NSW ROADSIDE ENVIRONMENT COMMITTEE

NSW REC
Newsletter

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Do wildlife crossing structures work?

The widespread impacts of roads on animal movement have led to the search for innovative mitigation tools. Wildlife crossing structures (tunnels or bridges) are a common approach; however, their effectiveness remains unclear beyond isolated case studies.

A team of researchers led by Kylie Soanes conducted an extensive literature review and synthesis to address the question: What is the evidence that wildlife crossing structures mitigate the barrier effect of roads on wildlife movement?

In an analysis of 313 studies (analysis see figure right), only 14% evaluated whether wildlife crossing structures resulted in a change in animal movement across roads. The researchers identified critical problems in existing studies, especially the lack of benchmarks (e.g. pre-road, pre-mitigation, or control data) and the use of biased comparisons.

The researchers found that 'evidence to date suggests that wildlife crossing structures can mitigate the barrier effect of roads on wildlife movement, but in many cases have been poorly implemented or evaluated. The most supported measures were the addition of ledges and vegetation cover to increase movement for small mammals; underpasses to prevent the decline in movement of ungulates following road construction; and improving road-crossing for arboreal mammals using canopy bridges and vegetated medians.'

The researchers 'strongly recommend that future use of crossing structures closely adheres to species-specific, best-practice guidelines to improve implementation and be paired with a thorough evaluation that includes benchmark comparisons.'

The article can be accessed at

https://besjournals.onlinelibrary.wiley.com/doi/full/10.1111/1365-2664.14582

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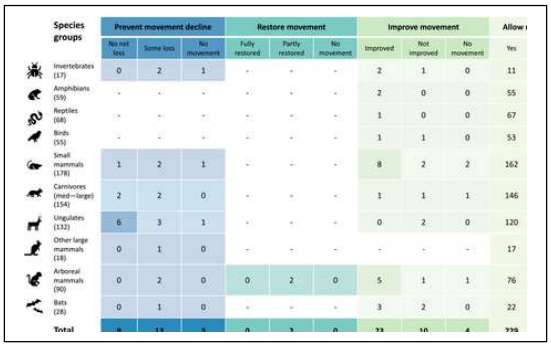

Species groups	Prevent movement decline			Restore movement			Improve movement			Allow
	No net loss	Some loss	No movement	Fully restored	Partly restored	No movement	Improved	Not improved	No movement	Yes
Invertebrates (17)	0	2	1	-	-	-	2	1	0	11
Amphibians (59)	-	-	-	-	-	-	2	0	0	55
Reptiles (68)	-	-	-	-	-	-	1	0	0	67
Birds (55)	-	-	-	-	-	-	1	1	0	53
Small mammals (178)	1	2	1	-	-	-	8	2	2	162
Carnivores (med–large) (154)	2	2	0	-	-	-	1	1	1	146
Ungulates (132)	6	3	1	-	-	-	0	2	0	120
Other large mammals (18)	0	1	0	-	-	-	-	-	-	17
Arboreal mammals (90)	0	2	0	0	2	0	5	1	1	76
Bats (28)	0	1	0	-	-	-	3	2	0	22
Total	9	13	3	0	2	0	23	10	4	739

Symposium: Using Technology to Reduce Wildlife-Vehicle Collisions

The Australasian Network for Ecology and Transportation (ANET), in collaboration with Transport for New South Wales and the Environment Institute of Australia and New Zealand (EIANZ), is holding a one-day symposium in Sydney in May 2024 to investigate current and emerging technology designed to reduce wildlife-vehicle collisions. The symposium will be held in-person and online for those who can't attend face-to-face and to enable international participation.

Wildlife-vehicle collisions are a significant risk to human safety, a threat to wildlife conservation, and an animal welfare concern. Transport agencies around the world are building fences to prevent wildlife from accessing roads and railways and installing underpasses and overpasses to allow safe crossing. However, there are many situations where fences and crossing structures are not feasible, and technological approaches such as animal detection and deterrent systems are being considered. This symposium will explore the evidence base and ecological and technological considerations underpinning the different options to reduce wildlife-vehicle collisions and enable a synthesis and direction forward.

The symposium will bring together ecologists, transport agencies, technology experts, all levels of government, NGOs, industry, and the community to discuss technology including:

- Animal detection systems
- Animal deterrent systems
- Driver warning systems
- Vehicle automation.

