2024

STRATEGIES FOR SUCCESS:

ENGAGING LANDOWNERS
IN EFFECTIVE RABBIT
CONTROL

Acknowledgments

Throughout our research, we live, work, create and study on stolen land and acknowledge that sovereignty was never ceded. Our team is formed by people from different backgrounds and ideas who celebrate diversity and collectivity. We acknowledge that colonialism has impacted our lives in Australia, and it continues to create imbalanced relationships that have driven us to be where we are.

We proudly celebrate the Wadawurrung, Bunurong and Wurundjeri Country, sky, waters, underground, their people, Ancestors and Elders, with whom we learn and share our lives on their Traditional Lands. We value their culture, knowledge, their continuous custodianship and care for Country.

We are committed to nourishing our relationships with the Traditional Knowledge holders of this land and contributing to the shared responsibility in creating more sustainable futures for generations to come.

Authors

Erica Fridell, Payden Hancock, Holly Jenner

Completed July, 2024

Table of Contents.

1	Executive Summary	4
2	Introduction	5
	Context for Research	5
	Project Aim	5
ာ	Literature Review	7
3	Background	7
	Research Methods	11
4	Desk Studies	
	Surveys	11
	Interviews	13
5	Results	15
6	Discussion	20
U	Social Implications	20
	Desires for Direction	22
	Desires for Collaboration	24
	Environmental Implications	25
	Environmental implications	20
	Limitations	
7		27
7	Limitations	27 28
7 8	Limitations Conclusion	272828

1. EXECUTIVE SUMMARY

European Rabbits (Oryctolagus cuniculus) were introduced to Australia in the late 19th century and is the most abundant and broadly distributed mammals in the country. Since their introduction, the species has caused significant ecological and economic damage including land degradation, overgrazing and competition with naïve species for resources. To reduce the invasive species population and minimise damage from rapidly growing population numbers, a combination of biological and conditional control techniques has been utilised over the years with varying success. Bellarine Landcare Group (BLG) is part of the Victorian volunteer Landcare movement, with the objective of protecting and enhancing the Bellarine Peninsula's natural environment. One such initiative includes tackling the Peninsula's population of invasive species, including rabbits through working with private landholders and community members to enact rabbit control measures on their property. In collaboration with BLG, the overarching aim of this study was to assess private landholder views and engagement with rabbit control in the Bellarine Peninsula and establish the best methods to further increase landholder engagement with this issue. Explorative and quantitative methods including surveys, interviews and desk studies were undertaken to grasp and better understanding of the views of private landholders in the Bellarine community in regard to rabbit control and how to best engage them with the issue. Fifteen interviews were taken from over 100 survey responses posted on social media community boards. The collated results from this study highlighted the observations and perceptions of private landowners within the Bellarine Peninsula, and their experiences with active issues regarding invasive rabbit populations. It was found that whilst the damage produced by rabbits is obvious and negatively impacts most landowners, there are numerous barriers for landholder engagement in effective control methods. These include limitations relating to age demographics, concerns for the wellbeing of the environment, and a lack of guidance and support from organisations, councils as well as other landowners. Therefore it is recommended that environmental action groups (including the BLG) and local councils should increase communication, awareness and assistance about issues surrounding rabbits and invasive species, establish local landowner groups to promote collaborative efforts, increase volunteering programs to further assist landowners in engaging with rabbit action, establish a monitoring program to local areas to monitor rabbit populations and the impact of control methods, promote current and new research and establish education programs. The results of this study may also validate landholder concerns and struggles regarding rabbit control through acknowledgment and considerations that solutions to the issue are being investigated.

2. INTRODUCTION

The European Rabbit (Oryctolagus cuniculus) thrives in ecosystems across Australia spanning from coastal plains to deserts but are most abundant in areas where soil is suitable for digging warrens, particularly deep and sandy soils of the north-east of South Australia. They can breed at any time during the year from the age of four months and, when conditions are favourable, can have up to four or five offspring per litter or one or two litters when conditions are unfavourable (Department of Sustainability, 2011). Although domesticated rabbits arrived on the first fleet, European rabbits were purposefully introduced for the sport of hunting in 1859. However, with no natural predators and litters occurring up to seven times a year, the species had spread across 70 per cent of Australia's landmass within 70 years of their introduction (CSIRO, 2021). The species quickly became more than a nuisance as their fast-growing population numbers began having significant ecological and economic repercussions including competition with native wildlife for resources, contributing to land degradation and damaging native vegetation through ring barking, and preventing flora regeneration by consuming seeds and seedling. Given the expanse of ecological damage, rabbits are thought to have contributed to the population decline of native plants and animals as well as causing the extinction of multiple ground-dwelling small mammals of Australia's arid lands. According to the CISRO, it is estimated this introduced species causes an estimated \$200 million of economic damage annually.

The Bellarine Landcare Group (BLG) is a non-government organisation that is part of the Landcare social movement. It is run primarily by community members and volunteers working, in collaboration with government bodies and business to enhance and protect the natural environment of the Bellarine Peninsula (BLG, 2024). BLG conducts a range of projects focusing on sustainable water and land uses and promoting biodiversity within the Bellarine Peninsula. One such project focuses on the eradication of European Rabbits from the Peninsula through collaborating with private landholders, providing education, advice and assistance to implement control strategies. Historically to combat rapidly growing populations on a large scale, the CSIRO released Myxomatosis, a poxvirus caused by the myxoma virus. Spread by insects like fleas and mosquitoes and through close contact, majority of infected animals die within 10-14 days (RSPCA, 2021). The Rabbit Haemorrhagic Disease Virus (RHDV), a calicivirus, was also released in 1996, causing fatal haemorrhagic disease specific to European rabbits, with infected animals dying within 24-60 hours post-infection (Schwensow et al., 2014) On a local scale however, some common strategies conducted by BLG, and private landholders include destroying and fumigating warrens, pindone poisoning and shooting/trapping.

In collaboration with BLG, the overarching aim of this study was to assess private landholder views and engagement with rabbit control in the Bellarine Peninsula and establish the best methods to further increase landholder engagement with this issue. This is supported by the research question as follows:

What are the views of the community and private landholder surrounding rabbit control measures and what would be the most effective methods to engage them with rabbit control in the Bellarine region?

3. LITERATURE REVIEW

BELLARINE PENINSULA'S HISTORY WITH RABBITS

As mentioned in the introduction the Bellarine area has an extensive history with pest rabbits. There are many sources of literature from books like Braysher, 2017 that span decades of research, to meta-reviews and their resulting plans (Fitzgerald, et al, 2007; Cooke, 2012; The City of Greater Geelong, 2021), to highly specified peer-reviewed papers (Compton & Beeton, 2012; Woolnough, et al, 2020; Carter, et al, 2023) around effective management of the wicked problem that are European rabbits. After decades of combating populations literature presents that now we have a diverse array of methods of control of both physically, biologically and sociologically. This literature review intends to illuminate the frontier of these methods' research and the relevance of application in a Bellarine context. Furthermore, the Bellarine Peninsula's history of rabbit control is exemplary and worthy of case studies in the future as it has many different actors, stakeholders, and issues in this space that mirror many pest control issues that extend outside of Australia. This review is divided into interrelated sections of literature that explore the breadth of pest rabbits and people as private land holder stakeholders. What are the effective methods of controlling rabbits and the inherent ethical and stewardship implications; and why we should control rabbits? Why is literature trending towards social cooperation on this otherwise individualised problem? Why and how private landowners must be effectively engaged in rabbit control? Lastly, why is effective landowner and stakeholder engagement necessary for productive conservation efforts?

EFFECTIVE METHODS OF CONTROLLING RABBITS AND WHY WE SHOULD CONTROL THEM

Rabbits in this landscape have caused a plethora of damage. Whether its economic, ecological, or medical rabbit society is obtuse to Bellarine land uses. Medical implications are standalone in this context as warrens have been recorded to cause injury to people and livestock, although livestock is an economic implication rather than medical. Literature draws the relationship between economy and ecology to be intangible in the rabbit caused impacts, one that had flow on or feedback effects on the other (Cooke, 2012). Either rabbits destroyed soil and floral biomes that opens the door for weeds and border effect (Allred, et al, 2014; Lubeck, et al, 2019), or farming biosecurity and bush regeneration was impacted by rabbit invasions (Braysher, 2017).

The literature on the damages all stem from the fact that they are invasive and destructive and so warrant the extensive studies into managing them (Allred, et al, 2014; Woolnough, et al, 2020). Therefore, there is impetus to continue managing if not eradicating the problem as there have been hurdles around accessing all warrens, due to property boundaries, that are harbouring many populations. This avenue of engagement with stakeholders and the wider public will be more relevant later in the literature review. The list of rabbit culling controls range from physical: with poisoned bait, shooting or warren destruction to biological: with deadly virus' (Taggart, et al, 2022), castration or fumigation, to natural: with predators, resource reduction and hunting (Cooke, 2012; Carter, et al, 2023). All are still relevant and effective measures today with the caveat that some are season specific. The Bellarine today has biologically resistant rabbit populations to what were devastatingly effective applications of biological controls from the 80s on. This is crucial, as shown in the literature like Carter, et al, 2022 and Taggart, et al, 2022 about these methods that infants, as they are still growing and born in times or at the end of food abundance, are resistant and can reproduce these resistances on to the next generation. This renders these applications ineffective, costly for future biological orientated control research and development, and therefore warrants the literature on appropriate handling and community education. Although, there are common albeit less generally appealing inhumane methods of poisoned baiting and fumigation that have very effective results according to literature that don't lead to off target, or secondary killing due to seasonal application again (Braysher, 2017). This leads into the crux of this literature review and report at large. The focus is how to to solve pest rabbits through engaging private landowners effectively and the novel socio-economic strategies. The methods of erradication or management have been shown to work, but efficacy hinges on scale of application that is determined by collective of landowner size.

THE SOCIAL SPHERE PERSPECTIVE ON EFFECTIVE CONTROL MEASURES

Emerging in the literature is the efficacy of authorities promoting a social method of eradication and reduction. The Bellarine Landcare Group (BLG) is attempting such new angles. The literature around Landcare's role in advocacy and community organising shows that it is effective in conservation (Curtis & Lockwood, 1998; Kelly & Stannus, 2002). This is backed-up by the uptake of Landcare's roles and model by overseas countries as seen in EIT, 2020s congruent review on landholder perceptions of predator controls in New Zealand. This all culminates in Landcare's primary function of involving the public in conservation, filling in gaps or generating large task forces to circumvent the costs of conservation (Curtis & Lockwood, 1998).

This is a socially effective management method when it comes to the rabbits in the Bellarine, as seen historically. Today the Bellarine Landcare Group isn't getting the desired results as seen in their program uptake and our results from private landowners of the Bellarine. This informed the direction of literature we investigated on how to implement the needed conservation works on private land and their resistance to BLG (Kelly & Stannus, 2002; The City of Greater Geelong, 2021). The major hurdle in reducing the tide of multiplying rabbits isn't necessarily the development of the next virus, castration, or resource reduction technology rather the social vehicle that will utilise them. There is rising resistance, as seen in pockets of our data and presented in the literature, that a problem with onboarding stakeholders and communities with rabbit programs (Fitzgerald, et al, 2007). This is from the methods of control being inhumane. So, we see a relationship between the attitudes around the ethics of culling versus the ethics of rabbits as our responsibility and their inherent destruction of other species habitat and resources (Cooke, 2012). There are concerns around secondary poisoning and other killing implications that are in friction with social concept of stewardship and the innocence of rabbits. Issues of misinformation and malpractice have exacerbated such social perceptions creating further hurdles. This encourages government, authorities and conservation groups to improve research availability during the community and landowner engagement process. Furthermore, policy updates explored in the literature has shown better reputations and relations between government and landowners surrounding conservation works (Cooke, et al, 2011) The importance of landowners participating in rabbit management is paramount but most efficient when its large land parcels or multiple smaller properties that work together (Raymond & Brown, 2011; Uebel, et al, 2021; Woolnough, et al, 2020). This is due to border effect that can undo works (Niemiec, et al, 2017). So, what does the literature say about creating these scenarios?

