

Newsletter of The Land For Wildlife Program - Spring 2020

[\(Link to 2019 Edition\)](#)

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Letter from the Editor

Dear LFW Member,

It's been an amazing season for fungi since early March, at least in the Box Ironbark region of central Victoria where I am based. I've heard similar accounts from other regions as well as reports of many orchids appearing. A big reason for this was higher than average rainfall during autumn, preceded by prolonged warm temperatures. I hope you enjoy the collection of fungi images on the cover, taken by my wife and former LFW Coordinator, Felicity Johnson (from the mid 1990s to the late 2000's).

I sincerely hope that you have not been too impacted by the Covid-19 situation – I think we can all agree on looking forward to it ending. Personally, I've been working from home since early April with my year 8 son home-schooling.

During Covid-19, we have not been able to conduct property visits. Since March, new LFW applicants have been sent a Property Statement form to conduct a self-evaluation (including maps of property values, flora and fauna lists, and vegetation community descriptions, with management notes). Additional support has been provided by telephone or email where requested.

In this edition, while not a theme overall, we look at the relationship between Wallabies and Fungi. A convenient benefit of presenting the newsletter online is the ability to provide links to other resources, including videos of relevant and informative topics. I hope you enjoy the videos by [Alison Pouliot on the fascinating world of fungi](#) and [Kangaroo Population Biology](#) by Graeme Coulson.

It's not often that new mammal species are described in Australia, particularly when it involves the revision of a well-known and loved species. Recently, I received a research paper describing how the “common” Sugar Glider was revised into three species: The Savanna Glider of northern Australia, Kreft's Glider of southern Australia, and the Sugar Glider of the eastern coastal region of Australia. [See page 9](#) for the story.

All the best and stay safe,

Peter Johnson
Statewide Coordinator
Land For Wildlife Victoria

Land for Wildlife Property Statistics

LFW Membership	Total Property Area	Habitat Being Retained	Habitat Under Restoration	Total Retained and Restored Habitat
4,800	525,550 ha	140,100 ha	22,257 ha	162,357 ha

Cover Images:

A collection of fungi images by Felicity Johnson. Read the article about Fungi And Wallabies on [page 4](#).

[Click here](#) to see a fascinating video on fungi by Alison Pouliot.

(Or copy and paste link: <https://bit.ly/fungi-video>)

Member Contribution

From Alan and Mylene Pentland, French Island

Dear Peter,

We came to French Island from the city, three years ago and began a huge journey, learning how to understand and restore this unique environment, creating habitat for our wonderful wildlife. The island was already fox-free and remaining feral cats are being eradicated. We also found and benefitted from the knowledge of many experts and enthusiasts, including [Friends of French Island](#), and [French Island Landcare](#).

In late 2019 we began our project “[French Island 5000 Trees](#)” to restore 20 hectares of our land to creating a wildlife corridor and capturing carbon. The public reaction was fantastic and quite humbling. So many people wanted to come and plant or donated generously. It felt like we had tapped into a huge vein of support from people who otherwise have limited options for contributions towards climate change and the planet’s health. The terrible bushfire season only enhanced this. Then the virus hit and our plans were thrown into disarray.

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Left: The “street signs” acknowledge our most generous donors, who helped pay for the plants.

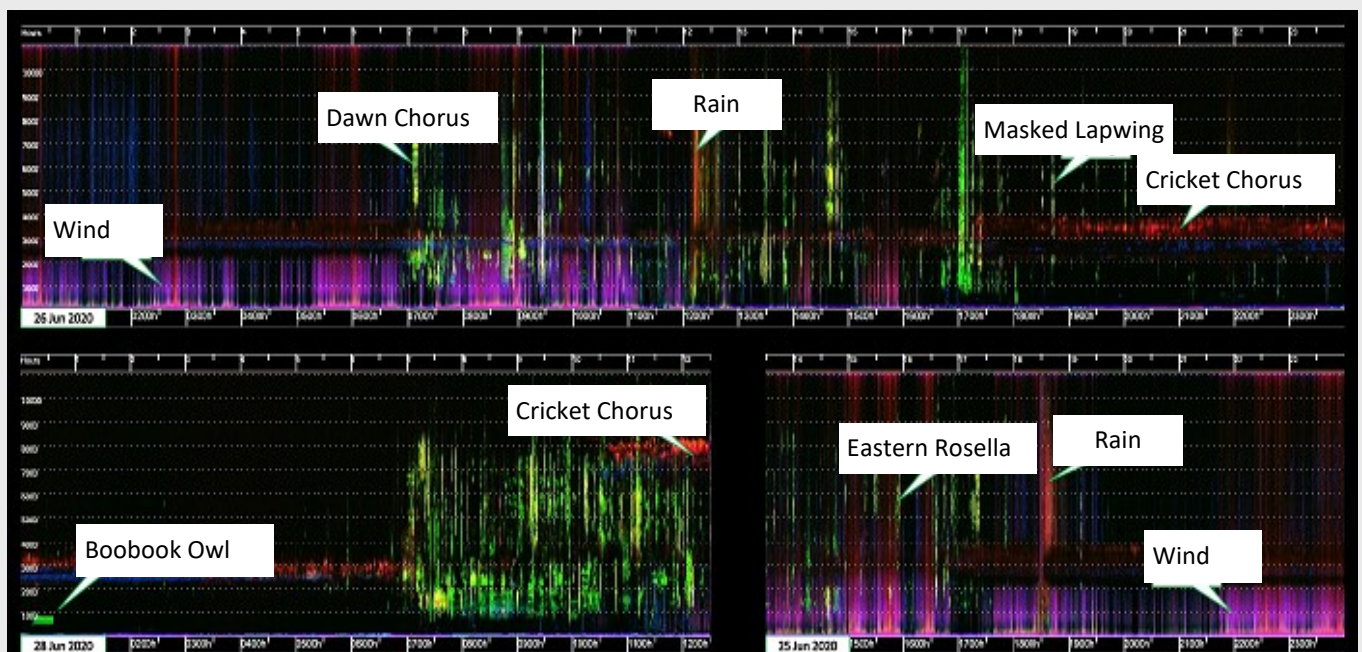
Right: The little gum tree shows plantings mixed in among existing indigenous vegetation.



