LAND FOR WILDLIFE

SOUTH EAST QUEENSLAND

MAY 2023 VOL. 17 NO. 2

INSIDE THIS ISSUE

Access Tracks and Trails p.8

Macrozamia Pollinators p.10

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Land for Wildlife South East Queensland Team, December 2022

Land for wildlife
SOUTH EAST QUEENSLAND SNAPSHOT

5,442 TOTAL PROPERTIES

4,325 REGISTERED PROPERTIES

1,117 PROPERTIES working towards RESTORATION

76,710 ha RETAINED HABITAT

8,809 ha Habitat Under RESTORATION

11,325 Facebook Page Followers

40,422 iNaturalist OBSERVATIONS

www.inaturalist.org/projects/lfwseq

To join contact your local LfW Officer

Land for Wildlife is a voluntary conservation program that encourages and assists landholders to provide habitat for wildlife on their properties.

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Front Cover: An adult Regent Skipper, photo by Fflur Collier.

Front Cover Inset Photos: A walking track created on a Land for Wildlife property to access an area of revegetation, photo by Nick Clancy. Pineapple Zamia (*Macrozamia lucida*) by Pete Woodall, inaturalist.org.

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EDITORIAL

Welcome TO THE MAY 2023 ISSUE

Some scientists say that there could be up to 80 million species of insects on Earth. That's just insects and they are just one group under the wide arthropod umbrella, which sits under the even wider invertebrate pavilion. Land for Wildlife Officers recently attended an arthropod workshop where we spent an hour or so in the nearby bushland lifting logs, sweeping grasses with large nets, shaking vegetation and prying bark to catch critters.

Despite the recent rain and autumn season, we found a wonderful diversity of arthropods including an ant-mimicking spider, cockroaches, grasshoppers, treehoppers, leafhoppers, mites, ants, moths, flies, stink bugs, leaf beetles, damselfly and praying mantis. Even if you can't identify an arthropod to a species level, you can still get a measure of the diversity and abundance of arthropods by putting them into overarching categories, like the list above.

Arthropods (invertebrates with a hard outer shell and jointed legs) are found in nearly every ecosystem on Earth, are relatively easy to collect and can tell us about the general health of the environment.

Basically, the more diverse habitats are, the higher the diversity and abundance of arthropods. If your bushland has fallen timber, old trees with flaking or fissured bark, shade, sunny areas, rocks, deep leaf litter and a diversity of plant species (trees, shrubs, grasses, vines), you will probably have many different types of arthropods and lots of them. Together, they will be performing an incredible range of ecological services including decomposition, nutrient recycling, seed dispersal and of course, pollination.

The workshop presenter, Michelle Gleeson (Bugs Ed), has studied the fascinating pollination systems of native cycads found along the D'Aguilar Range and Gold Coast hinterland. These cycads are pollinated by thrips, which are a tiny insect with fringed wings. Thrips get into the male cycad cone to eat the pollen and they could happily live there, but that doesn't help the cycad get pollinated. So, the cycad has evolved a fascinating strategy unique in the plant world. It decides to heat up the male cone to evict the thrips. At the same time, the female cone starts to emit a pheromone to smell like the male cone. The pollen covered thrips are forced from their hot home (Michelle has recorded a male cone reaching 45°C) and fly to the nearby cool female cone. This fascinating push-pull pollination strategy lasts for only two weeks a year with the male cone heating up only between 11am and 3pm daily. Hopefully it is not raining during this time as the thrips cannot fly in the rain. This is another absolutely fascinating story from nature – see page 12 for more details.

Nature continues to amaze, uplift and humble me. Whether it be seeing albatross out on the continental shelf, finding scorpions under logs or learning that plants can deliberately heat up, nature is endlessly captivating. I hope you are drawn into the wonders on your own property, and I encourage you to share your discoveries with other Land for Wildlife members. I welcome all contributions to this newsletter however long or short.

Deborah Metters
Land for Wildlife
Regional Coordinator

We welcome all contributions.
Please send them to:
The Editor
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0437 910 687

Climate & Weather

REGIONAL OUTLOOK May-Jul 2023

Daytime and Night-time Temperatures.
Above median temperatures are very likely with warmer days and warmer nights.

