bushland news

urban nature

Issue 125 **Autumn** 2023 *Time of Bunuru and Djeran in the Noongar calendar.*

New global agreement to halt and recover biodiversity loss COP15

Photo – Doug Coughran.

GOVERNMENT OF WESTERN AUSTRALIA

Department of **Biodiversity, Conservation and Attractions**

PARKS AND WILDLIFE SERVICE

Bushland News *is a quarterly newsletter of Urban Nature, a Department of Biodiversity, Conservation and Attractions Parks and Wildlife Service program to support community involvement in bushland conservation.*

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Front cover: DBCA in partnership with community groups such as Project Numbat and the Peel Harvey Catchment Council are working on recovery actions for the numbat, Western Australia's State mammal emblem. Recovery actions for threatened species across Western Australia are in step with the Global Biodiversity Framework – working towards zero new extinctions. Photo – Doug Coughran.

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Next issue

Winter *Bushland News*

Winter *Bushland News* contributions should be sent to Urban Nature by **15 May 2023**. *Bushland News* seeks original contributions. If your submission has been or may be published elsewhere please let us know. Compiled and edited by Julia Cullity.

New global agreement to halt and recover biodiversity loss: COP15

A new global framework to halt and reverse biodiversity loss has been agreed on by almost 200 countries, including Australia, at the 15th conference of the United Nations Convention on Biological Diversity (COP15).

These nations have adopted the Kunming-Montreal Global Biodiversity Framework, and in doing so made a non-binding agreement to adopt four goals for 2050 and 23 targets for 2030.

Biodiversity is fundamental to human well-being and a healthy planet, and economic prosperity for all people including for living well in balance and in harmony with Mother Earth, we depend on it for food, medicine, energy, clean air and water, security from natural disasters as well as recreation and cultural inspiration, and it supports all systems of life on earth.

Biodiversity is deteriorating worldwide at rates unprecedented in human history.

An average of around 25 percent of species in assessed animal and plant groups are threatened, suggesting that around 1 million species already face extinction.

Nature can be conserved, restored and used sustainably while other global societal goals are simultaneously met.

The direct drivers of change in nature with the largest global impact have been changes in land and sea use, direct exploitation of organisms, climate change, pollution and invasion of alien species.

In summary the goals relate to:

- preventing extinction and maintaining and restoring ecosystems, species and genetic diversity
- biodiversity is valued and restored for current and future generations
- equitable use and knowledge of genetic resources
- adequate resourcing for biodiversity conservation

To prevent extinction and maintain and restore ecosystems we need to keep the common, common. Here a New Holland honeyeater (Phylidonyris navaehollandieae) is feeding from a coral gum (Eucalyptus torquata). This honeyeater is found across the whole of southern Australia but the coral gum, now planted in many gardens, is naturally restricted to a small area of the Great Western Woodlands from near Kalgoorlie heading south. Photo – Mark Brundrett.

Targets for 2030 in brief

1. Reduce to near zero the loss of areas of high biodiversity importance through spatial planning and management.
2. Restore 30% of degraded lands and waters.
3. Protect 30% of the world's lands and waters (note that as of January 2023 17% of terrestrial and 8% of marine areas are protected for conservation globally).
4. Manage biodiversity to halt human induced extinction, reduce all extinction risk, maintain genetic diversity & minimise human–wildlife conflict.
5. Sustainable use of wild species minimising impacts on ecosystems.
6. Prevent introduction of priority invasive species, reduce establishment of all invasive species by 50%, eradiate invasives at priority sites such as islands.
7. Reduce pollution with 50% less nutrient loss and pesticide use, and reduction of plastic waste.
8. Minimise impact of climate change and ocean acidification on biodiversity.
9. Sustainable use of wild species benefiting communities most dependent on biodiversity and protecting Indigenous customary use.
10. Sustainable management of agriculture, aquaculture, fisheries and forestry.

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11. Restore, maintain and enhance nature's contributions to people.
12. Increase area, quality, connectivity and people's access to urban natural areas.
13. Establish legal, policy, administrative and capacity-building measures for the fair and equitable sharing of benefits arising from the use of genetic resources.
14. Full integration of biodiversity into government and public and private sector policy, planning and development processes.
15. Enable business to monitor, assess and disclose impacts on biodiversity.
16. Reduce the global consumption footprint in an equitable manner and halve food waste.
17. Implement biosafety measures and ensure benefits sharing from biotechnology.
18. Reduce harmful government subsidies by US$500 billion a year by 2030.
19. US$200 billion a year biodiversity-related funding by 2030 with US$30 billion from developed to developing countries.
20. Increase research, capacity building and technology transfer.
21. Knowledge sharing among decision makers, practitioners and the public, including fair and just use of traditional knowledge.
22. Equitable and inclusive participation in decision-making.
23. Gender equity in action, engagement, policy and decision-making related to biodiversity.

The full wording can be found in the Kunming-Montreal Global Biodiversity Framework.

The goals and targets recognise the importance of indigenous and local community rights and stewardship of biodiversity and the need to balance competing demands of developing and developed nations. Indigenous people make up around 5% of the world's population but they protect 80% of its remaining biodiversity.

The Convention on Biological Diversity was one of three landmark international agreements to protect the environment, agreed at the Rio Earth Summit in 1992. COP15 was scheduled for 2020 but the COVID pandemic meant that the meeting was postponed to December 2022, whereas the targets are aiming for the decade ending 2030.

Places like Bold Park were protected for conservation by community activism. Now Bold Park is managed and restored by DBCA in partnership with the Friends of Bold Park. Bold Park sustains ecological linkage in our cityscape and allows community to connect to nature. Action at the local scale all adds up for the protection and restoration of biodiversity globally, especially when we live in a global biodiversity hotspot. Photo – Friends of Bold Park.

Implementation measures

To achieve these targets, a number of implementation measures were agreed upon at the meeting in Montreal.

Establishment of the Global Biodiversity Framework Fund, a new fund within the existing UN biodiversity funding mechanism (the Global Environment Facility) to scale up financing with an adequate, predictable, and timely flow of funds. Developed countries agreeing to mobilise US$30 billion for developing countries by 2030 .

Establishment of a fund set up to provide for the equitable sharing of benefits between the providers and users of digital sequence information on genetic resources.

Five-year monitoring and reporting on headline indicators, including the percentage of land and seas protected for conservation, and large companies disclosing their impacts and dependencies on biodiversity. This will be followed by a global review.

In Australia, the Government's adoption of the Kunming-Montreal Global Biodiversity Framework has informed the Australian Government's recent announcements on biodiversity.

Valuing volunteers *By Julia Cullity*

In this issue I'd like to give a shout out to volunteers.

Community love of bushland is enduring and important; Noongar people have cared for country for at least 45,000 years, the WA Naturalists Club will turn 100 next year and the Wildflower Society of WA is more than 60 years old. And lots more of our friends groups are reaching significant milestones; the Urban Bushland Council turns 30 this year and quite a few of their member groups were already in existence at the outset.

Many groups formed as activist groups to protect local bushland areas from clearing and development. As these immediate threats are removed, groups can then focus on restoring biodiversity values through bushland management. Activism, advocacy, and management all have their role to play.

We need to recognise the achievements and the ongoing importance of the community voice in valuing our urban bushland, protecting natural areas and gaining resources for continued management and restoration. I have seen groups gaining amazing bush regeneration results with long-term commitments to local patches.

So many of these themes fit into the Global Biodiversity Framework – local communities protecting areas for conservation, restoration, minimising impacts of invasive species, recovering threatened species and ecological communities and valuing and preserving urban biodiversity. Think global, act local. Thank you all.

Last December the Department of Biodiversity, Conservation and Attraction's (DBCA) Parks and Wildlife Service held its annual Volunteer Awards. I'd like to thank all the recipients who turned their passion for nature into service for the environment. And I'd also like to give a special mention to the award winners who we have worked with in the Urban Nature program.

Lynda Smith won a 2022 DBCA Outstanding Service Award for coordinating the Friends of the Spectacles since the group formed after a major bushfire swept through the wetlands in December 2007. Lynda has spent many hours rehabilitating the Spectacles, planting, weeding, celebrating and educating, and working with the local Noongar people to gain knowledge on how to best work with the land. Here Lynda is both weed mapping and weeding pigface following another bushfire almost 10 years later. Photo – Donna Turner.

Graham Smith (left) won a 2022 DBCA Outstanding Service Award for his coordination of the Mandurah Regional Herbarium Volunteers, a role he has had for more than 10 years. Pictured here with fellow volunteers Jenny Rose, Heather Adamson and Bel Mathews at Austin Bay Nature Reserve where they were mapping the banksia woodland threatened ecological community boundary and adding to the collection of almost 800 local species. Photo – Will Fowler.

Groups working in the Swan Region took out a clean sweep of the DBCA 2022 Community Group category. Congratulations go to Friends of Lake McLarty, Friends of Yellagonga, Penguin Island Volunteers, The Wilbinga Shacks Crew, and the Friends of Brixton Street here seen with a trailer full of weeds after a spring work day. Photo – Grazyna Paczkowska.