To honour the trust of our supporters, Mylene and I decided we still had to get the plants in the ground, even if it meant doing it ourselves. The job is nearly done for this season, and ahead of schedule.

The spectrogram below was produced by Dr Liz Znidersic from Charles Sturt University, Dr Michael Towsey from Queensland University of Technology. They recorded the soundscape in July on our property to make the information easier to understand. Will send more of these to show the impact on wildlife during revegetation.

Regards, Alan & Mylene Pentland (<https://www.facebook.com/pg/frenchisland5000trees/videos/>)



Fungi And Wallabies

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By Tanya Loos (<https://tanyaloos.wordpress.com/>)

It really has been a wonderful fungi season in central Victoria – both the Wombat Forest and drier (Box and Ironbark) forests to the north (e.g., the [Wellsford Forest](#)) are filled with an ever changing array of spectacular fungi. What you see above ground represents the fruiting bodies of these organisms – and they also provide food for the forest inhabitants.

Recent studies have examined the consumption of underground truffle-like fungi by small a range of smaller mammals such as potoroos and bush rats. But the larger fungi popping up are enjoyed by bigger mammals – the swamp wallabies!

The image below was taken by Geoff Park (<https://geoffpark.wordpress.com/author/geoffpark/>) and captures a wallaby in the act, holding a mushroom, much like we would eat an apple.

“Swamp wallabies consume macrofungi as part of a generalist browsing diet and, like other non-specialist mycophagists, are often overlooked as consumers and dispersers of truffle-like fungi.

As dispersers of truffle-like fungal spores in forest interior and edge habitats, swamp wallabies undoubtedly contribute to maintenance of diverse truffle-like fungi communities and functioning forests, and influence vegetation dynamics at habitat boundaries. In landscapes from which other mycophagists have disappeared, swamp wallabies may be key spore dispersers.”

Reference:

[Danks, M.A. \(2011\). *The swamp wallaby Wallabia bicolor: a generalist browser as a key mycophagist. Mycophagy by the swamp wallaby \(Wallabia bicolor\).*](#)



Despite these studies, very little is known about the consumption of large macrofungi by swamp wallabies. At the encouragement of Tom May, Senior Research Scientist (Mycology) Royal Botanic Gardens Victoria, Gayle Osborne (Wombat Forestcare) set up motion capture cameras to document this behaviour.

It also involves the correct identification of the fungi, which can be difficult if the wallaby has consumed most of the specimen. Gayle must identify the fungi first, via photos and spore prints, often with the help of fungi literate folks like Malmsbury naturalist John Walters. The camera is set up at an appropriate spot. And then wait – sometimes it is over a week before the fungi is eaten.

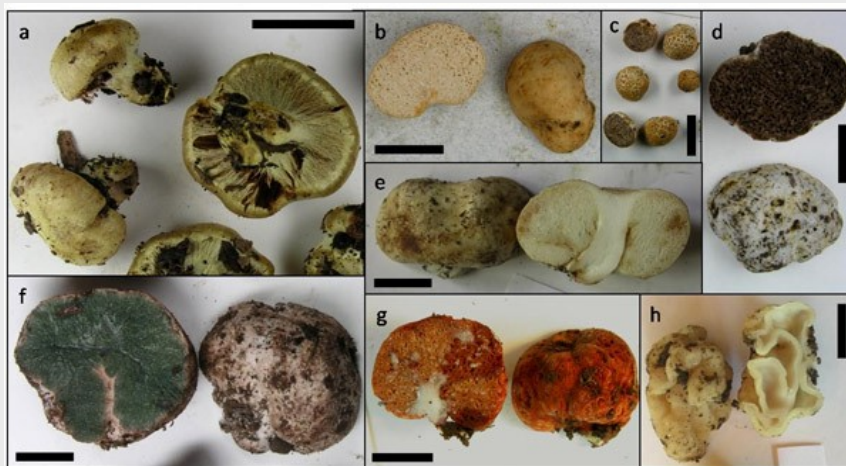
Fungi And Wallabies

(Continued)