Rainfall. Below median rainfall is likely.

Streamflow. Low streamflows are likely.

Climate Influences

- Currently the Pacific Ocean is ENSO-neutral but there are signs that an El Niño may develop later this year.
- The Indian Ocean Dipole (IOD) is currently neutral but may turn positive in the coming months. When an El Niño coincides with a positive IOD, they reinforce each other resulting in less rainfall and higher temperatures.
- Australia's climate has warmed by about 1.47°C since 1910 leading to an increased frequency of heatwaves.

Sources

www.bom.gov.au/climate/outlooks/
www.bom.gov.au/water/ssf/outlook
www.bom.gov.au/climate/cyclones/australia

Weeds to Watch

Apr-Jun 2023

Molasses Grass is flowering now with its distinctive reddish seed heads. It is a weed of roadsides and disturbed areas but can also get into bushland forming a mat-like covering over the ground. Control with foliar spray herbicide.

Arsenic Bush is showing its bright yellow flowers this time of the year and can be distinguished from the similar-looking weed, Easter Cassia, by its pointy leaflets. Control this shrub by hand using a lever-type tool (e.g. Tree Popper) or with herbicide using cut-stump method.

Broad-leaved Privet is fruiting now with its small, purplish-black, berry-like fruit. Wildlife eat the ripe fruit and spread privet seeds. Privet shrubs can be removed using a lever-type hand tool. Controlling mature trees requires herbicide using the cut-stump or basal bark method.

Thanks to Brisbane City Council's Weed Identification Tool at weeds.brisbane.qld.gov.au

Photos by Martin Bennett, inaturalist.org

CARING FOR A Sunburnt Fig

"Never underestimate the value of expert knowledge"

We are caretakers of a beautiful huge Moreton Bay Fig at Elaman Creek on unceded Gubbi Gubbi land. The fig is affectionately named The Elder. It provides food and shelter to 70+ bird species that we've noted, as well as countless insects and small creatures that have their place in the ecosystem. This fig fills us with awe, delight and wonder every day and we do not take this for granted. So, you get the picture – we clearly love this tree. This is a tale of misguided care and rookie errors.

The fig grasps the southern side of a mountain ridge and its roots cascade down like octopus arms. It had a denser canopy on the eastern side and was reasonably open on the western side, with some evidence that limbs had been removed or damaged.

In 2016, when we first began to care for this fig we removed many large Devils Figs, Lantana and straggly Acacias from under its massive canopy. We spread weed mat and truckloads of mulch over the cleared area. At the same time, we removed a large Jacaranda tree which sat adjacent to the fig along the western ridge. It all looked good, and we sat back and enjoyed the seasonal changes to the wildlife sharing the fig with us.

In May 2020 we enlisted the help of Alan Wynn, our Conservation Partnerships Officer with Sunshine Coast Council, for assistance in identifying the seedlings which were popping up under the fig as well as seeking general advice on shade grasses. Never underestimate the value of expert knowledge.

Alan recognised the peeling bark on the western aspect of the extensive root system as sunburn. He provided us with interim advice and suggested we consult an arborist. We consulted an arborist immediately and were provided with several actions to take to mitigate and manage what was significant root sunburn. The tree did not appear unhealthy and there was no obvious limb damage. By clearing the Devils Figs, shrubs and Jacaranda we had unwittingly exposed the root system to the damaging western sun without applying any 'sunscreen'.

Acting on the advice provided we immediately mulched from the root zone to the drip line, with forest mulch. The purpose of this mulch was to help protect the surface roots, reduce surface soil temperature and provide a resource for beneficial fungi and soil biota. The arborist also suggested spent mushroom compost could be beneficial, but we didn't do this, mostly because we couldn't find a large enough supply of it at the time.

Secondly, we used shade cloth to reduce further sun damage to the exposed buttress roots while allowing good air circulation. The cloth is strategically placed to shelter the large roots and remains in situ for most of the year. It is removed during winter when the western sun is lower in the sky and not as fierce.

