Environment Institute of Australia and New Zealand

ANET 2026

BREAKING THE BARRIERS

INNOVATING TO IMPROVE ECOLOGICAL OUTCOMES ON TRANSPORT AND OTHER LINEAR INFRASTRUCTURE

23 – 25 MARCH 2026 | BRISBANE

ANET
AUSTRALASIAN NETWORK FOR ECOLOGY & TRANSPORTATION

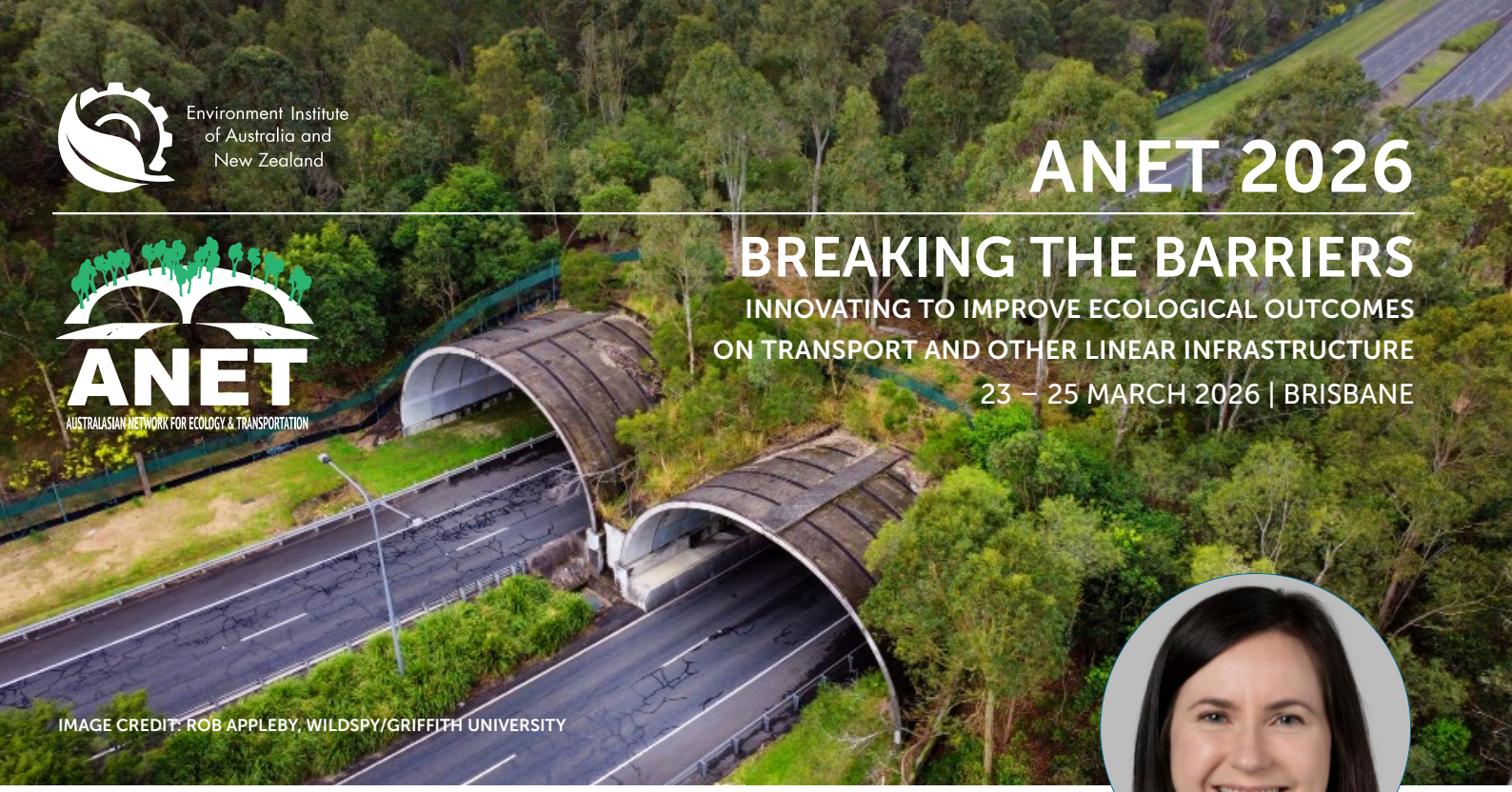

IMAGE CREDIT: ROB APPLEBY, WILDSPY/GRIFFITH UNIVERSITY

MONICA BARKER
Associate Director
AtkinsRéalis

MICHAEL IMAGE
Natural Capital, Environmental Economics, Agri-Environment Schemes, Pollinator Modelling at AtkinsRéalis