Our special congratulations go to Chris Allbeury OAM who was awarded the Medal of the Order of Australia for service to conservation and the environment in the Australia Day 2023 Honours List. Chris has been the treasurer of the Urban Bushland Council for more than 16 years and before that bookkeeper for the Conservation Council of Western Australia. As a member of friends groups for Star Swamp, Inglewood Triangle and Coolbinia Bushland she loves getting hands on with weeding sessions and also sharing her love of bushland with others, especially kids. Photo – Grecian Sandwell

Pam Agar won the DBCA Volunteer of the Year Award 2022 for her decades of contributions with the Canning River Regional Park Volunteers. Pam regularly gives her time to regeneration activities as well as coordinating education and community events for old and young and she takes on those less sought-after jobs on the committee as Secretary. Here Pam and others are weeding at the Billabong, an important water bird conservation area. After 20 years of ongoing weed management, the restored native vegetation is providing a buffer between the dual use path and the Billabong and has established a wildlife corridor between adjacent revegetated sites. Photo – Claire Kennedy.

Quendas and the blight of *Phytophthora* dieback

By Tom Mansfield

A panorama showing Phytophthora cinnamomi *disease progression, with healthy forest on the left, a dying grasstree in the centre, and infested forest to the right with dead Banksia and considerably less understory. Photo – Tom Mansfield.*

At least 1.7 million hectares of the southwest Botanical Province has been infested by the plant pathogen Phytophthora cinnamomi. Commonly known as *Phytophthora dieback* (hereafter dieback), this oomycete has had devastating impacts to the native flora of the region. Understorey plant communities are often considerably reduced in the wake of a dieback infestation and regeneration is limited as the pathogen can persist in roots of resistant plants for decades, reactivating when conditions are right. This has coined the term 'dieback graveyards' for forest that has experienced particularly severe degradation.

Much research has gone into understanding the susceptibility of native plants to dieback, but considerably less is known if animals that live nearby dieback infested areas are experiencing habitat restrictions. It is expected that with the death of the understorey and loss of many plants, less habitat and food would be available for local wildlife. Additionally, these effects may be intensified in urban and peri-urban areas where habitat fragmentation is already an issue for many animals. However, some animals may be more resilient to changes, and the severity of dieback infestations can vary greatly depending on the local landscape conditions and plant communities. My PhD is aiming to see how degradation from dieback affects a beloved backyard visitor, the quenda (*Isoodon fusciventer*). My research is taking place in the 'peri-urban' landscape of the Shire of Mundaring, where there are many bushland remnants surrounded by houses and small farms. Unfortunately, many of these bushland remnants contain dieback.

In this study, I ask two main questions:

1) Is the habitat that quendas favour reduced in *Phytophthora* dieback infestations? The shrubby understorey that quendas use to move through may be reduced by dieback. Additionally, grasstrees (Xanthorrhoea preissii), which are susceptible to death from the pathogen, are important habitats for quendas which use the downturned 'skirts' to shelter within.

2) Are quendas foraging less in *Phytophthora* dieback infestations? Quendas are digging mammals, which regularly dig shallow pits as they search for underground truffles, tubers, and invertebrates. By counting quenda digging pits we could see if they are searching for these foods less inside dieback infestations.

Continued next page ...

To answer these questions, I compared dieback infestations to non-infested forest. I identified plants and measured their ground cover, recorded densities of grasstrees, counted quenda diggings over a year, and collected truffles inside of quenda diggings. I found that in dieback infestations, dense shrub cover and grasstrees that could provide quenda habitat (those with large skirts to the ground) were almost halved. Consequently, there was significantly more bare ground. Additionally, quenda foraging activities were a third lower, although we saw no change to truffle numbers (however, we collected few overall).

These results show that there is considerably less quenda habitat in dieback infestations compared to healthy vegetation. They also suggest that quendas are preferentially avoiding foraging inside infestations. While we saw no change in numbers of truffles, there could still be a reduction in other food sources. Additionally, the opening up of the understorey may deter quendas from entering as they could be more vulnerable to predators such as feral cats and foxes. Many of the areas that dieback is known to exist in the southwest Botanical Province are also where quendas occur. Hence, this pathogen may be degrading quenda habitats across the region.

Nonetheless, the public can still have a hand in supporting native wildlife like quendas. Preventing the spread of dieback continues to be important, and courses such as green card training provide the confidence to enjoy the bush with less risk of spreading this pathogen. Planting out fauna-friendly gardens with a range of native habitats and flowers can support local wildlife – quendas particularly favour low and dense shrubs. But be wary of feeding native wildlife, as they can become reliant on humans, and high animal densities could run the risk of spreading diseases such as sarcoptic mange in quendas.

My ongoing research involves GPS tracking quendas through these bushland remnants to see if they are also avoiding moving through dieback infestations. The data from my PhD will be an important contribution to understanding the condition of peri-urban quendas and assist in guiding management action around dieback infestations to better support native wildlife.

*The quenda (*Isoodon fusciventer*) is a common sight in the peri-urban environment such as the Shire of Mundaring. Despite this, scientists are still uncertain if habitat fragmentation and degradation is affecting populations. Photo – Narelle Dybing.*

*Grasstrees (*Xanthorrhoea preissii*) provide important habitat for many animals with their downturned leaves providing great hiding spaces. This grasstree has a quenda entrance tunnel leading to a nest. Photo – Tom Mansfield.*

Right: Tracking quendas can be meticulous, here Tom is using a radio antennae to find small GPS units dropped from quendas. Photo – Tenaya Duncan.

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Curious and curiouser: the evolving story of sarcoptic mange in quenda

By Bethany Jackson, Kate Bryant and Amanda Ash

Sarcoptic mange, a debilitating skin disease caused by various types of skin mites (*Sarcoptes spp.*), is an emerging global wildlife health problem. The impacts on individual animals can be severe. In quenda, *Isoodon fusciventer*, the disease causes hair loss, skin thickening and irritation, and death, with a mortality rate as high as 40 percent reported despite treatment. However, not all species are impacted in the same way, and given time, some populations may develop a level of immunity. With no historical evidence of ongoing spread of sarcoptic mange in quenda, it suggests this parasite is relatively new to them, and may have spread from other species such as the fox or rabbit.

Dr Meg Rodgers (right) of WA Wildlife Hospital and Dr Bethany Jackson anaesthetising a quenda with a field anaesthetic machine to obtain blood and tissue samples for research into sarcoptic mange. Anaesthesia ensures the process is quick and reduces stress for the quenda, who is being provided with warmth and fluids. Following anaesthesia, quenda wake rapidly and are kept in a warm fleece pouch with heat packs before release to the place they were originally trapped in the bush. Photo – Kirsty Officer.

Researchers from Murdoch University's Harry Butler Institute, have begun to investigate the multi-year sarcoptic mange outbreak in Roleystone quenda. During winter 2022, 16 areas of remnant bush and parkland across the urban centre of Roleystone were targeted for quenda. Trapping took place from dusk onwards and all quenda, once sampled, were released back to their bush homes later the same night. Quenda were anaesthetised, then given a short health check, a small skin biopsy and blood sample were taken, and any parasites were collected.

The investigation revealed several surprising findings. Firstly, despite ongoing reports of mange-affected quenda in backyards adjacent to reserves, only one mildly-affected individual was detected out of 85 quenda trapped in urban reserves. Secondly, examination of a small number of skin samples stored from other quenda with mange suggests they have very little immune response to the mite in their skin.

These results are curious, and through further research we have to consider a number of possible explanations for these unexpected findings. Perhaps quenda with mange were less likely to enter traps? Possible, but quenda with mange have been trapped in backyards by registered wildlife carers to treat affected individuals. Perhaps there is something about backyards that either attract quenda with mange (e.g., food, water, and shelter), or provide shared resources that encourage spread of the parasite to those quendas. Whatever the reason, it would seem at this stage that quenda with sarcoptic mange are more commonly found in backyards than the urban reserves of Roleystone.

So where are we now? The situation for individual quenda is still very bad. For the population though, we do not have evidence it is spreading catastrophically.

What do we need to do next? Through research we need to learn more about the role of backyards in transmission of the parasite. We also need the public to continue to report quenda with signs of sarcoptic mange to local wildlife centres such as the Darling Range Wildlife Shelter, WA Wildlife, Kanyana, Native Animal Rescue or the Wildcare Helpline to access care and treatment.

A quenda trapped in a backyard during the study period was brought for anaesthesia and treatment of a moderate to severe case of sarcoptic mange. This individual was given medications and fluids and taken to Darling Range Wildlife Shelter where it recovered from the mange and was successfully released. Report any signs of sarcoptic mange to local wildlife centres or the Wildcare Helpline.

