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In this issue

- Launch of the SEED Layer Intersection Tool
- Have you heard about the NSW Biodiversity Conservation Trust (BCT)?
- TransportEcology.info
- Bushfire Conference field day
- Road geohazard risk management handbook
- Researchers map ancient 'superhighways' used by first Australians
- Roadside cattle grazing can increase fire risk
- Road to ruin: informal byways sow seeds of destruction in Colombia's Amazon
- Australia's giant forests may become increasingly at risk with climate change
- More than 100 Australian plant species entirely burnt in Black Summer bushfires

Latest news from the REC

The NSW Roadside Environment Committee (REC) will again sponsor the NSW Roadside Environmental Management Award as part of the 2021 Local Government Excellence in the Environment Awards.

This is the tenth year that the REC has sponsored the award which helps promote good practice by NSW local councils and other council organisations in managing roadside environments.

Entries for the 2021 LG Excellence in the Environment Awards will open in early June.

Launch of the SEED Layer Intersection Tool

The SEED Layer Intersection Tool has launched and is available to use on the SEED map: <https://geo.seed.nsw.gov.au/Public Viewer/index.html>

The layer intersection tool (LIT) is a map tool that allows users to identify and analyse a focused set of layers within an area of interest (AOI). Users can select a predefined set of layers and define an AOI to assess whether these layers intersect, and the degree to which they intersect with that area. Detailed reports outlining the output can then be downloaded. This saves time, as users can rapidly access only the relevant layers, and enhances transparency as the process of accessing data is simplified.

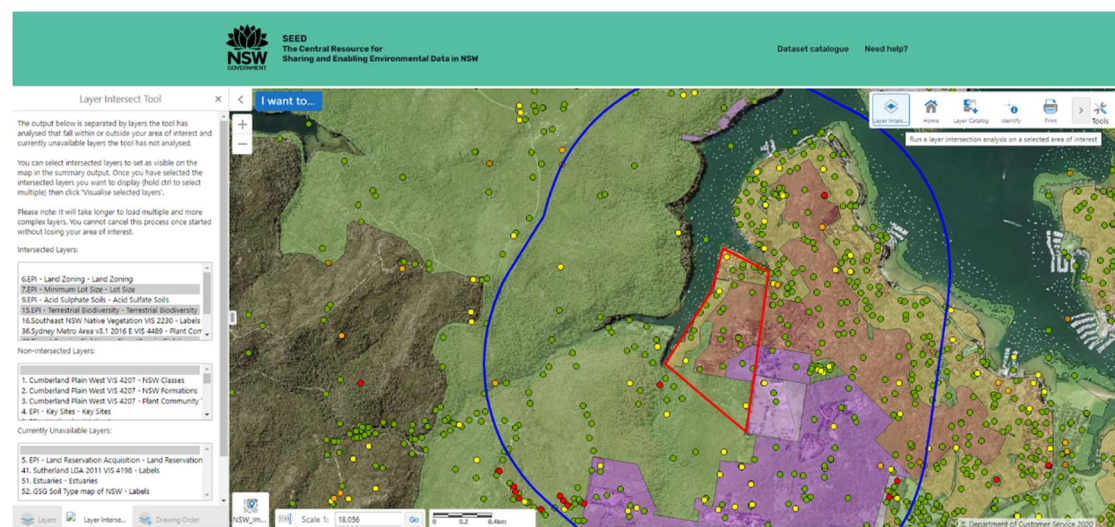
Currently, the Biodiversity Assessment Method (BAM) stage 1 layer group is available for use with the LIT. This means the LIT is beneficial particularly for ecological consultants who access data for biodiversity assessments such as the BAM.

The layer groups used in the tool will be updated and expanded over time, meaning that the LIT tool will be beneficial to a much wider audience soon. User feedback will actively be sought in developing these layer groups.

The LIT has been designed with and for users and focused on continuous improvement. Users can provide feedback on the tool and BAM layers through the 'Report an error/provide feedback' option on the SEED map or the enquiries and feedback page.

A fact sheet on the LIT is available for download <https://www.seed.nsw.gov.au/sites/default/files/2021-02/SEED%20Layer%20intersection%20tool%20fact%20sheet.pdf>

Read more about the LIT and watch a video on how to use the tool via SEED News & Resources <https://www.seed.nsw.gov.au/news-and-resources/news/seed-layer-intersection-tool>



Have you heard about the NSW Biodiversity Conservation Trust (BCT)?

