NSW REC NEWSLETTER

November 2022 Edition 52

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Latest news from the REC

The NSW Roadside Environment Committee (REC) has developed a new logo which will appear in its upcoming newsletters and other publications.

Quantifying and mitigating the ecological impacts of linear infrastructure and transport

TRANSPORT ECOLOGY.info

Transportation is arguably one of the greatest threats to biodiversity globally. With >65 million km of roads and 7 million km of railways on earth, these growing networks extend across vast areas, affecting wildlife, habitats and ecosystems almost everywhere.

TransportEcology.info is a knowledge-sharing platform that provides open-access resources for those involved with, or affected by, all types of linear infrastructure and transport, including roads, railways, powerlines, pipelines and fencing. We

hope this information will be used to improve world's best ecological practice when planning and constructing infrastructure projects.

TransportEcology.info publishes plain-language summaries of peer-reviewed research, best-practice notes and case studies from around the world. Since its launch in 2021, the site and its social media platforms have grown steadily, and now have over 1,500 subscribers from more than 50 countries.

The platform is fast becoming the primary source of transport ecology information for practitioners globally. If you are involved in planning, designing, constructing or managing linear transportation infrastructure, this website will help you do your job better!

The site also provides researchers, community members and conservation groups with the latest research and practices to inform their work and advocacy programs.

Head to www.TransportEcology.info to subscribe and receive monthly updates. You can also follow TransportEcology.info on Twitter, Facebook and LinkedIn.

Know someone who could benefit from TransportEcology.info? Please share this information or invite them to join us.

Have you recently published peer-reviewed research or been involved in a transport and ecology project? Please submit a short summary of your work so others can learn from your findings and experiences. Submission instructions are available on the site.

Join us in helping change the way transportation and linear infrastructure impacts our world.

IFM Investors grant supports Friends of Lane Cove National Park Bushland Restoration Work

Bush regeneration volunteer group Friends of Lane Cove National Park (FoLCNP) has friends in Ausgrid and IFM Investors thanks to a community grant that is supporting bushland restoration.

The IFM Investors Community Grant has gone towards FoLCNP's efforts in rehabilitating an area adjacent to an Ausgrid site in Lane Cove National Park and immediately adjacent to Pittwater Road, Lane Cove.

The project ran from February to November 2022 and has funded site visits by professional bush regenerators from Dragonfly Environmental to work with FoLCNP on this important project.

The project is seeing the removal of invasive weeds around the site including the boundary to the Great North Walk, as well as restoring native bushland to help create and promote habitat for native birds, reptiles, and mammals.

Ausgrid Environmental Officer Daniel Halton with Friends of Lane Cove National Park volunteers and representatives from Dragonfly Environmental and the NSW National Parks and Wildlife Service.

Roadside weed awareness signs

Hilltops Council was successful in a small grant round from the South East Regional Weeds Action Program which is administered by the Local Land Services. Through this grant Council's Biosecurity Weeds Officer Ben Mott actioned a plan to design large interchangeable weed awareness signs to promote different weeds

growing within the Hilltops Council district, as well as some potential incursion weeds.

The signs were designed and made by 'Signs R Us' Cowra with the roll out of the first 7 signs occurring in mid-2020 and a further 5 in late 2021. All signs currently have around 12 interchangeable weed image inserts that are changed throughout the year during their growing season to help with landholder awareness. As new incursions happen, Council intends to add new species to the interchangeable inserts.

Signs have been erected on all major roads on which heavy vehicle transport and tourists will be travelling. These roads are also commonly used by locals in their daily activities. The signs have now helped Council identify weeds growing in areas that it was not previously aware of and have also created opportunities to build knowledge and action/thought on weeds in the greater community. Recently, the signs have been adapted by several other local councils in the Central West region.

Council's intention is to build community awareness and plant recognition with more landholders and community members to help build knowledge and create a communication avenue with concerned or interested parties. A landholder recently commented to a Council staff member that "those large weed signs are the best thing on the road. When the plants change it prompts me to think about what weed problems I currently have and to take some action on weed control".

For more details contact Tom Pickering at Hilltops Council
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Rare native plant discovered on Hay travelling stock reserve

A population of rare native yam daisies has been discovered on a travelling stock reserve (TSR) near Hay, with work underway from Riverina Local Land Services to protect the native plant. These yam daisies (*Micoseris walteri*) produce edible tuberous roots and yellow flower heads, which look similar to dandelion.

Riverina Local Land Services Senior Land Services Officer Sally Ware said following this incredible discovery, work has commenced to further investigate and protect the population.