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Green Jobs Plan: restoring south-west WA's future together *By Michelle Britto*

As part of the WA State Government's $60.3 million Green Jobs Plan, Greening Australia and the Department of Water and Environmental Regulation (DWER) are collaborating to restore native vegetation and help rebuild local economies across south-west WA.

Working with private landholders, First Nations groups and community organisations, Greening Australia is coordinating revegetation and rehabilitation projects that harness local knowledge to deliver high quality and meaningful social and environmental outcomes, and create employment, training and enterprise opportunities for traditional owners, NGOs and rural communities in the restoration economy. The projects are being delivered in partnership with WA Landcare Network, Noongar Land Enterprise and Gondwana Link.

Caring for Country together – Green Jobs projects work with First Nations groups to build cultural practices and knowledge into restoration projects. Photo –Jesse Collins.

By restoring more than 1,000ha of land across target regions in south-west WA, the projects will also improve biodiversity outcomes and recreate habitat for many local wildlife species, such as the nationally endangered Carnaby's cockatoo. Each project will deliver offsets identified in the WA Government Environmental Offsets Register, and land managed, maintained, revegetated, or rehabilitated under the Green Jobs Plan will be protected from future clearing.

The funding agreement builds on the strong foundations of previous Greening Australia and DWER Green Jobs projects delivered in 2021 that involved working with Mt Barker Noongar rangers in the Great Southern area and Wadandi rangers in the Karridale area.

Greening Australia and partners hit the ground running in 2022, developing project concepts and undertaking planning and land identification with private landholders and on-ground organisations. Planting also kicked off at new project sites across Perth, Peel and South-West regions, with more than 20,000 native seedlings in the ground before the year wrapped up. These seedlings were grown by an Aboriginal-run business in the Wheatbelt, from seed collected through past Green Jobs projects.

The search for suitable locations in south-west WA for future revegetation projects and on-ground delivery partners for 2024 (and beyond) is already underway.

Connecting with local communities to create jobs and training opportunities in the restoration economy – good for people and good for nature. Photo – Andy McGregor.

Greening Australia would love to talk to private landholders, land managers, First Nations groups and traditional owners, catchment councils and community organisations interested in participating.

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Scientific discoveries through FrogID citizen science *By Nadiah Roslan*

FrogID is a national citizen science initiative by the Australian Museum that is helping scientists and land managers learn how Australian frogs are faring across the continent. Together with the help of citizen scientists and supporting partners across Australia, the project has gathered over 800,000 records of frogs, and more than doubled the scientific records of frogs available in Australia since record keeping began.

Over 43,000 recordings have been submitted from Western Australia alone. Recording frog calls helps us understand frog distributions, breeding seasons and what breeding habitat frogs need – obtaining more information for their conservation than an image alone.

Download the free FrogID app onto your phone and capture frog recordings for science and have your identifications verified by the Australian Museum. Photo – Australian Museum.

A dataset this large is thanks to thousands of people heading out to their local creeks, ponds and waterways to record frog calls with the FrogID app. The scientific integrity of the dataset is no accident – behind the FrogID project is Lead Scientist Dr Jodi Rowley and a team of Australian Museum scientists trained in identifying Australian frog calls. The team verifies thousands of FrogID submissions each week and checks and updates the growing FrogID dataset prior to public release to ensure it's available for scientific research and conservation purposes.

Many parts of Australia are still lacking scientific records of frogs, including some areas of Western Australia such as the local governments of Dumbleyung, Goomalling, Morawa, Nungarin and Sandstone. FrogID recordings are needed from these parts of the state, which are largely drier areas where frogs may only emerge opportunistically after periods of rain.

Every FrogID recording adds to our national understanding of Australia's unique and incredible frog species. In recent months, a FrogID recording of the southern sandhill frog (*Arenophryne xiphorhyncha*) was submitted from coastal sand dunes south of Shark Bay. Before this submission, the call of this species was unknown to science. Since this discovery, the southern sandhill frog has become somewhat of a crowd favourite. According to Dr Paul Doughty from the Western Australian Museum, it's breeding call sounds like a "squelchy fart". Not convinced? Have a listen to it on the free FrogID app, which is also Australia's most up-to-date field guide to Australia's frogs.

*The first scientific recording of the southern sandhill frog (*Arenophryne xiphorhyncha*) was captured south of Shark Bay using the FrogID app. Photo – Sam Fischer.*

This year, join thousands of citizen scientists across Australia in understanding and informing frog research and conservation through FrogID. Download the free FrogID app and use it whenever you hear frogs calling. As the southern sandhill frog has shown us, new and amazing scientific discoveries can be made simply through a 20-second FrogID recording.

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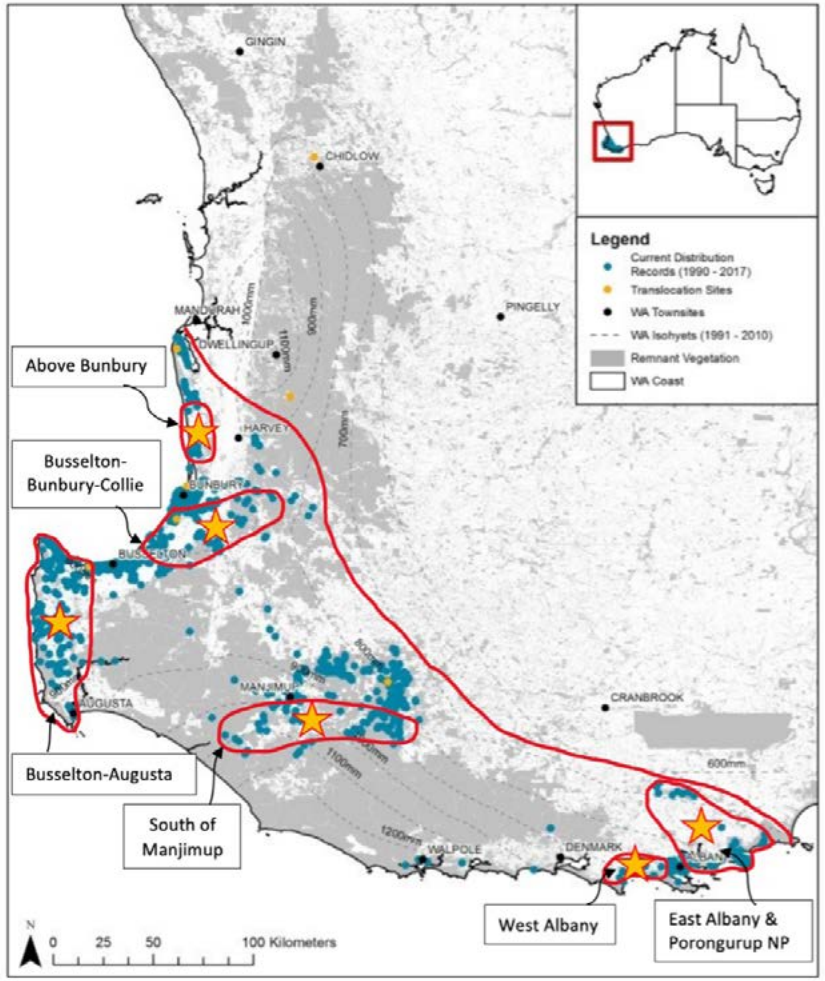
Climate change impacts on the western ringtail possum *By Grace Marsh*

Western ringtail possums (*Pseudocheirus occidentalis*), or ngwayir, are nocturnal tree-dwelling marsupials found throughout the south-west of Western Australia. Despite efforts to conserve this critically endangered species, populations remain in decline across their range.

Like many native species, the western ringtail possum is impacted by several major threats, including habitat fragmentation and loss, inappropriate fire regimes, collisions with vehicles, and predation by feral animals. Additionally, the emerging threat of climate change is now likely driving additional decline in some populations. The drying climate and increasing temperatures predicted in the south-west are likely to exacerbate existing threats and create new pressures, further impacting the survival and recovery of the species.

My masters research project will aim to address and understand the threat of climate change to western ringtail possums. It is investigating patterns of adaptation to the environment and how these relationships may influence survival under climate change to help guide management decisions.

I am seeking approximately 90 tissue samples from deceased western ringtail possums from all shires across the south-west to fill gaps in existing genetic data. While samples from any location are very valuable, priority areas are shown on the map with a yellow star – these are locations where very little is known about the genetics of the resident populations.



This map shows the range of western ringtail possums across the south-west. I am looking for samples from deceased ringtails anywhere within this range, with particular interest in the labelled areas circled in red and marked with a star. Image – Adapted from White, Comer, and Wayne, 2021.

The western ringtail possum (above) is found across the southwest and can be identified by its long slender tail with a white tip and small rounded ears. The common brushtail possum (right) has a bushy tail and large pointy ears. Photos – Sean Buckley (above), M. Hovens (right).

You can help! If you encounter a deceased western ringtail possum please collect the animal or a subsample (a piece of ear tissue the size of a fingernail), freeze it below -20°C and record a detailed description of the location with GPS coordinates or map location. Then contact me to arrange storage and sample collection. Thank you!

