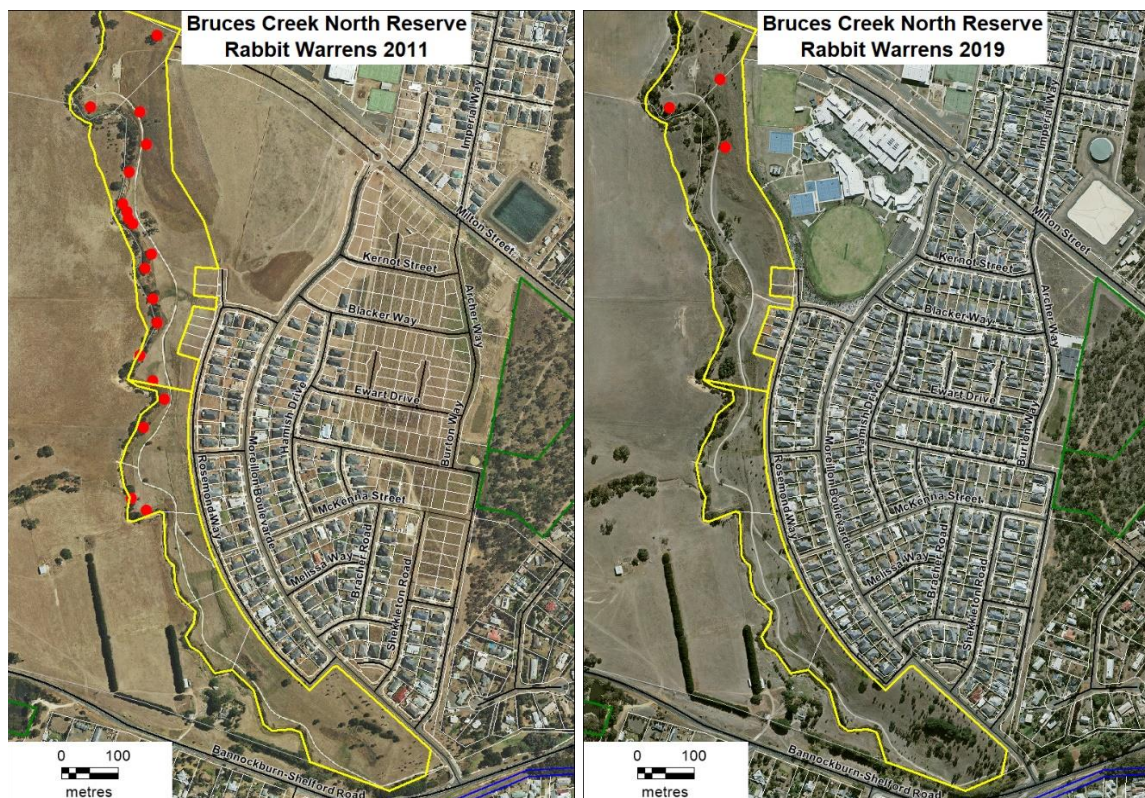


Figure 7: Bruce's Creek North Reserve rabbit warrens in 2011 and 2019 following mapping, fumigation, warren destruction and harbour (Boxthorn) removal.

4.1 Budget

The control program has been consistently supported by a budget allocation backing the program. Between \$10,000 and \$15,000 of Councils pest plant and animal control budget (\$65,000, 2019) is expended on rabbit control annually.

Funding is primarily expended on Council conservation and recreation reserves with small allocations to deal with specific roadside rabbit issues as required.

The consistent and persistent annual control program supported by a solid recurrent budget has largely kept rabbit numbers in check with resident complaints about rabbits on Council land being minimal. In most reserves, rabbit warren numbers have been substantially reduced and in the case of the Old Batesford Cemetery, warrens and rabbits have been eliminated.

4.2 Timing

Council's rabbit program is focussed around January through April. The warmer, drier months help to naturally

reduce rabbit numbers through a combination of less feed being available, harsh conditions and the impact of the biological controls; Calicivirus and Myxomatosis which rely on insect vectors which are more active during warmer months.

Rabbit control to deal with new localised infestations or particular rabbit issues that have not been addressed through the regular annual program (e.g., rabbits undermining a dam wall) are undertaken on an as needed basis dependent on funds available.

4.3 Mapping and monitoring

Council's rabbit monitoring program consists of the annual mapping of warrens in Council reserves. Annual warren mapping demonstrates the outcomes of Council's control program and provides data for estimating warren densities.

Project specific rabbit monitoring (e.g., spotlighting) has been undertaken as part of reporting for biological control release programs but has not carried on beyond the life of the project.