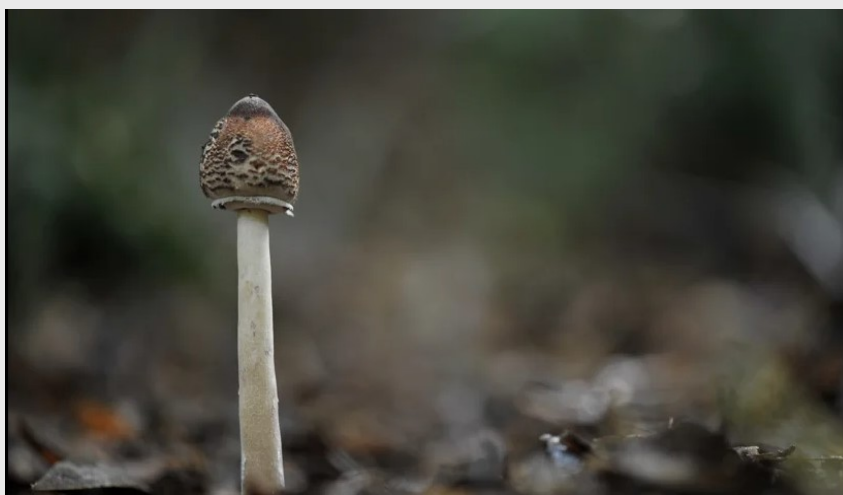
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Although initially counter-intuitive, there is an advantage of being eaten by mammals such as swamp wallabies and possums. Like the smaller truffle species, large fungi are dispersed by spores, and these spores pass through the animal's gut, to be spread widely, for benefit or other animals, and of course the health of the forest. (Full article at: <https://tanyaloos.wordpress.com/2020/06/20/fungi-and-wallabies/>)

The truffle-forming fungi of Australia, are highly endemic and extraordinarily diverse, with some 300 species described and 800-1200 yet to be discovered. The research shows that truffle diversity is likely to exceed 200 species and has already revealed taxa new to science. Difficulties with accurate identification of fungal spores in mammal diets has hampered studies of mammal mycophagy and limited accumulation and sharing of knowledge.



Above image: Examples of some commonly-detected truffle-like fungi.



Fungi are important organisms. They're not bizarre accessories in the landscape, but rather fungi underpin pretty much every terrestrial ecosystem on the planet. [Click here](#) to join fungi-ecologist Alison Pouliot in this foray into the Kingdom Fungi. Or copy and paste: <https://bit.ly/fungi-video>

Biology Of Kangaroos

Hosted by Julia Franco, Biodiversity Officer at Nillumbik Shire Council

Hear from Associate Professor Graeme Coulson, Honorary Principal Fellow and Wildlife Ecologist at University of Melbourne for a webinar on the biology and population dynamics of kangaroos.

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[Click here](#) to join the (recorded) webinar or copy and paste the following Youtube link:
<https://www.youtube.com/watch?v=JW1Ww1HLk6Y&feature=youtu.be>



Management of Kangaroos in Victoria

The populations of several macropod species, including the Eastern Grey Kangaroo, the Western Grey Kangaroo and the Swamp Wallaby (collectively referred to as “macropods”), have significantly increased since establishment of European land management practices in Victoria. This is mainly due to the introduction of improved pastures, availability of reliable water sources and the removal of predators.

In farming situations, macropods can cause significant damage as they feed on or flatten crops or pasture. Research has shown that in temperate areas one kangaroo equals 0.4 dry sheep equivalent. This means one kangaroo eats around 40 % as much as one sheep. While their presence alone is not generally a problem, kangaroos in high densities can have a significant impact on farmland and biodiversity values.

Legal status of macropods in Victoria

All macropods are protected in Victoria under the Wildlife Act 1975. It is illegal to wilfully disturb or destroy protected wildlife without prior approval from the Department of Environment, Land, Water and Planning (DELWP). An Authority to Control Wildlife (ATCW) is required in Victoria to control kangaroos in high numbers where they are impacting farmland or biodiversity values:

<https://www.wildlife.vic.gov.au/managingwildlife/wildlife-management-and-control-authorisations>

[Click here](#) for more information about the management of Kangaroos in Victoria.

Determining Critical Habitat

What are critical habitats?

Critical habitats are areas that support ecological processes or ecological integrity that significantly contribute to the conservation of listed species or communities. Critical habitats are areas determined under the Flora and Fauna Guarantee Act 1988 (FFG Act) which make a significant contribution to the conservation of listed threatened species or communities. They can be on public or private land.

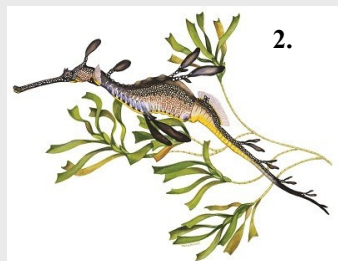
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What changes have been made to critical habitat powers?

The Flora and Fauna Guarantee Amendment Act 2019 expands the concept of critical habitat and details what may contribute to an area being critical habitat. The FFG Act will now require the Secretary of the Department of Environment, Land, Water and Planning (DELWP) to seek to manage critical habitat by agreement with affected landholders or managers. The FFG Act is a key tool for achieving a net improvement in species conservation by 2037.

How are critical habitats determined?

Before making a determination, the Secretary must notify and consult with anyone who may be affected by it. A public comment period then follows where any person may provide comments about the proposed critical habitat. Protection of critical habitat is provided by Habitat Conservation Orders, and replaces the former Interim Conservation Orders (none of which were ever proclaimed in Victoria).



Images: State of Victoria emblem species protected by FFG Act:

1. Helmeted Honeyeater (State bird emblem)
2. Common Sea Dragon (Marine emblem)
3. Common Heath (Flora emblem)
4. Leadbeater's Possum (Fauna emblem)

Source:

<https://www.vic.gov.au/victorias-state-emblems>

More information on the Amended FFG Act 2019:

<https://www.environment.vic.gov.au/conserving-threatened-species/victorias-framework-for-conserving-threatened-species>



What are Habitat Conservation Orders?