COLLECTIVE LANDOWNER AND STAKEHOLDER ENGAGEMENT FOR EFFECTIVE CONSERVATION WITH COMMON BENEFITS

This section is the primary content explored for this literature review. It concerns the interconnected importance and encouraging characteristics of successful rabbit control and the stemming benefits. Much of the literature around what successful landowner engagement and the success of policies, incentives, and conservation methods, mirrored our study through gathering data by surveys. A common theme was that landowners are diverse – our data backed this up – and so approaches must also be diverse (Cooke & Lane, 2015). The exemplary rabbit control plans and source of successful results are surrounding the power of stakeholder engagement to deal with populations protected by the border of their property perimeter.

These results are improved by as shown by the literature through multiple parties working together, either in application or, the most effective result, when multiple landowners conduct works on each of their properties (Niemiec, et al, 2016). Private land means landowners are responsible and therefore would have to wear the cost. The literature regarding this is showing policy and market-based solutions and incentives overcome the hurdle of lower-socioeconomic groups enabling more groups (Moon & Cocklin, 2010; Compton & Beeton, 2012; Cooke & Corbo-Perkins, 2018). This can be compounded with policy change that encourages better support and plans for conservation on private property, alleviating effort on behalf of the landowner (Moon & Cocklin, 2010; Cooke, et al, 2011; Farmer, et al, 2016). Due to the differing values, socioeconomic position and interests around land use of landowners as seen in Brenner, et al, 2013, common values must be advertised as a benefit from rabbit works on private land. This has an underlying motive to improve biodiversity, which improves visual quality and ecological performance that in turn feeds back into ecosystem services for all residents and landowners (Januchowski, et al, 2012; Drescher & Brenner, 2018). The literature shows this occurring and the reception from public and landowners being positive, which socially incentivises uptake of control works (Fischer & Bliss, 2008; Farmer, et al, 2016). In turn this phenomenon is moulding culture and social norms away from issues around ethics and beliefs of rabbits place within biodiversity (Fitzgerald, et al, 2007). The literature speaks to what improved cohesion and cooperation between local communities and landowners achieves an affinity for the co-created biodiversity that becomes a rigid part of society due to placemaking attachment and stewardship values (Jansujwicz & Calhoun, 2010). O'Donnell, 2023 analyses farmers and their perspective on biodiversity and restoration of native vegetation to discover much of what was mentioned above. This paper also illuminates that knowledge around terms like biodiversity or ecosystem services are not widely understood, representing the lack of commonality about such concepts. Therefore, further requiring public and private perceptions and reception to be positive to encourage like-works and normalising the benefits of land ecosystem performance (Woolnough, et al, 2020).

4. RESEARCH METHODS

The explorative quantitative methodology for this study was divided into three parts over the course of 12 weeks. This comprised of desk studies, surveys and interviews. Initially, it was hoped to engage with landholders and community members in person at various markets around peninsula. However, after a struggle to get resources and participation at the Geelong waterfront market, as well as our constrained time frame to collect data, an online approach was subsequently taken through various community groups on social media with greater success.

3.1 DESK STUDIES

Over the first few weeks, roughly 25 various articles and papers were collated to explore similar issues and approaches towards invasive species control and landholder engagement. These studies assisted with broadening understanding and effective methods of similar issues and developing questions for landholder interviews. The relevant papers are outlined in depth in the above literature review.

3.2 SURVEYS

Surveys have often proven to be an effective method of qualitative data collection due to their ease of accessibility and non-time-consuming nature. It was hoped that an online survey wouldtherefore increase landholder and community engagement, as well as line up potential interviews. A survey was posted to 16 Facebook community pages with 10 questions guided by studies done by Cooke and Lane (2015), and Niemiec et al., (2016). It focused heavily on current landholder engagement and views on/with rabbit control, with the final question tailored to gaining potential interviewees. Over the course of two weeks, collated 147 responses from community members and landholders within the Bellarine peninsula.

Survey Questions

- 1. What is your Postcode?
- 2. What do you use your property/land for?
- 3. How concerned are you by the rabbit population in the Bellarine Peninsula?
- 4. Were you aware of why rabbits are considered an invasive species on the Bellarine Peninsula?
- 5. Were you aware of the financial and ecological benefits to landowners who participate in rabbit control?
- 6. Do you want to become more involved in rabbit control?
- 7. What is the primary reason for not engaging/participating in rabbit control?
- 8. Would you be more interested in rabbit control if it focused on secondary methods of control (e.g. planting specific bushes on your property that rabbits typically avoid, constructing rabbit proof fences)?
- 9. If given assistance from/worked together with other local landowners and professionals, would you be more likely to engage in rabbit control on your property?
- 10. We would love to hear more from you! If you would like, place your email below and we will reach out.

3.3 INTERVIEWS

Following survey responses, some precipitants voluntarily offered to be interviewed. From the 147 responses, 15 private landholders volunteered and undertook 10-20min interviews. These interviews consisted of 20 questions formulated using a combination of data from past research and relevant subjects related to the invasive species issue deemed necessary for the aim of the study and answering the research question. They also assisted in filling some gaps of previous studies and focusing on the unique concerns of the Bellarine Peninsula. Questions focused on rabbit population issues and landholder opinions regarding control measures including: identifying potential education and awareness gaps in land care and invasive species knowledge, likelihood of lasting engagement strategies, influence of secondary methods or focusing on native flora and fauna survival rather than rabbit culling.

Interview Questions

- 1. What is your current employment status?
- 2. What is the size of your property?
- 3. How long have you lived on your property?
- 4. Where have you lived prior to your current residence?
- 5. How concerned are you for the ecological health and performance of your property?
- 6. Have you noticed any damage caused by rabbits on your property? Have you seen rabbits?
- 7. Are there other areas of conservation or the environment that you care significantly about?
- 8. Do you partake in conservation methods on your property? If so, what are they?
- 9. Have you contributed in rabbit control actions previously? Were they successful? Why/why not?
- 10. Can you go into further detail why you are not more actively involved in rabbit control?
- 11. Are you interested in rabbit control? Why/why not?
- 12. How would you want to help control the rabbit population? Any secondary methods?
- 13. What do you believe are the best methods to engages yourself in rabbit control? Any incentives?
- 14. Do you feel your participation in rabbit control will make an impact?
- 15. Why do you think landowners in the Bellarine Peninsula are not collectively engaging in rabbit control?
- 16. Do you feel yourself and others in the community know enough about the rabbit issue on the Peninsula? Is there enough education about it or the benefits of rabbit control?
- 17. What do you believe are the best methods to engage the community in rabbit control? Any incentives?
- 18. If the survival of a native species (e.g. the Bandicoot) was promoted through controlling rabbit populations, do you think the community and yourself do you have would be more interested in conducting rabbit control?
- 19. Do you think collaborative efforts with the members of the community, other landowners and Bellarine Landcare would be beneficial in creating significant change?
- 20. Do you have any other questions or anything you'd like to add?

5. RESULTS

5.1 SURVEY RESPONSES

Uses	Number Of Surveys Completed
To Live/Raise a Family	103
Holiday House	7
Farming	3
Hobby Farming	18
Conservation	1
Business (including renting out)	1
 Other: Agistment for horses and for Horses Therapy farm, both farming and conservation Camping/recreational activities – motorbike/shooting Indigenous garden Retirement Golf Raise a family but breed dogs as main employment 	8
Skipped	2

Table 1: Responses to question 2 of the survey: 'What do you use your property/land for?'

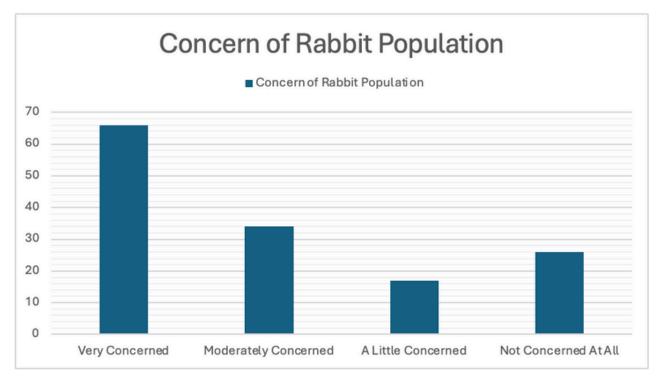


Figure 1: Responses to question 3 of the survey: 'How concerned are you by the rabbit population in the Bellarine Peninsula?

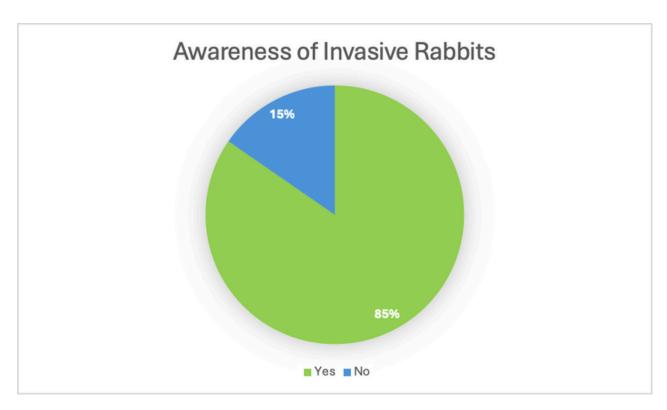


Figure 2: Response to question 4 of the survey: 'Were you aware of why rabbits are considered an invasive species on the Bellarine Peninsula?'

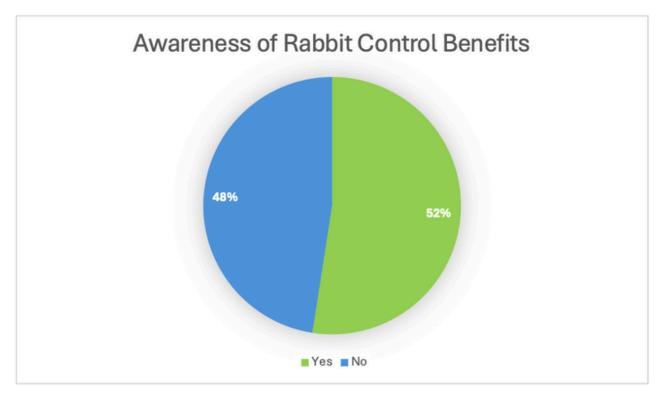


Figure 3: Response to question 5 of the survey: 'Were you aware of the financial and ecological benefits to landowners who participate in rabbit control?'

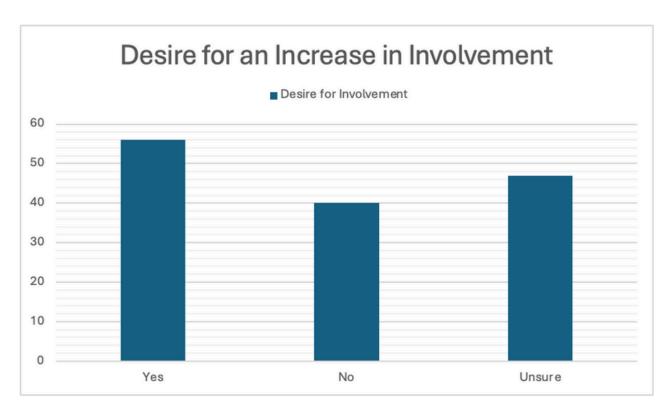


Figure 4: Response to question 6 of the survey: 'Do you want to become more involved in rabbit control?'

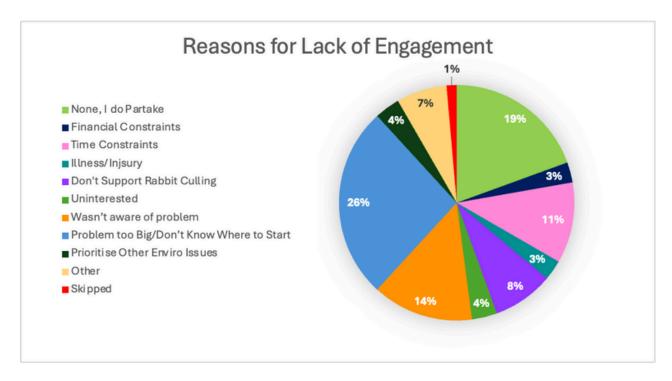


Figure 5: Responses to Question 7 of the survey: 'What is the primary reason for not engaging or participating in rabbit control?'