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Nature Positive Plan

The federal government has released the Nature Positive Plan: better for the environment, better for business as a response to the Graeme Samuel Review of the *Environmental Protection and Biodiversity Conservation Act 1999*. The plan describes nature positive as "a term used to describe circumstances where nature – species and ecosystems – is being repaired and is regenerating rather than being in decline." The plan hopes to deliver nature positive environmental outcomes, faster and clearer decisions, implemented by an independent, dedicated agency with improved trust and integrity in the system.

The government will establish a new federal Environment Protection Agency to make environmental assessments, decide whether projects can proceed and under what conditions, and enforce those decisions in the community. This was a role previously held by the environment minister, who will retain a call-in power for some decisions.

There will be the introduction of legislation for National Environmental Standards against which conservation protection and major development applications will be measured to ensure approval decisions must deliver a positive outcome for the environment. The five initial priority areas for national standards are: matters of national environmental significance, First Nations engagement and participation in decision-making, community engagement and consultation, regional planning, and environmental off-sets.

Western Australia's latest area protected for conservation is 3,600ha of nature reserve which contains important wetlands and links the Tone-Perup and Unicup nature reserves in our south-west forests. Each new addition to the conservation estate assists in reaching the national target of protecting 30% of Australia's land and sea by 2030. Photo – Ian Wilson.

The regional planning initiative will enable better and faster decision-making under the EPBC Act to help restore, protect, and manage the environment. Regional plans will introduce a three-tiered, traffic-light approach to development and environmental protection. Regional planning will spatially map areas where development will have minimal consequence and largely be prohibited. This will assist in addressing cumulative impacts and identify priority areas to manage threatened species and biodiverse natural areas at a regional and ecosystem scale.

The first regional plan will take place in Queensland with federal, state and local government, and natural resource management bodies.

Offset reform will ensure that any offsets deliver positive gains for the environment. Where a proponent is not able to secure 'like for like' offsets, they will be able to make a conservation payment.

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The government's response also proposes to establish a nature repair market to make it easier for individuals and companies to invest in nature. This will also enable businesses wanting to establish offsets to avoid buying land or deal directly with landholders. This voluntary scheme will operate alongside the carbon market and will be regulated by the Clean Energy Regulator. The exposure draft of the Nature Repair Market Bill closes for public comment 3 March. The bill sets out legislation to enable landholders who protect, manage, or restore local habitat to receive biodiversity certificates which can then be sold to other parties. The biodiversity certificate will provide an easy way for business, government, and individuals to invest in nature repair projects – without owning an interest in the land.

Conservation planning for threatened species and ecological communities will strengthen protection and guide recovery efforts. Conservation planning documents for each nationally-listed threatened species and ecological community will identify and prioritise threats, recovery actions and important habitat. They will continue to be informed by the best-available expert information; consultation with First Nations peoples, other stakeholders and the public. Conservation and management of threatened species and communities will be consistent with these conservation planning documents, including in environment impact assessment and approval processes.

The government proposes that these measures will assist in reaching the targets of

- prevention of new extinctions
- protection of 30% of Australia's land and sea by 2030. Currently in Australia 20% of terrestrial and 45% of marine areas are protected.

In October 2022 Australia's Environment Ministers met and agreed in a communique to a range of crucial initiatives, including safeguarding more of the country's land and marine environments for future generations. As Environment Minister Reece Whitby said "The McGowan Government is committed to working together with all our Federal, State and Territory colleagues for meaningful change to protect Australia's precious environment."

Getting the message out about the dangers of rat poison

By Helen Green

The River Conservation Society Inc located in York, has found through predominantly anecdotal reports, that raptors, owls and other carrion-eating birds have declined in numbers. Whilst fully acknowledging factors such as habitat depletion, accidents with power-lines, vehicles, feral animals and so on, we have been working to raise awareness about an important issue contributing to this problem.

There are increased sales and usage of second-generation anticoagulant rodenticides (SGARS). SGARS are contributing to deaths, especially amongst wedge-tailed eagles and owls. These rodenticides contain some awful ingredients: brodifacoum, bromadioline, difethialone, difenacoum or flocoumafen and should be avoided.

The lesser of two evils are the first-generation anticoagulants (FGARS) containing warfarin, coumatetralyl and dihacinone. The labelling on both types is often unclear and it is best to look at the active constituents.

We are providing as much information in our local domain as possible to persuade people to avoid SGARS and to consider alternative traps and lures, use FGARS, and avoid the use of the pellet form of rodenticides. Block or paste form rodenticides in tamper-proof bait stations are best.

The River Conservation Society has been spreading the word around York of the dangers of rat poison. This included putting up a display at the York Show. Photo – Maryanne Crook.

We have had discussions with our local providers to take SGARS off the shelves, made displays for the local community, provided information sheets and used our own newsletter to alert membership.

Contact

Helen Green
River Conservation Society
email chair@riverconservationsociety.org
phone 0429 537 619

Please send us your regional report (400 words) and one or two photos by Monday 15 May. Text may be edited in response to volume of submitted reports.

Saving kyloring stories:
An initiative for school children in Western Australia

The western ground parrot is critically endangered. With less than 150 of the enigmatic birds surviving today, it is only a heartbeat away from extinction. Very few people have ever seen 'kyloring' as the bird is known to local Noongar people. And surprisingly, many have never even heard about this beautiful parrot which lives in remote heathlands on the south coast of Western Australia.

The Friends of the Western Ground Parrot, an Albany-based charity supporting the conservation work of DBCA for more than two decades, want more people to find out about our State's rarest bird and the threats it faces.

Together with literacy specialist and WA Government Environmental Education winner Caralyn Lagrange, the friends have developed a project for school children. It encourages students to create a story involving kyloring and has been developed for students in Years 4–6 and Years 7–9 aligning with the Australian curriculum. The story can be factual or fictitious and be presented in the format of a short story, picture book or graphic novel.

The friends hope that teachers will use the project as part of their curriculum in 2023. If students take up the challenge and create a story about kyloring, they also have the chance to enter a story competition (open 1–30 June 2023). There are three competition categories: Albany students Years 4–6, WA students Years 4–6 and WA students Years 7–9. The prize for the winning entry in each category is $250 and winning stories will be published in print and online.

The Saving Kyloring Stories website provides information for both teachers, parents and students and includes curriculum notes and competition entry details as well as a wealth of information about kyloring. This project is also supported by the Albany & Surrounds Feral Cat Working Group, BirdLife WA, the Oyster Harbour Catchment Group and the State Natural Resource Management Program.

Kyloring, the western ground parrot, is WA's rarest bird. The Saving Kyloring Stories project will help school students, teachers and parents find out about this critically endangered bird and the threats it faces. Photo – Brent Barrett.

Contact

Saving Kyloring Stories
webiste https://sites.google.com/view/saving-kyloring-stories/

Supporting the recovery of the Wooroloo Brook

By Janette Huston and Shenaye Hummerston

In February 2021, a devastating fire raged from Wooroloo to Bullsbrook, largely following the Wooroloo Brook. It burned more than 10,000ha decimating bushland and properties including 86 homes.

Two years on, the bushland is slowly recovering. Areas that looked destroyed have been transformed by the mass germination of fire-responding species such as coral vine (Kennedia coccinea), prickly Moses (Acacia pulchella), and smooth grevillea (Grevillea manglesii), along with a great diversity of other plants.

Where the bush was largely intact and in good condition, the wildflower displays and dense natural regeneration have been amazing. Some species not seen before in that area have emerged, and in other areas, plants that once were sparse have become bountiful.

Most eucalypts began sprouting from the truck and branches (epicormic growth) soon after the fire. Wandoo has been the slowest tree species to recover, and we are only now seeing sprouting from the base (lignotuber) of affected trees.

Unfortunately, invasive weeds, introduced grasses and woody weeds have also had their germination triggered by the fire's heat and been nourished by the bed of ash. They are flourishing in many areas, contributing to an increased fuel load and fire hazard.

Biodiversity loss has also occurred in many areas of Wooroloo Brook. Habitat logs, tree hollows and dense understorey vegetation were lost. Bare banks of the brook and heavy unseasonal rainfall immediately following the fire, and in the summer months since, have encouraged soil instability and sedimentation of the brook.

To assist the post-fire recovery of the Wooroloo Brook, Perth NRM has been granted $353,557 through State NRM's Community Stewardship Grant Program. Perth NRM will work together with project partners Wooroloo Brook Landcare Group, City of Swan, and Parkerville Community Care. The project will be delivered through the Eastern Region Landcare Program, funded by DBCA and supported by the community.

This funding will support significant and timely weed control along with additional habitat restoration. Work will help to restore habitat and biodiversity values and improve the resilience of this valuable natural area. Get in contact if you would like to be involved in the restoration.

Contact

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Perth NRM
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Native en masse regeneration response (above) to the fire adjacent to Wooroloo Brook at Reserve Road foreshore. Post fire flowering in spring (below).