HCOs may be made by the Minister to conserve, protect or manage critical habitat. HCOs can prohibit damage to critical habitat or require remediation of previous damage and may operate for a maximum of ten years. The FFG Act places importance on prevention to ensure that more species do not become threatened in the future. The Act emphasises the importance of cooperative approaches to biodiversity conservation and recognises that all government agencies and the community need to participate in the conservation effort.

Please Note: No critical habitat and no HCOs have currently been determined under the FFG Act.

Echidna Love Trains

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Echidna “Love Trains”: More Evidence of Wildlife Defying Social Isolation Rules?

Echidnas are often seen wandering around quite happy with their own company – you could say they perfected the social isolation lifestyle a long time ago (almost 200 million years ago in fact!). But... not even echidnas can resist a good party, and they come together in late winter/early spring and do the conga conga by forming an Echidna “Love Train”.

A normally solitary animal, an echidna waddles around his or her territory digging up ants in the ground and shoving rocks and logs aside for termites. Echidnas can have a large home range of up to 100 hectares, but if another echidna is encountered, they usually ignore each other. Echidnas have no gender-specific features, so you can’t tell if an echidna is male or female by simply looking at them. Except when the breeding season has started!

From repeated observations we know that a female is followed by three or four males (biologists are a voyeuristic lot!) at this time of the year (July to September) to form “love trains”. An echidna train can have as many as 11 males behind one female, and until she chooses which male to mate with, they can last for up to six weeks. They might only come together once a year, but they really know how to party!

It doesn’t stop there. The (male) conga line can get so long that a “mating trench” forms. The female eventually decides she is ready to mate and partially buries her front legs and head into soft dirt. The males get very excited at this point and start digging a trench around the female. If there is only one male the mating trench will be a simple straight trench, if there are several males, the trench becomes a large doughnut shaped ring that can be 20 cm deep, with the female in the centre. The males push and jostle each other in the trench until eventually only one male is in position to mate with the female. To avoid the spines, they lay on their side and consummate the occasion.

Eventually, rejected males waddle off to find another “love train” or, once rejected twice shy, they leave and try again next year. In any event, the party must end, and all echidnas return to the familiarity of their isolated wanderings.



Image 1: Echidna train by Stuart King (from [Daylesford Nature Diary: Six seasons in the Foothill For-](#)



Image 2: Echidnas gather for love! from <https://www.facebook.com/EchidnaCSI/>

Three Sugar Glider Species

Three Sugar Glider Species Have Been Newly Identified

In a recent study by Charles Darwin University, scientists aimed to resolve the taxonomy of Sugar Gliders. More than 300 glider specimens from Australian museum collections were examined. They found that the Sugar Glider actually represents three distinct species. These are now formally recognized as the Sugar Glider (*Petaurus breviceps*), Savanna Glider (*P. ariel*) and Kreft's Glider (*P. notatus*).

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The “Sugar Glider” is well known by many Land For Wildlife members as a small arboreal and nocturnal marsupial, widespread throughout Victoria. It occurs from Tasmania (where it was introduced) through much of eastern and northern Australia. Its common name refers to its preference for sugary foods such as sap and nectar and its ability to glide by stretching out the skin between its front and rear legs. Its diet also includes pollen, nectar, insects and their larvae, arachnids, and small vertebrates.

The Savanna Glider occurs in the woodland savannas of northern Australia and looks a bit like a much smaller version of a squirrel glider with a more pointed nose. The remaining two species, the Sugar Glider and Kreft's Glider, look similar and may co-occur in some areas of south-eastern Australia. Kreft's Glider has a clearly defined back stripe fading between the hind legs. Whereas, the tail of Kreft's Glider is thinner than that of *P. breviceps*.



In Victoria the Sugar Glider we have known so well, is now called Kreft's Glider.

When considered as one species, the Sugar Glider we are more familiar with was considered widespread and abundant, and classified as Least Concern. The distinction of these three species means a substantially diminished distribution for the Sugar Glider, making the Sugar Glider species group vulnerable to habitat destruction. The summer bushfires of 2019/20 had incinerated quite a large proportion of Sugar Glider habitat in its current distributional range. Given they are hollow-dwellers and require a diverse habitat with a variety of foods, the bushfires have most likely had a devastating effect on their habitat.

Which species do we have in Victoria?

In Victoria, our “Sugar Glider” is now recognised as Kreft's Glider (*Petaurus notatus*), and extends from South Australia to North Queensland. There is no evidence to suggest that the species co-occurs with the Sugar Glider (*P. breviceps*) except at the boundary of their distributions, such as near the Victorian border with NSW.

Kreft's Glider is perhaps the most widely distributed (and perhaps more secure) of the Sugar Gliders, (and it is likely that this is the species introduced into Tasmania). It's important to continue managing existing habitat, including keeping large old trees which provide the best shelter (places to breed and avoid predators) and food (nectar and invertebrates) for Sugar Gliders.

Walking with Scientists

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Walking with Scientists VR

Have you ever wondered what it's like to be a field scientist? At the Arthur Rylah Institute (ARI), researchers get up to all kinds of amazing fieldwork all over Victoria to help us gather the evidence to inform policy and land management actions (for private and public land).