Figure 8: Teesdale Grassy Woodland Reserve rabbit warrens in 2008 and 2019 following mapping, fumigation, warren destruction and harbour removal.

The establishment of additional ongoing monitoring programs have largely been constrained by resourcing and it is considered that the current annual warren mapping is the most efficient and effective means of monitoring the issue.

Mapping data has rapidly improved in the recent past with improvements in technology allowing accurate mapping in the field. Prior to this, mapping of rabbits was carried out on hard copy maps based on the surveyor's best judgement of location within a reserve.

While mapping of warrens can be undertaken at any time of year, rabbits are mapped across Council's reserves annually in January/February just prior to control works being undertaken.

Warrens are geolocated on a tablet in the field. Each mapped warren is marked with a plastic flag. This data is then used to generate maps that are provided to Council contractors to facilitate rapid

locating, access and treatment of warrens. Mapping is conducted by searching across reserves on foot, revisiting old warren sites, following up on community feedback, closely inspecting potential rabbit harbour and suitable warren locations and soils and observing for rabbit traces to identify new warren locations.

Mapping indicates that the density of warrens per hectare varies widely across Council reserves. Reserves with landscapes and soils that are favourable for rabbits and complications in terms of delivery of control methods; particularly ripping, have warren densities of up to 3.6 warrens per hectare. Other reserves with good control access have warren densities below one warren per hectare.

Improved smartphone technology and the recently developed Rabbit Scan App is being trialled as a replacement for the tablet. Rabbit Scan data is publicly available via the Rabbit Scan website.



Figure 9: Mapping and marking rabbit warrens.

Reserve	Survey Count (Year)		2020	
	Warrens	Warrens/ha	Warrens	Warrens/ha
Barwon-Leigh Junction (12 ha)	29 (2015)	2.4	21	1.8
Bruces Creek North (14.2 ha)	19 (2011)	1.3	3	0.2
Bruces Creek South (8 ha)	12 (2014)	1.5	7	0.9
Flagstaff Hill Gravel Reserve (20.1)	10 (2015)	0.5	7	0.35
Happy Valley Water Reserve (41 ha)	No data	-	37	0.9
Leigh River Reserve (15 ha)	45 (2015)	3	52	3.5
Old Batesford Cemetery (1.7 ha)	6 (2008)	3.5	0	0
Red Gum Reserve (5.9 ha)	34 (2015)	5.7	18	3.1
Rokewood Reservoir (10.1 ha)	52 (2008)	5.2	17	1.7
Teesdale Grassy Woodlands (25.8)	42 (2008)	1.6	15	0.6

Figure 10: Warren counts and warren per hectares for key Council conservation reserves

4.4 Warren fumigation

Mapped warrens on Council reserves are diffusion fumigated. Warrens are firstly filled with smoke to identify all warren entrances. Aluminium phosphide tablets which liberate phosphine gas on exposure to atmospheric or soil moisture are placed in active burrows and the gas generated is allowed to diffuse through the warren and all the entrances are closed.

Follow up inspection and refumigation of reopened warrens is carried out 4-6 weeks following the initial program.

4.5 Warren destruction

Mapped and fumigated warrens are destroyed by either explosion (implosion) or mechanical means (ripping or excavation) where possible and practicable.

Excavation of warrens is carried out using a small rubber tracked excavator to

minimise damage to soils and native vegetation.

Implosion of warrens is carried out using ANFO Prilled Ammonium Nitrate by a specially qualified contractor. Access to Council reserves during implosions is controlled to minimise risk.

Both implosion and excavation destroy established warrens and have been very effective at eliminating long standing, extensive and well-established warrens in Council reserves.

Closure and collapse of warrens in sensitive sites using hand tools is being trialled to test the efficacy of the approach. While the method takes substantial time and effort and repeat treatments are required, initial results are encouraging.

In addition, wire netting is being used to minimise reestablishment of warrens on difficult or sensitive sites (e.g., dam walls)



Figure 11: A mapped and flagged rabbit warren ready for fumigation.

Warren destruction along waterways can trigger the requirement to obtain a Works on a Waterway Permit requirement through the Corangamite Catchment Management Authority.

Councils' warren destruction program has recently been significantly curtailed by cultural heritage concerns in areas of cultural heritage sensitivity along waterways and lack of clarity regarding the legality of warren destruction within these areas.

4.6 Harbour removal

The removal of rabbit harbour is an essential component of Councils rabbit control program. Rabbit harbour removal is undertaken at any time of year when Council resources permit. Harbour removal has been very successful in Bruces Creek Reserve in Bannockburn where the removal of extensive Boxthorn infestations has significantly reduced the rabbit infestation.

