



# Wildlife Road Toll Reduction Toolkit

Pilot Project

**WILDLIFE  
VICTORIA**  
ON CALL TO HELP  
03 8400 7300

**Working together  
to protect Victoria's  
wildlife**



## **Acknowledgement of country**

Wildlife Victoria acknowledges the Traditional Owners and Custodians of the lands on which we work. We pay our respects to elders past and present. The Wildlife Victoria office in Abbotsford, Melbourne is based on the lands of the Wurundjeri people of the Kulin Nation. Sovereignty has never been ceded.

## **Wildlife Victoria**

Wildlife Victoria is a not-for-profit organisation that has provided Victoria with a statewide wildlife Emergency Response Service since 1989.

Wildlife Victoria's Emergency Response Service responds to calls for help for wildlife from members of the public via an emergency phone and online reporting system. In 2023, Wildlife Victoria responded to over 130,000 calls for help from the Victorian public for sick, injured, and orphaned native wildlife and assisted 86,658 animals across 452 species. When members of the public contact Wildlife Victoria about a sick, injured, or orphaned native animal, Emergency Response Operators provide real time advice and, in most instances, arrange for a trained volunteer to attend to the animal. Wildlife Victoria works hard to ensure the best possible outcome for each and every native animal.

With a statewide network of close to 1,500 trained wildlife rescue and transport volunteers, wildlife rehabilitators, and in field wildlife veterinarians and veterinary nurses, Wildlife Victoria offers an end-to-end wildlife emergency response service to the Victorian public at no cost.

Wildlife Victoria is experiencing a consistent year on year increase in demand for services with the primary demand drivers - climate change, habitat destruction and urbanisation - all impacting the State's wildlife adversely. Public concern for wildlife and biodiversity has been amplified since the 2019/2020 Black Summer bushfires and the Victorian public is demanding action from all levels of government to address the issue.

In addition to its Emergency Response Service, Wildlife Victoria helps wildlife by providing people with the knowledge and skills they need for peaceful and positive co-existence with wildlife, and by facilitating positive community attitudes toward native animals.

The Wildlife Victoria Emergency Response Service phone line is partially supported by the Victorian Government until the end of FY 2025. The Wildlife Road Toll Reduction Pilot Project was made possible by generous philanthropic donations.

## **For more information about this project please contact:**

### **Aleisha Hall**

Public Relations Manager  
aleisha.hall@wildlifelivictoria.org.au

Wildlife Victoria  
PO Box 100  
Abbotsford VIC 3067  
**wildlifelivictoria.org.au**

### **© Wildlife Victoria**

Originally published April 2024

Disclaimer: All information published within this document was accurate at the time of publication. This document may be of assistance to you but Wildlife Victoria and its employees do not guarantee that the publication is without flaw and therefore disclaims all liability for an error, loss or other consequence which may arise from reliance on information presented within.

# Table of Contents

|   |    |
|---|----|
| Summary   | 4  |
| 1. Background   | 5  |
| 2. Wildlife Road Toll Reduction Pilot Project   | 6  |
| 3. Victoria's wildlife  | 7  |
| 4. The role of local government   | 8  |
| 5. Data about Victoria's wildlife road toll   | 9  |
| Figure 1a: Three pilot local government areas for wildlife hit-by-vehicles 2018-2023 as reported to Wildlife Victoria | 9  |
| Figure 1b: Statewide number of native animals hit-by-vehicles 2018-2023 as reported to Wildlife Victoria              | 9  |
| Figure 2: Top five species hit-by-vehicles by local government area 2018-2023 as reported to Wildlife Victoria        | 10 |
| 6. Reducing the wildlife road toll  | 11 |
| 6.1 Review and reduce   | 11 |
| 6.1.1 Case study: Koala speed zone trial  | 12 |
| 6.1.2 Case study: Millowl speed limits  | 12 |
| 6.2 Improved community engagement   | 13 |
| 6.3 Variable Message Signage (VMS)  | 13 |
| 6.3.1 Case study: Mornington Peninsula signage project  | 14 |
| 6.4 Wildlife movement solutions   | 14 |
| 6.4.1 Case study: Koala crossings in south-east Queensland  | 15 |
| 6.5 Virtual fencing   | 16 |
| 7. Other roles for local governments in the prevention of wildlife road trauma  | 17 |
| 7.1 Habitat protection  | 17 |
| 7.1.1 Case study: Edgars Road, Epping extension   | 17 |
| 7.2 Eco-tourism   | 18 |
| 7.3 Major event planning  | 19 |
| 7.3.1 Case study: Briars Hill, Mornington Peninsula   | 19 |
| 7.4 Training  | 20 |
| 8. Project benefits   | 21 |
| 8.1 Reduce pressure on council resources  | 21 |
| 8.1.1 Case study: Millowl   | 21 |
| 8.2 Improve council profile in the community  | 22 |
| 8.3 Contribute to council strategic priorities  | 22 |
| 8.4 Alleviate broader cost of wildlife-vehicle collisions   | 23 |
| Figure 3: Top wildlife collision hot spots in Victoria (Suncorp Group, 2023)  | 23 |
| 9. Recommendations  | 24 |
| 10. Conclusion  | 25 |
| References  | 26 |

# Summary

## Purpose

Wildlife Victoria's Wildlife Road Toll Reduction Pilot Project was established to address the high volume of native animals that are injured or killed on Victoria's roads each year.

Calls to Wildlife Victoria's Emergency Response Service from members of the public reporting wildlife hit by vehicles has been increasing annually and there is an urgent need to address the issue.

This project provides a framework for collaboration with state and local government and outlines key mitigation strategies that can be implemented to address the wildlife road toll and to ensure safer roads, safer road users and a safer existence for native animals.

## Scope

Wildlife Victoria will provide local governments with insight into the impact of road trauma on wildlife in their municipalities and make recommendations tailored to the local area and within council budgets. Wildlife Victoria will work alongside councils to implement mitigation strategies and to record and report on the project's success.