"We have quickly collaborated with a range of leading botanists, university scientists and ecologists and are collecting samples as required," Ms Ware said.

"We are also undertaking photographic work and using drone technology to view sites and ensure the yam daises are not under threat.

"Livestock movements on the TSR are also being diverted away from identified sites and temporary exclusion fencing may be needed to best protect the plants."

Anecdotal records from the 19th century suggest there were once large stretches of yam daises in grass and shrublands on the Riverina plains, but they have since declined in the wild.

Riverina Local Land Services TSR Team Leader Peter Beal said today TSRs play an important role in biodiversity conservation, agricultural production and indigenous cultural heritage.

"TSRs are instrumental in connecting otherwise isolated patches of remnant vegetation, which provide opportunities for many native plants to survive and thrive," Mr Beal said.

"At Local Land Services, we are committed to managing our TSR network in a way that strikes the balance between biodiversity conservation, livestock production, Indigenous conservation, recreation and community priorities.

"This discovery is a great example of that balance in action and by continuing to work collaboratively with our wide range of TSR users, we can ensure they will be preserved for generations to come."

Yam daisies

Good news: highway underpasses for wildlife actually work

There is new evidence to suggest special wildlife crossings are effective, based on the first long-term study of road underpasses in Australia.

The research from Southern Cross University (SCU) was published in the journal *Ecology and Evolution* and based on a two-year study of underpasses located on the Mid North Coast of New South Wales.

During that time, wildlife cameras detected close to 5,000 medium-to-large mammals and goannas using highway underpasses at Port Macquarie and Grafton.

The researchers studied 12 underpasses in those two areas– five under the Oxley Highway at Port Macquarie and seven under the Pacific Highway south of Grafton – comparing camera trap detections of animals at underpasses with those at nearby forest sites.

The lead researcher, SCU Associate Professor Ross Goldingay, said the results were encouraging. "More than 4,800 detections were made; that number was quite astounding," he said.

"These crossing rates suggests animals used the underpasses to forage on both side of the freeways."

Associate Professor Goldingay said certain species, including eastern grey kangaroos, swamp wallabies, red-necked wallabies, red-necked pademelons, and lace monitors, crossed some underpasses more than once per week.

The study also dispelled concerns that underpasses could become a "prey-trap" used by introduced feral pests and that animals could become caught in the relatively confined area.

Despite the positive study results, Professor Goldingay said any expansion of road networks in Australia still needed to be done with caution.

Read more about the study at https://theconversation.com/good-news-highway-underpasses-for-wildlife-actually-work-187434

Importance of linear reserves to birds and insects in semi-arid Australia

A recent study in the *Journal of Applied Ecology* found that wooded roadsides and streambanks have a key role in maintaining wildlife in rural landscapes. The study conducted in north-central Victoria, examined if the diversity of birds and insects vary among sites comprising different types of wooded landscape features (scattered trees, wooded roadsides, and wooded streamside vegetation) and open non-wooded habitat.

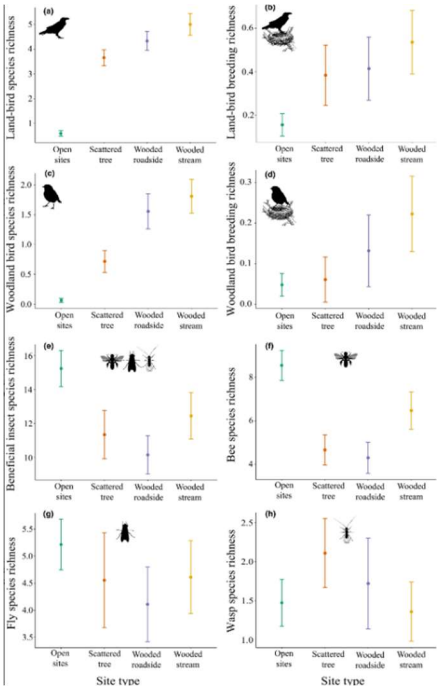
Mean α-diversity of birds was reduced in landscapes lacking wooded roadsides or streams, relative to those with all three wooded features, while species differentiation (β-diversity) increased in these landscapes.

In contrast, insects showed little response, except bees for which mean α-diversity was greater in more open landscapes lacking scattered trees or wooded roadsides, compared with those containing all wooded features.

The study concluded that "birds and insects respond differently to combinations of semi-natural features in rural landscapes, highlighting the need to better meet the requirements of multiple faunal groups in nature conservation activities". Wooded features, especially roadside and streamside vegetation, are critical for maintaining diversity and breeding activity of woodland birds.