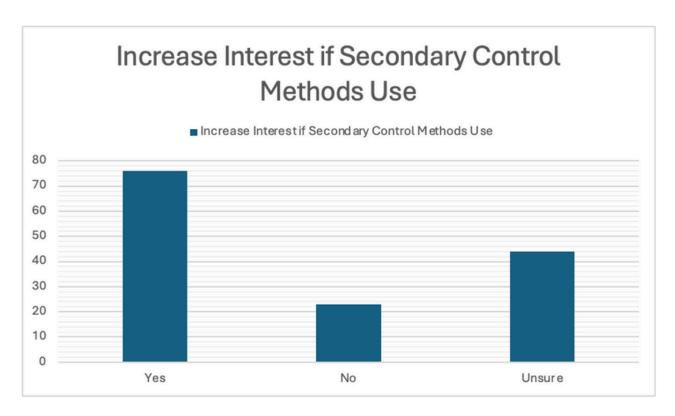


Figure 6: Responses to Question 8 of the survey: 'Would you be more interested in rabbit control if it focused on secondary methods of control? (e.g. planting specific bushes on your property that rabbits typically avoid, or constructing rabbit proof fences)'.

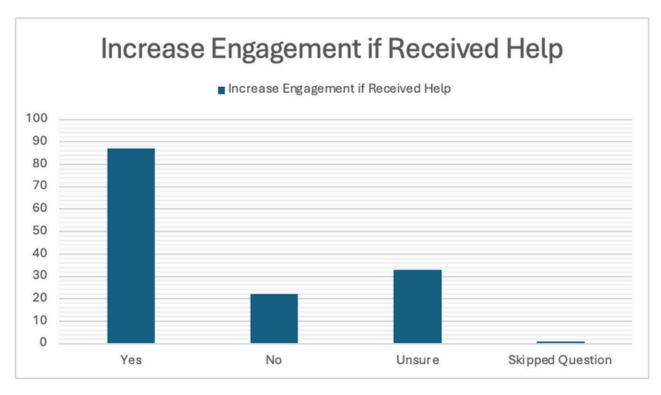


Figure 7: Responses to question 9 of the survey 'if given assistance from/worked together with other local landowners and professionals, would you be more likely to engage in rabbit control on your property?

5.2 INTERVIEW RESPONSES

Interview Participant	Employment Status	Property Size	Length Lived on Property	Prior Residence
1.	Retired	3 acres	12 years	Melbourne
2.	Retired	2 acres	24 years	North Central Victoria
3.	Part-time	8 1/2 acres	20 years	Geelong and Leopold
4.	Semi-retired	1/3 of an acre	Since August 2023	Melbourne
5.	Retired	6 1/2 acres	30+ years	Bellarine
6.	Semi-Retired	17 acres	2 years	Barwon heads and Melbourne
7.	Retired	1 acre	8 years	Inverloch
8.	Semi-retired	10 1/2 acres	2 years	Camberwell, Anglesea
9.	Full time	2 acres	20 years	Melbourne
10.	Retired	6½ acres	11 years	Bellarine 15 years: not specified
11.	Retired	Under 2000m ²	29 years	Bellarine
12.	Semi-retired	31 acres	2.5 years	Riddles Creek
13.	Full time	48 acres	19 years	Melbourne
14.	Retired	2 acres	Since 1950's	East Bentleigh and Bellarine
15.	Part time	2.8 acres	18 months	Geelong

Table 2: Overview of respondents that participated in the interviews. These included:

- Question 1 what is your current employment status?
- Question 2 what is the size of your property?
- Question 3 how long have you live on your property?
- Question 4 where have you lived prior to your current residence?

Transcriptions of the interviews for each participant's answers for questions 5 - 20 can be found in '9. Appendices'.

6. DISCUSSION

Overall, through the findings of the survey and interviews conducted, this report will examine the perspectives and concerns expressed by respondents. This discussion aims to highlight and address the potential barriers and reasons for uncertainty (as seen in Figure 4) when participating in effective conservation efforts as well as the implications of societal and organisational influences. Quotations from the interviews are included to provide firsthand insights of landowner experiences. Through this analysis, the report seeks to offer a comprehensive understanding of how to foster landowners to effectively respond to rabbit control methods.

5.1 SOCIAL IMPLICATIONS

The ways in which landowners engage with rabbit control methods are predominantly influenced by the social demographics and geography of the land. Due to the significant area and spread of people on the Bellarine Peninsula along with its varying property uses (see Table 1), sizes (see Table 2) and different demographics, residents ultimately preserve diverse values and priorities from one another (Australian Bureau of Statistics, 2021). Therefore, the ways in which they care for their property and focus on the issue of rabbits is also reflected within the results. This is supported by Januchowski-Hartley et al. (2012), who suggests that the societal and demographic factors that 'influence landholders' participation and adoption of actions' is needed to be better understood within environmental management.

"Everyone has different ideas, backgrounds [and] age groups... It is very hard to come to a collective [decision] about what you should do and then just get on with it. It's a large, country area".

"Rural areas can be isolating and disconnected from neighbouring communities. But with the space causes problems – the residentials don't really understand it".

"Different approaches and communications with the different landowners are crucial".

Furthermore, whilst an increase in age can exhibit an increase in 'proenvironmental behaviour' and a motivational shift that focuses on the environment (Wang, Hao and Liu, 2021), it is concerning that older individuals are expected to solely conserve their land, and in this situation, participate in physically taxing rabbit control methods, when their health and physical ability is vulnerable. Following the 2021 census, The Bellarine Peninsula has a median age of 45, which is older compared to other surrounding suburbs. These results, along with the age ranges of participants provided in the interviews, indicates that the area has increased population of older individuals and potentially, increased age barriers when engaging in rabbit control.

"We have some people on our street are who 80 or 90 years old so it can be a struggle to create a collective eradication plan because they struggle with everyday life."

"I once stood in a burrow and landed flat on my face. I was fine but imagine if that happened to my elderly neighbour".

Additionally, the increase in large housing developments on the Bellarine Peninsula also influences the management of the land. Several respondents believe that due to the rabbits moving away from the cleared land into their larger and rural properties, residents of the developments are not impacted by the rabbits, and therefore demonstrate a lack of action towards the issue. Raymond and Brown (2011) further establish this notion, suggesting that landholders who are "disengaged" with the problem are subsequently less likely to conserve their land without "significant...incentives", creating additional barriers outside of societal characteristics that will be focused on later in this discussion.

"Because the new estates are getting so ripped up, [the rabbits] are coming over to our side of the road - they were forced out of the residential zone across the road and have all segregated down to here".

"A lot of people don't know [or] realise the damage rabbits do. A lot of people who kick up about it are city dwellers who've never been on the land and don't know – they think they do but they don't....They don't know the damage it does to properties – especially the big ones where it's hard to get to the rabbits because other places are so big".

"The neighbour's horses are hurting themselves stepping in the burrows. I don't think residential areas realise how problematic it is on land".

5.2 DESIRE FOR DIRECTION

Engaging landowners in conservation action against rabbits on their property necessitates an understanding of the issue, and the ways in which to conduct control methods. The results within the survey determine that whilst respondents are concerned by the rabbit populations (as seen on Figure 1) and demonstrate a good understanding of the presence of European rabbits (identified in Figure 2), there are significant discrepancies in the awareness of the benefits of controlling them (only 52% as shown in Figure 3). This subsequently reveals that landowners are uncertain as to why they should control rabbit populations as well as demonstrates that there is an overall lack of education and promotion surrounding rabbit control. Moreover, this absence of direction and education is further supported by the results in figure 5, which illustrates that the primary reason for individuals not engaging in rabbit action is due to the problem appearing 'too big' and individuals not knowing where to start. As such, several respondents within the interview also revealed that this lack of direction, particularly from organisations like local councils and environmental management organisations such as Bellarine Landcare Group impedes their ability to participate in engaging with effective control methods.

Additionally, the results depicting the significant lengths of time participants length lived on their properties, as well as where their previous residency, both identified on Table 2, further demonstrate that participants are familiar with the environmental needs and requirements specific to the Bellarine Peninsula; it is the complexity and size of this issue that causes uncertinaty on how to act. Furthermore, Kueper, Sagor and Becker's (2013) research findings reveal that when landowners were provided with education programs, Dalrymple Landcare Committee had an increase in credibility and trust with the local community. As such, through providing a voice to landowners and direction to combat the issue, the committee ultimately equipped landowners with the knowledge and motivation to engage with the conservation efforts on their properties. This results show potential for amending this absence of education and overall direction and can be mirrored to the Bellarine Peninsula.

"I don't know what to do, there isn't a lot of help as landowners as it is our responsibility but it's difficult to know what to do".

"I don't think there's a lot out there for people to realise the effect they have and the best [way] to control them. That requires some help. I don't think everyone knows the real deal about it".

"You don't really see any advertising or information.... You see a lot of fire-preparedness on airtime but not much on rabbits".

"Landcare's website about rabbits doesn't have enough media on it, it is not getting out there".

"[The best way to engage myself more in rabbit control would be] understanding on what can be done in a practical way to prevent and minimise the population and to deter them from the property".

"Practical advice and people coming onsite to assess the property and to provide support and advice about how to best manage it".

5.3 DESIRE FOR COLLABORATION

A recurrent theme highlighted by respondents throughout the interviews, and is supported by Figure 7 from the survey, was the desire for collaboration of neighbouring landowners, volunteers and Landcare officials to produce efficient and long-lasting reductions in rabbit populations. According to Raymond and Brown's (2011) research, they revealed the necessity to bring together engaged landowners to "share their knowledge and information". As such, partnerships between individuals experiencing similar rabbit issues could provide valuable direction and support, which was a concern mentioned in section 5.2, as well as aid those experiencing different situations and barriers, such as age and those with disabilities. Collaboration also allows for the development of methods targeted to the local area's specific needs (Raymond and Brown, 2011).

Additionally, Cooke and Corbo-Perkins (2018) reveal that the movement of rabbits "across boundaries can challenge the logic of property-centricity in the process of conducting conservation work, reinforcing the importance of working collaboratively across boundaries". Therefore, engaging neighbours and other landowners in conservation efforts can address the issue on a larger scale and therefore reduce the possibility of rabbits returning to the neighbourhood area. This collaboration will not only assist in managing rabbit populations more efficiently, but also foster a sense of community and shared responsibility among landowners. It is necessary, however, that all landowners partake in collaborative efforts as a lack of consistency, as aforementioned above, will prevent lasting eradication.

"I think the Landcare meetings were really good because they were all likeminded... and local people. But again, unless you have everyone doing something, bunnies are a huge problem on every property, despite the fact that some people say they don't have a problem. We all have it".

"If we pulled the resources with baiting and collapsed the burrows it would probably work but organising that would be difficult and not by ourselves".

"I would be...interested in somehow encouraging [the] neighbours to be involved with us".

"If getting rid of our big warren made such a difference [and] if we all did it, it could make an even bigger impact".

"It would be good if we could get rid of rabbits, but I don't think it will happen on individual effort".

5.4 ENVIRONMENTAL IMPLICATIONS

Both the survey and interviews revealed that landowners were hesitant to implement rabbit reduction strategies due to concerns over the environmental impact of these control methods. This predominantly focused on the of potential consequences of secondary poisoning on native wildlife and landowner's pets following the baiting of rabbits. Despite these uncertainties and apprehension, the respondents still exhibited significant care for the environment and their properties, which is identified in appendices 5 and 6 Some methods undertaken included general property upkeep, the planting of endangered native tress, bee keeping and promoting native birdlife. It is through this care that ultimately demonstrates that there are landowners who are willing to engage in conservation methods but are limited due to impacts of their environmentally focused morals and values. Gorgan and Bavorova (2022) supports this notion, suggesting that the 'belief that the method[s] will be unjust', is a significant factor to landowners not contributing to certain conservation methods. Furthermore, the potential loss of personal identity of ethics and attitudes are also internal factors that prevent conservation participation (Januchowski-Hartley et al., 2012).

Upon questioning, most respondents have not personally seen any impacts of death that is confirmed to be related to secondary poisoning. Despite this, however, landowners remain hesitant and believe there is a lack of resources to justify the potential environmental benefits of utilising baiting methods. Niemiec et al. (2019) proposes that the influence and beliefs of neighbouring landowners are considered more credible to landowners in comparison to environmental management staff, particularly due to sharing similar values. This is supported by the participant's desires to promote research that has already been conducted to either confirm or deny the concerns of landowners. Moreover, several landowners also expressed enthusiasm for research into immunocontraception and secondary methods of control, as seen in Figure 6 that will ultimately align more with their morals and values, compared to that of baiting.