The findings of the symposium, and an accompanying literature review, will be synthesised into a peer-reviewed publication and a discussion paper that will guide future investment by TfNSW and other transport agencies around the world.

The symposium will be held in central Sydney in the last week of May 2024. Check out www.eianz.org/ANETsymposium for more information, including dates, venue, registration costs, abstract submission, and sponsorship and trade display opportunities.

This event is proudly sponsored by

NSW GOVERNMENT Transport for NSW

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Environment Institute of Australia and New Zealand

Managing microbats on NSW bridges and culverts

This fact sheet provides advice to local councils on managing the threatened microbat, Southern Myotis (*Myotis macropus*), when undertaking demolition, replacement and other works on timber and concrete bridges and culverts. This information sheet should be read in conjunction with the Transport for NSW (Transport) Microbat Management Guidelines.

For more information and to obtain a copy of the brief for microbat survey and assessment contact Julie Ravallion (Senior Specialist –Biodiversity) julie.ravallion@transport.nsw.gov.au

Environment and Sustainability

transport.nsw.gov.au

Managing microbats on NSW bridges and culverts

Fact sheet

April 2023

Purpose

This fact sheet provides advice to local councils on managing the threatened microbat, Southern Myotis (*Myotis macropus*), when undertaking demolition, replacement and other works on timber and concrete bridges and culverts.

This information sheet should be read in conjunction with the Transport for NSW (Transport) Microbat Management Guidelines.

Southern Myotis roosts and breeds in bridges & culverts

Timber and concrete bridges as well as culverts often support breeding habitat for the threatened microbat, Southern Myotis (*Myotis macropus*). Potential impacts of construction activities on this species include:

- abandonment of important breeding sites
- local extinctions of Southern Myotis populations
- disruption to key lifecycle stages (breeding, birthing, raising young)
- mortality or injury during construction
- cumulative impacts (several projects being undertaken within 20 kilometres at the same time).

If the project is located east of the Great Dividing Range and is located over or within 200 metres of water (e.g., river or creek), then it is likely that the threatened Southern Myotis will be found roosting and breeding in the bridge or culvert. The species may also be found inland along major rivers. Other threatened microbats can be found roosting in bridges and culverts, but only the Southern Myotis breeds in them.

Environmental impact assessment

When undertaking an "activity" under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), Councils must assess whether the "activity is likely to have a significant impact on threatened species and their habitat".

If habitat for threatened animals is damaged (or removed) this could constitute an offence under s2.1 of the NSW *Biodiversity Conservation Act 2016* (BC Act). However, defences include actions undertaken in accordance with Part 5 of the EP&A Act "after compliance with that Part" and so proper consideration of likely impacts of activities on threatened microbats is important.

The following steps will minimise the risk of significant impacts to the Southern Myotis and should be undertaken as part of environmental impact assessment process:

1. Engage a suitably-qualified ecologist to survey the structure for the presence of microbats, the extent of habitat and assess the likely significance of potential impacts in accordance with s7.3 of the BC Act. Transport can provide a brief template to assist council to engage a suitably-qualified ecologist to undertake this work.
2. Where Southern Myotis are present or likely to be present, potential impacts should be mitigated. The Microbat Management Guidelines provide a useful resource and includes triggers when a microbat management plan (MMP) prepared by a microbat specialist is warranted.

Management strategies

There are many strategies that can be put in place as part of a MMP to protect Southern Myotis using bridges including:

- careful timing of works to avoid impacts during the breeding period from October to April
- excluding microbats from their habitat prior to impacts
- providing alternate 'bat box' habitat nearby
- creating habitat in new structures
- staging construction activities over time
- noise mitigation.

MMPs require input from a microbat specialist. A microbat specialist is a person who has:

- minimum of three years' experience as an ecologist with extensive microbat experience
- a NPWS scientific licence and Animal Care and Ethics Committee approval
- current Lyssavirus (ABVL) vaccinations.

For more information and to obtain a copy of the brief for microbat survey and assessment contact Julie Ravallion (Senior Specialist – Biodiversity) julie.ravallion@transport.nsw.gov.au.

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Successful 2023 ANET Conference

The ANET 2023 conference was held at the Te Pae Christchurch Convention Centre on 27 - 29 November 2023.

The Australasian Network for Ecology and Transportation **(**ANET) conference is the premier event for ecologists, transport planners, regulators, construction and operation professionals, and the local community to engage on the interactions between transportation and ecology. The conference included two days of technical presentations, posters, panels, workshops and trade displays, and a one-day field trip to Kaikoura.