More and more landholders across the state are choosing to enter conservation agreements and biodiversity stewardship agreements with the BCT. These agreements allow you access to technical and financial support from the NSW Government, as well as permanent (or termed) protection of native vegetation.

We have opportunities for annual management payments for eligible landholders, as well as significant grant funding for fencing maintenance, weed and pest control and other conservation activities.

For more information about the BCT and our opportunities please visit www.bct.nsw.gov.au or call us at 1300 992 886.

For more information, watch this video <https://youtu.be/ozdDWqS8L7M>



The rapid and accelerating rate of growth globally in roads, railways, pipelines, powerlines and other linear transportation infrastructure is unprecedented. Unless carefully planned and well-designed, these networks of new and expanded infrastructure will wreak havoc on the natural capital that underpins society and threaten the ecosystems that support biodiversity.

A safe, efficient and ecologically sustainable transport system is critical to economic growth and development, improving human health and wellbeing, and protecting the environment. Governments, funders, practitioners and communities need access to scientifically robust information to inform their planning and guide decision making.

TransportEcology.info is a globally relevant resource providing open access information to assist all stakeholders. It contains summaries of peer-reviewed research, best-practice notes and case studies from around the world.

You are invited to submit a research summary, best practice note or case study of your project to share with a global audience.

You can subscribe to TransportEcology.info and follow it on social media to receive periodic updates when new resources are published. For more information go to www.transportecology.info

NCC 2021 Bushfire Conference Field Day



Join us for a face-to-face conference field day to learn more about cool, warm and hot fire, at North Head on Friday 4th June.

Come for a walk to see what has changed after recent fire events, hear about threatened species recovery and regeneration, and discuss lessons learnt and new approaches in fire, environmental and heritage management from experts and land managers.

Hear from organisations including: Sysdney Harbour Trust, NPWS, Northern Sydney Aboriginal Heritage Office, Northern Beaches Council, Fire and Rescue NSW, North Head Sanctuary Foundation and Australian Wildlife Conservancy.

Transport to the location will be provided from Manly Wharf, along with morning tea and lunch, the day will go from 9am - 3pm.

Tickets are limited so get in quick.

More info: nature.org.au/bushfire-conference

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Road geohazard risk management handbook



ROAD GEOHAZARD RISK MANAGEMENT HANDBOOK



Geohazards may result in the loss of human life, extensively damaged infrastructure, and suspended or disturbed traffic and services such as water and energy supply.

Generally speaking, roads should be robust and resilient to provide reliable access to emergency services and to be used as evacuation routes. They should also contribute to an efficient local recovery process after a geohazard event. This handbook outlines an approach to proactively manage the risks of geohazards on roads, road users, and the people living near and affected by roads through:

- Improving understanding of the risks of geohazards throughout the road infrastructure cycle.
- Promoting risk avoidance on the alignment of new roads or the realignment of existing roads to manage construction costs, maintenance costs, and losses from geohazard-induced traffic disruptions.
- Protecting road users through preparedness, including measures for early warning, precautionary road closures, and access to emergency services and evacuation routes.
- Contributing to the speedy recovery and reconstruction of roads after geohazard events and to the mitigation of future geohazard events.

Download the handbook at <https://www.gfdrr.org/en/road-geohazard-handbook>

Researchers map ancient 'superhighways' used by first Australians

Australia's first people are thought to have arrived when the continent was a much bigger place, with lower sea levels connecting Papua New Guinea and Tasmania to what we now know as modern Australia, forming the mega-continent of Sahul.

New research from the Australian Research Council Centre of Excellence for Australian Biodiversity and Heritage shows the paths that were likely trodden by the ancient Aboriginal people as they moved across the continent from the Kimberley to Tasmania.

Flinders University's Professor Corey Bradshaw is one researcher who mapped the routes. "We really wanted to understand not just how they got here, but what they did once they got here," he said.

The models take data from archaeologists, anthropologists, ecologists, geneticists, climatologists, geomorphologists, and hydrologists, and analyses the information to come up with the most likely routes around the country.