ARI has just published [3 VR immersive films](#) (Fieldwork showcase, Mud Islands, Turtle trapping) to give you an insight into what scientists do in the field and the spectacular species and landscapes they are helping us understand. We hope it inspires you to be curious about research, connect with the natural world and learn something new about Victoria's amazing fauna and flora.

Fieldwork is a critical part of how we learn about our environment and is the backbone of our science, informing policy and land management actions.

Not everyone can experience the wonder of Victoria's nature like our scientists do. So (in 2019), ARI set out to share the stories and passion of its researchers with a 360° perspective in virtual reality (VR) films. The films create virtual, first-hand experiences to bring science to life. They include a range of field techniques including electrofishing, small reptile surveys, trapping turtles, bird monitoring, spotlighting for arboreal mammals and infrared-camera bat surveys.

Although these films are best experienced using a VR headset, ARI has made them available online. These films add to the range of virtual nature media now available across multiple platforms, to connect people with nature.

To see the videos, click on the following link (or copy and paste): <https://www.ari.vic.gov.au/research/field-techniques-and-monitoring/walking-with-scientists-vr-360>



Restoration Thinning

Restoration thinning to recover habitat

Accelerating tree growth in Box-Ironbark forest

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In a decade-long Box-Ironbark forest study, researchers at the Arthur Rylah Institute (ARI) found that restoration thinning has the potential to benefit wildlife by accelerating tree growth, which will contribute to more quickly restoring old-growth habitat characteristics.

Since European colonisation, Box-Ironbark forests have been drastically cleared, with as little as 28% of their original extent remaining in 1997. In the remaining forest, much of the old growth characteristics (e.g. hollows, large woody debris) have been lost, severely affecting the wildlife that depend on these structures for habitat.

Historically, foresters around the world have used thinning methods to speed up the growth of trees for commercial purposes. If such techniques could be harnessed to help forests mature faster and thus transition to old-growth habitat more quickly, benefits for wildlife could be realised more quickly than passively waiting for them to recover.

In partnership with Parks Victoria, ARI conducted a broadscale experiment to understand how different patterns of thinning would affect tree growth. The researchers measured the change in size of tree trunks over 13 years and found that all thinning methods boosted tree growth compared to treatments where no thinning was performed. Furthermore, the rate of growth was similar for each thinning method.

The study suggests that a restoration-focused thinning method could be chosen to maximise habitat in a declining forest system while still enhancing tree growth and hastening the development of old-growth characteristics. It highlights that thinning may be an important management option in accelerating the speed with which forests grow and develop desirable habitat characteristics.

A journal article on the study is available from the following source:

Brown, G.W., Murphy, A., Fanson B. and Tolsma, A. (2019) [The influence of different restoration thinning treatments on tree growth in a depleted forest system. Forest Ecology and Management 437: 10-16](#)



Camera Trapping Wildlife

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Automated cameras prove an effective survey tool

In the previous edition of the [Land For Wildlife Newsletter \(December, 2019\)](#), we highlighted an article on camera trap sensitivity for surveying mammal species. In this article, we further explore the use of cameras for capturing images of wildlife.

Data on the presence of animals is essential to assess their status in the environment and the impact of various disturbances and land management practices on their populations. Many methods can be used to collect such data. These methods have different levels of accuracy, effort, cost and required expertise. The Arthur Rylah Institute (ARI) has been using automated cameras to conduct mammal surveys for many years. These cameras are very useful and cost effective as a survey tool because they can be left unattended for several weeks at a time. ARI has significant experience in the use and improvements of these cameras.

The units consist of a digital camera which is triggered when a sensor detects a moving heat source, such as an animal. There are essentially two types of cameras: infrared-flash cameras generally suited for recording animal behaviour over long periods, and white-flash cameras suited for the identification of small mammals. The camera and sensor are housed in a weatherproof case, which can be secured to a tree or stake. Various bait types are housed in custom cages so it cannot be taken or consumed (and therefore continue to attract animals to the site). Cages are positioned so that there is a clear line of sight from the camera. Sensitivity levels and programming functionality of cameras can be altered to suit a range of specifications, e.g. different animal groups and climatic conditions.



ARI has used white-flash cameras to detect the presence of threatened species such as Spot-tailed Quolls, Long-footed Potoroos and Smoky Mice, to obtain estimates of detection probabilities, and as a general survey tool. Infrared cameras have been used to document mammal behaviours and interactions such as the behaviour of wild dogs at buried 1080 meat bait stations. The cameras have also been used for detecting other introduced species such as foxes, feral cats and deer.

The following journal article is available:

- ♦ Woodford, L. (2015) [The earliest known camera trapping in Australia: a record from Victoria](#). The Victorian Naturalist 132(6): 171-176
- ♦ A short video titled "[Camera trapping wildlife surveys](#)" showing how cameras are installed, and examples of wildlife photos from their projects is available on the ARI YouTube channel: https://www.youtube.com/watch?v=d_CEEjupGT4

Growing Old In A Shrubland

By **Ian Lunt** (<https://ianluntecology.com/>)

Ecologists often focus on the incredibly important process of recruitment. But it's equally important to understand the slower processes of plant senescence and mortality. What happens when dominant plants get old? Do they re-sprout continually and maintain their dominance? Or do they die and create big, open gaps? If gaps are created, do new seedlings establish, or do other species take over?