The next step was to plant a row of fast-growing trees (e.g. Macarangas and Green Kamala), not too tall, to provide some protection from the western sun. Then behind that row, at the outside of the canopy, we have planted another row of slower growing small trees (e.g. Syzygiums and Backhousias) to provide further protection long-term. We were told the canopy should start to grow down to meet these trees and balance itself out in time.

Thanks to the keen eye of a Land for Wildlife Officer, this much loved Moreton Bay Fig tree was diagnosed with a bad case of sunburn - note the peeling bark on the roots. The landholders quickly took action and the long-term prognosis for this tree is now hopeful.

Finally, we treated the tree with several bags of organic fertiliser to balance the impact of the mulch and nourish the tree. The arborist did not feel it was necessary to remove dead bark and rotting timber from the buttress roots.

We were reassured that the tree should survive with these steps in place, and while we were a little worried, we were also horrified at our naivety.

So come August 2022, and the latest sunscreen report. The trees have grown, and we are hopeful that this year may be the last year we need to protect the roots with the shade cloth.

The damaged roots have survived with signs of new growth. The western side of the canopy has begun to thicken and drop and there are quite a few new shoots growing from the larger branches.

Article and photos by Kerry
Land for Wildlife member
Elaman Creek, Sunshine Coast

From THE SHADE

For several years I have observed these plants gradually spreading over this log. It is interesting to observe how logs are adorned by epiphytes and lichens. I think the spreading one is rock felt fern. The small fern shrivels to brown and comes green after rain. The larger fern I think is basket fern. I don't know what sort of lichen is the whitish patch.

The log has recently been dragged from shade near a small dry rainforest tree under spotted gum to more open grassland. Perhaps the epiphytes will shrivel. I hope not.

Article and photos by Shirley Weatherhead
Land for Wildlife member
Peak Crossing, Ipswich

Editor's note: *The bright green fern in the top photo looks like Basket Fern (Drynaria rigidula) and just next to it is a small Mulga Fern (Cheilanthes sieberi). The fern below looks like Robber Fern or Felt Fern (Pyrossia confluens). These ferns grow in moist, shaded areas and, like the fig in the adjoining article, they might get sunburn and die if exposed to the sun in an open grassland setting. Thanks to Martin Bennett for identifying these ferns.*

Adult and larval Regent Skippers. Note the silk threads used by larvae to tie together Wilkiea leaves to make a daytime shelter. Photos by Fflur Collier and Cody Hochen.

BRINGING BACK BRISBANE'S

Regent Skippers

One of the many reasons I love being a Land for Wildlife Officer, is the people I meet and the expertise they harbour and share. Dr Don Sands (OAM and ex-CSIRO entomologist) is one such person.

While I was working with Don to build a corridor of Richmond Birdwing Vines on Land for Wildlife properties in Brisbane, he mentioned a planting in which he assisted some 20 years ago on a property in Burbank. This property was acquired by Brisbane City Council a few years ago and we visited the site in 2019 to see how the Richmond Birdwing Vines were going. To our amazement we found curtains of Richmond Birdwing Vines stretching way into the rainforest canopy, but alas, no Richmond Birdwing butterflies.

However, what we did find was just as exciting. Don informed me that all those years ago when he planted the vines, he found a small population of a beautiful little butterfly called a Regent Skipper, one of two populations known in Brisbane, the other in Pullenvale. The Pullenvale population is now extinct, most likely due to inappropriate fire regimes. These butterflies exist in Burbank due to a significant population of their food plant Veiny Wilkiea (*Wilkiea huegeliana*) growing along the creek and surrounding rainforest.

Due to the low light conditions, we didn't see any Regent Skipper butterflies, although we did find their caterpillars. Interestingly, these caterpillars mostly shelter during the day between two leaves that they join together with silk. During low light hours they leave this shelter to feed on their host plants, usually one of the four Wilkiea species found on the east coast of Queensland. According to Don, Regent Skippers are relatively uncommon in south-east Queensland and are very rare in Brisbane. Habitat destruction and wildfire are the main threats to both Regent Skippers and their food plants.