The models hypothesise the first Australians landed on the shores of Western Australia, around the Kimberley region, about sixty thousand years ago, and in as little as 6,000 years they had settled across the country, from the far north of the tropics to the deep south of Tasmania.

The super-highways bear striking similarities to Australia's current highways and stock routes, and Professor Bradshaw said there was a good reason why.

"The fact that they settle this entire continent so quickly and establish these long-term relationships suggests that, yes, there were oral histories passed down for tens of millennia," he said.

"The super-highways that came out of some of the models actually seem to match up a lot of the old stock routes and the Aboriginal trade lines that we know from, say, the 19th century.

"A lot of the European explorers — those that were smart enough to talk to the local people about which way to go and how to survive, I imagine that those would have passed down for a long time."

While the models show the most likely routes based on available data, they're not definitive, and researchers are hoping to collaborate with the Indigenous community to fill in the gaps.

Source: ABC News 30 April 2021

More details: <https://theconversation.com/we-mapped-the-super-highways-the-first-australians-used-to-cross-the-ancient-land-154263>



*A map showing the migration routes in the ancient mega-continent of Sahul
(source: ABC News)*

Roadside cattle grazing can increase fire risk



Roadside grazing seems to be an obvious win-win situation — hungry stock access feed, and the fire risk beside the road is reduced.

But an ecologist is warning that droving cattle in some parts of Victoria would increase fire fuel loads.

Moyne Shire Council in south-west Victoria has written to the federal environment minister Sussan Ley seeking an exemption that would allow grazing on roadsides where there is native vegetation in order to reduce fire risk.

A council report found there was high-value native vegetation in sections along roadsides throughout the municipality, which was protected under the *Environment Protection and Biodiversity Conservation (EPBC) Act*.

Associate professor John Morgan, an expert in native grasslands and fire ecology at La Trobe University, said it was a popular theory, but it had not been demonstrated that roadside droving reduced fire risk.

He said, in some cases, the opposite was true.

"What it does is create lots of weed invasion and lots of degradation of those roadsides," Dr Morgan said.

He said native vegetation with high biological value did not evolve with hard-hoofed animals like cattle, which trampled the vegetation and facilitated the invasion of exotic species.

"There's some nice evidence in certain parts of western Victoria that suggests that if you disturb some of these beautiful native grasslands, they become weedy and actually are much higher fire risk than they were before that sort of grazing," Dr Morgan said.

He said native grass species were typically a lower fire risk than introduced species because they were shorter and remained greener over summer.

Dr Morgan said there were areas of vegetation on roadsides that had species found nowhere else in the world.

"Some of the species that are entirely reliant on these habitats deserve our protection and our understanding that these areas are important," he said.

"So, I would hope that those particular parts of the landscape weren't granted exemptions."

Source: ABC News 25 February 2021

Photo: Angus Verley, ABC Rural

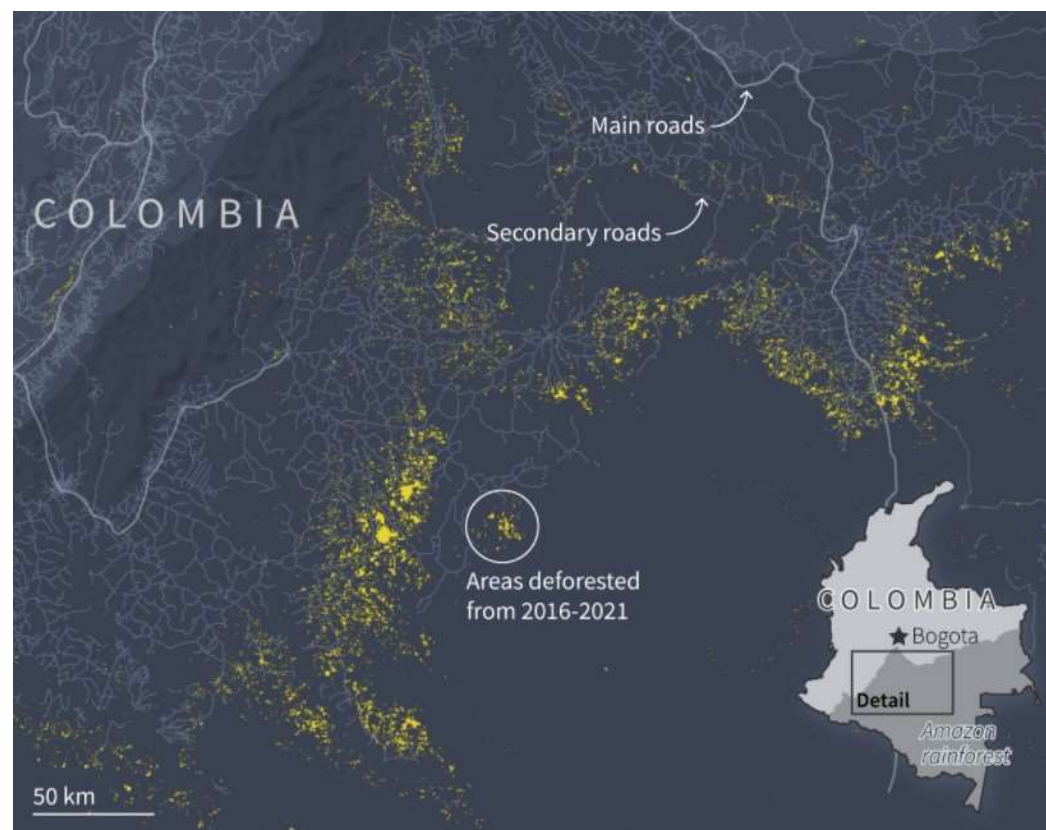
Road to ruin: informal byways sow seeds of destruction in Colombia's Amazon

