



2018 AUSTRALASIAN NETWORK FOR ECOLOGY
AND TRANSPORTATION CONFERENCE

CONNECTING NATURE CONNECTING PEOPLE

29 April - 2 May 2018 | Creswick Victoria

CONFERENCE E-PROGRAM

[Click here to access abstracts](#)



Environment Institute
of Australia and
New Zealand Inc.



WELCOME

Welcome to the third Australasian Network of Ecology and Transportation conference, ANET 2018: Connecting Nature, Connecting People, co-hosted with the Environment Institute of Australia and New Zealand (EIANZ).

The conference will focus on the intersection of people and linear infrastructure, specifically how both people and nature are connected through the ecological interactions with and impacts of transportation infrastructure, and the many and varied solutions.

ANET has held International conferences in Brisbane in 2009 (together with EIANZ) and Coffs Harbour in 2014, focusing on sharing global best practice in identifying and mitigating the ecological impacts of all types of linear infrastructure and transport, including road, rail, pipelines and utility easements.

We have come a long way since 2009, in both our understanding of the significant effects that roads, rail and other linear infrastructure can have on species, habitats, ecosystems and landscapes, as well as the many potential solutions and their effectiveness. This year, we also focus on the connections that people have with nature, understanding that transport corridors are important for their biodiversity values, but also for their landscape values and the sense of place that roadsides and other linear corridors give many in our community.

The next few years will see a coming together of communities and agencies as transportation networks are expanded, widened and improved in what is set to be an unprecedented investment in transportation infrastructure across Australia. Through working together across disciplines, we can ensure that the transportation infrastructure not only provides safe and efficient transport, but also enhances ecosystem function and exceeds community expectations of ecological management. ANET is at the forefront of ensuring that the very best science and evidence can be used to inform decision-making and achieve exceptional environmental outcomes.

This year, ANET has partnered with the EIANZ to deliver this conference. Both organisations share the goals of connecting research and practice; science and policy; and user and manager to achieve excellence in environmental outcomes.

Thanks to our generous sponsors for the conference, in particular the principal sponsor VicRoads.

Thanks also to all who helped plan and organise ANET 2018, those who will be sharing their important work and those who are attending and participating – the success of this conference depends on us all.

We hope through this conference you will learn about the latest research, policy and practice and be inspired to improve the ecological outcomes of your projects in the future!

Dr Rodney van der Ree
Chair, ANET Organising Committee

Martin Juniper MEIANZ, CEnvP
President, EIANZ Victorian Division



MARCEL HUIJSER

Dr Marcel Huijser is a lead researcher in road ecology at the Western Transportation Institute at Montana State University, USA, where he leads a range of road and wildlife related projects for state and federal governments, counties, foundations, and other funders. He was the lead scientist on the 15-year long US Highway 93 wildlife mitigation project, which was a 90km long highway duplication project that dissected important natural habitats, agricultural land, and small villages on the Flathead Indian Reservation.

Marcel is recognised internationally for his work on the development and testing of animal detection systems that alert drivers to the presence of large mammals along highways, having conducted trials in Yellowstone National Park, California, Colorado, Idaho, Montana, and Pennsylvania. Marcel and colleagues at WTI have undertaken a number of commissioned reports for the national US government on measures aimed at reducing wildlife-vehicle collisions and at mitigating the barrier effects of transportation infrastructure.

Marcel is also a visiting professor at the University of São Paulo in Brazil where he has been teaching road ecology on a regular basis since 2014 and collaborating on a diverse suite of road-impact and mitigation studies. Some of these Brazilian projects include quantifying roadkill along the toll roads in São Paulo State, the development of a Brazilian animal detection system, and the evaluation of wildlife mitigation measures along the road through Carlos Botelho State Park that hosts one of the largest remaining fragments of Atlantic forest in Southern Brazil with threatened and endangered species such as the jaguar, southern muriqui and South American tapir.

Marcel's Ph.D. (2000) was on hedgehog road mortality and mitigation strategies in The Netherlands, in collaboration with the Dutch Society for the Study and Conservation of Mammals. In his spare time and professionally, Marcel writes a blog of road ecology photos, and his photo website probably hosts the largest collection of road ecology images in the world.