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For the past two weeks, we have been surveying areas in central Victoria dominated by the native shrub, Drooping Cassinia or Chinese Scrub (*Cassinia arcuata*). Despite its common name, Cassinia is a native plant, indigenous to the region. Apparently it's called Chinese Scrub as it colonized piles of bare soil ('mullock heaps') that were dug over by Chinese miners in the gold rushes of the 1860s. This highlights a key attribute of the species; Cassinia produces many small, wind-blown seeds, and seedlings can establish at high density in bare, disturbed soils.

Cassinia has colonized 1000s of hectares in central Victoria over the past 40 years, as land use has changed from traditional grazing and cropping to 'amenity landscapes', dominated by hobby farms, retirement properties and bush blocks. So there are lots of good reasons to know how these shrublands will change over time. Will the shrubs stay dense or gradually thin out, or will stands undergo succession to another vegetation type?

We spent a lot of time measuring gaps and counting seedlings to try to understand what controls whether gaps rapidly fill up with new plants. It'll take a lot of number crunching to answer that question (that's code for – it's really complex!) but in the meantime, let's look at how gaps are created.

Gap dynamics (or the 'dynamics of nothingness') is a fascinating topic.

Gaps can exist for two reasons. They might never have been filled by plants before. This occurs in young stands that are gradually filling up. Initial colonizing plants are scattered, and new plants then fill the spaces between the initial colonists. Alternatively, gaps can be created when old plants die. The abundance of gaps is dictated by how often plants die, and how long it takes for new plants to establish and re-fill the empty spaces. The spatial arrangement of births and deaths influences whether we get lots of small gaps or fewer big ones.

Full article at: <https://ianluntecology.com/2011/09/18/growing-old-in-a-shrub-land/>



Young *Cassinia arcuata* (Chinese Scrub) colonizing an open gap.



Open gap in an old Cassinia stand, with flowering Golden Wattles in the background.

Land for Water-life

By Lisa Cox, Coliban Water Environmental Specialist – Projects

Water and land for wildlife

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Water is essential to life and Coliban Water is proud to have three of its properties registered as *Land for Wildlife*. The Bendigo Water Reclamation Plant (WRP) was registered in 2009 and two more sites in 2019, Spring Gully Reservoir and Barkers Creek Reservoir.

Bendigo Water Reclamation Plant

This 122-hectare property in Epsom, in the northeast of Bendigo, treats the city's wastewater and trade waste. Six treatment lagoons as well as farm dams, irrigated paddocks and channels provide excellent habitat for abundant waterbirds and frogs, including Central Victoria's largest population of Growling Grass Frogs (*Litoria raniformis*), a threatened species under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*.



Francine Noble, Lisa Cox and Brett Thompson at Bendigo Water Reclamation Plant

The permanent supply of water onsite makes it a drought refuge when nearby Bendigo Creek and local farm dams run dry. The Growling Grass Frog population is monitored each breeding season and is quite mobile, taking advantage of suitable habitat features such as water plants, rock beaching to warm up on and swarms of emergent mayflies to eat.

Running the treatment plant while providing wildlife habitat and the presence of the Growling Grass Frogs has not limited what we can do onsite. Developments like brine lagoons have been referred to the federal government under the *Environment Protection and Biodiversity Conservation Act 1999* to ensure that the frogs are not adversely impacted. Threatened species don't all need pristine environments and for a while a pair of Growlers even made themselves at home in the pump sump of our UV unit.

Land for Water-life

(Continued)

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Spring Gully Reservoir

Spring Gully Reservoir is a 300-hectare site in the south of Bendigo with Box Ironbark and Heathy Dry Forest. It is fully fenced and closed to the public. This makes it a haven for many threatened woodland bird species including Speckled Warbler, Swift Parrot, Black-chinned Honeyeater, Spotted Quail-thrush and Diamond Fire-tails.

We recently installed 50 nest-boxes at the reservoir. These fill a gap between those installed years earlier by the Bendigo Field Naturalists at the reservoir and the adjacent Regional Park. Uptake by Brush-tailed Phascogales and Sugar Gliders has been excellent. Wildlife cameras are picking up plenty of action with Ring-tailed Possums trying to gate crash and a Tree Creeper stealing leaves from one box.

Barkers Creek Reservoir

At least 12 threatened bird species including Swift Parrot and Freckled Duck have been recorded at Barkers Creek Reservoir in North Harcourt. Arching and Late-flower Flax-lily, Golden Cowslips and Pale-flower Crane's-bill are found here amongst Grassy Woodland and Red Gum Swamp. The reservoir is also a popular fishing spot and was opened to on-water (non-motorised) fishing last year.

Part of Coliban Water's four strategic directions in our Strategy 2030, our 10-year plan to achieve our vision of Water to Live, Grow and Enjoy, is the stewardship of water in the wider landscape.

We aim to provide water services that protect and enhance the natural environment and our three Land for Wildlife sites play an important part in protecting wildlife habitats and contributing to biodiversity conservation.



Above image: The Bendigo Field Naturalists Club has monitored birds at the Coliban Water Treatment facility twice annually for more than 30 years, with a total of over 150 species recorded. Water birds and waders include Freckled, Musk and Blue-billed Ducks, Australasian Shovelers, Great, Intermediate and Little Egrets, Royal Spoonbill, Glossy Ibis, Baillon's Crake, Caspian and Whiskered Terns, Common and Marsh Sandpipers, Latham's Snipe and Pied Cormorant. It is a well-known bird watching hotspot and Coliban Water's most popular Twitter Feed is the collection of bird photos (see Flickr set - <https://www.flickr.com/photos/coliban-water/albums/72157627680675524>). Long-necked Turtles are also common here.