## Approaches

There are numerous strategies available to help reduce the number of native animals killed or injured on Victoria's roads. These approaches can be deployed to influence driver behaviour and/or wildlife behaviour including:

- Speed limit reviews
- Wildlife road signage – permanent and variable
- Community engagement
- Wildlife rescue training
- Wildlife movement solutions

- Virtual fencing
- Fauna exclusion fencing
- Culvert underpasses
- Land-bridge overpasses
- Koala refuge and glider poles
- Rope bridges

## Benefits

- Increase road safety for drivers and passengers
- Reduce costs to councils through a reduction in pressure on council resources
- Increase tourism to municipality
- Contribute to council strategic priorities
- Improve council profile in the community
- Positive engagement and connection with community

## Costs

Costs for the different mitigation strategies varies. Wildlife Victoria can work with councils to develop tailored mitigation strategies within budget and that specifically address concerns unique to each municipality.

## Next steps

Be a part of reducing the wildlife road toll by contacting:

Aleisha Hall  
Public Relations Manager, Wildlife Victoria  
aleisha.hall@wildlifevictoria.org.au  
0447 193 121

# 1

## Background

### Every year it is estimated that 10 million native animals die on Australian roads

(Parrott, 2020).



Emergency Response Service operators respond to hundreds of thousands of calls for wildlife assistance each year. They use state of the art statewide data to inform best practice decision-making.

The Australian public has become increasingly concerned with the protection of the environment and Australia's unique native species. In 2023 the Biodiversity Council, a non-profit initiative led by an independent expert group founded by 11 Australian universities, reported 85% of Australians are moderately to highly concerned for the natural environment and the extinction of native fauna and flora (Borg et al, 2023). This correlates with a significant increase in calls to Wildlife Victoria's Emergency Response Service and a noticeable shift in public sentiment since the 2019/2020 Black Summer bushfires.

In 2023 Wildlife Victoria received over 130,000 calls from members of the public requesting help for sick, injured or orphaned wildlife, a figure that is increasing year on year. The most common reason a member of the public will call Wildlife Victoria is to report a native animal that has been hit by a vehicle. To address this issue, Wildlife Victoria initiated the Wildlife Road Toll Reduction Pilot Project. The pilot stage of the project involved engagement with three local governments; Bass Coast Shire, City of Greater Bendigo, and Macedon Ranges Shire, who were selected for their high road toll reports. Staff from Wildlife Victoria and the three councils met regularly to discuss the issue and to share insights about how to reduce the wildlife road toll.

Throughout subsequent stages, Wildlife Victoria will work with local governments to implement evidence-based mitigation strategies that aim to improve the outcome for wildlife welfare. These strategies may include community engagement, reduced speed limits, virtual fencing and improvements to road signage and will be based on best available data on effectiveness at time of implementation. Wildlife Victoria will work closely alongside local governments to develop, implement and evaluate the delivery of these mitigation strategies.



# 2

## Wildlife Road Toll Reduction Pilot Project

Most cases of injured or deceased wildlife reported to Wildlife Victoria's Emergency Response Service relate to road trauma.

**Calls are increasing on average, 15% year-on-year, placing additional strain on an already stretched service.**

This is an annual average with peaks and troughs across the calendar year. For example, in September 2023, Wildlife Victoria experienced the greatest volume of calls since the service was established in 1989, with an approximate 50% increase in calls in comparison to September 2022.

Climate change is partially responsible for this increase in emergency call outs. September 2023 was Australia's driest on record, with Victoria experiencing its second warmest September on record (Cox, 2023). Along with record breaking temperatures and rainfalls, extreme weather events such as storms, high winds, floods and fires are all increasing due to climate change. Wildlife are suffering from the impacts of this increase in events. Weather changes mean breeding seasons are changing, creating unpredictable patterns for wildlife.

The true number of animals being killed and injured from road trauma is likely to be significantly higher than reported figures, with most victims unseen or not formally recorded.

The Wildlife Road Toll Reduction Pilot Project was focused on a preventative approach to reduce the unacceptably high numbers of wildlife being killed and injured by vehicles in Victoria.



# 3

## Victoria's wildlife

Australia's environment is rich in biodiversity, with most species found nowhere else in the world. Protecting our unique wildlife is essential to safeguard biodiversity and to ensure our environment remains vibrant and healthy for future generations of Victorians. The Victorian Government has a statutory responsibility to protect wildlife, primarily under the *Wildlife Act 1975*.

Wildlife in Victoria is already under significant pressure from a range of threats including:

- Habitat destruction and fragmentation from land clearing, housing construction and other developments;
- Climate change including increased unpredictability of weather patterns and the prevalence of extreme weather events such as heat events, floods and fires and,
- Introduced predators such as cats and foxes.



Wildlife Victoria answered over 130,000 calls from the public in 2023.

# 4

## The role of local government

Local governments play a key role in managing and reducing the wildlife road toll. Approximately 85% of roads in Victoria are owned and maintained by local government (Municipal Association of Victoria, n.d.).

Reducing the number of wildlife impacted by road accidents requires investigating and implementing a range of different approaches, as there is no 'one size fits all' solution. It is hoped that this strategy will go some way to addressing the preventable death and injury of wildlife on Victoria's roads.



Bare-nosed wombats are a species of wildlife commonly injured or killed on Victoria's roads.



# 5

## Data about Victoria's wildlife road toll



Over the six-year period of 2018-2023, over 50,000 native animals were killed or injured by road trauma in Victoria. This data is derived from calls to Wildlife Victoria's Emergency Response Service as reported by members of the public. Between 2022 and 2023, the number of wildlife road-related cases rose by 24%. However, the data significantly underrepresents the scale of native animals killed and injured on Victoria's roads, with an unknown number of cases not reported to Wildlife Victoria or any other agency. The *Queensland Centre for Accident Research and Road Safety* has found that underreporting of wildlife related crashes is likely to be widespread (Rowden et al, 2008). The situation is expected to be the same for all Australian States and Territories.