Coincidently, I had previously seen Regent Skipper butterflies and caterpillars with Don years earlier feeding on Smooth Wilkiea (*Wilkiea austroqueenslandica*) overlooking Tallebudgera Creek at Burleigh Heads National Park. At that stage I didn't realise how special these butterflies were as I was more interested in the Richmond Birdwings flying through the rainforest canopy.

Immediately after our sighting in Burbank my memory brought me back to an article in the July 2018 LfWSEQ newsletter on Regent Skippers (available on the LfWSEQ website). For those who need a re-cap, Regent Skippers are small by butterfly standards, but large for the skipper family (Hesperiidae). It is only found on the east coast of Australia and is the only member of its genus, *Euschemon*. They are an ancient butterfly and considered to be the link between moths and butterflies. The male possesses a frenulum, which links the fore and hind wings together. This structure is only found in moths and was thought to be a separation of the two major Lepidoptera families (moths and butterflies) until the Regent Skipper was discovered. Although mostly black, the wings have bright yellow markings with lighter blue markings and its head and abdomen are scarlet and dramatically stand out.

Not known to venture far from its rainforest communities, their food plants in south-east Queensland are Large-leaved Wilkiea (*Wilkiea macrophylla*), *W. huegeliana* and *W. austroqueenslandica*. These rainforest shrubs are all dioecious, meaning male and female organs appear on separate individuals. Their fruits are ovoid, 15-20mm long that turn shiny black when ripe. They are spread by birds throughout the rainforest and are easy to propagate when the fleshy outside is removed. Wilkieas are among the most ancient of flowering plants.

Two of the three Wilkieas occur within Brisbane, with *W. macrophylla* found in the western suburbs of Brookfield, Upper Brookfield and Pullenvale in undisturbed rainforest gullies and creeks. Despite extensive surveys, I have unfortunately never encountered a Regent Skipper in the western suburbs of Brisbane.

In 2019, my luck finally changed when I was planting Richmond Birdwing Vines on a Land for Wildlife property in Burbank, eastern Brisbane. This particular property was in an amazing condition and had great linkages along the same creek to the council reserve Don and I had surveyed. While planting, I stumbled across a small *Wilkiea huegeliana*. An extensive survey of the property found a further dozen plants and to my surprise two leaves joined together with silk and a Regent Skipper larva inside. From the corner of my eye, I also had a fleeting glimpse of a red, yellow and black butterfly that could have only been one thing. Excitedly, I told the property owner that this was probably the first Regent Skipper to be found on a Land for Wildlife property in Brisbane.

Going back to the office, my thoughts went to how we could secure and extend the population of this uncommon butterfly in Brisbane. Immediately, I wanted to plant more *Wilkiea huegeliana* on the site to add to the half a dozen existing plants. We secured 40 from a local nursery and with the help of the property owner put them in the ground only a month later.

I also looked at Atlas of Living Australia and iNaturalist to see if there are any other sightings of Regent Skippers in Brisbane. Other than my sighting, there were two other records in the same area. I cross-referenced them with *Wilkiea huegeliana* and not surprisingly there was an overlap in distribution. We ground-truthed these records and found dozens of large plants to 5m tall in a rainforest gully. Although worthy of future surveys, there was no evidence of Regent Skippers. This confirmed my suspicion that this small population of Regent Skippers in Burbank is more than likely the only existing population remaining in Brisbane.

Exploring further planting options, we worked with landholders on a further five Land for Wildlife properties at Burbank with ideal habitat for Wilkieas and the butterfly. Two of these properties had small numbers of *Wilkiea huegeliana* to which we added. One property was adjacent to our very first planting and it contained about half a dozen *W. huegeliana*. While adding another 20 to the existing plants, I again noticed a butterfly with yellow and black wings and a splash of red flittering quickly through the forest. Knowing exactly what it was, I followed it and to my luck it settled on the leaves of a *Cryptocarya microneura*. There it sat, showing off its bright yellow and red colours in the sun for a few minutes while we all admired it and took photos.