Additionally, it is important to report that landowners were questioned if promoting the re-establishment of the Eastern Barred Bandicoot through controlling rabbit populations instead of specifically highlighting the culling of rabbits would encourage landowners to engage in rabbit control more. The responses were mixed; however, it did ascertain that, despite an appreciation for native wildlife, landowners would prefer to focus on rabbit control specifically and the barriers of conservation efforts, rather than introduce another aspect to the already complicated problem.

"We are open to suggestions and if it is poisoning that's fine. I can keep [my] animals in, but I just worry about secondary poisoning as we have tawny frogmouths and other native wildlife on our property".

"I haven't laid poison because I know people next door have pets and I don't want to harm them".

"I don't know if [other] animals...aside from rabbits have been impacted by poison. When 1080 was put down, my neighbour's cow died. I am not unsure if that was related as it wasn't tested. [But] my dog was also unwell when they were putting pindone down. Authorities say dogs won't be affected by it but that's not true."

"I am very concerned about all animals and the use of the poisons they're using for rabbits. My dogs for my business and the dogs that walk on the rail trail could be impacted by the pindone".

"In America, they have immunocontraception for mice and rats... It's called ContraPest. We do not have it here – why don't we?"

"Although I think we should be dealing with rabbits I think we should be putting money into immunocontraception because if we don't stop rabbits from breeding, we are not going to get better".

5.5 LIMITATIONS

It is necessary to consider the limitations of the research when interpreting the results. Whilst the sample size collected was larger than expected, as identified in the results on Table 1, the participants involved were predominately retired individuals with large property sizes. As such, with less limitations due to employment and an increased time to focus on their property's maintenance and wellbeing, there is potential bias to respondents who are more willing to engage in rabbit control, as supported by McKelvie-Sebileau (2020). Individuals who are uninterested in acting against rabbits on their property, as demonstrated within the discussion, would be less likely to respond to the survey and subsequently the interview process. This would influence the results collected as the views do not accurately mirror those of all of the Bellarine Peninsula.

Additionally, it is important to acknowledge that there is the possibility of unconscious interviewer bias, within both the survey questions, and particularly the interviews. It should be considered that the interviewees maintain pro-environmental perceptions when understanding the results collated.

7. CONCLUSION

Ultimately, the results from the survey and interviews demonstrated the perceptions and observations of landowners within the Bellarine Peninsula and their experiences with actively undergoing issues concerning the invasive rabbit populations. This report found that whilst the damage produced by rabbits is obvious and impactful to most landowners, there are numerous barriers to landowners engaging in effective control methods that produce meaningful results. These include limitations relating to demographics, a lack of guidance and support from other landowners, environmental organisations and councils as well as concerns for the wellbeing of the environmental. As such, through these findings, we have recommend the following as the best methods to further engage landowners in action against the European rabbit populations on the Bellarine Peninsula.

- 1. Bellarine Landcare Group to increase communication and awareness to landowners across the Bellarine Peninsula on their efforts on rabbit control. This should involve promoting their online presence such as their rabbit action website and through physical methods including letter drops and increasing local meetings.
- 2. Establish local landowner groups to promote collaborative efforts between landowners on area-specific rabbit issues. These groups should be assisted by Bellarine Landcare to identify what to do to create and maintain a large and effective environmental impact.
- 4.Establish a monitoring program to local areas to monitor rabbit populations and the impact of control methods. This is also to ensure rabbit populations remain reduced and not out of control.

3. Increase volunteering programs to further assist landowners in engaging with rabbit action, particularly those with age-related restrictions. This should include both verbal assistance on what to do and physical assistance like the filling in of warrens or construction of rabbit-proof fences on these properties.

5.Increase both new research and promote current research already conducted regarding the effects of baiting. This is to include the potential impacts of secondary poisoning. This research available could assist in easing the concerns of landowners apprehensive of using baiting.

6.Establish education programs in local areas. This should focus both on the issues of rabbits specific to the local area, methods on how to control rabbit populations and increase awareness of the ecological and financial benefits when rabbit populations are controlled.

7.Increase the assistance provided by local councils. This should incorporate financial incentives to reduce the barriers of rabbit control, such as subsidising baited carrots, trapping gear and rabbit-proof fencing. There also needs to be a change in perception and consistency from local council to understand that the invasive rabbit population is a collective issue and not solely the responsibility of individual landowners.

The results collected and the recommendations established will be essential for many groups within the Bellarine Peninsula. This includes environmental action groups including Bellarine Landcare Group as well as the local councils including Surf Coast Shire Council, Greater Geelong City Council and the Borough of Queenscliff Council. The results will also be beneficial to landowners affected by rabbits. It will validate that their concerns and struggles are being acknowledged and considered that solutions to the issue are being investigated.

8. REFERENCES

Allred, S., Stedman, R., Gary, G. and R. Parks. (2014). *Managing for New England Cottontail Rabbit Habitat in New York's Eastern Hudson Valley: Landowner Attitudes, Motivations, and Barriers*. Human Dimensions Research Unit Publ. Series 14-9. Dept. of Nat. Resources, Coll. Agric. and Life Sci., Cornell Univ., Ithaca, NY. 56 pp. Retrieved from: https://ecommons.cornell.edu/server/api/core/bitstreams/537e954e-8a16-4621-9471-4c327335fc7f/content

Australian Bureau of Statistics (2021). 2021 Surf Coast - Bellarine Peninsula, Census All Persons QuickStats | Australian Bureau of Statistics. [online] www.abs.gov.au. Available at: https://www.abs.gov.au/census/find-census-data/quickstats/2021/20303 [Accessed 1 Jun. 2024].

Australian Bureau of Statistics (2023). *Selected Living Cost Indexes, Australia, December 2020 | Australian Bureau of Statistics.* [online] www.abs.gov.au. Available at: https://www.abs.gov.au/statistics/economy/price-indexes-and-inflation/selected-living-cost-indexes-australia/latest-release.

BLG. 2024. *Welcome to Bellarine Landcare* [Online]. Available: https://bellarinelandcare.org.au/

Braysher, M. (2017). *Managing Australia's Pest Animals – A Guide to Strategic Planning and Effective Management*. Published by CSIRO publishing, Clayton South VIC 3169, Australia. Retrieved from:

https://www.google.com.au/books/edition/Managing_Australia_s_Pest_Animal s/R74DDgAAQBAJ?hl=en&gbpv=1

Brenner, J. C., Lavallato, S., Cherry, M., & Hileman, E. (2013). *Land Use Determines Interest in Conservation Easements Among Private Landowners*. Land Use Policy, 35, 24–32. Retrieved from: https://doi.org/10.1016/j.landusepol.2013.03.006

Carter, L., Mankad, A., Campbell, S., Ruscoe, W., Oh, K.P., Brown, P.R., Byrne, M., Tizard, M., Strive, T. (2022). *Conditions for Investment in Genetic Biocontrol of Pest Vertebrates in Australia*. Frontiers in Agronomy- Security Pest Management, Vol.3. Retrieved from:

https://www.frontiersin.org/articles/10.3389/fagro.2021.806569/full

Compton, E., & Beeton, R. J. S. (Bob). (2012). *An Accidental Outcome: Social Capital and its Implications for Landcare and the "Status Quo."* Journal of Rural Studies, 28(2), 149–160. Retrieved from:

https://www.sciencedirect.com/science/article/abs/pii/S0743016711001306

Cooke, B.D., (2012). *Planning Landscape-scale Rabbit Control*. Retrieved from: https://www.rabbitfreeaustralia.org.au/wp-content/uploads/2022/12/Cooke_2012_lscape_rabbit_control.pdf

Cooke, B., & Corbo-Perkins, G. (2018). *Co-opting and Resisting Market Based Instruments for Private Land Conservation*. Land Use Policy, 70, 172–181. Retrieved from: https://doi.org/10.1016/j.landusepol.2017.10.027

Cooke, B., & Lane, R. (2015). *How Do Amenity Migrants Learn to be Environmental Stewards of Rural Landscapes?* Landscape and Urban Planning, 134, 43–52. Retrieved from: https://doi.org/10.1016/j.landurbplan.2014.10.006

Cooke, B., & Lane, R. (2018). *Plant–Human Commoning: Navigating Enclosure, Neoliberal Conservation, and Plant Mobility in Exurban Landscapes*. Annals of the American Association of Geographers,108(6), 1715–1731. Retrieved from: https://doi.org/10.1080/24694452.2018.1453776

Cooke, B., Langford, W. T., Gordon, A., & Bekessy, S. (2012). *Social Context and the Role of Collaborative Policy Making for Private Land Conservation*. In Journal of Environmental Planning and Management. Retrieved from: https://doi.org/10.1080/09640568.2011.608549

CSIRO. 2021. *Biological Control of Rabbits* [Online]. Available: https://www.csiro.au/en/research/animals/pests/biological-control-of-rabbits

Curtis, A., & Lockwood, M. (2000). Landcare and Catchment Management in Australia: Lessons for State-sponsored Community Participation. Society & Natural Resources, 13(1), 61–73. Retrieved from: https://www.tandfonline.com/doi/pdf/10.1080/089419200279243? needAccess=true

Department of Sustainability, E., Water, Population and 2011. *Feral European Rabbit (Oryctolagus cuniculus)*. In: Sustainability, E., Water, Population and Communities (ed.). environment.gov.au.

Drescher, M., & Brenner, J. C. (2018). *The Practice and Promise of Private Land Conservation*. Ecology and Society, 23(2), art3. Retrieved from: https://doi.org/10.5751/ES-10020-230203

Eastern Institute of Technology (EIT). (2020). Landholder Perceptions of Predator Control in the Cape City Region: Results from the Rural Survey (2020).

Retrieved from:

https://www.pfhb.nz/assets/Image-Gallery/Landowner-survey-report-C2C-2020.pdf

Farmer, J.R., Ma, Z., Drescher, M., Knackmuhs, E.G. and Dickinson, S.L. (2016). *Private Landowners, Voluntary Conservation Programs, and Implementation of Conservation Friendly Land Management Practices*. Conservation Letters, 10(1), pp.58–66. Retrieved from:

https://conbio.onlinelibrary.wiley.com/doi/epdf/10.1111/conl.12241

Fischer, P., & Bliss, J. (2009). *Framing Conservation on Private Lands: Conserving Oak in Oregon's Willamette Valley*. Society & Natural Resources, 22(10), 884–900. Retrieved from: https://doi.org/10.1080/08941920802314926

Fitzgerald, G., Fitzgerald, N., Davidson, C. (2007). *Public Attitudes Towards Invasive Animals and their Impacts. A Summary and Review of Australasian and Selected International Research*. Retrieved from:

https://pestsmart.org.au/wp-

<u>content/uploads/sites/3/2020/06/Social_Literature_Review-report.pdf</u>

Gorgan, M. and Bavorova, M. (2022). How to Increase Landowners' Participation in Land Consolidation: Evidence from North Macedonia. Land Use Policy, 123.

Jansujwicz, J. S., & Calhoun, A. J. K. (2010). Ch.10: *Protecting Natural Resources on Private Lands: The Role of Collaboration in Land-Use Planning.* Landscape-Scale Conservation Planning, 205–233. Retrieved from: https://doi.org/10.1007/978-90-481-9575-6

Januchowski-Hartley, S.R., Moon, K., Stoeckl, N. and Gray, S. (2012). *Social Factors and Private Benefits Influence Landholders' Riverine Restoration Priorities in Tropical Australia*. Journal of Environmental Management, 110, pp.20–26. Retrieved from:

https://www.sciencedirect.com/science/article/pii/S0301479712002691?via%3Dihub

Kelly, M., & Stannus, G. (2002). Local Realities Versus National Interest: Can Landcare Bridge the Gap? The Development of Landcare. Social Science, 299–313. Retrieved from:

https://www.academia.edu/57286853/Local_Realities_Versus_National_Interest_Can_Landcare_Bridge_the_Gap

Kueper, A.M., Sagor, E.S. and Becker, D.R. (2013). Learning from Landowners: Examining the Role of Peer Exchange in Private Landowner Outreach through Landowner Networks. Society & Natural Resources, 26(8), pp.912–930.