Council has removed native plant species that were harbouring rabbits only when

there is no other option. Removal of native plant species to the minimum extent necessary for pest animal control is permitted under the *Planning and Environment Act 1987*.

Removal of rabbit harbour is most successful when the area that has had the harbour removed can be maintained in a low harbour state to minimise the risk of reinfestation.

Harbour removal with heavy machinery along waterways can trigger a Works within a Waterway Permit requirement through the Corangamite Catchment Management Authority.

Council is currently undertaking trials of progressive removal and control of Toowoomba Canary Grass (*Phalaris aquatica*) and other heavy introduced grasses in Red Gum Reserve, Batesford in an effort to reduce surface cover for rabbits.



Figure 12: Rabbit infested Boxthorn in a new development area in Bruces Creek, Bannockburn.

4.7 Baiting

Given the inhumane nature of the use of 1080 or Pindone poisons and the risk of off target damage, Council does not widely use baiting as a method of control of rabbits on Council land.

Baiting with 1080 poison is not undertaken on Council land due to the risk to off target animals.

Baiting using Pindone poison laced oats is carried out at Red Gum Reserve in Batesford during February to support the Batesford, Fyansford, Stonehaven Landcare Group's community rabbit baiting program. The program coincides with low feed levels in late Summer when rabbits are looking for food and are more likely to take bait.

The baiting program places three free feeds followed by poisoned feeds under wire baiting stations. The wire baiting stations aim to minimise taking of the bait by off target species. The stations are checked every day or two and rebaited as required. The stations are

baited with poison feed for as long as the rabbits continue to take the bait.

4.8 Exclusion fencing

Rabbit resistant fencing was installed at the Old Batesford Cemetery in 2016 in response to community concerns regarding the potential damage being done to burials by rabbits digging. Since the installation of the fence only a single rabbit has been found and destroyed in the reserve and there are no active warrens.

Rabbit resistant fencing is expensive and requires vigilance and maintenance but provides hugely beneficial results for the recovery of native vegetation.

Exclusion fencing assists with a significant issue for Council's rabbit program in that it prevents reinfestation by rabbits from adjacent uncontrolled rabbit infested properties.

Due to the nature of Council reserves, their use patterns and their landscapes and locations, there are few



Figure 13: A rabbit baiting station in Red Gum Reserve.

opportunities for the use of exclusion fencing.

Installation of devices (e.g., swing gates) for use by native animals to access the reserve while still excluding rabbits should be investigated.

4.9 Biological controls

Council released rabbit haemorrhagic disease (RHD); more commonly known as calicivirus, in Batesford in 2016 and in Batesford, Inverleigh and Teesdale in 2018 in response to community requests. The rollout was conducted as part of the national release of the RHDV1 K5 virus. Results of the program were inconclusive but are likely to have reduced rabbit numbers somewhat for the period that the virus was active in the rabbit population at the release sites.

4.10 Rabbit repellents

Council is trialling the use of rabbit repellents on sites where rabbit warren destruction has been undertaken but attempts at reinfestation are occurring.

The aim is to deter rabbits from establishing warrens on old warren sites.

The use of this humane method should continue be trialled to establish its efficacy as a control method.

4.11 Community programs

Council does not currently lead or run rabbit control programs that are delivered into the community but supports programs run by community groups and the State Government.

Council supports community led rabbit control programs; primarily through Landcare, by providing mail out services of promotional material direct to residents, attending field days and promoting programs on Councils social media.

Council supports State Government led compliance and enforcement of rabbit control in rabbit compliance project areas. This support includes facilitation of landholder contact through mail outs and

provision of local knowledge about problematic rabbit infested areas.

Council supports residents' efforts to control rabbits on their properties through provision of information and advice on potential methods of control that can be used in their particular situation. However, as the control of rabbits on private property is a legislated responsibility, Council does not provide financial incentives (e.g., provision of poison at cost price) to residents to assist them to control rabbits.

4.12 Compliance and enforcement

Council officers are not authorised under the *Catchment and Land Protection 1994* Act to conduct any compliance or enforcement activities for rabbits.

However, Council Local Law No 1 General Public Amenity contains provision for Council Officers to issue a Notice to Comply seeking control of noxious weeds and pest animals on private land within or directly adjacent to township areas where the State Government do not carry out compliance and enforcement activities. This provision has only been used twice in the recent past to address amenity issues pertaining to Serrated Tussock (*Nassella trichotoma*) but has not been used to address rabbits.