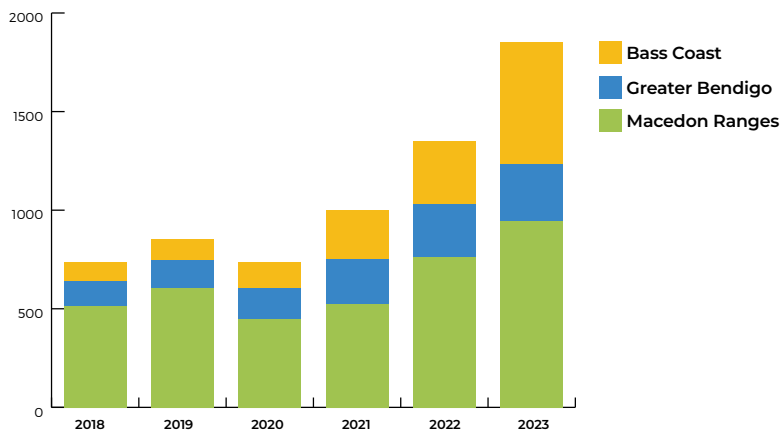
Local governments do respond to calls from the public about wildlife road trauma, but the way this data is recorded varies by council. Some local governments will refer calls about injured wildlife to Wildlife Victoria, others defer to local rescuers

and rehabilitators, while some utilise roads or waste staff to remove deceased wildlife. The use of multiple third parties results in incomplete data sets and no centralised record of incidents at both a local and state level. This leaves councils with a substantive gap in understanding what is happening in their municipality and restricts their ability to make informed decisions and to instigate relevant responses and actions.

By referring all calls of injured native wildlife to Wildlife Victoria, local governments can gain a detailed and overarching understanding of what's happening in their area while also reducing the load on council staff.

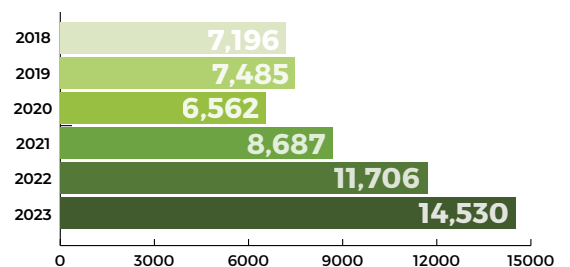
The Macedon Ranges Shire Council has integrated wildlife collision data into a dedicated GIS layer within its in-house mapping system, providing all staff with convenient access to hotspot locations and the specific species impacted.

**Figure 1a: Three pilot local government areas for wildlife hit-by-vehicles 2018-2023 as reported to Wildlife Victoria**



Source: Wildlife Victoria Emergency Response Service, 2023

**Figure 1b: Statewide number of native animals hit-by-vehicles 2018-2023 as reported to Wildlife Victoria**



Source: Wildlife Victoria Emergency Response Service, 2023

Figure 2: Top five species hit-by-vehicles by local government area 2018-2023 as reported to Wildlife Victoria

### Statewide



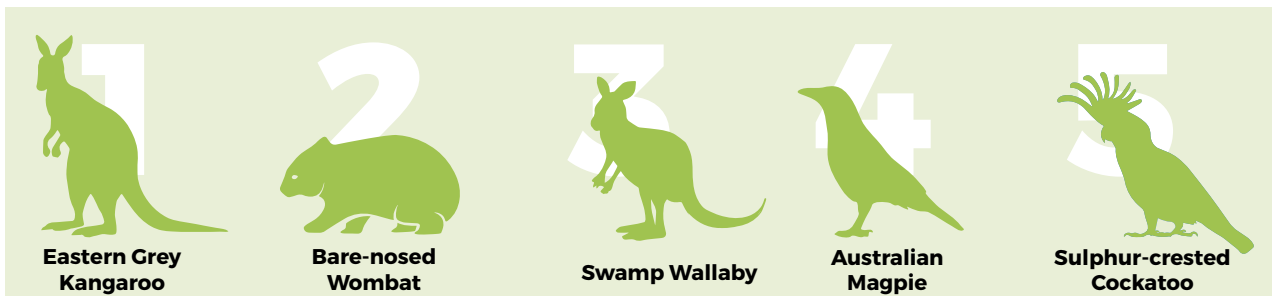
### Bass Coast



### Greater Bendigo



### Macedon Ranges



Source: Wildlife Victoria Emergency Response Service, 2023

# 6

## Reducing the wildlife road toll

There are numerous strategies available to reduce the number of native animals killed or injured on Victoria's roads. These approaches can be deployed to influence driver behaviour and/or wildlife behaviour.

The following list is by no means exhaustive, and a combination of options is likely to prove the best solution depending on:

- Cost considerations;
- Road conditions;
- Road user types;
- Specific animal behaviour and,
- Implementation and logistics.

Wildlife Victoria can work with councils to develop tailored mitigation strategies within budget and that specifically address concerns unique to each municipality.

### 6.1 Review and reduce

Review and reduce local road speed limits in areas at risk of wildlife-vehicle collisions. The relationship between vehicle speed, accident risk and the severity of accident outcomes is widely accepted. According to the *Monash University Accident Research Centre*, the benefits of reducing speed limits include reduced accident and mortality rates (Archer et al, 2008). The *University of Adelaide Centre for Automotive Safety Research* states that:

"Speed reduction has proven to yield significant safety benefits in relatively short periods of time." (Raftery et al, 2013, p. 20).

Suncorp Group Insurer AAMI (2023) reported 50% of Australians have collided with wildlife when driving while 61% admitted they would dangerously swerve or slam on the brakes to avoid hitting an animal.

Reducing speed limits, even by a small amount, would significantly improve outcomes for both people and wildlife.