Lubeck, A.A., Metcalf, A.L., Beckman, C.L., Yung, L. and Angle, J.W. (2019). *Collective Factors Drive Individual Invasive Species Control Behaviors: Evidence from Private Lands in Montana, USA*. Ecology and Society, [online] 24(2). Retrieved from: https://libkey.io/libraries/1057/articles/327160819/full-text-file

McKelvie-Sebileau, P. (2020). Landholder Perceptions of Predator Control in the Cape to City Region: Results from the Rural Survey (2020). [online] Available at: https://www.pfhb.nz/assets/Image-Gallery/Landowner-survey-report-C2C-2020.pdf.

Moon, K., & Cocklin, C. (2011). *A Landholder-Based Approach to the Design of Private-Land Conservation Programs*. Conservation Biology: The Journal of the Society for Conservation Biology, 25(3), 493–503. Retrieved from: https://conbio.onlinelibrary.wiley.com/doi/epdf/10.1111/j.1523-1739.2010.01639.x

Niemiec, R.M., Ardoin, N.M., Wharton, C.B. and Asner, G.P. (2016). *Motivating Residents to Combat Invasive Species on Private Lands: Social Norms and Community Reciprocity*. Ecology and Society, 21(2). Retrieved from: https://libkey.io/libraries/1057/articles/58982663/full-text-file

Niemiec, R.M., Pech, R.P., Norbury, G.L. and Byrom, A.E. (2017). *Landowners' Perspectives on Coordinated, Landscape-Level Invasive Species Control: The Role of Social and Ecological Context*. Environmental Management, 59(3), pp.477–489. Retrieved from: https://link.springer.com/content/pdf/10.1007/s00267-016-0807-y.pdf

Niemiec, R.M., Willer, R., Ardoin, N.M. and Brewer, F.K. (2019). *Motivating Landowners to Recruit Neighbors for Private Land Conservation*. Conservation Biology: The Journal of the Society for Conservation Biology, [online] 33(4), pp.930–941. doi:https://doi.org/10.1111/cobi.13294.

O'Donnell, P.P. (2023). An Investigation of Farmers' Perspective on Biodiversity and Restoring Native Vegetation on Farms Using the Constructivist Approach to Social Inquiry: A Case Study of Beef and Sheep Farmers in Southeastern Gippsland, Australia. Journal of Sociology Mind, vol.13, pp.193-240. Retrieved from: https://www.scirp.org/pdf/sm_2023090115064355.pdf

Paloniemi, R. (2008). *Ecological and Social Aspects of Biodiversity Conservation on Private Lands*. Environmental Sciences, 11, 336–346. Retrievd from: https://www.sciencedirect.com/science/article/abs/pii/S1462901107001256

Raymond, C. M., & Brown, G. (2011). Assessing Conservation Opportunity on Private Land: Socio-economic, Behavioral, and Spatial Dimensions. Journal of Environmental Management, 1–11. Retrieved from: https://www.sciencedirect.com/science/article/pii/S0301479711001708? via%3Dihub

RSPCA. 2021. *Myxomatosis* [Online]. Available: https://www.rspcavic.org/health-and-behaviour/rabbits/myxomatosis [Accessed 24/09/21 2021].

Schwensow, N. I., Cooke, B., Kovaliski, J., Sinclair, R., Peacock, D., Fickel, J. & Sommer, S. 2014. *Rabbit Haemorrhagic Disease: Virus Persistence and Adaptation in Australia*. Evolutionary applications, 7, 1056-1067.

Taggart, P.L., O'Connor T.W., Cooke, B., Read, A.J., Kirkland P.D., Sawyers, E., West, P., Patel, K. (2022). Good Intentions with Adverse Outcomes When Conservation and Pest Management Guidelines are Ignored: A Case Study in Rabbit Biocontrol. Retrieved from:

https://conbio.onlinelibrary.wiley.com/doi/epdf/10.1111/csp2.12639

The City of Greater Geelong. (2021). *Rabbit Control Plan – 2021-2026*. Retrieved from:

https://www.geelongaustralia.com.au/common/Public/Documents/8db0f35b5c1b215-rabbitcontrolplan2021-2026.pdf

Uebel, K., Rhodes, J., Wilson, K.A. and Dean, A.J. (2021). *Environmental Management in the Peri-urban Region: Psychological and Contextual Factors Influencing Private Land Conservation Actions*. Environmental Management, 68(2), pp.184–197.Retrieved from:

https://link.springer.com/content/pdf/10.1007/s00267-021-01487-6.pdf

Wang, Y., Hao, F. and Liu, Y. (2021). *Pro-Environmental Behavior in an Aging World: Evidence from 31 Countries*. International Journal of Environmental Research and Public Health, 18(4), p.1748. doi:https://doi.org/10.3390/ijerph18041748.

Woolnough, A.P., Hull, L.J., Reid, M.J., Adams, L.B., Kleinert, H.M., Alter, T.R. (2020). Community-led Approaches Can Lead to Better Outcomes for Management of European Rabbits Oryctolagus Cuniculus and Other Invasive Species. Retrieved from: https://vran.com.au/wp-

content/uploads/2021/02/TVN_137_6_Woolnough_rabbits.pdf

9. APPENDICES

APPENDIX 1 - Raw data of survey participants' responses to survey question 1: 'What is your postcode?'

Postcode	Township Name	Number of Surveys Completed
3214	Corio, Norlane, Geelong, North Shore	2
3221	Geelong, Bellarine	1
3222	Clifton Springs, Drysdale, Wallington	69
3223	Indented Head, Portarlington, St Leonards	37
3224	Leopold, Moolap, Geelong, Curlewis	8
3225	Point Lonsdale, Queenscliff, Swan Bay	7
3226	Ocean Grove, Barwon Heads	6
3227	Barwon Heads, Breamlea	12
Skipped	-	1

APPENDIX 2 - Raw data of survey participants' responses to survey question 7: 'What is the primary reason for not engaging or participating in rabbit control?'

Reasons	Number of Surveys Completed
 None, I do partake. Include 'other' comments about using dogs and ferrets. Include 'other' comments about yes, I do rabbit action but impacted by neighbour's lack of action. 	28
Financial Constraints	4
Time Constraints	16
Illness/Injury	4
 I don't support the culling of rabbits. Included 'other' comments: Cruel, concerns of secondary poisoning, want more research on immunocontraception, bunnies are cute 	12
I am not interested	5
I wasn't aware rabbit population numbers were an issue	20
I am unsure where to start/problem appears too big	38
I am invested in other ecological issues that take priority over rabbit control	5
Other: Not directed impacted by it = 2 Past methods ineffective /doesn't last long= 3 Lack of resources when not using bait = 1 Needs to be funded/rolled out by state/local governments = 2 Not allowed to hunt anywhere = 1 Age = 1	10
Skipped	2

APPENDIX 3 -Transcriptions from each interview participant on question 5: 'How concerned are you for the ecological health and performance of your property?'

Interview Participant	Concern Level
1.	Very concerned
2.	Greatly
3.	Concerned, we do look into what we can do to help the environment here. It is something we don't take lightly
4.	Very concerned
5.	Moderately concerned
6.	Very concerned
7.	Pretty concerned
8.	Very concerned, we spend a lot of time on it
9.	Very concerned
10.	Very, we have animal and horses (hobby farm) so we like to look after it
11.	I guess so – don't want to see things blatantly ruined whether its spraying/poisoning/subdividing
12.	Kind of, for the weeds, foxes, rabbits
13.	Very concerned
14.	More reasonably interested in keeping it under control than the environmental aspects. Lots of trees on property so lots to look after it
15.	Very concerned

APPENDIX 4 - Transcriptions from each interview participant on question 6: 'Have you noticed any damage caused by rabbits on your property? Have you seen rabbits?'

Interview	Observations
Participant	
1.	Very much so, all the burrowing and holes make walking and mowing difficult. Yes, have seen rabbits on the property.
2.	Yes definitely, lots of burrows. 8-10 rabbits seen daily.
3.	They eat all our lovely plants. There are heaps of rabbit droppings. We do try and fence off an area to not let them in, but they do get in. defiantly seen rabbits on property too.
4.	Yes, lots of burrows, plants being eaten. Yes, I have seen rabbits on property.
5.	Yes, big warrens on property. Yes, I have seen rabbits on property.
6.	Yes, lots of holes, burrows. Also, holes in the road as it is not a main road. Must fill in holes to prevent his horses from falling in and breaking a leg. Yes, I have seen rabbits.
7.	Yes, burrows and dug up stuff (4 burrows), filling in burrows. We live next to a park and see them everywhere. All through the dog park (which is council land). We also see the damage on the cliffs at Clifton Springs Beach too.
8.	I am pretty rabbit free here, there's not much destruction. Neighbours 500m away have many rabbits on property, but I think we don't have any because of our soil. It's quite dark, sticky, volcanic, kind of like clay – so I don't think the rabbits like that. We do have Hares on property but no rabbits.
9.	Oh yes heaps, there are lots of burrows, divots where they start to burrow (we refer to them as ankle breakers). Our dog has just started going after rabbits but that results in me having to finish them off. We have definitely seen rabbits on my property
10.	Significant damage seen with lots of burrows and warrens, plants destroyed, fence posts become loose and damaged from burrows. Livestock hasn't been injured yet by the burrows as we are diligent in filling in the holes in the paddocks as soon as they appear.
11.	Yes, we see lots of droppings. They also up my backyard. However, there are no burrows. Instead, they come in from property behind me that's unoccupied where their burrows are. They come to my place and eat my plants. I had to fence our veggie garden.
12.	Yes certainly, we have seemed to have increased in population. Many rabbit craters divots and around 3-4 burrows.
13.	We have a great deal of burrows. We also have horses on the property too, but they are not impacted. We have also seen the rabbits on the property.
14.	Yes, it's been a continual problem of burrows, eating our plants and seeing lots of droppings. They've invaded our bonfire and gone through our septic tank runoff and thrown screenings around the place. They've under-mined our bird cages. Because we are not here all the time, and we are getting on in age it means that as soon as you fill in a hole, they create new hole. The warrens are pretty established now too. It all stemmed from neighbours' places because one neighbour has kennels and they've undermined the kennels, and another neighbour has a mussel farm, and they burrow under them. As soon as you turn your back, they are just in and take over.
15.	Yes, they have destroyed my lawns and grasses and created burrows. We see lots of rabbits, when we drive in at night and you see around 20 at once.

APPENDIX 5 - Transcriptions from each interview participant on question 7: 'Are there other areas of conservation or the environment that you care significantly about?'

terview	Conservation
articipant	Franching in conord
1.	Everything in general.
3.	Plants. Have had Bellarine Landcare come in as I have a pocket on the back of our property with yellow gums that are new and coming up. They have recommended to fence that area off to protect them. There are grants available to help me with that. We also have quite a bit of Gorse but removing them is difficult because they are quite grown. However, I know that they are harbouring the rabbits. The grants will help with this removal.
4.	Native plants like gum trees and shrubs. These are partly to attract bird life. We also went to a native nursery, and they helped us show what plants might discourage rabbits.
5.	Not really.
6.	A lot of native birds, but they are not high on our priorities. We have a nature reserve in the middle of farm (little green wedge). There's lots of burrowing there, it would be a shame to see that get destroyed.
7.	Indigenous plants, likes native flowers for the bees. The rabbits ringbark the plantings saplings. We have to tree guard everything which is very costly. There are lots near the beach I have heard of dead owls from lack of vegetation food and sea eagles also injured from poisoned rabbits. We are really interested in the bees and helping native birds. There is still this idea about secondary poisoning (but this is largely debunked).
8.	Pretty into trees such as gum tress and other similar species. I am trying to plant the Bellarine Yellow Gum more on my property. I have got a few propagations, but it is har to get as it is endangered.
9.	Yes, we are beekeepers with bees down the back of property. We also have a native garden that attracts the bees and birds. We leave leaf litter under the trees to attract insects and provide a habitat for them. We have a dam to promote ducks who have babies there every year. We are very interested in the environment, which is why we don't poison the bunnies.
10.	General conservation with the property. We care about pollution and the damage caused when they pulled up my nature strip.
11.	I like trees and with them come possums, but they can also be a problem. I try to find happy medium.
12.	I like the native trees on the boundary. I like the eagles, but they could steal our little dogs. I also love the many different bird species around.
13.	Very concerned about all animals and the use of the poisons they're using for rabbits. My dogs I use for my business and the dogs on the rail trail could be impacted by the Pindone. I am very concerned about Pindone – its horrendously cruel and doesn't break down in the environment. The APMA say after 10 weeks there was no or only a little reduction in the poison around and it takes weeks to die. I don't know if animals around aside from rabbits have been impacted by poison. When 1080 was put down a cow died but I am unsure if that was related as it wasn't tested. My dog was also unwell when they were putting pindone down. Authorities say dogs won't be affected by it but that's not true.
14.	The trees we have attract lots of bird species.
1 -7 -	The trees to have attract total or bird opening.