KIRSTEN PARRIS

Kirsten Parris is an Associate Professor of Urban Ecology in the School of Ecosystem and Forest Sciences at The University of Melbourne, and the Deputy Leader of the National Environmental Science Program (NESP) Hub for Clean Air and Urban Landscapes (CAUL).

She has a deep affinity with frogs, and research interests that span urban ecology, conservation biology, animal behaviour, field survey methods and ecological ethics. In 2016, she published Ecology of Urban Environments (Wiley

Blackwell), a text book for upper-level undergraduate and Masters students that provides an accessible introduction to urban ecology, using existing ecological theory to identify generalities in the complexity of urban environments.

Kirsten's current research projects focus on the impacts of urban noise on acoustic communication in birds and frogs; the ecological costs and benefits of artificial wetlands in urban landscapes; community ecology in cities; and practical ways in which humans can better share the urban environment with other species. She also enjoys science communication including stand-up science comedy.

You can read more about her research at kirstenparris.com.



PROGRAM

Sunday 29 April 2018

4:00pm – 6:00pm	Registration Hepburn Foyer
6:00pm – 8:00pm	RACV Welcome function Acacia Lawn

Monday 30 April 2018

8:00am – 8:30am	REGISTRATION	
8:30am – 8:50am	Welcome and conference opening	
8:50am – 9:00am	Welcome to Country	
9:00am – 10:00am	PLENARY Road ecology: Are we taking the right turns? Marcel Huijser, Montana State University CHAIR: Scott Watson	
10:00am – 10:30am	PRESENTATION Bitumen and birds Gillian Sparkes, Commissioner for Environmental Sustainability Victoria	
10:30am – 11:00am	MORNING TEA	
11:00am – 12:00pm	INVITED PRESENTATIONS CHAIR: Martin Juniper	
11:00am – 11:20am	Roadside biodiversity and biodiversity offsets Martine Maron	
11:20am – 11:40am	Connecting road engineers, planners and decision-makers with nature: A VicRoads pilot program Chris McCormack	
11:40am – 12:00pm	Strategic research and mitigation programs in road ecology: A global perspective on best-practice Rodney van der Ree	
12:00pm – 1:00pm	LUNCH	
1:00pm – 2:45pm	CONCURRENT SESSIONS	
	PLANNING CHAIR: Kevin Roberts Session sponsor: Cardno	PROJECT AND POLICY INSIGHTS CHAIR: Amy Blacker
1:00pm – 1:15pm	Approaches to positioning crossing structures to facilitate emu movements across a major highway Chris Thomson	Exploring the unexpected: The benefits of understanding non-target species use of fauna passages Mel McGregor
1:15pm – 1:30pm	Are we monitoring in the dark? Implementation of a bat framework on a roading project in Hamilton, New Zealand Fiona Davies	Evidence-based development of a commercial arboreal wildlife bridge to prevent habitat fragmentation and isolation Sophie Hughes
1:30pm – 1:45pm	Gardens are not just for wall skinks - a threatened reptile in the suburb Elvira Lanham	Metro Tunnel: Embedding urban ecology performance targets in infrastructure projects Maggie Baron
1:45pm – 2:00pm	Green and golden frog guidelines for construction projects Victoria Harvey	Effect of artificial light on wildlife use of underpasses Arianna Scarpellini
2:00pm – 2:15pm	Logan Enhancement Project: A collaborative approach to road ecology connectivity Richard Pidgeon and Andrew Baker	How bureaucratic structure influenced the assessment of transport infrastructure under the EPBC Act from 2006 to 2008 Chris Murphy
2:15pm – 2:30pm	The long and winding road to better ecological outcomes Carol Bannock	Recent innovations in microbat mitigation on road projects in NSW Josie Stokes
2:30pm – 3:00pm	AFTERNOON TEA	