Giant reed and other grassy weeds responding to the fire along Wooroloo Brook at Tilden Road. Photos – Shenaye Hummerston.

Catio rebate incentivising responsible cat ownership

By Nicole Lincoln

GeoCatch is offering a rebate for cat owners to install a new cat enclosure to give pet cats outdoor access for fresh air, to bask in the sun and to observe the world while still remaining safely on their property.

Registrations for residents in the Geographe Bay catchment close 31 March 2023 and the enclosure must be installed by 30 June 2023. Participants have the option to install the enclosure as a do it yourself project or engage the installation services of a contractor with a maximum rebate of $200.

Cat owners will have the confidence to allow their cats outside access while still being mindful of urban wildlife, other pets and neighbours. Of particular interest in the Geographe Bay catchment is the critically endangered western ringtail possum; a species often found in backyards where it can come into conflict with free-access cats and dogs in urban areas. Cat enclosures are one option for responsible cat owners resulting in a win-win for all!

This project is delivered by GeoCatch with support from South West Catchments Council through funding from the Australian Government's National Landcare Program, City of Busselton and Shire of Capel.

"So far eight cat owners have registered to receive the subsidy with registrations rising daily. It's accepted scientifically that each roaming pet cat on average kills 187 animals per year, so already 1496 animals have been saved by installation of eight cat enclosures within the Busselton and Capel area " says Nicole Lincoln, GeoCatch Project Officer.

"Responsible cat owners can potentially double the life expectancy of their cat." added local vet, Richard Lucas from Busselton Vet Hospital.

Contact

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Catio owner Jo Hayley from Busselton. Photo – Ann Carter.

Western Ringtail Possums making a backyard woodpile home. Photo – Joel Hall.

Happy catio cat. Photo – Kathyrn Wiess.

City of Cockburn's new possum bridge a recipe for Success *By Michele Nugent*

A second possum bridge is operating in the City of Cockburn to help local brushtail possums travel between bushland parks in Success.

Motion sensor cameras have recorded images of nocturnal brushtail possums (*Trichosurus vulpecula*) traversing Yangebup's Beeliar Drive possum bridge, erected in mid-2019. This 6.3m tall and 34m long rope bridge helps possums inhabiting Kogolup Lake on Beeliar Drive's southern side to access additional habitat around Yangebup Lake to the road's north. It was Perth's first possum bridge and is helping keep the local possum population as safe as possible from vehicles, and away from potential predators on the ground.

A second 35m rope bridge has been installed on Hammond Road. It will help possums safely move from bushland around Kogolup Lake to and from the City's nearby Jubilee Park which comprises Jubilee Lake, bushland and manicured park areas.

Hammond Road is undergoing a $22.6m upgrade to improve safety and traffic flow and is due for completion around mid-year. The rope bridge was included in the project. City of Cockburn head of Sustainability and Environment Chris Beaton said the new bridge aligned with the City's aim to improve ecological connectivity between bushland areas in Cockburn. "Although it took about a year following installation, photos from surveillance cameras have proven that possums regularly use the rope bridge on Beeliar Drive," Mr Beaton said. "We are confident that in time, the Hammond Road bridge will also be a popular route for local wildlife. As tree-dwellers during the day, brushtails forage on the ground at night where they are vulnerable to cats, dogs and foxes."

Build it and they will come, but you might have to wait a little while. It took about a year after installation for possums to begin using this rope bridge installed over Beeliar Drive in the City of Cockburn to move between bushlands on either side of this busy road. This brushtail was photographed by the motion sensor camera on 27 October 2022 at 3.47am when it was a chilly seven degrees! Photo – City of Cockburn.

Contact

Michele Nugent
City of Cockburn
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The installation of a second possum bridge in the City of Cockburn will enhance the ecological connectivity of Yangebup Lake, Kogelup Lake and Jubilee Park. It will help the local population of brushtail possums keep safe from vehicles and predators above the ground. It will be interesting to see how long they take to find this one. Photo – City of

Friends of the Ngoolyak *By Johnny Prefum*

What's The Frog Doctor doing writing about birds! Well what started as a little conversation with the City of Melville's Education Officer, Sarah Jane McMahon, about revegetation and holding a handful of workshops on how to attract the small critters including frogs, has turned into a project that has eclipsed all expectations. Now into its second month, the project has taken on its own identity as the Piney Lakes Community Seed Collection Project, with the aim of not only collecting native seed for propagation by the community but also to plant these seedlings back into the reserve they were collected from. But it doesn't stop there – the project also aims to educate the community about the animals that interact with the native flora that use it for refuge and a vital food source. Then there's the human component of cultural and intergenerational learning and understanding.

The group meet at the Piney Lakes Environmental Centre every fortnight to collect, sort and propagate seed. Within this group there's a diverse assemblage of cultures from Germany, India, Korea and England as well as representatives from other bushland reserves within the City of Melville. The day starts off with a Welcome to Country from one of the Noongar participants from the City of Melville's Natural Areas team. During the seed collection task, the participants are told about the various native animals such as birds, mammals, reptiles and don't forget the frogs of course! This information is backed up with informal expert topic talks on such things as banksia adaptations, birds, bats and frogs of Piney Lakes, and bandicoot biology to name a few.

Being able to pick, propagate, plant and provide habitat for our local animal species using local seed has many, many benefits. The seedlings are better adapted to survive within the local soil and climatic conditions and the integrity of the populations are retained.

Some of the seed collected so far include banksias, marri, jarrah, Conostylis, running postman, quandong, kangaroo paws and wattles.

Within the south-west our seeds have developed various mechanisms to germinate, including heat, smoke and some even need to travel through the gut of an emu. So to mimic this we are learning how to employ different strategies to propagate successfully.

Kate Goodman, Convenor of Friends of Booragoon and Blue Gum Lakes says "One of the challenges is volunteer engagement. The seed collection initiative has sparked interest from a solid group of environmental volunteers. It makes perfect sense to collect seeds in our own patches, learn about the plants, learn how to propagate, and ultimately plant seedlings in our reserves. I also think this initiative can provide some vital glue for the network of environmental friends".

This is a win win for the community and the environment.

Sorting seed for propagation gives people the chance to build rapport across intergenerational and cultural values. Photo – Sarah-Jane McMahon.

Linton Ugle from the City of Melville's Natural Area's team gives a Welcome to Whadjuk Noongar Country to the Community Seed Collection crew. Photo – Johnny Prefumo.

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To guard or not to guard – a question for seedling survival in restoration projects

By Rachel Standish and Philip Ladd

Why use tree guards?

Planting seedlings is common practice for ecological restoration of degraded sites. Tree guards are assumed to benefit establishment of seedlings planted for restoration efforts, for example by protecting seedlings from herbivory or providing cues to care, but this assumption is rarely tested. Where tested, researchers found the summer temperatures in plastic tree guards can lead to seedling mortality. New cardboard tree guards may offer seedlings some relief from high summer temperatures compared to plastic tree guards, but data are lacking.

*Jarrah (*Eucalyptus marginata*) seedling with plastic guard. Cardboard guards and no guards (bamboo stakes) visible in the background. Photo – Rachel Standish.*

Rachel (left) with Murdoch University ecology students at Roe 8 corridor. Photo – Philip Ladd.

Testing tree guards at the Roe 8 corridor

Community planting days have featured prominently in the restoration activities of the Rehabilitating Roe 8 initiative. Since 2017, over 255,000 seedlings have been planted. Understanding the factors that promote seedling establishment is key to the success of these efforts. Staff and students from Murdoch University assessed the survival of seedlings that were planted at five sites along the Roe 8 corridor in Makuru (winter) 2021. Between 870 and 1,060 seedlings of 16 banksia woodland species were scored at three census dates: three months, six months, and eight months after planting. We predicted high mortality between the last two census dates due to the harsh Birak and Bunuru (first and second summer) seasons. Indeed, the 2021–22 summer was particularly warm and dry, with 11 days over 40°C.

Plastic better than cardboard guards

The dataset included comparisons of seedlings without guards (i.e., bamboo stakes only) and those with either plastic or cardboard guards. At the first two census dates, survival of planted seedlings was high (98% and 87% respectively) and there were no differences in seedling survival with or without guards. However, as predicted, on the third census there were significantly fewer survivors (58% of planted seedlings). Surprisingly, survival was better than expected with plastic guards and lower than expected with cardboard guards. Sixty-three percent of seedlings with plastic guards were alive at eight months, compared with only half of the seedlings with cardboard guards. Survival of seedlings without guards was also high, at 60%.

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Most notably, mortality of two key banksia woodland species, *Banksia menziesii* and *B. attenuata*, was much higher with cardboard guards compared with plastic guards and stakes only.