All levels of government in Australia – local, state and Commonwealth – have committed to improving road safety under the *National Road Safety Strategy*. This strategy found that:

- Reducing vehicle speed by lowering speed limits from 100km/h to 90km/h would reduce the number of fatal human crashes by 35%, and the number of serious injury crashes by 31%.
- Australia's speed limits are relatively high compared with road networks in comparable countries.
- 66% of all road crash deaths occur in regional and remote areas, and most of those occur in 100km/h or higher zones.
- The size of Australia's road network means it is not feasible to address speed risks with infrastructure improvements alone (Transport and Infrastructure Council, 2018).

A marginal reduction in speed limits on council-owned roads will reduce the likelihood of any form of collision and result in safer roads and safer road users.

Although reducing speed limits can be initially unpopular, it has been found to have a modest impact on travel times (Archer et al, 2008). Working collaboratively with emergency services, police and other agencies is recommended to promote the benefits of speed reduction.



**6.1.1 Case study:  
Koala speed zone trial**

In response to the high numbers of koalas being hit by vehicles in the Redland City local government area of south-east Queensland, the council implemented a seasonal speed reduction trial using road signs. The speed reductions were trialled for four years and resulted in reductions in both vehicle speeds and in numbers of koalas being hit. Most importantly, koalas struck by vehicles on lower speed-limit roads had a greater chance of surviving (Department of Planning, Industry & Environment, 2020).



Road sign used in Queensland.

**6.1.2 Case study: Millowl speed limits**

Millowl, located within the Bass Coast Shire, is a popular tourist destination attracting over two million local and international visitors per year (Tourism Research Australia, 2023). The Island is unique in that it is predator-free, resulting in an abundance of wildlife including the endangered Eastern Barred Bandicoot, wallabies, wombats, echidnas and Cape Barren geese. Its spectacular coastal scenery and bushland is also home to the world's smallest penguin, the Little Penguin.

During Easter 2023, Wildlife Victoria deployed a specialist veterinary unit to Millowl following significant community unrest in which residents criticised the council and Phillip Island Nature Parks for failing to protect wildlife on the island from road strikes. Over this busy one-week period, the Wildlife Victoria team attended to 105 animals across 19 species. Of the 105 cases, only 21 had been called into Wildlife Victoria. 85% of the animals called in, were either dead upon arrival, or were euthanised due to road trauma. Many of the animals found by the roadside were marsupials (pouched mammals), some with live joeys still in their pouches.

To address these high rates of wildlife road trauma, Wildlife Victoria worked alongside Phillip Island Nature Parks, Bass Coast Shire Council and Regional Roads Victoria, to coordinate and implement two mitigation strategies: increased wildlife road signage (see case study 8.1.1) and speed reviews. The Bass Coast Roads team has completed a speed limit review on major roads and implemented a permanent speed limit reduction to 80km/h on all sealed roads on Millowl.



Photo: Phillip Island Nature Parks

Millowl's famous penguin parade.

## 6.2 Improved community engagement

As the most 'frontline' tier of government, local governments play a key role in engaging with the community on issues that affect them. With a significant increase in Victorians concerned for the protection and safety of native animals, councils must be able to advise residents on what is being done within the municipality to ensure the survival of local wildlife populations.

Wildlife Victoria can help councils to deliver important information about wildlife and road safety through a number of existing council communication avenues, including online, social media and printed material. This is a low-cost solution for councils that offers significant benefits to the community and local wildlife.

For wildlife-rich regions, it is recommended that all major events include messaging regarding wildlife road safety on all public-facing communications such as ticketing, websites and other materials. There are also opportunities to engage face-to-face with communities. For example, a starting point could be local government-hosted workshops with a Wildlife Victoria speaker, attended by stakeholders working in traffic management, biodiversity and nature conservation.

By forward planning and proactively engaging with residents about issues concerning them, local governments will enjoy a more engaged and connected community.

## 6.3 Variable Message Signage (VMS)

Variable Message Signage (VMS) are road signs that can feature different messaging dependent on the needs of the area. For example, VMS can display road speeds that can be changed depending on traffic conditions or seasonal speed restrictions.

According to the NSW Department of Planning, Industry & Environment (2020), the use of VMS is more effective in changing driver behaviour when a sign relates to a relatively short section of road and is targeted at a specific time of day or season.



Variable message sign used to capture driver attention and to promote safer driving.



A dusk to dawn advisory sign in Tasmania.

### 6.3.1 Case study: Mornington Peninsula signage project

In 2019, Mornington Peninsula Shire installed four solar-powered, variable message signs on priority roads within the shire which were identified as having large numbers of roadkill. The project was a partnership between Mornington Peninsula Shire, Australian Wildlife Protection Council, Nepean Greens and the Red Hill South Landcare Group. The project received \$30,000 in funding from the Transport Accident Commission (TAC) and \$10,000 from Mornington Peninsula Shire.

The project has resulted in a significant reduction both in kangaroo deaths and in vehicle speeds along the project roads. According to Mornington Peninsula Shire, in the project areas, 32 kangaroos were killed by vehicles in the 12 months prior to the signage being installed and dropped to just seven the year following installation.



Solar-powered variable message sign. Photo sourced from Mirage News

### 6.4 Wildlife movement solutions

These solutions are designed to facilitate the safe movement of wildlife particularly where roads intersect or block wildlife corridors. These can include:

- Fauna exclusion fencing
- Culvert underpasses
- Land-bridge overpasses
- Koala refuge and glider poles
- Rope bridges.

In some circumstances, fencing is the most effective solution for reducing roadkill (Kobilinsky, 2017). However, there are several considerations to take into account including cost, feasibility of implementation over large areas and effectiveness for larger species like kangaroos.

VicRoads has outlined a range of mitigation strategies including culverts, land bridges and habitat restoration that address specific wildlife needs. For example, land bridge structures can prove very successful in encouraging crossing zones for echidnas, wombats and bandicoots (VicRoads, 2012).