The dirt tracks winding through southern Colombia's tangled jungle often mark the beginning of the end for besieged patches of rainforest in this part of the Amazon.

Across San Vicente del Caguan, one of the country's most deforested regions, illegal and informal roads fan out in an ever-expanding network, bringing visitors, commercial interests and farmers and ranchers who clear and burn the land.

The result is the steady decay of Colombia's Amazon.

The Reuters map of the region (below) shows a lattice of lines that crisscross one another and creep southward into the forest and fan out on all sides.



Informal roads and deforested areas in yellow (source: Reuters)

"Almost all of the roads in the Amazon region were informally opened by the communities, farm owners, actors at the edge of the law ... without going through an agency planning process," said Adriana Rojas at Foundation Gaia Amazonas, a Colombian environmental group.

Each year up to 830 km of unplanned roadway penetrate Colombia's Amazon, according to the Foundation for Conservation and Sustainable Development (FCDS), which has been tracking road development in these areas since 2017.

In 2019, more than half of all forest clearings analyzed by the foundation were within one kilometre of a road.

Colombia is not the only Amazon country struggling with the encroachment of roads.

In Brazil, where deforestation of the Amazon hit a 12-year high in 2020, there are an estimated 3 km of illegal byways for every kilometre of legal road, according to a November assessment on progress made toward the non-binding New York Declaration on Forests, which calls for halting all deforestation by 2030.

The planned construction or upgrade of some 12,000 km of legal Amazon roads over the next five years across Bolivia, Brazil, Colombia, Peru and Ecuador could lead to the loss of almost 6 million more acres of rainforest in the following two decades, as legal road development encourages more informal roads, the report said.

Source: Reuters 14 April 2021



A view of an illegal road made during the deforestation of the Yari plains, in Caqueta, Colombia (source: Luisa Gonzalez, Reuters)

Australia's giant forests may become increasingly at risk with climate change

Australian giant eucalypt forests, or more precisely, tall wet *Eucalyptus* forests (TWEF), are among the most unique and important forests on earth. They store more carbon than any other forest type, they provide drinking water for some of Australia's largest population centres, and support Australia's forest industries. Furthermore, their relationship with fire is quite complicated, as they share the same ecological and climatic niche as rainforests (rainforest trees often occupy TWEF understoreys), which burn only during extreme droughts. However, being *Eucalyptus*-dominated, fire is an integral part of the life cycle of TWEF, as eucalypts require fire to regenerate. However, that TWEF occupies a rainforest niche makes bushfire rare, meaning that that data on bushfires in these forests is difficult to find.

Importantly, fire, and more specifically, the *type* of fire, plays a key role in the population dynamics these forests. In fire ecology, fires are often referred to as being 'high-severity' or 'low-severity'.