Since these discoveries, both the Regent Skipper and *Wilkiea huegeliana* have been placed on the list of Citywide Significant Species by Brisbane City Council. We also managed to collect hundreds of fruits of *W. huegeliana*, which we gave to a nursery for propagation. We also planted another 100 plants on the remaining four identified Land for Wildlife properties. Although losing a few in the February 2022 floods, most plants survived and are growing quite well. Despite their slow growth, some are now almost a metre high and aren't far away from becoming food for a Regent Skipper in the next year or two.

Over the next couple of months, I aim to survey all the properties on which we have planted Wilkieas and will be seeking out further properties to extend the corridor. With assistance of Land for Wildlife members, the aim is to secure and extend the population of Regent Skippers and their food plants throughout Burbank. There is also an opportunity to create corridors of *Wilkiea huegeliana* by connecting existing populations of this plant and therefore enabling Regent Skippers to extend their range.

Article by Cody Hochen
Land for Wildlife Officer
Brisbane City Council

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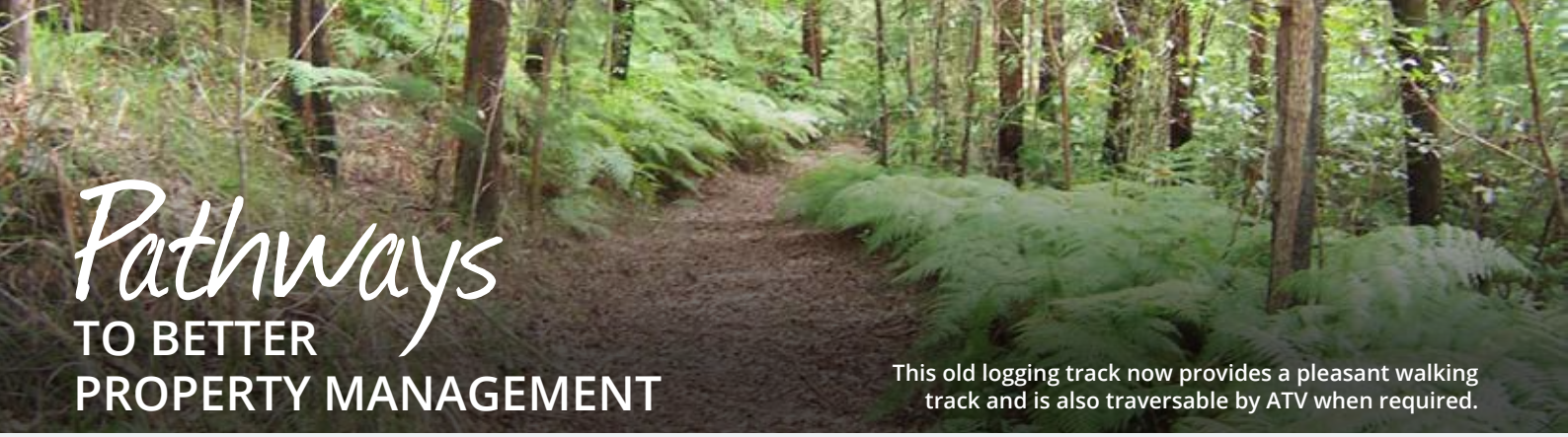
www.youtube.com/watch?v=eog6TWeZTto

Veiny Wilkiea (*Wilkiea huegeliana*) is an ancient plant from the Gondwanan rainforests and is one of the earliest ancestors of flowering plants on Earth. Inset is the black ripe fruit. Photos by Cody Hochen.

Between Noel Wakerley (right) and Cody Hochen is one of the Veiny Wilkieas that was planted in 2019 and is now nearly a metre high. Noel is the owner of the Land for Wildlife property in Burbank where Cody first found Regent Skippers.



Pathways TO BETTER PROPERTY MANAGEMENT

This old logging track now provides a pleasant walking track and is also traversable by ATV when required.

The majority of native vegetation that once grew on flat land in SEQ has made way for urban, industrial and agricultural uses. Consequently, much of the bushland that remains today occurs on steep slopes. For this reason, many Land for Wildlife members are faced with the challenge of managing hilly properties with steep gullies, slopes and escarpments. I have met many landholders that have areas on their property that they deem to be 'inaccessible'. Indeed, this lack of access prevents many landholders from managing and enjoying their property as much as they would like.