Seedlings were hand-watered over the Birak and Bunuru seasons and this likely contributed to survival that was higher than expected. Plastic tree guards are more visible than stakes or cardboard guards, which may have helped contractors to find and water seedlings (i.e., cues to care). Unfortunately, the cardboard guards tend to collapse when they get wet (by watering), smothering seedlings, which may have contributed to seedling mortality. This is ironic because social acceptance of cardboard guards is higher than for plastic guards, presumably in part because cardboard guards are biodegradable. However, cardboard guards are more expensive than plastic guards, (roughly 5.5 times as expensive), and plastic guards have the additional benefit of being re-usable for at least another planting effort.

Can we get the same benefit at lower cost?

In conclusion, we found a marginal benefit of plastic guards over no guards, and a dis-benefit of cardboard guards, for survival of seedlings on the Roe 8 corridor that were planted and hand-watered in their first summer of establishment. We found no evidence for guards protecting seedlings from herbivory, either because it was low or less important than drought and other factors. While improving seedling establishment is undoubtably a key challenge for restoration efforts, a cost-benefit analysis of tree guards may not justify their use in some cases. Indeed, nurse plants (e.g., prickly acacia) may offer benefits at no cost.

Murdoch University ecology students assessing seedling survival at Bibra Drive, Roe 8 corridor. Seedling mortality was high at this site compared to four other sites at the first census (September 2021). Photo – Rachel Standish.

The saved funds could be diverted to establishing seed orchards or research to unlock complex dormancy mechanisms of native species that are currently missing from restoration plantings.

More information

For references supporting this article, and data on species responses, please refer to: Standish RJ, Ladd PG 2022. Effect of plastic and cardboard tree guards on seedling survival of the 2021–22 summer heat and drought at Roe 8 corridor. Report prepared for Adam Peck and the Advisory Committee, Rehabilitating Roe 8, Environmental Services, City of Cockburn.

Contact

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Multiple benefits of automating acoustic detection

By Susan Campbell and Sarah Comer

How fortunate are we?

No European blackbirds dominating our dawn chorus, no sparrows sharing our alfresco dining, no common mynas aggressively driving native birds out of our parks and gardens and no European starlings impacting primary industries and outcompeting our native hollow nesting fauna. You only need to spend a short amount of time in eastern Australia, or New Zealand, to appreciate how truly fortunate West Australians are.

For much of this good fortune we owe thanks to the Nullarbor Plain. However, one pest bird regularly overcomes this unique geographic phenomenon. For over 50 years, Western Australia's government has undertaken near continuous control of European starlings, both along the south coast and further east at the border with South Australia. With support from local landholders and communities, a persistent combination of trapping, shooting and integrated research continues to deliver freedom from this pest for Western Australians. Key to the success of this ongoing program is early detection of incursions, enabling a rapid response to prevent starlings from establishing.

Now, in a world first, fully automated acoustic technology is being integrated into Western Australia's starling control program. The Department of Primary Industries and Regional Development (DPIRD), sponsored by the Centre for Invasive Species Solutions, have proven the potential of a new tool to enhance early detection of starlings. Two towers equipped with an acoustic surveillance, detection and communication device have been erected near Gibson and Bremer Bay, the eastern and western ends of high-risk starling habitat along the south coast. The devices host an artificial intelligence network that can detect the starling's 'buzz' and 'whistle' call types with great accuracy. Any putative detections are then sent remotely from the field over Telstra's low bandwidth network for verification via an online interface.

With no actual starlings known to be present in WA (which is a good thing!), the acoustic technology was tested via playback of starling calls at realistic volumes and at increasing distances away from the towers. These playback calls were recorded at distances over 150m from the microphones, depending on terrain, vegetation and weather conditions. However, the onboard algorithm requires a reasonable starling signal to background noise ratio to work effectively, which was achievable at distances of approximately 60-80m from the device. Expert knowledge from within the program plus previous research on starling habitat preference in WA is now informing strategic placement of current and future listening towers. Targeting low lying swamp areas with hollow-bearing trees surrounded by agriculture, we aim to maximise the likelihood that newly arrived starlings will encounter the acoustic surveillance technology. Listening every day of the year, this technology will enhance surveillance capacity, strengthening DPIRD's ongoing starling control program.

The European starling is a pest species we want to keep out of Western Australia. World-first, fully automated acoustic technology using machine learning has been trained to detect the distinctive call of the European starling here in WA. The device remotely phones back for verification allowing for early detection and a rapid response to prevent starlings from establishing. Photo –Phil Baum.

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Why stop at starlings?

Many animals in both terrestrial and aquatic habitats generate unique sounds (including ultrasonic sounds) that can be recorded with acoustic technology. The scope for the application of acoustic surveillance to ecology is immense, including wildlife monitoring programs and detection of other invasive species. Automating the analysis of the ensuing 'big data' generated by acoustic recording devices is a game changing step that will dramatically improve the efficiency of monitoring programs.

The same team that developed the starling acoustic detection system is currently retraining their algorithm to detect the call of another unwanted, highly invasive pest; the Asian black-spined toad. This toad shares similar attributes to cane toads, such as size, reproductive output, diet, and habitat preferences, the later of which have become well-established in much of Australia. If the Asian black-spined toad was to become established in Australia, its impact is predicted to be comparable to that of the cane toad. The same principal of early detection and rapid response will help prevent incursions of this pest species from establishing.

Western Australia's unique native fauna is also set to benefit from automated acoustic analysis. The critically endangered western ground parrot, or kyloring, a cryptic parrot which can only be detected reliably from its calls before sunrise and after sunset, is monitored exclusively using acoustic methods. Since 2012 the DBCA team have been using commercially available autonomous recording units (ARUs) to monitor core areas occupied by the bird in the last wild population. Since 2019, landscape scale networks of ARUs have been deployed in Cape Arid National Park and Nuytsland Nature Reserve to monitor occupancy of the bird across all suitable habitat. A similar network has been established in the Fitzgerald River National Park to try to detect kyloring in areas where they have not been located for over a decade. More recently an ARU array has been established in an area east of Albany where the project team are attempting to re-establish a translocated population of kyloring. This intensive monitoring across the region involves nearly 90 units recording during the evening calling period every day, and another 90 units monitoring calling activity in areas of core habitat during autumn, the peak calling period. Combined, over 18,000 hours of recordings are collected every year and only a fraction of this can be used as it is not possible to review all the data manually. To date, efforts to automate the process of identifying kyloring haven't found a solution, and despite some significant efforts the challenge has not been solved. It is hoped that the starling algorithm can be trained to forget starlings and learn kyloring's call. If successful, this will enable more data to be used for monitoring trends in the last wild population, give a greater degree of confidence in being able to detect the calls of any kyloring that may be hanging on in historical habitat, and in monitoring the small numbers of translocated birds.

The DIPRD team is erecting a tower equipped with a fully automated, solar powered, acoustic surveillance, detection and communication device near Bremer Bay on the western end of the high risk starling incursion zone. Listening every day of the year, this technology will enhance surveillance capacity in remote locations, strengthening DPIRD's ongoing starling control program. Research is underway to train the apparatus to detect other audible pests and native threatened species. Photo – Elena Arens.

Contact

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Woodvale Waters Friends of Beenyup Channel *By Bryan Saunders*

Woodvale Waters Friends of Beenyup Channel is a small but active volunteer group undertaking rehabilitation, revegetation, and other environmental work in the Beenyup Swamp/south Lake Joondalup area of Yellagonga Regional Park. The friends group is an offshoot of the Woodvale Waters Landowners Association with the regular volunteer group comprising residents of Woodvale Waters as well as from surrounding suburbs. We are a member of the Yellagonga Regional Park Community Advisory Committee and a member of the Urban Bushland Council WA.

Dryland areas

Historically our section of the park was used for a number of farming and horse training related purposes. Prior to this it was banksia woodland that made up the area surrounding Lake Joondalup.

One of our main objectives is to restore as much of our area as possible back to a bush woodland. Our current planting focuses mainly on *Eucalyptus rudis* and *Melaleuca* varieties near the channel and floodplain areas then marri and tuart away from the wet areas for height and Banksia species endemic to the area. Since 2021 we have planted 2900 'dryland' plants. Over the next few years we will be introducing more plant biodiversity into our planting options.

Wet areas

Another main objective is reducing nutrient reduction in the surface water that moves from Beenyup Swamp into Lake Joondalup.

February 2023 had a great turnout for the planting day, 35 adults and 20 kids planted 1,500 sedges in two hours. Fantastic effort! Photo – Bryan Saunders.

Ground water in the park flows from Lake Goollelal through Walluburnup Swamp then Beenyup Swamp then via the Beenyup channel into Lake Joondalup. Long-term water testing has shown that nutrient levels in the surface water increase as the waterflows from Beenyup Swamp through the channel into the lake. Ground water flowing from the Wangara area (east of the park) has been identified as the most likely cause of this. Historical and still current agricultural uses in the Wangara area such as market gardens and chicken farming are the primary sources for the increased nutrient levels.

Woodvale Waters Friends of Beenyup Channel like to start them young. Photo – Bryan Saunders.

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To assist in addressing the nutrient issue the group has implemented three main strategies.