A highlight of the conference was Kaikoura field trip. In November 2016, a 7.8 magnitude earthquake occurred 15 kilometres off New Zealand's north Canterbury coast. Kaikoura, with diverse ecosystems rich in indigenous biodiversity, was severely impacted. The level of damage to the road and rail network in the region was unprecedented in New Zealand. The scale of the event and need for quick restoration balanced with minimising the impact on the environment, wildlife and landscape created a great challenge for the recovery project.

Over 100 delegates from New Zealand, Australia and elsewhere attended the conference. The NSW REC was represented by Executive Officer, Neil Dufty, who presented on 'The Role of Linear Reserves in NSW Biodiversity Conservation' (see page 4).

There were two excellent keynote speakers at the conference:

- Associate Professor Theresa Jones | University of Melbourne Urban Light Laboratory
- Professor Colleen Cassidy St Clair | Biological Sciences, University of Alberta

There were several networking opportunities including a cocktail function.

Thanks to the organising committee including EIANZ for an excellent conference. Also, thanks to Waka Kotahi (NZ Transport Agency) for being the Gold Sponsor.

WAKA KOTAHI
NZ TRANSPORT AGENCY

REC Presentation at the ANET Conference

SPEAKER BIOGRAPHY

NEIL DUFTY
NSW ROADSIDE ENVIRONMENT COMMITTEE

Neil Dufty is the Executive Officer of the NSW Roadside Environment Committee commissioned in this role by Transport for NSW. He has over 40 years of experience in environmental management and has worked as a ranger for the NSW National Parks and Wildlife Service. He was the Principal at several Environmental Education Centres run by the NSW Department of Education. He is currently a Principal at Water Technology Pty Ltd, an environmental and natural hazards consultancy based in Parramatta, NSW.

PRESENTATION | THE ROLE OF LINEAR RESERVES IN NSW BIODIVERSITY CONSERVATION

ABSTRACT
Linear reserves in New South Wales (NSW), Australia, consist mainly of roadside reserves, travelling stock reserves, rail corridors, utility easements and paper roads. They comprise approximately 6% of the land area of NSW. This paper explores the environmental, economic and social values of NSW linear reserves. In particular, it outlines the benefits of linear reserves in biodiversity conservation including in the preservation of endangered ecological communities and threatened species. It provides case studies to demonstrate the environmental importance of linear reserves including the Box Gum Grassy Woodland communities of which there are only approximately 2% remaining in NSW, most of which are found in linear reserves. The paper examines some of the issues faced by linear infrastructure managers including potential conservation conflicts with road safety requirements, bushfire management, weed management, illegal firewood collection and ecological recovery from natural disasters. Emerging issues are identified including the ecological impacts of climate change, future changes in infrastructure construction and use, and weed and pest incursions. The paper concludes with examples of initiatives in NSW to better manage linear reserve environments. The initiatives include the NSW Roadside Environment Committee (REC), a NSW government committee comprising 13 linear reserve infrastructure managers and a peak conservation group (NSW Nature Conservation Council). The REC promotes good environmental management of NSW linear reserves by facilitating networking between its member organisations and promoting good practices to local communities and other stakeholders. Other initiatives described include the Biodiversity Policy used by Transport for NSW for NSW main road reserves and the Rapid Assessment Methodology developed to assess linear reserve environments across NSW.

Possums avoiding Ku-ring-gai roadkill hotspot with rope crossings, researcher says

Possums are using rope bridges to avoid a roadkill hotspot in Sydney's north, research shows.

Possums were photographed crossing Lady Game Drive in Lindfield via a pair of rope bridges 34 times in November.

The rope bridges were installed in 2006 after a study led by researcher Tracey Russell found 600 dead possums had died in two years at Ku-ring-gai, mostly on Lady Game Drive.

"I was just noticing that there was just so much roadkill in the area," she said.

"The canopy didn't go all the way across the road, so if the possums wanted to get across they had to come down to the ground, cross the road and take their chances."

The wildlife biologist, who is working in partnership with Ku-ring-gai Council, says there is now significantly less roadkill in the area.

Dr Russell's will gather 12 months' worth of data showing how frequently ringtail and brushtail possums are using the crossings.

She would also like to see if other species use the crossings and whether they mingle with possums.