Activities such as weed control, revegetation and fire management all require adequate access. Good access makes property management easier, saving time and effort. Having a network of access tracks on your property can not only help you achieve your property management goals it also enables greater enjoyment of your property. The number and type of tracks required will vary depending on property size, terrain and how you need to access areas. Property access tracks can vary from 4WD or ATV tracks, fire management trails or low impact, single-file walking trails.

Over the years I have seen examples of both good and poor track construction, including some incredible examples of landholders creating access across extremely steep terrain. From hand-crafted tracks built with a strong back and a hoe to suspension bridges across waterways. On one property on the Blackall Range escarpment, the landholder has established access that is traversable on their ride-on mower on a slope that would challenge a mountain goat! This allowed them to get the necessary materials for weed control and revegetation to most parts of their previously 'inaccessible' property. While not everyone is willing to go to such extremes, if establishing walking tracks on your property is something that you have always wanted to do, here are some tips to get you started.

Firstly, what is the purpose of the track? Is it an occasional walking track down to the creek or to a favourite vantage point or is it a track that will double as a containment line for fire management? Tracks can have multiple purposes and it pays to think through your management and access needs prior to starting. If you have existing infrastructure running through your property such as overhead wires, pipelines or fences you can 'bundle' tracks along the same alignment to avoid the need for any additional clearing of vegetation.

How much use will the track get? Does it need to be permanent or is it just to access a large lantana patch until it has been regenerated and therefore a temporary access track will suffice? Will the track be one-way, terminating at a lookout and a seat for contemplation or will it be a loop track or part of a network of connecting pathways?

Most privately owned forests in SEQ have been selectively logged or farmed in the past and will still have old 'snigging' or farm tracks, often hidden by lantana and thick regrowth. Hillshade maps generated with LiDAR technology are available online (https://qldglobe.information.qld.gov.au) and are a great resource for locating old overgrown tracks. These tracks often follow the top of ridgelines or spurs with snig tracks cutting into gullies following the contour across slope. Locating and re-opening old tracks rather than establishing new ones can reduce disturbance as well as saving time and money.

For single-file walking tracks you can also look for existing animal tracks or old cattle tracks that are often found following a gentle grade along the contour across steep slopes. Again, this approach of

These basic steps traverse a steep slope down to a creek that is undergoing revegetation. Two trestle-planks welded together make a simple bridge.

A simple single-file track constructed across the contour of this very steep slope provided access to manage weeds and undertake revegetation.

Bench-cut contour tracks have a gentle crossfall that results in water draining off the track in thin, dispersed sheets rather than along the track.

TIPS FOR TRACK CONSTRUCTION

- Take time to carefully plan and mark out tracks prior to starting.
- Follow contours across the slope at less than 10% incline and not exceeding 15%.
- A trail's grade shouldn't exceed half the grade of the hillside (half-rule).
- Tracks should allow water to get away - crossfall the track tread outwards.
- Regularly reverse the grade.
- The more drainage the better to avoid erosion.
- Use a bench cut construction for contour trails, bench will need to be retained.
- Install regular 'whoa-boys' on steep vehicle tracks.
- Coir logs can provide an alternative to mechanically constructed whoa-boys.

These are two examples of what not to do when constructing tracks.

Left: Tracks with insufficient drainage soon fail and often lead to erosion and sedimentation of waterways.

Centre: The inclusion of 'whoa-boys' on this 4WD track would divert water off the track at regular intervals, instead the water has followed the wheel ruts and has caused erosion.

working with what you've already got can minimise the impacts associated with the creation of a new trail through the bush.

Creating access tracks is not without an environmental impact. Tracks can fragment bushland, provide pathways for weeds to disperse and feral animals to follow. They can also alter natural hydrological flows and poorly constructed tracks can cause erosion and sedimentation. For this reason, good design and construction methods are crucial.

To help plan your tracks, start with a contour map or hillshade map. If you don't have access to these your Land for Wildlife Officer may be able to help. Once you have a basic layout in mind, it's time to walk the proposed route. Digital apps such as Avenza Maps are a useful tool for walking potential routes and mapping them digitally as you go. Walk and mark the trail using markers such as flagging tape at regular intervals, ensuring they are visible from one marker to the next (and in reverse). Take your time to get the alignment right and move the tape up or down the slope as required. Deciding the exact route for a new pathway can take longer than the actual construction!