APPENDIX 6 - Transcriptions from each interview participant on question 8: 'Do you partake in conservation methods on your property? If so, what are they?'

Interview Participant	Method
1.	All of the above. Particularly planting native vegetation however, we are on the verge of giving up due to the rabbits.
2.	Gosh yes. My husband does maintenance of the fence line and native plantings. We have a clean 2 acres with no trees on the property, just around the boundary.
3.	We had Bellarine Landcare come through and went over the property to see what native trees and intrusive bushes that were growing on the property. What we thought was a pretty bush was actually an invasive weed that probably needs to be removed. Next door is about to be developed and unfortunately a lot of their trees will go. Hopefully whatever is in there, such as native birds and possums will come over to our land but not the rabbits. 5 acres next door and I know the moment they start developing that they will start coming in here as well.
4.	Planting native vegetation, being organic as much as possible, composting, worm farm. In terms of conservation, we are trying to protect what's there and planting.
5.	We mow and weed to look after the property, spray for weeds, keep fence lines clean. We have horses but are just used for residential.
6.	We do upkeep property. We would like to do planting but had a lot to do to get the property up to what we want.
7.	Guards for plantings and fencing, planting natives and use dogs. Love the native birds through planting trees.
8.	Planting trees, but not particularly anything for wildlife. Although, my wife has horses so a lot of what we do is making sure they have a good area to live.
9.	Yes, we weed, we plant, we wiper snip. We try to keep property clean and tidy to prevent it from being a fire hazard.
10.	Yes significantly, we spend a lot of time weeding, like invasive grasses.
11.	Keep the grass down and use a bit of weed killer around different areas.
12.	Spraying cape weed. Weed control. Hay baling for grass seed control.
13.	I do my own upkeep and I have significant trees on my property. Landcare helped the previous owners put them in.
14.	Not consciously because the place has been overplanted anyways. It's very hard to keep lawns going, so we harvest weeds (broadleaves, stinging nettles, thistles) as soon as you leave the place a new crop comes up, so there is a lot of mowing.
15.	Upkeeping such as weeding, mowing, using less impactful chemicals if I must use any We have a septic system to recycle water (it is a treatment plant that gets disperse high quality water across the land), and we keep the cats inside.

APPENDIX 7 - Transcriptions from each interview participant on question 9: 'Have you contributed in rabbit control actions previously? Were they successful/unsuccessful, why?

Interview	Rabbit Action in the past
Participant	
1.	Only very basic stuff. I tried the Pinone and poison but didn't have much effect or I didn't use it properly. Currently having people come over along with two other neighbours (3 properties altogether) to assist with the issue.
2.	No, not in a group. My husband has done rabbit control but not on this property.
3.	We have and paid for it ourselves. However, my husband wasn't very impressed with it. We got a pest control company in, and we think they did a pest control pellet/baited orange and put that into the warrens, but my husband didn't feel like it did much as not much difference was noticed. My neighbour is using the 1080 but that kind of poison worries me as I think it is quite powerful in killing the rabbits, but I worry for the secondary poisoning. The 1080 to me, although it might be helpful, is concerning to me. I don't know if that's the only options. Our neighbour also spent \$2600 on rabbit proof fencing. They had horses and their hooves kept going into the warrens. But he saw a rabbit scale the rabbit proof fence, so he had to pay more to increase the height. However, he's pretty happy though with the results.
4.	No.
5.	Yes, baiting programs, fumigation of warrens, destruction of warrens, and they were successful to some degree. However, we can't seem to get rid of the rabbits. We have the Bellarine rail trial behind the property. I was a member of the rabbit action group for the Bellarine action group. I, and a neighbour did a survey of the rail trial between specific roads and to my recollection, there was around 70+ warrens with more than 6 entrances each. At one stage we had enormous amounts of rabbits in the area. The City of greater Geelong provided the finances for carrots a few years ago for only 5 properties – we picked up 90 odd dead rabbits but expected to have been much more. I
	wasn't successful because you only need to leave 2 rabbits and they breed so fast.
6.	No. I have sold smoke guns to some golf courses though. I have done rabbit proof fencing around my house that has been effective.
7.	I used to shoot them, and the neighbours want to shoot them too. However, we can't because of restrictions. I thought about using ferrets to get the rabbits. Our neighbours have seen 16 rabbits at once.
8.	We once had a place near Jameson that had rabbits, but we didn't really do anything. We have always had dogs, so they kept them away from the house.
9.	Yes, a few years ago we Pindoned them but that didn't really have any affect at all. The secondary poisoning of animals and birds doesn't sit well with me. I have researched quite a bit, and they all say start with Pindone but at the moment I'm interested in getting cat/possum traps to get them and dispose of them – whether I do it or take them up to the vet. My husband used to shoot them, but success is limited because they breed so fast. We waited for the Mixo to hit them, but it didn't finish them up. I haven't noticed any damage from secondary poisoning.
10.	Yes, a lot, we've done filling burrows and warrens, pindone baiting with carrots, pindone oats, gassed burrows and fill all but one in. I worked with neighbour and did a count for the council of the rail trail around 2 years ago and mapped opened burrows and warrens. We back on rail trail so we are never going to get rid of them all. It is frustrating because of all the broken branches on the ground on the rial trail as we are not a lot to touch them, but that is where all the rabbits are. They come from the rail trail and onto our property. It is frustrating when you spend \$100s of for property and it's all destroyed by rabbits. These have been effective to an extent but didn't get rid of them and only reduced them.

11.	No
12.	Monitoring warrens/collapsed a few. Tried bunny baiting. Worried about secondary poisoning.
13.	I am not involved in it.
14.	I did attend a meeting that was on the Bellarine where they demonstrated the smoking and ripping of warrens. So, I know the process to try and rid them but as soon as you do that you have to compress what you've done and make sure they don't come back.
15.	This year I had someone to gas the burrows and collapse the exists. It made a huge reduction on rabbits, but I still see around 5 that come in from the outside.

APPENDIX 8 - Transcriptions from each interview participant on question 10: 'Can you go into further detail as to why you are not involved in rabbit control'.

Interview	Reason
Participant	
1.	Not much, maybe time constraints. Our property backs onto council land and the council tried to do some control on it a few years back. However, one resident nearby began tearing the signs down, filming staff and acting threatening so the council stopped it to not put their staff in those situations.
2.	Because of our age, my husband has a disability and the cost of it all. \$100 for a container eats into the budget.
3.	We are doing passive rabbit control in the fencing. In our area where we live, we have done fencing there. But in our back property where we just mow it is just 5 acres of pure farmland. It's just too much and I don't really know what to do with it or how to control them. We border residential properties. I'm freighted of 1080 poisoning I really don't know how to do it. We got the pest controllers in (using a pindoned orange) and it didn't really do anything. I don't know what to do, there isn't a lot of help as landowners as it is our responsibility but it's difficult to know what to do.
4.	The last place I lived in was in Eltham and we didn't have many rabbits there until just before we left. So, there was never a need until moving here where there are lots on the property and nearby.
5.	I am still involved. I did baiting program over 3 properties and that did help. I also used ferrets to help and found 20+ in 1 warren. They breed very quickly though.
6.	Time constraints, plus there just so many of them.
7.	I think it should come from the council. I have major concerns about the erosion along the beach cliffs. I am worried about how to get involved and I think the council should do more.
8.	Our dogs kept them away at past properties. Potentially because of the bad soil on our currently property which means they are not really our problem.
9.	Predominately secondary poisoning. I'd like to find a way such as trapping them because they come right up to the property during dusk, and you can have a sense of how many there are. I'd like to trap them and have someone dispose of them for me.
10.	I do get involved but it is difficult with a lack of action on the rail trail behind my property.
11.	I haven't laid poison because I know people next door have pet and don't want to harm them and I am not allowed to shoot them.
12.	I am involved.
13.	I think it is horrendously cruel. I have complained to the council about it occurring on the rail trail. Pindone was being put down and rolling onto my property and although I think we should be dealing with rabbits I think we should be putting money into immunocontraception because if we don't stop rabbits from breeding, we are not going to get better. We will kill the foxes, but we need those predators to control rabbits so now we have lots of rabbits. I am into using dingoes in appropriate areas.
14.	Because the issue is ongoing. Also, it's hard as well since the neighbours do nothing, were not going to go to that trouble since we know the place will become inundated again. Also, age and cost are also barriers.
15.	Time constraints. We have 2.8 acres so to rabbit proof the fence and to dig down 50cm for the entire perimeter and lay wire is a large, time consuming and expensive job. I have done pindone baiting but it's hard to manage – I prefer to put it out at dark and take it away in at dawn because I've noticed the birds eating it. I don't want to kill native animals or anything that would eat the rabbits, which is harder manage.

APPENDIX 9 - Transcriptions from each interview participant on question 11: 'Are you interested in rabbit control? Why?'

Interview	Rabbit Control Interest
Participant	
1.	Very much so, because they destroyed fruit trees with their burrows, digging, eating small plants and vegies. There is a lot of control to keep that going. Ringbarking on fairly mature fruit and gum trees is frustrating.
2.	Yes, it is just difficult for us, but we would love help.
3.	Yes definitely, because they are a problem, so it is necessary – it'll just get crazy.
4.	Yes.
5.	Yes, there's a few of neighbours that drive it within our boundaries. There are four properties along here and we try and keep them as rabbit free as possible.
6.	Definitely.
7.	Yes, I don't like the destruction they cause.
8.	Not something that's on our mind because we don't have rabbits. If we did, it might be something we are interested in – I have other things to worry about.
9.	Yes, we all are locally, but none of us want to use pindone.
10.	Yes, we are all just trying to do our best to look after our properties. I once stood in a burrow and landed flat on my face, I was fine, but imagine if that happened to an older neighbour.
11.	I would be interested in rabbit control in the future.
12.	Yes, they have caused damage.
13.	Yes, they are a big problem, but it is not their fault. I do have somebody who comes in to shoot the rabbits. That is the only way I could possibly keep the numbers down. I don't like doing it or approve of it, but I don't know how else to keep things under control; because I am next to rail trail, it's an absolute haven for rabbits because the environment is just set up for them there.
14.	Potentially.
15.	Yes.

APPENDIX 10 - Transcriptions from each interview participant on question 12: 'How would you want to help control the rabbit population? Are there any secondary methods you would do?'

Interview	How method
Participant	
1.	The ones I like are probably illegal. It would be nice to be able to shoot them but because we are in semi-rural area, using a firearm is illegal. Old fashioned traps are a bit inhumane like snares and bear traps.
2.	If we had assistance, rabbit proof fencing would be good. I am okay will culling methods as rabbits are a pest.
3.	Whatever would work, if we did do baiting that's fine. My husband had a friend come round with a ferret but when he went to put the ferret down the burrow in the back property but there was a brown snake and he packed up and went home – only 4 were caught. We just don't know. We are open to suggestions if it is poisoning that's fine, I can keep the animals in, but I just worry about secondary poisoning as we have tawny frogmouths etc.
4.	Certainty secondary methods. We have a lot of tall wire fencing around the property and to keep rabbits out would take a lot of work and be expensive. We are thinking about a getting a dog to help but we have concerns over our ducks. In terms of baiting near us, the council has done some around us, but we are concerned over secondary poisoning.
5.	Fences are very expensive and found that they don't work in our area. The most effective methods are to blow the warrens up. I was asked to be done along the rial trail but the 'greenies' were against it.
6.	We have done full rabbit proof fencing around the acre block where our house is, and it has been effective.
7.	Doesn't matter how, they simply must go.
8.	Doesn't impact me, so I am not sure.
9.	I don't like pindone, so I am looking into using traps.
10.	Everything I can do.
11.	Would like to try to do it myself provided its legal. As long as measures are not invasive and only effect the rabbits.
12.	I already do rabbit control.
13.	Immunocontraception requires a lot more research into it. A lady called Sally Hall did a PHD on immunocontraception. I am also involved in the Animal Justice Party and it's something we have been promoting for years. We have immunocontraception for lots of species, and if we could just develop it for rabbits, it would be worth them spending \$10million on immunocontraception. Because it's the only way it will cut down the population in the long term. Rabbit proof fencing is terribly expensive. If you put prickly acacia down the burrows and then it gets out, it will go for dogs' paws and things, and I let people use their dogs on my property. I can't do anything that will adversely affect dogs. Even if I put fencing around my dog training area that could be helpful, but I don't know how much that would cost and to stop them from burrowing underneath. To rabbit proof 48acres would be very expensive.
14.	I would be more interested in somehow encouraging neighbours to be involved with us. Fencing would be ridiculous as its expensive. We used to have it, but they just dig under it.
15.	I am planning on doing a rabbit proof fence, I am just waiting to get time. I would do it in areas where I see the rabbits and work my way around to doing the whole property. Also working with neighbours. I see the rabbits coming from their properties; if getting rid of our big warren made such a difference and we all, did it, it could make an even bigger impact.