Ku-ring-gai Mayor Sam Ngai was pleased with the initial results of the research.

"We all know that sense of grief when we see wildlife injured on the roads," he said.

"It's encouraging to see these rope bridges have provided ringtails and brushtails with a safe way to move between feeding areas and I look forward to the outcomes of the trial."

Excerpt from an ABC article: https://www.abc.net.au/news/2023-12-14/rope-crossings-saving-possums-in-sydney/103222578

‘Green Roads’ Are Plowing Ahead, Buffering Drought and Floods

Ben Goldfarb reports that as the developing world witnesses a boom in road building, a movement to retrofit existing roads is gathering steam. Using embankments, channels, and dikes, so-called “green roads” help control floods, harvest excess water for use in irrigation, and slash maintenance costs.

Green Roads offer a potential path through a thicket of new road construction, repositioning roads as environmental assets as well as liabilities.

Green Roads for Water is the brainchild of Frank Van Steenbergen, a Dutch geographer and MetaMeta’s director. While working on irrigation projects in Pakistan in the early 1990s, van Steenbergen first encountered “gabarbands,” stone terraces likely built by farmers millenia ago to capture water and soil from seasonal rivers during monsoons.

The gabarbands were proto-dams, but their sinuous paths across ancient streambeds also reminded van Steenbergen of roads, which tend to gather water along their surfaces. In the years that followed, he began to wonder: Why not use roads to direct and collect water in desirable locations, rather than undesirable ones?

Nearly 20 countries have either implemented Green Roads for Water or plan to begin soon, and thousands of kilometers of roads, worldwide, have already received Green Roads interventions. Engineers who have taken MetaMeta’s trainings have employed its tenets in Ethiopia and Bangladesh, and the concept is rapidly spreading to places as diverse as Somaliland, Tajikistan, and Bolivia. The idea has also gained a toehold at the World Bank and other international lending institutions, which are currently financing a road-building boom that promises to reshape ecosystems and communities around the world.

Green Roads for Water offers one potential path through this thicket of new construction, one that repositions roads as environmental assets as well as liabilities.

Read the full article at https://e360.yale.edu/features/green-roads

New example of a South Australian roadside vegetation management plan

In South Australia, under the *Local Government Act 1999,* any removal or disturbance of roadside vegetation requires the local council's permission. Under the *Native Vegetation Act 1991*, removal or disturbance of roadside vegetation also requires the consent of the Native Vegetation Council (NVC) unless a specific exemption applies.

The Guidelines for the Management of Roadside Native Vegetation and Regrowth Vegetation are to provide parameters for local councils and the Department of Transport and Infrastructure (DTI) to manage native vegetation in road reserves to maintain the safety and visibility of roadsides while retaining important native vegetation values.

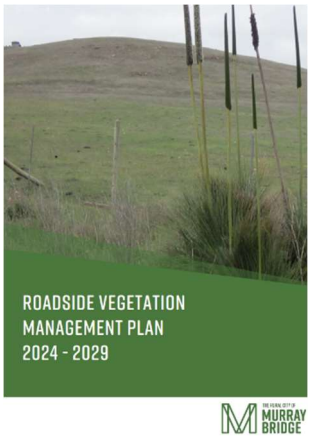
A significant change to the Guidelines is that the management of native vegetation regrowth on roadsides is now up to 20 years, in contrast, only regrowth of up to 5 years could be cleared under the previous Guidelines.

Based on the Guidelines, a new Roadside Vegetation Management Plan (RVMP) has been prepared by The Rural City of Murray Bridge. A RVMP is a reference document encompassing a range of roadside actions prepared and owned by a local council to promote good management of roadside vegetation.

RVMPs in South Australia must be endorsed by the NVC under the *Native Vegetation Act 1991* to fulfil a legal requirement under Regulation 11(23) Roadside or rail corridor vegetation management. This regulation allows for clearance of native vegetation by a local council, or someone acting on behalf of the local council, where the clearance complies with a RVMP approved by the NVC.

A copy of The Rural City of Murray Bridge RVMP can be accessed at

https://www.murraybridge.sa.gov.au/__data/assets/pdf_file/0028/1535932/2024-2029-RCMB-Roadside-Vegetation-Management-Plan.pdf



CHECK OUT THE REC's WEBPAGE

https://www.transport.nsw.gov.au/operations/roads-and-waterways/committees-communities-and-groups/committees-and-groups/roadside