Reporting A Dead Platypus

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If you find a freshly dead platypus, please contact the Australian Platypus Conservancy (APC) as soon as possible by phone (03 5416 1478 or 0419 595939) or email (platypus.apc@westnet.com.au) so we can arrange to have the carcass picked up for a thorough post mortem examination if this appears to be warranted. However, if the body is clearly starting to decompose, careful photographic documentation may actually be of greater value than saving the body for an autopsy.

Meanwhile, secure the body if possible – if it's left in place outside (especially overnight) it may well be carried off by a fox or other scavenger. If the body is reasonably fresh, ideally place it inside a sealed plastic bag and store it in a cold place (preferably a refrigerator rather than a freezer). Of course, always adopt sensible precautions to avoid the risk of possible infection when handling the carcass – wear disposable rubber or plastic gloves if these are available and thoroughly wash your hands afterwards.

For all dead platypus, recording the following details will be particularly worthwhile:

- ◆ Where the body was found and its location in relation to the nearest water body
- ◆ Date when the body was discovered
- ◆ Description of any injuries or other clues at the site that suggest the cause of death
- ◆ The animal's sex (see comments below)
- ◆ The animal's approximate length (bill tip to tail tip)

In addition, providing photographic documentation of the following images will be of value:

- ◆ The whole body in the position in which it was found (with something to indicate scale)
- ◆ Close-up views of the inner hind ankles (to establish the animal's sex and possibly age)
- ◆ Bottom view of the tail (to help assess body condition)
- ◆ Any apparent injuries or other features that may help to confirm the cause of death.



Important: Is it MALE OR FEMALE?

Males have a poisonous spur behind their ankle and can be quite painful and/or may start an allergic reaction if susceptible. Do you need to handle it? If so, wear thick gloves if handling.

Males can be distinguished from females by the presence (in males only) of a conspicuous sharp spur, about the size and shape of a dog's canine tooth, on each inner hind ankle. The spurs of juvenile males are covered by a layer of protective material when they first emerge from a nursery burrow (left photo). This layer gradually chips away (starting at the spur tip), to reveal the narrower true spur by the time a male is about one year old. Second-year males can be distinguished from older males by the occurrence of a band of skin around the spur base (right photo).

Soil Shifting Lyrebirds

Lyrebirds: Nature's Ecosystem Engineers

The superb lyrebird is best known for its sophisticated and powerful calls, which echo through the forest and mimic the song of other birds as well as human sounds such as car alarms and chainsaws.

New Australian research has discovered this songbird is extraordinary in another way: superb lyrebirds move more soil than any other land-based animal in the world, including earthworms. This has significant implications for the forest ecosystems where they live in Victoria, NSW and Tasmania.

Scientists from the Centre for Future Landscapes at La Trobe University have discovered that, on average, superb lyrebirds displace 155 tonnes per hectare of forest litter in a year.

In the Sherbrooke Forest, in Melbourne's Dandenong Ranges, researchers found an individual lyrebird could move up to 11 standard dump trucks' worth of litter and soil a year.

In scientific terms this makes them an "ecosystem engineer" par excellence, says primary author and ecology PhD candidate Alex Maisey, whose study is published in *Ecological Applications*.

"We believe wildfire is the only comparable natural disturbance process that shapes ecosystem structure at this scale."

Superb lyrebirds spend most of the day tilling the soil, facing uphill and scratching the litter behind them with their powerful feet so they are aided by gravity.

Mr Maisey tracked the activity of wild superb lyrebirds over two years in the Central Highlands of Victoria across three locations and found, like beavers in North America, the songbird changes the environment in ways that can benefit other organisms.

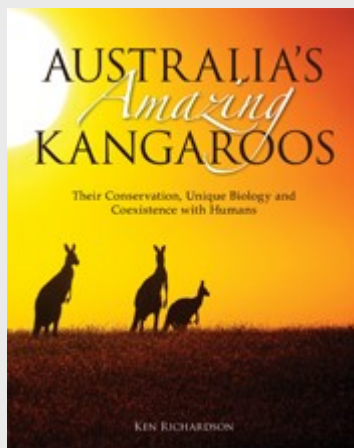
As they search for insects on the forest floor the lyrebirds change litter decomposition and "fluff up", or aerate, the structure of soil on the forest floor, making it easier for seeds to germinate. For more information click on the following link (or copy and paste):

<https://www.latrobe.edu.au/news/articles/2020/release/lyrebirds-natures-ecosystem-engineers>



Recent Publications

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AUSTRALIA'S AMAZING KANGAROOS

Their Conservation, Unique Biology and Coexistence with Humans

This book provides an authoritative source of information on kangaroos and their relatives. Topics include: species characteristics and biology, adaptations and function, and conservation. The book also discusses culling and the commercial kangaroo harvest, as well as national attitudes to kangaroos and their value for tourism.

There are 71 recognised species of kangaroo found in Australasia. Of these, 46 are endemic to Australia, 21 are endemic to the island of New Guinea, and four species are found in both regions. The various species have a number of common names, including bettong, kangaroo, pademelon, potoroo, quokka, rat kangaroo, rock wallaby, tree kangaroo, wallaby and wallaroo.