Recent research suggested that a combination of fences, culverts and rope bridges can be effective approaches for reducing wildlife hit by vehicles; fencing to prevent wildlife crossing can reduce road kill by up to 80% (Clevenger et al, 2001); culverts have been used effectively for terrestrial species like swamp wallabies (Ben-Ami and Ramp, 2013); and rope bridges for arboreal species where vegetation structure is high on both sides of the road (Soanes et al, 2013). For some wildlife species, such as koalas, well-designed and maintained fencing can be a very effective way to prevent road deaths and injuries (Department of Planning, Industry & Environment, 2020).

Underpasses should be considered for new roads and for areas with threatened or vulnerable species. While expensive, underpasses can be very effective in preventing wildlife deaths and injuries (Goldingay, 2022).



#### 6.4.1 Case study: Koala crossings in south-east Queensland

Koalas are one of Australia's most loved native animals and an internationally recognised wildlife icon. Despite this, koalas are listed as threatened under the Federal *Environment Protection and Biodiversity Conservation Act 1999*, with major causes for their decline including rapid land clearing for urban development (including roads) and climate change induced extreme weather events (Gonzalez-Astudillo et al, 2017). Every year in south-east Queensland at least 300 koalas are reported to be killed by vehicles with the actual number likely to be much higher (Department of Environment and Heritage Protection, 2012). While not an alternative to habitat protection, local and state governments in Queensland have sought to provide some protection for koalas by constructing crossings, tunnels and underpasses in rapid growth areas.

Researchers from Queensland's Griffith University demonstrated that koalas used crossings that had been purpose built for them around busy roads in Brisbane, Redland City and Moreton Bay (Dexter et al, 2016) with a range of technologies including camera traps, audio radio transmitters, RFID tags (similar to microchips in pets) and WIDs (wireless ID tags) being used to track them.

This strategy allowed very specific results to be gathered including how many koalas passed through the crossing by pinpointing individual koalas and determining the exact time they entered, and exited, the tunnel. The crossings proved to be significantly more successful in preventing road trauma for koalas than initially thought.

In Victoria, more consideration needs to be given to koala populations and road trauma.

Despite vehicle strikes being listed as a known threat in the *Victorian Koala Management Strategy (2023)*, there is no mention of investigating mitigation strategies to protect this iconic species from road trauma.



Koalas are particularly susceptible to road related accidents.

## 6.5 Virtual fencing

Virtual fences are a series of small, electronic devices mounted on roadside posts which are activated by car headlights. These devices release a combination of noise and light to alert animals to oncoming vehicles and encourage them not to enter the road. This type of fencing is most effective from dusk until dawn because it is triggered by car headlights, positively aligning with nocturnal activity when many Australian native animals are awake and moving around.

The technology was originally developed in Tasmania, where it has been deployed extensively and has been reported to have reduced the number of wild animals being killed in road accidents by 50% (Fox, 2018).

In NSW, the Eurobodalla Shire Council, Wildlife Information Rescue and Education Service (WIREs) and the Coastwatchers' Association have jointly installed virtual fencing north of Batemans Bay. According to the Eurobodalla Shire Council, virtual fences were most effective on a road with a speed limit of 80km/h or less. This was because the slower the vehicles were travelling, the longer the sound and the light remained active (Olumee, 2022).

Virtual fencing has been, or is currently being trialed by the following Victorian local governments:

- Bass Coast
- Benalla
- Casey
- Manningham
- Mansfield
- Mornington Peninsula
- Surf Coast (Wildlife Safety Solutions, 2023).

As a relatively new strategy, virtual fencing continues to be the subject of research and testing in Victoria and other States and Territories. Virtual fencing costs start from \$10,000 per kilometre of road (Wildlife Safety Solutions, 2023) and should be used in conjunction with other measures such as speed limit reviews.

Wildlife Victoria can support councils in funding bids by providing wildlife road toll and accident hot spots data to local governments.



Virtual fencing emits sound and flashing lights to alert animals to oncoming vehicles.

# 7

## Other roles for local governments in the prevention of wildlife road trauma

In reducing the impact of road-related trauma on native animals there are several intersecting areas within the local government remit that should be considered including:

- Residential and commercial development projects
- Eco-tourism and the benefits it can deliver to the local community
- Major events
- Increased wildlife education for community members and local government staff.

### 7.1 Habitat protection

One of the most important roles for local governments in promoting wildlife protection is the preservation of wildlife habitat within their municipality. It is vital that local governments carefully assess potential adverse impacts from the construction of roads, residential, and commercial development on wildlife. This consideration must extend beyond singular developments during planning approval processes, and encompass large scale, long-term precinct planning. For example, the construction of a new housing development may significantly disturb local kangaroo habitat, displacing animals onto roads resulting in increased deaths and injuries (see case study 7.1.1).

However, the cumulative impact of ongoing small scale kangaroo habitat destruction has impacts beyond each single development. Broader ecological and environmental assessments must be considered by local and state government, when it comes to wildlife protection and land development.

#### 7.1.1 Case study: Edgars Road, Epping extension

As part of an ongoing Precinct Structure Plan (PSP) a road was extended through Epping, a north-east suburb in Melbourne. The road extension effectively divided an existing kangaroo habitat in half and resulted in the resident mob needing to cross the road to access food, water, and other members of the mob. A number of kangaroos were subsequently killed and the local Whittlesea Council and the developer, Development Victoria, were harshly criticised by the local community and in the media.

Wildlife Victoria met with council staff and advised Development Victoria on appropriate action. This included fencing to stop kangaroos hopping in front of vehicles, permanent and VMS signing to alert drivers of the mob, and the creation of a Wildlife Management Plan.



Wildlife needs to be considered in development planning, especially when housing, roads and other construction destroys wildlife habitat.





## 7.2 Eco-tourism

Victoria's tourism industry is valued at \$36.9 billion (Tourism Victoria, 2023). Tourists who came to Victoria to partake in nature-based experiences represent 19% of all Victoria's tourism with a staggering 18.8 million visitors per year (DJPR, 2020).

Many popular tourist locations such as Millowl and the Great Ocean Road – sometimes referred to as eco-tourism destinations – boast areas of great natural beauty and are home to thriving wildlife populations. These areas attract larger proportions of the tourism market and the economic benefits associated with increased visitation.