ABSTRACT

Nature-Positive Railways: Valuing Ecosystem Services for Resilient Transport Networks

There is growing recognition of the dependence of society, business and economies on natural assets and the ecosystem services they provide. Biodiversity loss and ecosystem collapse rank among the top five global risks. In Australia, this concern is acute, with coastal, wetland and native bushland ecosystems under increasing pressure from climate change, land use change, and invasive species. Railway land and adjacent ecosystems provide vital services - such as flood management, erosion control, and cooling - that benefit both society and rail infrastructure. In Australia, railway corridors often traverse ecologically and culturally sensitive areas, including biodiversity hotspots and Aboriginal cultural landscapes, making ecosystem stewardship essential. Furthermore, Australia's Nature Positive Plan aims to halt and reverse biodiversity decline by 2030. Railway land management can contribute directly to these national goals. As demand for rail infrastructure grows, climate change is intensifying risks such as extreme rainfall, heatwaves, and bushfires. This presents opportunities to enhance infrastructure resilience through nature-positive development. Currently, no railway-specific framework exists to assess and value ecosystem services across multiple geographies. To address this, the International Union of Railways (UIC) appointed AtkinsRéalis and eftec to develop the Ecosystem Valuation for Railways (ECOV4R) framework. The ECOV4R framework aims to support decision-making, Environmental Impact Assessments and ecosystem services reporting. Developed collaboratively with global rail representatives, including Sydney Trains, the framework integrates a review of best practice guidance and geospatial analysis of habitats. This included an asset register of Sydney's railways and its adjacent land, with consideration of Australian biodiversity legislation, land management practices, and climate resilience strategies. It has been pilot tested in two international sites and refined based on lessons learned. Launching in January 2026, ECOV4R will provide the first 'how-to' guidance on ecosystem services for the international rail sector, supporting the delivery of resilient and nature-positive railway infrastructure in Australia.

KEY TAKEAWAYS

1. Railway infrastructure depends on ecosystem services: Railway corridors in Australia intersect ecologically and culturally sensitive areas that provide essential services like flood management, erosion control, and urban cooling - making ecosystem stewardship critical for infrastructure resilience.

2. Climate and infrastructure pressures create opportunities to deliver resilient and nature-positive outcomes: With growing demand for rail infrastructure and increasing climate-related risks, there is a strategic driver to integrate ecosystem services into railway planning and management to improve resilience and deliver nature-positive outcomes.

3. ECOV4R provides the first global rail-specific ecosystem valuation framework: The ECOV4R framework, developed by UIC, AtkinsRéalis, and eftec, enables rail developers and operators to assess, value and enhance ecosystem services. It has been piloted internationally and tailored to Australian conditions, including input from Sydney Trains.

SPEAKER BIOGRAPHY

Monica Barker is an Associate Director at AtkinsRéalis, a global engineering and project management consultancy. With over 14 years of experience in environmental and water management, she specialises in environmental economics, water resource planning, and regulatory assurance. Monica leads the environmental service line for AtkinsRéalis in Australia, and is experienced in coordinating multidisciplinary teams to deliver strategic, sustainable outcomes across diverse sectors. Previously based in the UK, Monica led the environmental economics service line, supporting clients in domestic and international markets to recognise the value of natural assets and integrate this into sustainable decision-making and investment planning. Her collaborative approach and technical expertise enable clients to navigate complex environmental challenges and regulatory frameworks.

Michael Image His expertise includes: the analysis of environmental and agricultural policy; natural capital assessment and mapping, and development of payments for ecosystem services schemes He has also developed tools to facilitate environmental decision-making by national-level organisations in the UK and Ireland. His previous career was in Banking, where he held a variety of roles in the trading, valuation and distribution of structured foreign exchange and commodity products.