Monday 30 April 2018 - Afternoon

3:00pm – 3:20pm	Engaging Traditional Owners with road planning and construction Aunty Doreen and Matt Mooney		
3:25pm – 4:20pm	LIGHTNING TALKS (5 minutes each) CHAIR: Darryl Jones		
	Time lapse and concrete pipes: Some surprises from two years of frog pipe monitoring Brendan Taylor	Facilitated movement of small mammals through a road-underpass by a wildlife railing Ross Goldingay	
	Validating collision model predictions with disparate datasets: A case for a unified system Casey Visintin	Achieving improved fauna connectivity during highway upgrade projects Matt Davis	
	Mitigating the ecological impacts of transportation infrastructure: A compilation of global case studies Rodney van der Ree	From random meander to stratified meander: Using a quantifiable method to elucidate survey effort and detectability for threatened flora surveys Nic McCaffrey	
	When does a hot spot go cold: A method for looking at hot spots over time Cathryn Dexter	Evaluating the success of wildlife crossing structures using genetic approaches and an experimental design: Lessons from a gliding mammal Kylie Soanes	
4:30pm – 5:30pm	POSTER AND TRADES SESSION		
	POSTERS		
	Developing an effective method for the safe dispersal of the threatened brush-tailed phascogale across roads and other barriers William Terry	Lessons learnt from monitoring wildlife throughout a rail construction project Amy Blacker	
	Reducing barrier effects for eastern pygmy possums in the peri-urban environment Cassie Thompson	Methods of designing mammal crossing structures along the highways in China Yun Wang	
	Artificial night-time lighting influences the use of wildlife crossing structures by insectivorous bats in Southeast Australia Manisha Bhardwaj	Effective community action Jacqueline Marlow	
	A decision support framework for prioritising actions to mitigate wildlife-vehicle collisions Jo Horsfall	Using Facebook to find citizen scientists for systematic roadkill surveys Teen Lin	
	St. Peters West Connect: The partial relocation of the Rudders Bond Store Jennifer Hill	Woolgoolga to Ballina Pacific Highway upgrade fauna connectivity strategy Mark Woods	
	The promise and reality of using genetic techniques to quantify the impacts of linear infrastructure and evaluate the effectiveness of mitigation Kylie Soanes	Microbats in road and rail structures: Australian guidelines for assessment and management Alison Martin	
	IUCN Transport working group Rodney van der Ree	Successful delivery of large scale ecological restoration projects Nicholas Somes	
	Culverts - implications for aquatic fauna Tanya Blakely	The ECAV Austin O'Malley	
	A multi-criteria analysis to identifying wildlife: Vehicle collision hotspots Samantha Colbran		
	TRADE DISPLAYS		
	ACO Advanced Telemetry Systems Australia Animex	Ecodynamics Ecology and Heritage Partners Faunatech Austbat	Griffith University North East Link Authority Roads and Maritime Services
	Transurban Vic Roads Wildlife Safety Solutions		
5:30pm – 7:00pm	Networking / free time		
7:00pm – 9:00pm	BBQ		



PROGRAM

Tuesday 1 May 2018

8:00am – 8:30am	REGISTRATION	
8:30am - 9:00am	Delivering Inland Rail: Environmental assessment, design and management Inland rail	
9:00am – 10:00am	PLENARY Noise and light Kirsten Parris, University of Melbourne CHAIR: Josie Stokes Session sponsor: NSW Roads and Maritime Services	
10:00am – 10:30am	MORNING TEA	
10:30am - 10:50am	PRESENTATION The evolution of ecology in Infrastructure Rating Schemes (ISCA) Kirsty Bauer, Infrastructure Sustainability Council of Australia	
10:50am - 12:00pm	PANEL DISCUSSION Genuine community engagement on large infrastructure projects: Lessons learnt from road projects in Victoria Kelly Parkinson, Bart Popielczyk, Helen Lewers, Louise Costa-Pelle, Sharon Edlich CHAIR: Helen Neely	
12:00pm – 1:00pm	LUNCH	
1:00pm – 2:30pm	CONCURRENT SESSIONS	
	OFFSETS CHAIR: Martine Maron	ASSESSMENT CHAIR: Cathryn Dexter Session sponsor: Hutchison Weller
1:00pm – 1:15pm	Sourcing biodiversity offsets within a market based system Julie Ravallion	How effectively can we mitigate the barrier impacts of roads on wildlife movement? A global assessment and meta-analysis Kylie Soanes
1:15pm – 1:30pm	Using innovative method to assess development impacts and biodiversity offset requirements in NSW John Seidel	Road mortality mitigation: The effectiveness of mesh fencing vs. Animex Steve Béga
1:30pm – 1:45pm	Taking the landscape view: from ad hoc to strategic offsets Heini Kujala	Western Belfast Bypass, South Island NZ: Aquatic ecology aspects and sharing of lessons learned - A contractor's perspective Omar Seychell
1:45pm – 2:00pm	Approaches to offsetting in Victoria Penny Croucamp	Wildlife protection along Qinghai-Tibet expressway in China Yun Wang
2:00pm – 2:15pm	Offsets panel discussion Martine Maron, Julie Ravallion, Penny Croucamp, Heini Kujala, John Seidel, Chris Murphy	Use and effectiveness of glider pole linkages as a mitigation measures Kelly Dalton
2:15pm – 2:30pm		How did the frog cross the road? Design standards for road crossings Jonathon McLean
2:30pm - 3:00pm	AFTERNOON TEA	