Available from CSIRO Publishing. [Click here for more information](https://www.publish.csiro.au/book/6497). Or copy and paste the following website address into your internet browser: <https://www.publish.csiro.au/book/6497>

THE FOREST IN THE TREE

How Fungi Shape the Earth

The story of a little fungus and a baby cacao tree who work together to survive drought. This is a story about trees and fungi connected through a 'wood wide web' – told by one tiny fungal spore.

A little fungus meets a baby cacao tree and they learn to feed each other. They cooperate with a forest of plants and a metropolis of microbes in the soil. But when drought strikes can they work together to survive?

The fourth book in the Small Friends Books series, this science-adventure story explores the Earth-shaping partnerships between plants, fungi and bacteria.

A beautifully illustrated science-adventure story, created in collaboration with scientists, which engages children in the invisible world of microbes. "The Science Behind the Story" section allows for deeper exploration of the scientific concepts underpinning the story. Teacher Notes are available to support the use of this book in the classroom.



Available from CSIRO Publishing. [Click here for more information](https://www.publish.csiro.au/book/7960/). Or copy and paste the following website address into your internet browser: <https://www.publish.csiro.au/book/7960/>

Recent Publications

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A HOLLOW IS A HOME

Take a peek into the world of tree hollows and the Australian animals that call them home.

To you and me, a tree hollow is just a hole, cavity or tunnel in a tree or branch. But to an animal, that hollow may be a bedroom, hiding place, nursery or shelter. It is the ultimate tree house!

Take a peek inside the amazing world of tree hollows and discover more than 340 species of incredible Australian animals that call hollows home. With colour photos of glorious gliders, darting dunnarts, minute microbats and many more, this book is full of fun facts about animals that use tree hollows as places for resting, nesting or hiding.

Find out how hollows are created, why they are threatened, and meet scientists who spend their time hollow-hunting. There are also plenty of tips on how you can spot hollows yourself, help to protect the environment and encourage habitat for hollow-dependent animals.



Available from CSIRO Publishing. [Click here for more information.](https://www.publish.csiro.au/book/7729/) Or copy and paste the following website address into your internet browser: <https://www.publish.csiro.au/book/7729/>

RESTORING FARM WOODLANDS FOR WILDLIFE

Featuring best practice approaches to restoration based on 19 years of long-term research.

Millions of hectares of temperate woodland and billions of trees have been cleared from Australia's agricultural landscapes. This has allowed land to be developed for cropping and grazing livestock but has also had significant environmental impacts, including erosion, salinity and loss of native plant and animal species.

Restoring Farm Woodlands for Wildlife focuses on why restoration is important and describes best practice approaches to restore farm woodlands for birds, mammals and reptiles. Based on 19 years of long-term research in temperate agricultural south-eastern Australia, this book addresses practical questions such as what, where and how much to plant, ways to manage plantings and how plantings change over time. It will be a key reference for farmers, natural resource management professionals and policy-makers concerned with revegetation and conservation.



Available from CSIRO Publishing. [Click here for more information.](https://www.publish.csiro.au/book/7844/) Or copy and paste the following website address into your internet browser: <https://www.publish.csiro.au/book/7844/>

News and Events

New Grasslands App

A new, free comprehensive field guide app for iPhone and iPad, [Grasslands: Biodiversity of south-eastern Australia](https://bit.ly/grasslandapp) introduces users to the unique biodiversity of south-eastern Australia's native grasslands. (Copy and paste link: <https://bit.ly/grasslandapp>). Includes (too much to list):

- ◆ Over 500 flora descriptions with images, and over 200 fauna descriptions with images and selected bird and frog calls.
- ◆ Details of 25 easily accessible grassland sites to visit, representative of grassland communities in Victoria, with more grasslands planned.

Online Seminar: Native Grasslands

Register now for this free online SWIFFT Seminar to learn about things we can do to increase biodiversity in native grasslands. The 2.5 hour seminar covers the following ([presented by SWIFFT](#)):

Is disturbance switching a useful restoration tool?

Dr John Morgan, Associate Professor, La Trobe University.

Two ways of knowing natural temperate grasslands of the Victorian Volcanic Plain

Dr Brad Farmilo - Senior Scientist & Plant ecologist, Arthur Rylah Institute for Environmental Research (DELWP); and Chase Aghan - Project Officer (Forest, Fire and Parks) for Wadawurrung Traditional Owners Aboriginal Corporation.

Djandak Wi, returning Djaara to Djandak

Nathan Wong, Dja Dja Wurrung Clans Aboriginal Corporation; and Amos Atkinson, Project Officer with Dja Dja Wurrung - bringing back traditional ecological knowledge to landscapes using fire.

When: Thursday 22 October 2020 9:45am - 12:15p

Where: Online seminar [Register here](#)

Or on YouTube: <https://youtu.be/HKWtZV7rUbU>

It's Spring Survey Time!

Did you know that you can record bird activity in the **Birdlife Australia** "Birds in Backyards" spring surveys?

Find the [survey instructions here](#).

Copy and Paste link if needed:

<https://www.birdsinbackyards.net/getinvolved/How-survey>



Land for Wildlife Contacts

Land For Wildlife Extension Officers and Contacts are at the following Department of Environment, Land, Water & Planning Offices:

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Bendigo, Mildura And Swanhill

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