- Planting a significant number of native sedges and rushes in the channel and channel flood plain and along the lake edge. We are using *Schoenoplectus validus* and *Baumea articulata* for the deeper sections and *Juncus pallidus/kraussi*, *Baumea juncea*, *Carex tereticaulis*, *Bolboschoenus caldwellii* and *Gahnia trifida* for the wet or seasonally wet areas. Since 2021 we have planted 4400 sedges and rushes.
- Implementing an extensive weed management program for the area.
- Significantly increasing the dryland bush corridor on both sides of the channel by undertaking a long-term native tree and bush planting program.

The friends are attempting to reduce the nutrients entering Lake Joondalup from surface and groundwater flow by planting thousands of native sedges and rushes in the Beenyup Channel, the channel's flood plain and on the edge of Lake Joondalup. Photo – Bryan Saunders.

Community planting days

The group undertakes two community planting days each year, a summer (early February), sedge planting and a winter (June/July), dryland planting, usually planting between 1000–2000 sedges and 1000 dryland plants on each occasion. We are always looking for volunteer assistance with planting.

Cockatoos, turtles and carp

In the past two years our group has expanded its areas of interest. Our area is on the flight path for black cockatoo movement, and we have one marri in our area where a pair of Carnaby's cockatoos have successfully raised fledglings in recent years. We have started installing and monitoring bird nesting boxes including boxes suitable for black cockatoos and are hoping to expand the number of boxes suitable for cockatoos in future years.

We have noticed over the past few years an increase in the number of turtle nests been destroyed and a number of turtles being predated on in our area. We have recently joined the TurtleSat reporting program and the national 1 million turtles project and have started monitoring for feral animal movements.

Lake Joondalup has traditionally been a seasonally wet lake however in the past five years it has not dried out in summer. One of the factors is an increase in urban development within proximity of the lake and there is some concern that with the increase in surface water runoff there is a likelihood that the lake will remain wet all year. As a result of not drying the introduced koi, carp and goldfish population has significantly increased. Left alone they will become a significant issue for the lake's ecology and will severely impact the many fauna and fish species that rely on the lake. Our group is now working with the Centre for Sustainable Aquatic Ecosystems, Harry Butler Institute at Murdoch University and DBCA to research funding options for the control or eradication of the feral fish.

Volunteers

Our group is very keen to find new volunteers willing to help us with our work, we have a very flexible approach and will fit in with new volunteers' requirements.

Contact

Bryan Saunders
Woodvale Waters Friends of Beenyup Channel
Facebook
phone 0412 400 874

Hearts Healing the Land/Koort-al Boodja Koyingkeriny

Volunteers, practitioners, students and researchers involved in urban restoration and community building are invited to Hearts Healing the Land, the Rehabilitating Roe 8 project bi-annual conference to be held from 9.30am – 4.30pm on Tuesday 2 May at Tompkins on Swan, Alfred Cove.

The theme of the event is connection to country, urban restoration and community. An exciting list of speakers is lined up, with Simon Cherriman, Heidi Mippy, Dr Cristina Ramalho, Dr Eddie Van Etten and Adam Peck among the speakers. There will also be a session dedicated to 5 minute speed talks and we are seeking applications from community groups to fill some speed talk spots. An interactive session titled 'Future Proofing Urban Bushcare' will explore ways to improve community bush care success. Catering is included and there will be a sundowner between 3.30–4.30pm. Sit back with a drink overlooking *Derbal Yerrigan* and connect with fellow bush carers!

In line with the community feel, tickets are a very affordable $15!

Join the Wildcare team

The Wildcare Helpline is a volunteer run telephone referral service for the public who find sick, injured or displaced native wildlife in Western Australia. The helpline aims to connect members of the community who have concerns regarding wildlife or wildlife-related emergencies with appropriately licensed wildlife rehabilitators, non-government organisations and government agencies for support, advice, and assistance.

Volunteer Wildcare Helpline operators are the driving force behind the success of the service, playing an essential role in the first step of rescue and referral for sick, injured, or displaced wildlife. Volunteers do not have any direct contact with animals, but telephone calls can transport them virtually anywhere in Western Australia. Calls may be logged through DBCA's Wildcare System concerning a suburban magpie in Gosnells, a snake in Harvey, a kestrel in Mukinbudin, or even a hawksbill turtle as far as Point Quobba campsite.

Becoming a Volunteer Wildcare Helpline operator is a very rewarding experience, although it can also be very challenging during peak periods. Helpline volunteers need patience, a clear telephone voice and must enjoy talking to people of all backgrounds.

Wildcare Helpline is looking for volunteer telephone operators. You can assist community members playing an essential role in the first step of rescue and referral for sick, injured or displaced wildlife like these rescued woylies. Photo – WA Wildlife.

They also provide general information on wildlife behaviour providing an opportunity to continually extend their own understanding of WA wildlife and their interactions.

If you are interested in becoming a Wildcare Helpline operator, register for our training workshops 9am–1pm, Saturday 4 and 11 March 2023 at Bibra Lake.

Contact

Denise Crosbie
Wildcare Helpline
email coordinator@wildcarehelpline.org.au

Funding opportunities

Coastwest provides grants to support coastal land managers and community organisations to rehabilitate, restore and enhance the Western Australian coast. Applications **close in April.**

Impact100 WA provides primary grants of $100,000 for projects including initiatives that restore, preserve, revitalise or enhance the natural and recreational surroundings of WA. Applications **close 26 May**.

In 2022, Trillion Trees were awarded $100,000 for their program educating school kids on the importance of nature and providing hands-on experiences.

Swan Alcoa Landcare Program is funding the community to enhance and restore critical habitat and ecological linkages within the Swan region. Applications **open 9 March and close 11 May**.

State NRM Community Stewardship Grants for projects to conserve natural areas, protect biodiversity, promote regenerative practices and support capability of NRM community groups. Applications **close 1 May**.

Swan Canning Riverpark Urban Forest program supports public land managers to improve their urban forests in a $3 million investment in revegetation and improved management in the Swan Canning catchment. Approach your public land manager to partner in projects. **Open year-round.**

National Volunteer Week Grants up to $1,000 to organise an event or activity to recognise and thank volunteers during National Volunteer Week, 15–21 May. Applications **close 5 March**.

Churchill fellowship offers an opportunity to travel overseas for 4–8 weeks to explore an issue you are passionate about. Applications **open 1 March**.

Junior Landcare Grants offering 1,000 grants of $1,000 to primary schools and early learning centres. Applications **close 17 March**.

Peel Harvey Catchment Council's **Fencing and Revegetation of Foreshore Areas** funds landholders in the Healthy Estuaries WA footprint to fence streamlines on their properties to exclude stock with revegetation. **Open year-round.**

NACC Growing Great Ground incentives up to $1,000/ha for establishment of ground cover and biodiverse native vegetation in the Northern Agricultural Region to address wind erosion on agricultural land. Expressions of interest are **open year-round**.

NACC Biodiversity Community Grants up to $5,000 for projects that conserve malleefowl and black-flanked rock-wallaby in the Northern Agricultural Region. Applications assessed on a **first in first served basis from 1 July.** Contact Jarna Kendle on 0477 177 164.

Synergy Community Partnerships up to $50,000 for multi-year partnerships around four key themes: environment for the future, inclusivity and empowerment, committed to community, and energy leadership in the south west of WA. Expressions of interest, are **open year-round.**

Wettenhall Environmental Trust small environmental grants scheme funds research and education projects on fauna and flora conservation. Applications **open 1 April**.

Purves Environmental Fund up to $50,000 for projects addressing the focus areas of habitat destruction, capacity building of key NGOs and climate change adaption. Applications **are open year-round**.

Mary Bremner Bequest Strategic Grants Program of the Wildflower Society of WA for projects focused on WA flora. Applications are **open year-round.**

The Cola-Cola Foundation gives back 1% of is operating income to enhance the sustainability of local communities worldwide. Empowering women, enhancing communities, protecting the environment and educating scholars are priority areas. Applications are **open year-round**.

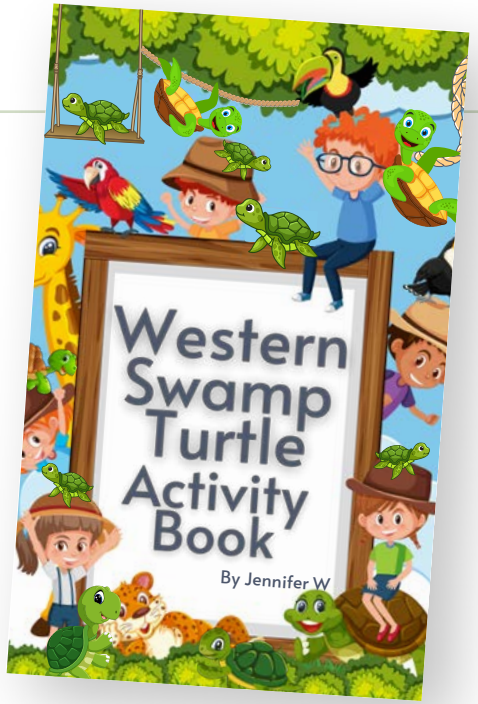
IGA Community Chest raises funds to support local communities, charities and other worthwhile causes. Applications are **open year-round**.