As much as possible, it is best to follow the contours across the slope. Tracks should not exceed slopes of 10% or a 1 in 10 change in elevation. Steeper slopes may require the use of 'switch-backs' in order to avoid inclines greater than this.

For new tracks, it is inevitable that some disturbance to native vegetation will occur, especially to groundcovers such as grasses, herbs and ferns. If you are going to impact native vegetation, then its important to know what it is you are disturbing. If you don't know what a plant is, then find out before you remove it (ask your Land for Wildlife Officer) to ensure that it is not a rare or otherwise significant species. If your alignment passes close to a tree, pass it on the upslope to help avoid root damage. While bush rocks are a handy, cheap local source of materials for retaining a bench-cut track, removing them will disturb the habitat for a range of small fauna, so they are best left alone.

Drainage considerations and preventing erosion is a major factor in track design and construction. Consider your soil types along the track alignment and their erosion potential, try to avoid areas that are susceptible to erosion. A well-made track should disperse water off the track regularly and doesn't allow the track to become a watercourse in heavy rain. This can be achieved by ensuring that the track has a crossfall that results in water running off the track in sheets rather than along the track in concentrated flows. When water drains in thin, dispersed sheets, soil tends to remain on the track. Regular grade-reversals with drainage turn-outs will also help reduce the likelihood of gully erosion and wash-outs.

For steeper sections on fire trails or vehicle tracks the construction of 'whoa-boys' is necessary to divert large volumes of water off the track during heavy rain. For walking trails you may want to consider building steps with diversion drains for very steep sections, especially in rocky areas.

There are a range of online resources such as trail building manuals and guidelines that provide detailed technical information regarding trail construction. These are generally aimed at government agencies such as National Parks that are building high-use hiking trails, but the fundamental principles remain the same for private properties. There is also a growing amount of mountain bike trail construction resources available including online videos. While the needs of mountain bikers differ to those of a Land for Wildlife landholder, the general concepts behind good trail construction remain the same.

Well designed and constructed contour trails can get you from the top to the bottom of your hill and vice-a-versa without raising a sweat and are much kinder on ageing knees! They also make it safer for you when you are lugging equipment from one end of your property to the other. A nice walking trail also provides a pathway to follow that can help you forget about the weeds for a while and simply enjoy your land for wildlife.

Article and photos by Nick Clancy
Land for Wildlife Officer
Sunshine Coast Council

References & Further Reading

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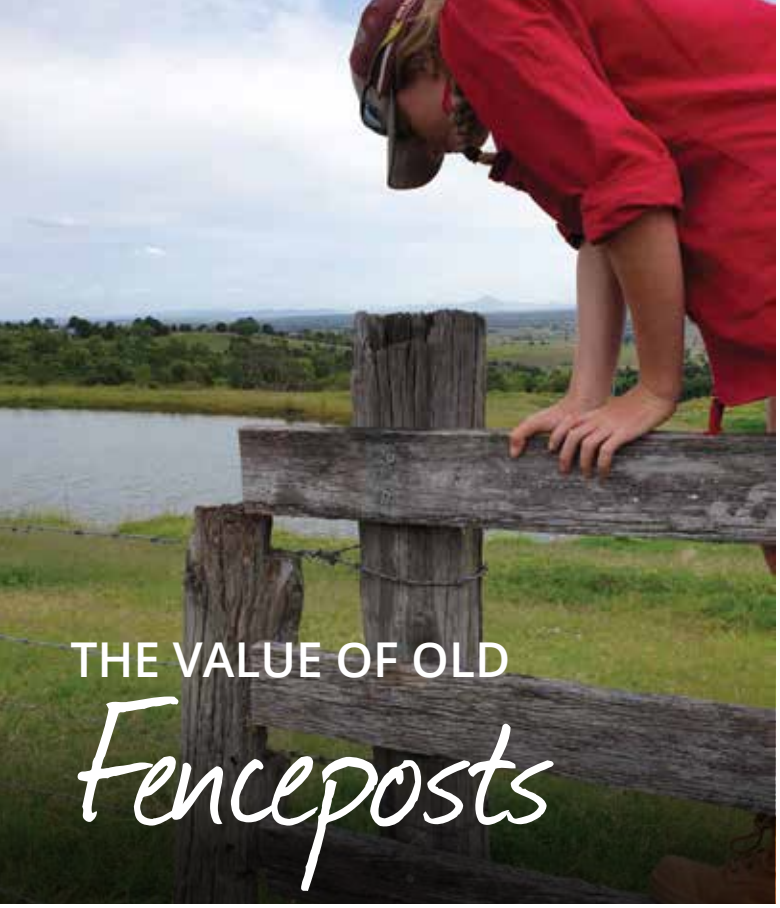