High-severity fires are intense fires with tall flames that damage the forest canopy and sometimes kill all the trees. Low-severity fires, on the other hand, creep through the understorey, killing small trees, but leave the canopy intact. High-severity fires, especially ones that kill all the trees, can simplify forest structure by initiating the establishment of a dense cohort of seedlings, and potentially increase landscape-scale flammability. Further, multiple high-severity fires in quick succession have been shown to cause ecological collapse in some TWEF. Meanwhile, low-severity fire can help maintain structural complexity and its associated wildlife habitat, avoid catastrophic carbon loss, while still creating conditions suitable for eucalypt regeneration. Therefore, understanding the likelihood of low- and high-severity fire in this ecosystem, and how this might be affected by climate change, is important.

Recent research looked at TWEF across the continent of Australia, from the cool, wet temperate climates in the southeast, to the hot, humid tropical climates of the north, to the hot, dry Mediterranean climates of the west. It measured all the flammable materials in these forests.

In the absence of actual data on bushfires in these forests, the research used mathematical models and historical climate data to predict how frequently low and high-severity fires were possible in TWEF. What it found may not surprise many people: forests in the hot and dry Mediterranean climates were much more likely to experience high-severity fire than those in the cool, wet southeast. However, perhaps more surprisingly, it found that low severity fires were much more likely than high severity fires in the southeastern states of Tasmania and Victoria, despite low-severity fire being largely ignored in previous discussions of the wildfire in TWEF in these states. Meanwhile, according to the modelling, high-severity wildfire was much more likely than low-severity fire in the hot, dry Mediterranean climate of Western Australia. The implications of this should be self-evident, as the cool, temperate climate of southeastern Australia warms under climate change, the likelihood of high-severity wildfire, the kind that can cause ecological damage, especially if it happens repeatedly, will increase.

The researchers - James Furlaud and David Bowman from the University of Tasmania – concluded that to preserve the last remaining stands of these high conservation value forests, we need to start an informed, evidence based national conversation about acceptable, ecologically sustainable, and practical management interventions, and where and when they should be implemented.

Source: <https://jecologyblog.com/2021/04/27/australias-giant-forests-may-become-increasingly-at-risk-with-climate-change-what-should-we-do/>

More than 100 Australian plant species entirely burnt in Black Summer bushfires



More than 100 plant species had their entire populations burned in the Black Summer bushfires, according to the most detailed study yet of the impact on Australia’s plants.

An estimated 816 species had at least half the areas they grow burned, according to estimates in the study, and some ecosystems are now at risk of “regeneration failure”.

While many of the species studied are adapted to recover from fire – either by reshooting or growing from seeds waiting dormant in nearby soils – there are fears that the loss of mature plants has left some species and entire ecosystems vulnerable.

CSIRO researcher and lead author of the study Dr Bob Godfree and 14 other researchers published their analysis, which used satellite data to map the fires, in the journal Nature Communications.

The fires, which burned at least 7.5m hectares of eucalyptus forests in the south-east of the continent, had left rainforest species particularly exposed.

Researchers analysed data from four satellites alongside more than 1.4 million records of plants in south-east Australia across forests, woodlands, heathlands, grasslands, shrublands and in and around rainforests.

The research said: "All known populations of an estimated 116 species (14% of the total) burnt, which is more than double the number of plant species endemic to the British Isles."

Fears that rare and ancient plants in Australia's network of Gondwana rainforest reserves were now further threatened were confirmed, the study said.

Some 251 plant species in the study were highly adapted to fire and had traits to recover, such as the ability to sprout from burnt trunks or underground tubers, store seeds in nearby soils, or have seeds that germinated after exposure to smoke or heat.

But another 122 species that in theory could persist after fire were considered vulnerable because of invasive diseases like myrtle rust, grazing from invasive species like deer, and more intense droughts.

Godfree said: "The impacts of these fires were certainly unprecedented in their scale. They impacted more plant species in a single fire season since anything that's happened since European settlement, possibly longer."

Importantly, Godfree said, the fires burned across wide areas and across species that were already being affected by changes to climate.

The study warns there is emerging evidence globally that catastrophic fire events have the ability to trigger tipping points, where forests are replaced with other vegetation.

Much of the vegetation affected by the fires was already under stress from extreme drought and record high temperatures which, the study said, could alone drive major changes.

Source: The Guardian, 17 February 2021.

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://www.rms.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.



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