APPENDIX 11 - Transcriptions from each interview participant onquestion 13: 'What do you believe are the best methods to engage your more in rabbit control? Are there any incentives?'

Interview	Best method
Participant	The commonwed have applicated are faight averaging but it will be not allowed as
1.	The company we have employed are fairly expensive, but it will hopefully make an
	impact across the 3 properties. I will check fencing. But if everyone doesn't do it, there will be a weak link somewhere.
2.	If had assistance I would.
3.	Help would be good. Rabbit proof fencing would just do where we live not worry about
5.	the back paddock. A bit of help would be nice because it is necessary for us to do
	something because we live here. Financial help would be nice to do it properly.
	Otherwise, we just do it ourselves. The development next door did rabbit proof fencing,
	but the rabbits are just coming in through the areas that don't do fencing. I contacted
	Landcare as I was concerned about development next door and loss of trees, but I
	think the development crossed all the Ts, so there's nothing we can do to stop them.
	When I saw a fox, council did not help, and it was our responsibility to get rid of him.
4.	Probably just understanding on what can be done in a practical way to prevent and
	minimise the population and to deter them from the property.
5.	We probably are engaged as can be, there's not much else that we can do in our area
	here. Everyone knows each other on the strip, and we help each other if they have an
	issue. Not a lot else. The council is the main culprit. The rail trail has so many warrens
	and rabbits that no matter how many we kill on our property, there's always more
	coming in from the rial trail because they just go back to their warrens and breed up
	there.
6.	Not sure, maybe supply the gear to what we need to do. Basic knowledge provided.
7.	Win the lotto, money is the barrier for doing works.
8.	Unsure.
9.	I am keen to get the traps. It needs to be a community effort. We do have a few people
	that aren't really interested in controlling them at all, but we do have a few that are also don't want to poison them. But unless we all are doing it. We have a big property
	behind us that has been subdivided for land, so the land will be degraded, and the
	bunnies are more active. It's hard in an area unless you have a big group of people who
	are all interested in doing the same thing. I don't want the pindoned bunny to come
	onto my land because then my dog will eat it and all the wildlife as well.
10.	If the council did some sort of subsidies – the carrots are not cheap. Support from the
	council too.
11.	Email correspondence on what to do.
12.	The issue is the tragedy of the commons. Border decay, neighbours need to all do it or
	they come back.
13.	If there was government incentivise to fence my paddock or dig up some of the holes
	that would be an incentive to me, but I am not for lethal control.
14.	Probably external participation, but we are not willing to invest much money and
	there's not much volunteer work around us here. It is a waste of time as they keep
	coming back.
15.	If I had both financial and time assistance or help to do it.

APPENDIX 12 - Transcriptions from each interview participant on question 14: 'Do you feel your participation in rabbit control will make an impact?'

Interview	Participation impact
Participant	
1.	I am hoping.
2.	Only here, but we need to get everyone else on board.
3.	Yes, I think so. Because we are on 8 1/2 acres, we have a lot of rabbits, so I think if we did get rid of them and reduce their numbers and get on top of them it would definitely make an impact.
4.	Depends on what it was, I hope it would. There's a property across the road that's vacant with a lot of burrows. If doing stuff on our property I am not sure how effective it would be with all the rabbits on that property.
5.	They do, it keeps them down for a while. It's a constant battle, you get some people who are dead against killing rabbits. How do you convince those people? Baiting is probably the best way to keep them under control.
6.	Not sure. The people across the road and next door are not that interested. Rabbit proofing the whole property would be a big task but without it I don't see much impact happening.
7.	Probably not.
8.	Probably not.
9.	Yes, I think it would.
10.	Yes.
11.	Some impact if you could cull rabbits, a positive impact if reducing rabbits.
12.	Yes.
13.	Possibly not because the rial trial is a haven for rabbits. Although my neighbour does shoot and uses ferrets (which I don't approve of at all), I think the rail trail would mean it would be reduced for a while unless it was done every year, or it is dealt with on the rail trail. I can appreciate that the council doesn't have that money, or the incentives and they wouldn't be able to do it as there are so many dead trees which is good for other species. I don't want to remove them [the trees] all.
14.	No impact at all. We don't have many. At night we will drive in and say 1 or 2. Although we have burrows, we are not sure if they are residing in them. By spring there will be more though.
15.	Yes, the gas definitely makes a quick impact and not too time or financially expensive.

APPENDIX 13 - Transcriptions from each interview participant on question 15: 'Why do you think landowners in the Bellarine Peninsula are not collectively engaging in rabbit control?'

Interview	Reason
Participant 1.	Not all the properties are used to their full potential (planting/growing crop/animal husbandry).
2.	No because of the cost involved. Everyone whinges about it. It's the cost of it and what to do. When you're on a property, we have got 4 boundaries. The people next door has wire fencing, the rabbits get through. Two neighbours down the back and we only have ordinary fencing. On the other side, they have very large burrows along the fence line. Some of these burrows are so bad my husband thinks they are tunnelling under our shed. We haven't seen any foxes around. So, the thing is these burrows are big, they come out and play in the paddock/gardens/across the nature strip and go back because it is not fenced off. It's a real issue. The burrows are definitely a health hazard and danger if anybody falls.
3.	I think we are all trying. When speaking to the neighbours, and we are all trying our little bits. It's kind of a losing battle and we are trying to do what we can to stop them from invading our personal space. Its financial and time consuming. It's a lot of time to do the fencing.
4.	Not really sure. People see it as being a council issue. There's a bit of a mixture, like one neighbour doesn't like killing animals. If there are ways of preventing them from coming in it might be different. Maybe because its more prevalent. However, it's not consistent across the Bellarine Peninsula.
5.	Because the council doesn't make them. It's not mandatory and it should be. If you've got them there you should have to do something about it, but there's so many of them that do nothing. I think that its due to both not interested in doing anything and people against rabbit culling. You get those who are against Pindone as it'll kill native animals and birds but there was research that was done on captive birds that were only impacted when given Pindone solely for 2 weeks straight. In all the baiting that we have done, we have found nothing else but a rabbit – no hawks, wedgies, possums, no native animals of any kind that were dead. If they were eating it and were poisoned, you would see it. We have more issues from people using rat poison because the dogs find them and eat them.
6.	Different priorities, there are other things they'd rather focus their attention on. Even though they whinge about it.
7.	It's a really big issue and people are helpless from the size of the problem.
8.	I didn't realise they weren't engaging; I have no idea as to why.
9.	I don't really know. I think it's probably because everyone has different ideas, backgrounds, age groups as well. It is very hard to come to a collective about what you should do and then just get on with it. It's a large, country area.
10.	A lack of awareness of what's available, cost limitations, ignorance – it doesn't matter for some people because of estates etc. everyone likes walking the rail trail, but no one wants to look after it. The paths could collapse and it's a shame that something could go wrong before something has to be done
11.	I don't know if they are. The neighbour behind me shoots a few with low-velocity bullets but he can't do much. His land is now bought by a developer and the development will cause the rabbits to go somewhere else; it'll either eradicate them from habitats destroyed or push them to my property. Reserve across the road from me that's also populated by rabbits.
12.	Old money doing what they do the way they do, by themselves. New estates bringing new people and moving rabbits. Doesn't seem to be anyone active in wholistic actions let's all band together.
13.	I think they do. I discourage the council for putting pindone baits on the rail trail. I ask for bit more problems, but on my property – ethically I just don't agree with it. It is putting my dogs and client's dogs at risk.
14.	We are all in our 70s and 80s.
15.	Don't have the time. Some neighbour's daughters are against culling. Money too. Unless you rabbit proof your property, whatever you do they're going to come back eventually – it's a repetitive task. Also depends on motivation. The guy who collapsed our burrows said some people get it done 4 times a year and people with thoroughbred horses get it done every month because they can't afford a horse to break a leg on a rabbit hole.

APPENDIX 14 - Transcriptions from each interview participant on question 16: 'Do you feel yourself and others in the community know enough about the rabbit issue on the Bellarine Peninsular? Is there enough education about it, or the benefits of controlling rabbits?'

nterview	Opinion
articipant	
1.	No don't think so. I am 70 and from my experience, we let it get to a peak before we take action. Getting in there first and not letting it get out of hand. It'd be lovely to only 2-3 rabbits around to look out but when they start breeding, they're unstoppable.
2.	I think everyone reads what they read. The council won't do anything about it so who will put together a forum on rabbits? If somebody did something, its affecting all of us. The council is too busy looking after what they've got to do. They want to keep this part of the Bellarine rural, but they don't want to do anything to help. Landcare's website about rabbits doesn't have enough media on it, it is not getting out there.
3.	Probably not, I don't think there's a lot out there for people to realise the effect they have and the best to control them. That requires some help. I don't think everyone knows the real deal about it
4.	I don't feel I have personally, I probably haven't done that much research.
5.	I know enough because I have been involved in it for quite a few years. A lot of people don't know or realise the damage rabbits do. A lot of people who kick up about it are city dwellers they've never been on the land and don't know, they think they do but they don't. They read things that someone writes about the cruelness of baiting rabbits, but they don't know the damage it does to properties; especially the big ones where it's hard to get to the rabbits because other places are so big, you'd only go down there so often. They also worry about people writing about pindone killing your dog, but they'd have to eat 2 dozen carcasses to have that.
6.	Definitely not.
7.	Everyone talks about it, about the destruction. Really, really concerned about the cliffs/
8.	No, we don't know enough if it's a problem. If it is a problem, I don't know anything about it.
9.	Yes, we have signs in our street say 'your rabbits, your problem' that the council put up But that's not really how it works. If one person has rabbits, we all have rabbits. It's not really a matter of pointing the finger and saying you've got rabbits so it's your problem. It needs to be everyone's problem.
10.	I think there is, people can get if they want too.
11.	People could be made more aware of the rabbit problem. Not sure what effect that would have.
12.	Hard to say. Rural areas can be isolating and disconnected from neighbouring communities.
13.	People who don't live in a rural area problem don't realise. but I live in a community where everybody is in agreement with my moral philosophy. They know about the issubut do the general public know about it? I am not sure. My cohort is fairly well informed because we keep people well informed.
14.	I believe so, I've spoken to one of our neighbours and they know but they have other issues. It is part of one of the many problems of a property and it's not a large property either.
15.	Probably not, we are so used to them just being there. People don't realise how much better their land would be without the rabbit. People usually think of the land as pretty barren but would be different if you didn't have rabbits. Not everyone has researched how to get rid of them.