By supporting eco-tourism destinations, visitors are generally seeking to minimise their environmental and biodiversity impact. Eco-tourism also has educational benefit, increasing public awareness and appreciation of the value of nature conservation for future generations.

Local governments should consider the benefits eco-tourism can have on local economies and communities and make decisions that support and enable it to grow.

**Eco-tourism relates to a form of nature-based tourism in which the main motivation for visiting is the observation and appreciation of nature.**

### 7.3 Major event planning

If not already in place, major event planning in wildlife dense/high conservation areas should manage increased traffic flows and include wildlife welfare plans to minimise the risk of wildlife road trauma.

Such plans should incorporate actions to take breeding seasons, threatened species populations, and vulnerable habitats into account when local governments are planning or approving major events.

Wildlife Victoria can provide local governments with expert advice on wildlife behaviour including breeding seasons and guide councils on how to make events wildlife friendly.

Forward planning in this space can reduce community backlash on events deemed harmful to wildlife.

#### 7.3.1 Case study: Briars Hill, Mornington Peninsula

In 2023 The Mornington Peninsula Shire announced Harry Potter: A Forbidden Forest Experience - an interactive event to be held at The Briars Wildlife Sanctuary in Mount Martha. The evening event promised a powerful light display with upwards of 3,000 visitors per night however community members were outraged, calling on the council to cancel or relocate the event away from the sanctuary.

The Briars is home to an array of native wildlife species including the endangered growling grass frog and the swift parrot. Community members accurately argued that the influx of visitors and the light show would significantly disturb the animals that call the sanctuary home. A change.org petition attracted over 20,000 signatures and the council capitulated to the community's demands to relocate the event.

#### Thousands petition to move Harry Potter event out of Melbourne nature reserve

By [Imogen Mackenzie](#)  
Posted Sun 31 Dec 2023 at 3:46pm, updated Sun 31 Dec 2023 at 5:30pm



Residents on the Mornington Peninsula are rallying together against an upcoming Harry Potter event. (ABC News Image: @ABCNews)

Community members banded together to fight the council. Photo sourced from ABC News



Wildlife Victoria's regional trainers (left to right) Lisa, Grant, Sue, Rena and Lynne.

## 7.4 Training

Wildlife Victoria offers regular training programs to the Victorian community. In 2023, Wildlife Victoria conducted ten regional Basic Rescue & Transport training sessions across eight locations and two metro-Melbourne sessions.

Wildlife Victoria's Basic Rescue & Transport training provides attendees with the knowledge and skills to respond to wildlife rescues and an understanding of common issues impacting native wildlife.

Local governments can sponsor training in their municipality for community members and staff. The benefits for local governments includes:

- More immediate response to injured wildlife by experienced wildlife rescuers, resulting in a reduction in wildlife pain and suffering.

- Increased community education and understanding of what is impacting wildlife in their municipalities.
- An increase in capacity to manage wildlife matters through Wildlife Victoria's Emergency Response Service, reducing the reliance on local government resources to respond to wildlife issues.
- An engaged and connected local community with volunteers feeling a sense of purpose and belonging.



Wildlife Victoria training programs reduce pressure on existing volunteers, especially in regional Victoria.



Wildlife volunteers put time, effort and resources into rehabilitating injured wildlife.



# 8

## Project benefits

### 8.1 Reduce pressure on council resources

Councils receive a significant number of calls from members of the public regarding wildlife killed or injured on roads. Each council manages these calls in different ways. Some direct callers to Wildlife Victoria, others direct them to several different local wildlife rescuers, rehabilitators or carers, while others deploy their own staff.

The City of Greater Bendigo currently directs inquiries about injured wildlife to three different local wildlife shelters. They have two staff members who respond to reports of and remove dead animals from roads. While data of the deceased animals is recorded, it is unclear if the council pre-determine the animal's status before directing accordingly. This results in no centrally managed nor accurately recorded data base of wildlife hit by vehicles and results in an inaccurate picture of the overall impact of road trauma on wildlife in the Bendigo area.

Wildlife Victoria is currently in discussions with several local governments about streamlining this process to encourage callers to contact Wildlife Victoria's Emergency Response Service directly. Wildlife Victoria's size, operational standards, and infrastructure ensures accurate record keeping across the state that is available to local governments upon request. Referring all wildlife calls to Wildlife Victoria simplifies the management process for local governments, and improves the welfare outcomes for wildlife by utilising Wildlife Victoria's extensive 24/7 volunteer network. Referring all calls will also ensure a comprehensive statewide understanding of the scale of the wildlife road toll problem.



Natural attractions of Millowl include Little Penguins, Eastern barred bandicoots, seals and swamp wallabies.

### 8.1.1 Case study: Millowl

In early 2023, the Millowl local community were deeply upset at the council and local wildlife organisation Phillip Island Nature Parks for their lack of action in reducing the significant number of animals being killed and injured on the island's roads (see case study 6.1.2).

Wildlife Victoria was approached to provide expert advice resulting in an in field deployment and an audit of existing wildlife road signage. Wildlife Victoria made recommendations for new and improved signage that represented the wildlife on the Island and provided a clear message for the community about what to do if they encounter an injured animal on the roads. The recommendations were provided to the local government to implement.

Based on discussions between Wildlife Victoria, Bass Coast Shire Council and Phillip Island Nature Parks, a decision was made to install additional wildlife road warning signage at sites of high wildlife injury or fatality.

Wildlife Victoria's ongoing role in the management of Millowl's wildlife takes considerable pressure off the Bass Coast local government and Phillip Island Nature Parks, by the provision of:

- Ongoing specialist wildlife advice and support for local veterinarians;
- A wildlife specialist training session for local veterinarians conducted by veterinarians from the Wildlife Victoria Travelling Veterinary Service;
- Data on the location and number of road trauma incidents. This detailed data and case knowledge identified exactly where road signage should be installed, saving the local government staff considerable time and resources;
- The partnership with Wildlife Victoria also allowed the shire to demonstrate its commitment to wildlife protection to the local community, and to the many tourists who visit Millowl.