Tuesday 1 May 2018 - Afternoon

3:00pm – 4:30pm	CONCURRENT SESSIONS	
	LANDSCAPES CHAIR: Kylie Soanes	VEGETATION AND ECOSYSTEM MANAGEMENT CHAIR: David Francis
3:00pm – 3:15pm	Application of connectivity modelling to highly fragmented urban landscapes at local scales Austin O'Malley	2017 Reform of native vegetation laws in VIC & NSW: Legal update for linear infrastructure Gabrielle Guthrie
3:15pm – 3:30pm	Projecting road kill risk for Taiwan's reptiles and amphibians Kristina Chyn	Kaikoura earthquake: Managing ecology during a major road and rail rebuild Leigh Bull
3:30pm – 3:45pm	Road effect zone for bats not caused by lack of insects Manisha Bhardwaj	Vegetation management in the Central Queensland Coal Network Rail system Mark Harris
3:45 pm– 4:00pm	Woolgoolga to Ballina Pacific Highway upgrade koala management Scott Lawrence	Restoring threatened native plant communities to roadsides Paul Gibson-Roy
4:00pm – 4:15pm	Insectivorous bat roosts in road structures in Brisbane Vanessa Gorecki	Driving vegetation management along transport corridors David Francis
4:15pm- 4:30pm	How the retaining wall form effects snakes crossing the road in Taiwan You Shicheng	Cover, carpet and continuity: Expanding the role of vegetation and furniture to enhance the use of crossing structures Darryl Jones
4:30pm - 5:30pm	PANEL DISCUSSION How will technology and innovation influence transportation ecology research and practice? Marcel Huijser, Casey Visintin, Rob Appleby, Stuart Ballingall CHAIR: Rodney Van Der Ree	
5:30pm - 5:50pm	Overview of the use of wildlife crossing structures on the Calder Freeway Lee Harrison	
5:50pm - 6:30pm	Networking / free time	
6:45pm - 7:30pm	Pre-dinner drinks and nibbles	
7:30pm - 11:00pm	THE DEPARTMENT OF ENVIRONMENT, LAND, WATER AND PLANNING GALA DINNER Grand Ballroom DELWP SPEAKER: James Todd GUEST SPEAKER: Dr Gary Veale	



FIELD TRIP

Wednesday 2 May 2018 | CALDER FREEWAY

The Calder Freeway is one of Victoria's most important regional highways, connecting Melbourne to Victoria's fourth largest town, Bendigo, and onwards to north-west Victoria and south-west New South Wales. The Calder Freeway also provides access to a rapidly expanding growth area to the north-west of Melbourne.

The single-lane Calder highway was duplicated to freeway status in the late 1990s and early 2000s, and included numerous examples of fauna-sensitive road design, such as under- and over-passes, fencing and extensive revegetation.

In this field trip, we will explore the 41km section between Kyneton and Ravenswood, and discuss the successes and opportunities for improvement. We will also visit a section of V-Line railway that has the highest rate of kangaroo-train collision in Victoria to discuss the challenges, and the almost completed Ravenswood Interchange.

SITES VISITED

RAVENSWOOD INTERCHANGE | 45 MINUTES

- An introduction to the project will be provided by VicRoads followed by a discussion on community interaction.
- Nick Somes from EcoDynamics will discuss large scale revegetation in infrastructure projects

SPECIMEN GULLY ROAD | 30 MINUTES

- Site of a 3m x 3m concrete box culvert with co-use for Goldfields walking trail
- Fencing demonstration by Animex Fencing

FOREST CREEK ROAD | 30 MINUTES

- Large open span bridge a few minutes from Specimen Gully Rd
- Discussion on monitoring use of underpass with cameras

CHEWTON | 30 MINUTES

- Chewton to Taradale section of V-Line track has highest rate of kangaroo collisions in Victoria
- Linda Neilson, V-Line will lead a discussion on the issue and potential solutions