However, many wooded features, such as roadsides, are "under threat from land clearing, burning and removal of woody debris, impacting insect communities, particularly rare or threatened species reliant on resources found within these habitats".

The study is available at https://besjournals.onlinelibrary.wiley.com/doi/full/10.1111/1365-2664.14266



Machine learning approaches are proactively mitigating the risk of bushfires caused by powerlines

Helping to manage 54,000 km of AusNet powerlines across Victoria, Altavec uses AWS Machine Learning on the Amazon SageMaker platform to improve and scale its vegetation classification and analysis process.

Since 2009, Altavec has been capturing light detection and ranging (LiDAR) data – a remote-sensor method also known as laser or 3D scanning.

This feature-rich data is used to create a 3D model of the entire AusNet network, helping to identify vegetation growth that needs to be trimmed for bushfire safety.

Automating the process of LiDAR classification has been an area of development undertaken by Altavec over the past 12 months, to deliver scale, speed, and accuracy improvements.

Partnering with the Amazon Machine Learning Solution Labs team, Altavec and AWS used Amazon SageMaker to build deep learning models to automate the classification of the LiDAR data in five specific vegetation management categories. This resulted in 80.53 per cent accuracy of classifying data across these categories, saving Altavec customer AusNet, an estimated $500,000 in annual labour costs.

The highly sophisticated innovative solution developed by the joint Altavec and AWS delivery team significantly reduces the hours spent manually correcting data points by up to 80 percent, allowing vegetation classification and analysis outcomes to be achieved faster and at a much greater scale.

More equals more in Small Purple-Pea project

Around 700 Small Purple-Pea (*Swainsona recta*) seedlings have been translocated across the Central West and Central Tablelands region to bolster existing populations as a pinnacle part of a five-year project to save this endangered species.

Local Land Services and the Australian National Botanic Gardens have teamed up to deliver a project to help the Small Purple-Pea. Over the past two years, Small Purple-Pea seed has been collected under licence from various sites across the Central West and Central Tablelands.

The seeds were lovingly grown into seedlings by the Australian National Botanic Gardens in Canberra and have now been taken back home and planted into Wiradjuri country around Mudgee and Wellington.

Leonie Coleman, Senior Land Services Officer with Local Land Services, said this is a pinnacle moment of the project that started in a drought with limited sign of the Small Purple-Pea.

"With the breaking of the drought new populations have emerged and been identified through Local Land Services project monitoring and public awareness campaigns," Ms Coleman said.

"Now it's time to help bolster existing populations."

Scientists have found that when populations of small purple pea are too small in number, the viability of the seed to germinate decreases – so less equals less.

By adding plants to existing populations, it is hoped that the genetic diversity of each population will increase, and the germination viability of future seeds increases – so more equals more.

"With its beautiful purple flower you would think it would be hard to miss this small, show stopping plant, but while once widespread, this plant has had a tough time over the last 100 years," Ms Coleman said.

"Unfortunately, it is eaten by livestock and native herbivores, is outcompeted by weeds and has lost habitat through growing urbanisation and agricultural developments.

"This has seen a sharp decline in populations which were once widely distributed across the western slopes of the Great Divide from north of Gulargambone down through the NSW Central and Southern tablelands to Central Victoria."

The Small Purple-Pea is a very attractive purple flowering legume that develops a long tap root. Its striking flower stem can be seen from early Spring through to early Summer before dying back mid-Summer and emerging again in Autumn.

Much of the existing populations of the Small Purple-Pea is found in linear reserves such as roadsides, travelling stock reserves and rail corridors.

Cumberland Plain Conservation Plan released

The Cumberland Plain Conservation Plan (CPCP) has been finalised with NSW approvals in place in August 2022. Commonwealth approvals are pending.

The CPCP protects large areas of regionally important habitat in Western Sydney while unlocking delivery of urban growth and development. This includes facilitating the delivery of up to 73,000 homes planned for the Western Parkland City by providing necessary biodiversity approvals.

The South-Western Sydney koala population is Sydney's largest population and one of the healthiest populations in NSW. The NSW Government is supporting the protection and growth of these koalas through the adoption of expert advice as part of the CPCP.

Find out more at https://www.planning.nsw.gov.au/Policy-and-Legislation/Strategic-conservation-planning/Cumberland-Plain-Conservation-Plan/Final-report

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The aim of this newsletter is to share information about the management of NSW linear reserve environments and profile the NSW Roadside Environment Committee (REC).

For more information about the REC: https://roads-waterways.transport.nsw.gov.au/about/what-we-do/committees/roadside-environment-committee.html

Please contact the REC Executive Officer if you wish to subscribe or unsubscribe.

NSW Roadside Environment Committee

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