## 8.2 Improve council profile in the community

Wildlife Victoria regularly receives messages of concern from the public regarding the high numbers of wildlife killed on Victoria's roads.

This project helps councils address the rising community concern about wildlife road toll.

Local governments have the opportunity to positively engage with their local community on wildlife protection using a variety of different communication avenues.

## 8.3 Contribute to council strategic priorities

Wildlife Victoria can provide objective data on wildlife incidents within a given municipality and advise LGAs on best practice approaches about wildlife welfare.

A number of local governments have already committed to reducing wildlife trauma within the stated aims of their biodiversity or conservation strategies.

Macedon Ranges Shire Council's *Biodiversity Strategy 2018* included an action to explore innovative approaches to wildlife signage and crossings to facilitate the safe movement of wildlife. More recently, the Council's *Road Safety and Mobility Strategy 2023-2032* includes the reduction of wildlife vehicle collision as one of five themes in their 10 year action plan.

As part of the *Greater Bendigo Biodiversity Strategy and Action Plan 2023-2033*, the council has committed to partnering with Wildlife Victoria to address the shire's growing numbers of injured wildlife, particularly from road accidents.

"Reduce the number of displaced, injured and killed wildlife through human activities (e.g., vehicle strikes) through partnering with Wildlife Victoria..." (City of Greater Bendigo, 2023, p. 63).

This is particularly important as the town of Heathcote, within Greater Bendigo, has the worst rates of wildlife trauma in Australia (Suncorp Group, 2023).



Wildlife Victoria's Travelling Vet Service provides free support for wildlife shelters and expert wildlife advice across the state of Victoria.

### 8.4 Alleviate broader cost of wildlife-vehicle collisions

The economic, social and health costs of road trauma have been extensively documented.

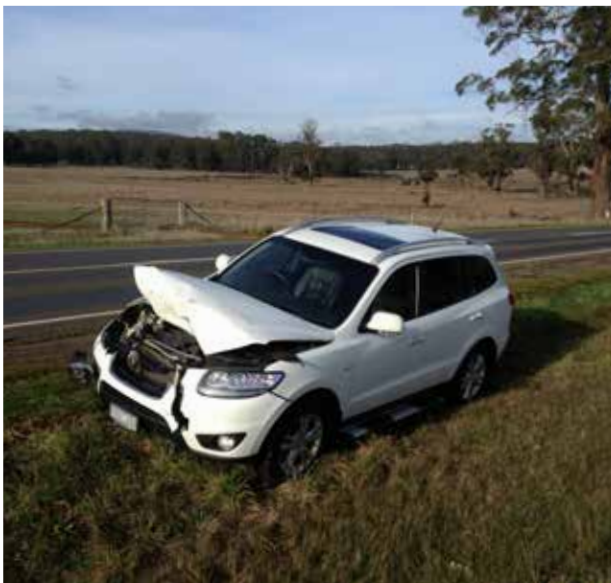
According to the Australian Road Safety Foundation:

“Road trauma is a national health issue that places enormous costs upon the community” (2022, p. 2).

There are many costs of road trauma including emergency services call outs (mainly Victoria Police) to serious wildlife-vehicle collisions, diverting important resources away from other more pressing needs.

Insurance companies have collected detailed data on wildlife road trauma due to the substantial number of financial claims arising from these incidents.

Research from insurance companies confirms that dusk is the most dangerous time for wildlife-related road accidents.



Wildlife-related road accidents cause serious damage to vehicles.

According to Suncorp Group insurer AAMI (2023), for road accidents involving wildlife:

- **26% take place between 4:30pm and 8pm**
- **30% take place on Saturday and Sunday**
- **31% take place on rural roads**
- **50% of Australian drivers have collided with wildlife while driving**
- **61% of drivers admit they would dangerously swerve or slam on the brakes to avoid hitting an animal**
- **The average cost of an insurance claim is between \$5,500 and \$6,400**
- **14% of claims resulted in such severe damage to the vehicle that the car was written off.**

**Figure 3: Top wildlife collision hot spots in Victoria (Suncorp Group, 2023)**

| LGA                      | Town      |
|--------------------------|-----------|
| Greater Bendigo          | Heathcote |
| Mitchell                 | Wallan    |
| Macedon Ranges           | Gisborne  |
| Northern Grampians Shire | Halls Gap |
| Macedon Ranges           | Woodend   |

# 9

## Recommendations

To reduce the wildlife road toll, Wildlife Victoria recommends local governments:

- Work with Wildlife Victoria to gain a thorough understanding of what is impacting wildlife in the local area;
- Encourage both community and council staff to report wildlife vehicle injuries and deaths to Wildlife Victoria;
- Significantly increase communications and community education about preventing wildlife-vehicle collisions;
- Review and reduce speed limits as the least cost, most easily implemented option;
- Improve signage to increase its effectiveness and clarify who to contact in the event of a collision;
- Work in partnership with local, state and Commonwealth government agencies to address the problem;
- Seek partnership funding for larger scale, more resource intensive solutions and;
- Comprehensively consider the impact of LGA planning and development on wildlife to better understand how these factors are driving up wildlife casualties on Victorian roads.



Photo: Lydia Phelan



# 10

## Conclusion

Wildlife Victoria commenced work on the Wildlife Road Toll Reduction Pilot Project to address the increasing number of wildlife emergencies the organisation responds to every year.

The Wildlife Road Toll Reduction Pilot Project was made possible by philanthropic support. Ongoing financial support for the project is needed in order for Wildlife Victoria to continue to deliver this project. This project would not have been possible without the commitment of participating Council officers' time and willingness to work across council departments to seek solutions to this complex issue.

It is hoped the information in this toolkit presented to Victorian local governments and other stakeholders will provide an opportunity for future collaboration, implementation and project support.