The Indigenous Land and Sea Corporation's Our Country Our Future program funds land acquisition or management projects that deliver benefits to Indigenous Australians. This includes on-ground activities to maintain or improve the condition of Country (land, water, biodiversity, and cultural heritage). **Open on an ongoing basis.**

Lotterywest Grassroots Community-Led Grants are available for proposals big or small that work towards sustainable ecosystems including restoration, care for natural heritage, protection of endangered species, and reduction of the community's impact on the environment. Applications are **open year-round**.

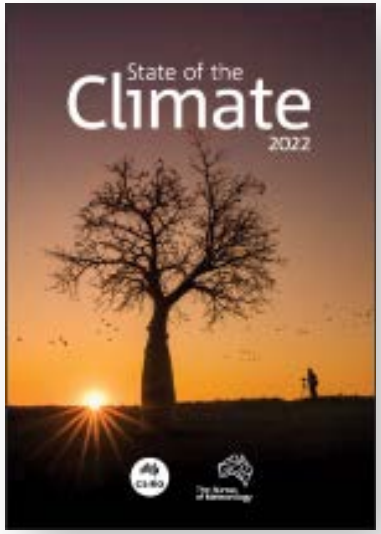
New publications

Western Swamp Turtle Activity Book by Jennifer W, a 10-year-old, Year 5 student. Fact checked by the Friends of the Western Swamp Tortoise, this 14 page activity book shares lots of information about Australia's most threatened reptile in many great worksheets of activities.

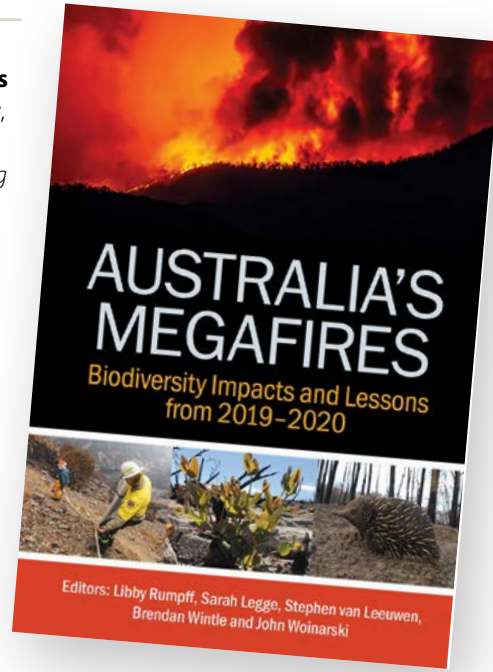


Curlews on Vulture Street: Cities, Birds, People and Me Jones, Darryl. *NewSouth Publishing*, 2022. **$35**. Despite the noise, heat, dust and fumes, the ceaseless movement, light and toxins of the city, many birds successfully live their lives among us. Provides rare insights into the intimate lives of some of our most beloved and feared, despised and admired neighbours. Magpies, curlews, ibis, lorikeets and cockatoos will never seem the same again.

State of the Climate Report 2022 draws on the latest climate research, with observations, analyses and future projects to describe year-to-year variability and longer-term changes to Australia's climate. The report is produced every two years by the Bureau of Meteorology.



Australia's Megafires: Biodiversity Impacts and Lessons form 2019–2020 Rumpff Libby, Legge Sarah, van Leeuwen Stephen, Wintle Brendan, Woinarski John (eds.) *CSIRO Publishing* $70. The Black Summer bushfires burnt more than 10 million hectares mostly in southern and eastern Australia. A consequence of climate change, these megafires affected many of Australia's important conservation areas and severely impacted threatened species and communities. With contributions by more than 200 researchers and managers this book documents the response by governments, NGOs, Indigenous groups, scientists, landholders and others to recover the fire-affected species and environments and be better prepared for the inevitable future catastrophes.



Kings Park Bushland Wildflowers Kings Park Volunteer Guides Kings Park Publications, 2022. $6.95. A new 12 panel fold-out, durable, pocket-sized botanical field guide of more than 100 bushland wildflowers created and funded by the Kings Park volunteer guides. Plants are grouped by flower colour and common, Noongar and botanical names and main flowering periods are included. Available from Aspects at Kings Park

Website watch

Bush Skills 4 Youth online activities

WA Feral Cat Working Group website contains information, management and research to increase native fauna conservation outcomes through collaborative, effective, resource-efficient and humane management of feral cats.

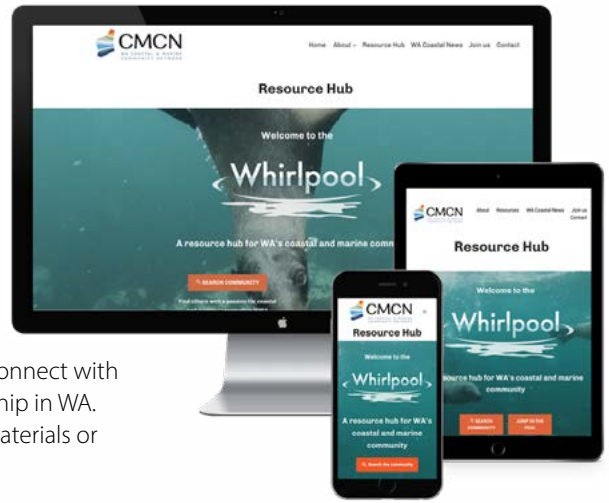
Flora Connections, a new initiative of the Atlas of Living Australia, is aimed at harnessing the passion of amateur flora groups and citizen scientists to help monitor fire and flood recovery. It provides a standardised survey that can be used to assess any plant species according to IUCN Red List criteria. These observations are directly usable by scientists to make decisions about managing priority plants across Australia.

The Biodiversity Council website to foster public, policy and industry recognition of the biodiversity crisis, the importance of biodiversity for wellbeing and prosperity, and positive opportunities and solutions to address these challenges.

Armadale Gosnells Landcare Group short videos about people, places and bushcare techniques. Start by taking a look at the Roley Pools Sand Ceremony where Noongar Elder Steven Jacobs explains how our rivers and wetlands were created, the significance of these places to his people's culture and shares an important Noongar ceremony – the sand ceremony. And there are lots more to choose from.

Volunteering in the wild wetlands in this short video we hear from Hayley about what she gets out of volunteering in the Wild Wetlands program at Piney Lake Environment Centre.

Whirlpool an online community hub to help people find and connect with one another and learn more about coastal and marine stewardship in WA. A new and building resource so join up, find others or send in materials or funding opportunities to add to the collection.



Recent Research

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Stenhouse A, Perry T, Grutzner F, Lewis M, Pin Koh L (2021) EchidnaCSI – Improving monitoring of a cryptic species at continental scale using Citizen Science *Global Ecology and Conservation* 28

Kent CS, Chabanne D (2021) Integrating systematic and citizen science surveys for monitoring near-threatened Indo-Pacific bottlenose dolphins in the Swan Canning Riverpark, Western Australia. Report Prepared for the WA Department of Biodiversity, Conservation and Attractions.

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zamia palm

By Keith Schekkerman

Zamias (*Macrozamia spp.*) are not a palm but cycads dating back millions of years. Dinosaurs probably fed on them.

The pods are spectacular as they can be 30cm wide and 70cm long and once they open up are filled with bright red seed. The seeds are surrounded by red fleshy pulp which looks quite appetising. Once the seeds spill onto the ground I often notice that the fleshy part is readily eaten by a so far unknown animal. From the teeth marks it looks like a small animal something the size of a mouse. They eat the nuts very clean. There must be lots of nutrition in the fleshy part surrounding the nuts.

Of course we have all been told how poisonous zamia palms are, so who is eating the flesh? I set up a movement triggered camera and crows are collecting the ripe seeds with field mice and bush rats eating the ripe flesh. The crows carry off the majority of the nuts. Are they feeding the flesh to their young? If nothing else they distribute the nuts.

We have all heard stories of how people got very crook from eating zamia nuts. Many early explorers gathered the nuts, often lying about near indigenous camp sites and consumed them, more often than not with bad outcomes. Research by Ken Macintyre & Barb Dobson shows that Noongar people did not eat the nuts, however they did consume the red, fleshy part surrounding the nuts. Testing at the WA Chemistry Laboratory has shown that the flesh is not toxic but the nut is. However in the Eastern States Indigenous folk did consume the nuts after leaching them in water. There are a number of WA records of nuts, flesh and all, being treated to enhance their flavour and possibly digestion. Nuts with the flesh were put into streams and left for a week or two. If no stream was available, the nuts with flesh were buried for a few weeks.

Photo – Simon Cherriman

Photo – Keith Schekkerman