METCALFE-TARADALE ROAD | 30-45 MINUTES

- This site has a number of culverts
- Discussion on revegetation and planning design issues

POTTS ROAD | 30-45 MINUTES

- Site includes three pipes for drainage and a 3m x 3m culvert for wildlife

ITINERARY

NORTH TO SOUTH		SOUTH TO NORTH	
8:00am	BRIEFING	8:00am	BRIEFING
8:30am	Depart Creswick	8:30am	Depart Creswick
9:45am	Ravenswood interchange	9:15am	Potts Road / Metcalfe Taradale Road
11:00am	Specimen Gully Road	10:15am	Chewton
11:35pm	Forest Creek Road	11:00am	Forest Creek Road
12:30pm - 1:45pm	LUNCH Castlemaine Botanical Gardens	11:35am	Specimen Gully Road
2:00pm	Chewton	12:30pm - 1:45pm	LUNCH Castlemaine Botanical Gardens
3:00pm	Potts Road / Metcalfe Taradale Road	2:15pm	Ravenswood interchange
3:30pm	Bus for Tullamarine departs	2:45pm	Bus for Creswick departs
5:00pm	Bus arrives at Tullamarine	4:30pm	Bus arrives at Creswick



THANK YOU TO OUR EVENT PARTNERS

PRINCIPAL SPONSOR



GOLD SPONSOR



GALA DINNER SPONSOR



BRONZE SPONSORS



WELCOME EVENT SPONSOR



FIELD TRIP SPONSOR



LANYARD SPONSOR



PARTNERS

EXPERT ENVIRONMENTAL SERVICES FOR ROAD AND RAIL PROJECTS

From a leading independent specialist environmental and heritage consultancy



Niche delivers high quality, innovative and cost-effective solutions to linear infrastructure projects.

Our multidisciplinary team has proven experience in the implementation and management of robust ecological, environmental and cultural heritage programs.

9 locations
40 consultants
1500+ projects completed

For more information contact:

Rhidian Harrington
Director
0488 224 999
rharrington@niche-eh.com
niche-eh.com

Services:

Cultural heritage management

Aboriginal heritage
Non-aboriginal and built heritage
Archaeological excavation
Community consultation

Environmental management

Impact assessments
Development approvals
Rehabilitation
Stakeholder consultation
Project management

Environmental offsetting

Biodiversity Stewardship Agreements
Assessments (NSW, QLD, Federal)
Offset site strategy and management
Brokerage
Conservation agreements

Ecology

Terrestrial
Freshwater, marine and coastal
Research and monitoring
Wildlife Schools and training

Flagship projects:

- Oxley Highway to Kempsey and Frederickton to Eungai - Lead environmental consultant
- Pacific Highway Upgrades - Archaeological excavation
- M1 Productivity Package - Environmental services
- Hunter Expressway - Project ecologist
- Barton Highway Upgrade - Ecological assessment
- Woolgoolga to Ballina - Koala management plan
- Widi People – Technical Aboriginal heritage advisor
- Ravenswood Mining Landscape - Historic heritage advisor
- TMR Cairns Significant Project Team - Senior heritage advisor
- Thornton Bridge replacement - Survey, salvage excavation and Aboriginal community consultation
- Princes Highway Gerringong Upgrade - Green and Golden Bell Frog and Bat management



Transurban \$512 million Logan Enhancement Project includes widening sections of the Logan and Gateway motorways, improving key congestion hot spots (Logan Motorway/Mt Lindesay Highway/Beaudesert Road interchange and the Wembley Road/Logan Motorway interchange) and constructing new south-facing on and off-ramps on the Gateway Extension Motorway at Compton Road.

The project is the first Market-Led Proposal to be approved in Queensland by the State Government.

The project will improve safety and reliability, reduce travel times, enhance connectivity to key residential and business areas, and future proof the network.

Setting a new benchmark for road ecology in Australia, the project also includes a number of new fauna crossings and other benefits.

For more information
loganenhancementproject.com.au



Australasian Network for Ecology and
Transportation

www.ecologyandtransport.com

Environment Institute of Australia and New Zealand

AU +613 8593 4140 | NZ +64 9887 6972
office@eianz.org | www.eianz.org

ABN 39 364 288 752 | NZBN 9429041314777