APPENDIX 15 - Transcriptions from each interview participant on question 17: 'What do you believe are the best methods to enagge the community in rabbit control? Are they are incentives?'

nterview Participant	Best method
1.	Don't know. Different story lines from different people who are maybe farmers, hobby
	farmers, keen gardener like myself.
2.	Give us some Mixo each, something super strong. Within the last 6 months, if we've
	only seen 8-10 rabbits on our property, that's on our property only. We can see how
	many there are at night-time around here. I've said to my neighbour if it's not now it's in
	another 6 months' time. The last 2 years they have gradually been breeding up. 6
	months ago, one neighbour said, 'oh we are getting a bit tired of the rabbits we can't walk down the boundary'. They're not as old as us but it's because of the holes. We are
	in our 70s so it's becoming a big liability. Our neighbour on the other side has huge
	burrows and they would need to get a bobcat in there to get them out, that's how sever
	it is. And that's just on our block. We are surrounded by land that have got this rabbit
	problem that are just multiplying and it's becoming ridiculous. We need help.
3.	I feel people in residential, like those neighbouring us, I don't think it's really a probably
	for them. Whereas to us in the land they are here, their droppings, the neighbour's
	horses are hurting themselves stepping in the burrows. I don't think residential area
	realise how problematic it is on land. We are not farming land; we just have 8 ½ acres
	just our house and currently no animals, we just like the space. But with the space
	cause problems and the residentials don't really understand it.
4.	Practical advice and people coming onsite to assess the property and to provide
	support and advice about how to best manage it. Our property backs on to a
	gully/reserve, so I suspect there being an issue with rabbits around there outside our
-	boundary. Support from council to assist with issue there.
5.	It incentivised us when the council paid for the carrots and it's getting more expensive. \$240 on 60kg of baited carrots – it's becoming a more expensive exercise and it's
	something that the council needs to become more involved in with the people who
	want to do it.
6.	I used to think community meetings, but I think that's a waste of time now. Data based
	and newsletters and more focus on the area and even pinpoint the area – this is the
	problem; this is what we need to do. Give the solution and make it as easy as possible,
	then people might be more proactive.
7.	Youngins are time poor, older ones more publicity, better direction from the council.
	Advertisement for what to do.
8.	For me personally wouldn't be here or there, if I thought there was a problem. I would
	get involved but I have no idea. If someone approached me to say it's a problem, I
0	probably would do what I could, but I am bit in the dark at the moment.
9.	In the past we have had meetings with Landcare that have run. We haven't had any in a while (maybe they have, and I haven't realised, but COVID also impacted the
	meetings). But I think we need to have more community meetings and council
	involvement and support. I think Landcare meetings were really good because they
	were all likeminded people and all local people. But again, unless you have everyone
	doing something, bunnies are a huge problem on every property despite the fact that
	some people say they don't have a problem. We all have it. Unless everyone, but we
	have some people on our street are who 80 or 90 years old so it can be a struggle to
	create a collective eradication problem because they struggle with everyday life. If we
	all got together, we could eradicate them a bit better.
10.	Mail outs – hard copy will incline people to read them and its tangible. People can put
	it on their fridge and come read more of it later, it's not like an email. Put it in the local
	paper or Facebook groups.
11.	Up to the city of the Greater Geelong to contact landowners. They know who owns the
	properties. Haven't seen secondary poisoning impacts.
12.	Different approaches and communications with the different landowners are crucial
	for different occupations and uses with their land, part timers and full-timers.
13.	Education is always the way. But I would want education about legal control. Biggest
	incentive would be the government to research immunocontraception. The University
	of Newcastle have done a lot of work in this area. With a few million dollars it would
	probably be possible and then we should have a trial. My incentive to you would be to
	develop a bait of immunocontraception for rabbits that doesn't kill them and see what
14.	happens on my property in 2 or 3 years if there is a reduction in the rabbit population.
	Probably to set up focus groups within the community. Financial incentives too. Unless
	there's community action and organisation appropriately keeping the management of the situation in check, otherwise it will be a waste of effort.
15.	Information that goes in letter box and includes what would be involved and how much
10.	mile medical box and mode would be involved and now mide

APPENDIX 16 - Transcriptions from each interview participant on question 18: 'If the survival of native species like the Eastern Barred Bandicoot was promoted through the contrl of rabbit populations, would you and the community be more interested in conducting rabbit control?'

Interview	Interest levels
Participant	
1.	Maybe a slight increase, with the general population who are a little empathetic. Unless it is in your own backyard you don't pay much attention
2.	Definitely, even the birds, New Holland Honeyeater we used to have a lot around here but not anymore. The bird cycle seems to go in cycles as it does, they come they go, they die out. But the rabbits they just keep coming and damaging things.
3.	It worries me that might be introducing another species to get out of control. You'd think with the foxes around here that the rabbits would be lessened but not sure if rabbits are too quick for them because we definitely have foxes here. I think people do, do that down here as people are quite conscious about the environment down here in planting natives. People are concerned about and happy to keep indigenous plants and trees, we definitely are and incorporate indigenous trees and plants.
4.	For some, not for all. From what I've experienced, not everyone is necessarily about encouraging native plants and mixture of opinions. Might help for some who are interested but it's not the case for everyone.
5.	No, they couldn't care less. It's only the people that are affected by it that are interested in it. The rest of the community couldn't care less.
6.	Not sure, in my case definitely, but I can't speak for other people.
7.	The introduced cat curfew maybe causes an increase in the rabbits a bit so that may not be helping. I would like to see more natural rabbit predators.
8.	I would certainly be interested although probably not a lot I could do seeing as I don't have any rabbits.
9.	Yeah potentially, we would all be interest in doing it. The reason we all live in this little hamlet is because we all love the birds and wildlife that's around. The majority us would be very keen to see bandicoots instead of rabbits. I ring people who advertise to shoot rabbits, but unfortunately, we aren't rural enough. I've also looked into ferrets, but we are not big enough, rural or isolated enough. Don't know how successful that would be.
10.	Yes, we already do things to promote the possums.
11.	The more people there are it seems the less who want to get involved in anything. If it was highlighted that it was a genuine problem, then I hope they can get involved. Positive outcome bringing back native species.
12.	Some might yes. Some might be indifferent.
13.	That would help people like me. But again, how would you control rabbits that's the big question. Obviously, I would want the bandicoots to come back but at the same time I don't want the rabbits to be poisoned. So not sure how to answer the question. We are killing native species with the Pindone anyway.
14.	No idea about the Eastern Bandicoot.
15.	Yeah, you don't really see any advertising or information so it can't hurt. You see a lot of fire-preparedness on airtime but not much on rabbits.

APPENDIX 17 - Transcriptions from each interview participant on question 19: 'Do you believe that collaborative efforts within the community, other landowners and Landcare officials would be beneficial in creating significnat change? How/why not?'

nterview	Benefit
articipant	
1.	Definitely, if the wider community understood the animal and the damage they cause, they might look upon them differently. If you were to breed horses and they stumble into a rabbit hole and broke a leg, that's one animal against the other, but it would be a horrible thing to experience. Holes and burrows are definitely a safety hazard.
2.	Most definitely. This is only one pocket of the Bellarine, but nearby would have the problem the same problem what we have. And because the new estates are getting so ripped up, they are coming over to our side of the road. They are forced out of the residential zone across the road from their property. You don't see any rabbits there; they have all segregated down to here.
3.	I think so, I think everyone would be engaged and have a purpose together.
4.	Yes, any collaboration around addressing the problem that's not just confined to one property.
5.	You would say it should, but I've been in the rabbit action group, and they've had interaction with landowners and everything else and it just doesn't seem to make a difference. They'll do it for a little while and just find it too hard or love it when you do the baiting or fumigation on their property but once it's done and you go away that's the extent of their involvement.
6.	Definitely.
7.	They do collaborate, they are wanting to band together. The council isn't helping them They use their dogs to do patrols. They are talking but not sure what to do.
8.	Sure.
9.	Yes, I do. But there needs to be another solution other than pindone because not enough people want to do that. I don't know what the answer is. The cage thing seems tricky to source.
10.	Absolutely, but not sure what it could involve. Communication aspect or examples where people go to a few properties where rabbit counts have been done, then action is done, then go back out and see if its improved and then educate others. There are 3 private properties with 5-6 acres of property each and then the other side is housing estate. The only people interested would be the 30 people – not the housing estates (they don't need to care because it doesn't impact them).
11.	Yes, I do.
12.	I would like to think so. People have a common interest in the Peninsula.
13.	It would probably help. But my view of Landcare is that they are not very well-informed of this situation and then them putting down 1080 next to my property was just terrible. I asked them not to do it, but they still did it. I went to the authorities about it and had counselling with the authorities about it. But they all say the same thing. As far as I are concerned, Landcare does some great work, but people need to be informed about the dangers of poisons and we shouldn't be using pesticides. I don't believe people like Landcare are well-enough informed to do the right thing about the rabbits. They will kill them; they will gas them, and blow-up burrows and I don't approve of that sort of things. If they dig out the burrows and discourage the rabbits but then where will the rabbits go? They've got to go somewhere. The only answer to me is that harbour removal will help but makes them move somewhere else because that's the nature of rabbits. Should not be using poisons as its recognised to be horrendously cruel.
14.	Yes, it's a matter of small groups to get together rather than a large broad group. There needs to be a local community group
15.	Yes, you can see the rabbits on the neighbouring blocks in the same spots. Knowing how easy it was to get rid of warrens on my property, if we all did it would be a greater area of being rabbit free. a lot of people would use baits because it can harm baits, but
	if they knew how easy it was to destroy the warrens but – I could be wrong – but I don't think it impacts any other aspects of the environment.

51

APPENDIX 18 - Transcriptions from each interview participant on question 20: 'Do you have any questions or anything you would like to add?

Interview Participant	Additional comments
1.	Where will this information go towards?
2.	Would you be able to keep us up to date/informed? Something has to be done. Will do a letter drop to neighbours
3.	When we first moved here 20 years ago, someone popped in with flyers about indigenous trees and trees around here and it was good to have that information too. Gave us pride in our area. We do plant native trees. Maybe see what we can do with these rabbits, I don't know with their natural lifespan as they are always here.
4.	How will your research be put into decision making and local authorities? Council did a large baiting program around a waterhole in Drysdale that only ended very recently so good to see they are a bit involved.
5.	No, the thing that puts most people off is the expense. With rabbit proof fencing the rabbits still go underneath it. The only people that are really interested are the people that it's a problem and some of the people that have it as a problem look away. And their problem becomes our problem, like the rail trail. I know what needs to be done along the rail trail. A big bulldozer, but the 'greenie's prevent it. Can't remove a dead tree because its habitat for something even though its also habitat for rabbits. You can't get to the rabbits to do anything about it
6.	What are you actually doing with this research?
7.	The council should hire a rabbit shooter.
8.	No
9.	No
10.	No
11.	No
12.	I would like to see the end report.
13.	It's a responsibility of organisation's not to be horrendously cruel – including the virus. In America, they have immunocontraception for mice and rats – why don't we have it for here? It's called ContraPest. We do not have it here – why don't we? Biggest environmental problems from introduced species is with cattle – they compact the ground etc, but we encourage breeding so we can eat them. It's the mindset. Even the word pest is an emotive word. Rabbits are an introduced animals but there are a lot of other introduced animals that cause problems. The fact people use the work pest conditions people have negative connotations to them/consider of pests – cats are an example. It's out fault they are brought in.
14.	Part of the problem down here is that Bellarine Bayside Foreshore Committee does the management and running the area even though its Geelong Council, they don't have a lot of input in the area. Geelong Council sits back and lets that happen. It would be good if we could get rid of rabbits, but I don't think it will happen on individual efforts. The problem is not as bad as it has been but that's probably due to that time of the year. The holiday park nearby had a bad rabbit issue and they eliminated that but not sure how they did that – could've been a concerted baiting effort. The rabbits were burrowing under the caravans, but we haven't seen any rabbits since the did it over a year ago. Maybe we could mark off certain areas. If we pulled the resources with baiting and collapsed the burrows it would probably work but organising that would be difficult and not by ourselves. Our neighbours that live full time should be taking more responsibility. We wouldn't be averse to have Landcare coming onto our property. Seeing them or hearing from them to propose to be able to organise us or help us to organise us. We have grandchildren and are funny about baiting around them
	grandchildren – even if we set up fences or kept them away from the area at the time of the baiting, we just have to do what was necessary to make sure the concerted effort if done and its less likely to re-occur. We don't consider much of the conservation side all regards to rabbits – we should think about it more.
15.	How does Landcare even get in touch with landowners? I have never heard from them I found them by googling when looking for contractors for pest control/rabbit fences. I have never seen them proactively or they haven't targeted my area (Wallington). When you have a big property there's a lot to do, endless jobs especially if you have work and family, if someone made it easier and said, 'this is the plan you can opt in if you want, we can help facilitate it'. Anything to make it easier. People are time poor now. I am happy to have Landcare reach out if they participants for anything.