Wildlife Victoria recognises and encourages other stakeholders including Victorian Government agencies, conservation organisations, animal welfare bodies and local community groups to continue to engage with and make contributions in this policy space.

We urge greater and urgent action to address the unnecessary injury and death of wildlife on Victoria's roads.

We hope this project will go some way towards finding answers – of which there are many – to this pressing problem.

A phased, preventative approach is not only possible but essential.

We look forward to working with local governments and other stakeholders to protect Victoria's precious wildlife.



Photo: Lydia Phelan

# References

- Archer J, Fotheringham N, Symmons M, and Corben B (2008) [The impact of lowered speed limits in urban and metropolitan areas](#) (No. 276). Monash University Accident Research Centre.
- Australian Road Safety Foundation (2022) [Federal pre-budget submission 2022-2023: Expansion of the RoadSet Program](#). Australian Road Safety Foundation, Australian Government.
- Borg K, Smith L, Hatty M, Dean A, Louis W, Bekessy S, Williams K, Morgain R and Wintle B (2023) [Biodiversity concerns report: 97% of Australians want more action to protect nature](#). The Biodiversity Council.
- Ben-Ami D, Ramp, D (2013) [Impact of roadside habitat on swamp wallaby movement and fitness](#). *Wildlife Research* 40(6):512-522.
- City of Greater Bendigo (2023) [Greater Bendigo biodiversity strategy and action plan 2023-2033](#). City of Greater Bendigo.
- Clevenger AP, Chruszcz B, Gunson KE (2001) [Highway mitigation fencing reduces wildlife-vehicle collisions](#). *Wildlife Society Bulletin*, 29(2):646-653.
- Commonwealth of Australia (2021) [National Road Safety Strategy 2021-2030](#). Commonwealth of Australia.
- Cox L (2 October 2023) [Australia records driest September as fires rage in NSW, Victoria and Tasmania](#). *The Guardian: Australia*.
- Department of Energy, Environment and Climate Action (2023) [Victorian Koala Management Strategy](#). DEECA.
- Department of Environment and Heritage Protection (2012) [Living with wildlife: Koalas](#). DES.
- Department of Planning, Industry & Environment (2020) [How to keep koalas off the road: Koala vehicle strike fact sheet 2](#). DPIE.
- Department of Planning, Industry & Environment (2020) [How to change driver behaviour: Koala vehicle strike fact sheet 3](#). DPIE.
- Dexter CE, Appleby RC, Edgar JP, Scott J, and Jones DN (2016) [Using complementary remote detection methods for retrofitted eco-passages: A case study for monitoring individual koalas in south-east Queensland](#). *Wildlife Research*, 43(5):369-379.
- Fox S, Potts JM, Pemberton D, and Crosswell D (2018) [Roadkill mitigation: Trialing virtual fence devices on the west coast of Tasmania](#). *Australian Mammalogy*, 41(2):205-211.
- Goldingay R (1 August 2022) [Good news: Highway underpasses for wildlife actually work](#). *The Conversation*.
- Gonzalez-Astudillo V, Allavena R, McKinnon A, Larkin R, and Henning J (2017) [Decline causes of koalas in south east Queensland, Australia: A 17-year retrospective study of mortality and morbidity](#). *Scientific Reports*, 7(1).
- Kobilinsky D (1 May 2017) [Fences best at reducing roadkill](#). *The Wildlife Society*.
- Macedon Ranges Shire Council (2018) [Biodiversity Strategy 2018](#). Macedon Ranges Shire Council.
- Macedon Ranges Shire Council (2023) [Mobility and Road Safety Strategy 2023-2032](#). Macedon Ranges Shire Council.

- Municipal Association of Victoria (n.d.) [Roads & Transport](#), MAV.
- Olumee F (26 October 2022) '[Virtual fence erected to protect native wildlife from traffic on NSW South Coast](#)', *ABC News*.
- Parrott N (21 December 2020) '[10 million animals are hit on our roads each year. Here's how you can help them \(and steer clear of them\) these holidays](#)', *The Conversation*.
- Raferly SJ, Kloeden CN, and Royals J (2013) [Safer speeds: an evaluation of public education materials](#) (No. CASR114) Adelaide: Centre for Automotive Safety Research.
- Rendall AR, Webb V, Sutherland DR, White JG, Renwick L, and Cooke R (2021) '[Where wildlife and traffic collide: Roadkill rates change through time in a wildlife-tourism hotspot](#)', *Global Ecology and Conservation*, 27.
- Rowden PJ, Steinhardt DA, and Sheehan MC (2008) '[Road crashes involving animals in Australia](#)', *Accident Analysis and Prevention*, 40(6):1865-1871.
- Soanes K, Carmody LM, Vesk PA, McCarthy MA, Moore JL, Ree R (2013) '[Movement re-established but not restored: Inferred the effectiveness of road-crossing mitigation for a gliding mammal by monitoring use](#)', *Biological Conservation*, 159:434-441.
- Suncorp Group (2023) [Aussie drivers' admit to risky tactics to avoid wildlife collisions](#), Suncorp Group website.
- Tourism Research Australia (2023) [Phillip Island visitation growth in spend and overnight stays](#), Visit Phillip Island website.
- Tourism Victoria (2022) [Regional research: Regional Victoria's tourism results](#), Tourism Victoria website.
- Transport and Infrastructure Council (2018) [National road safety action plan 2018-2020](#), Transport and Infrastructure Council, Commonwealth of Australia.
- VicRoads (2012) [Fauna sensitive road design guidelines](#), VicRoads website.
- Wildlife Safety Solutions (2023) [Site locations: Victoria](#), Wildlife Safety Solutions website.





**W**LDLIFE  
**V**CTORIA  
ON CALL TO HELP  
03 8400 7300

Wildlife Victoria  
PO Box 100, Abbotsford VIC 3067  
[www.wildlifevictoria.org.au](http://www.wildlifevictoria.org.au)

ABN 27 753 478 012

© 2024 Wildlife Victoria Inc