Use of the Council Local Law needs to be justifiable as control of rabbits within township areas can be problematic. The presence of warrens which can be controlled would be a key consideration in issuing a Notice to Comply. Therefore, Council policy regarding the application of Local Law No 1 to control rabbits will need to be developed to ensure a consistent and transparent application of the local law.

Complaints regarding rabbits on private land; particularly on agricultural/rural land can be referred to the Biosecurity Officers in Agriculture Victoria.

4.13 Challenges

The success of Council's rabbit program is challenged on a number of fronts.

Council owned or managed land often has open or poorly fenced boundaries that easily allow the incursion of uncontrolled rabbits from adjacent properties. Council has not in the past used Council Local Law to compel adjacent landholders to undertake rabbit control to augment and assist our program and anecdotal evidence indicates that our control program is undermined by invasion from adjacent uncontrolled rabbits. The use of rabbit resistant exclusion fencing would minimise reinfestation from adjacent properties but is expensive to build and maintain and is not suitable for all locations.

Council land often occupies landscapes along streams, rivers and rocky escarpments where control of rabbits is difficult. Dense vegetation, rocky and steep landscapes and long grass obscure rabbit warrens making them difficult to find and treat. The nature of the landscape, areas of cultural heritage sensitivity or presence of valuable native vegetation often precludes the use of heavy machinery or explosives to collapse warrens or remove harbour.

Council funding only allows for a single control program to be conducted each year with a focus on high quality native vegetation reserves and landscapes. Funding does not allow for significant additional works or approaches (e.g., rabbit resistant exclusion fencing).

Resident participation in rabbit control programs either as part of Landcare led programs or on their own are patchy at best. Uncontrolled rabbits on properties neighbouring Council land leads to reinfestation.

Council land is often overlaid by planning controls that seek to minimise impacts

on soils, water, landscape or cultural heritage. These controls can impede particular control methods, particularly those methods that result in significant soil disturbance. A particular concern are areas of cultural heritage sensitivity along waterways and lack of clarity regarding the legality of warren destruction within these areas.

5 OUR PLAN

Vision

Rabbits are effectively controlled on Council land and across the municipality to minimise their impact on agriculture, community and the environment.

Goal 1 – Reduce Rabbits

To provide long term reduction in rabbit numbers on Council managed land.

Target

Reduce active rabbit warrens on Council managed land to less than one warren per hectare by 2031.

Actions

- Address impediments to warren destruction and harbour removal (i.e., waterways/cultural heritage sensitivity).
- Monitor rabbit activity through annual warren counts.
- Conduct baiting and fumigation to reduce rabbit numbers in late Summer.
- Destroy warrens through ripping/implosion/manual collapse.
- Seek additional Council funding and external grants for rabbit control.
- Adopt new or innovative humane control practices as they become available.

Goal 2 – Engage Neighbours

To improve rabbit control outcomes on Council managed land by engaging with adjacent landholders to conduct rabbit control.

Target

All landholders adjacent to Council reserves conducting annual rabbit control works in conjunction with Council by 2030.

Actions

- Engage and coordinate with adjacent landholders prior to annual rabbit control works to carry out rabbit control in conjunction with Council.
- Develop a policy to provide clarity regarding the use of Council Local Law No 1 to compel landholders to control rabbits in township areas.
- Issue Notice to Comply to adjacent landholders under Council Local Law No 1 where works are not being conducted in conjunction with Council.

Goal 3 - Raise Awareness

To raise community awareness regarding the rabbit problem, increase community knowledge and enable the community to undertake effective rabbit control.

Target

Participate in two rabbit management community engagement events per annum.

Actions

- Support community engagement events relating to pest plants and animals in the municipality provided through the Victorian Rabbit Action Network, Landcare and local community organisations.
- Provide advice to landholders regarding best practice rabbit management via Council media and when information is sought.
- Support the development of Rabbit Action Groups under the Victorian Rabbit Action Network.
- Support compliance and enforcement activities led by Agriculture Victoria.
- Issue Notice to Comply to landholders under Council Local Law No 1 where neighbour complaints occur in line with Council policy.

Goal 4 – Improve Compliance

To advocate for and support State Government rabbit control compliance and enforcement .

Target

One Rabbit compliance and enforcement Target Area conducted by the State Government in the municipality every 5 years.

Actions

- Lobby the State Government to increase rabbit control compliance and enforcement resourcing .
- Refer landholder complaints regarding rabbits on private land to the State Government.
- Support State Government compliance and enforcement activities led by Agriculture Victoria within the municipality.

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