THE VALUE OF OLD *Fenceposts*

I used to see one microbat that would hang upside down at night from the roof around our entertainment area outside. I would see it on and off for a couple of weeks and then it would disappear. Occasionally I would get one that flew inside, and I would have to shoo it outside.

A few months later, I was showing my father-in-law the cows and horses over the fence. My daughter heard an odd noise and climbed up on the timber part of the fence near the big gate to get a closer look. She peered into the hollow at the top of the fence and leapt back and said "Oooh gross... rats".

Immediately I jumped up knowing full well they wouldn't be rats in a fencepost. I was hoping it would be a microbat family. So had a look and, yes, there were all these tiny bodies squashed all together. A large family of around 15 microbats all piled into the end of the log.

It's a rather strange home for them to pick seeing as it was open to the elements, sun and rain from the top. They were there for a few nights, and then they were gone. I'm hoping to install some nest boxes so I can encourage them back to eat all my bugs.

Nicky and Khan Tait
Land for Wildlife members
The Bluff, Ipswich
Photos by Nicky Tait

Microbat expert, Dr Scott Burnett, provided the following feedback on Nicky's photos.

These bats seem to have large feet like microbats in the genus Myotis, but the ears, tragus (a structure near the entrance of the ear canal) and the exposed roosting site are not consistent with Myotis bats. The habitat doesn't look any good for microbats in the genus Vespadelus as they don't like wide-open spaces. Therefore, we think that they are broad-nosed bats, genus Scotorepens, but it would be good to record some calls to confirm identification.

The Ipswich City Council Land for Wildlife team have already installed wildlife acoustic recording devices on an adjacent property and are planning on installing some on Nicky and Khan's property in the near future. Hopefully the calls will help work out the identification of the microbats. Nicky and Khan will also be receiving some microbat nest boxes to provide more roosting options for their bats.

BLACK ROCK BioBlitz

What a successful BioBlitz weekend we had when 150 people descended onto Deborah Stenzel's Land for Wildlife property at Black Rock in early March this year. Twelve surveys were conducted over the weekend, each survey targeting specific groups of plants, animals or fungi. All surveys were led by experts in their field, and all were fully booked out.

The Stenzel family has always had a keen interest in wildlife and maintain detailed records of flora and fauna. Several flora surveys have been conducted by botanists over the past 35 years and this BioBlitz aimed to not only add to the existing knowledge of the area, but to showcase the impressive biodiversity of a working cattle property to the public. The event was also designed to get people involved in using the citizen science platform, iNaturalist.

Over 1200 observations of 473 species of plant, snake, beetle, frog, dragonfly, microbat and much more were recorded on the iNaturalist project page.

It was really pleasing to hear that many people saw 'lifer' species. Of the 32 species of dragonflies and damselflies that were recorded by Dr Chris Burwell, Christian Perrin reported several new species for his dragonfly 'life list', including the Twinspot Hunter and Unicorn Darner. Similarly, Greg Tasney (who led one of the plant surveys) found a 'lifer' species, *Hypoestes floribunda*. He had been searching for years to see this plant.

Night-time surveys were led by Dr Scott Burnett for microbats and Brett Malcolm surveyed for frogs with people learning about microbat recording equipment and the Frog ID app that helps identify frog calls.

A big thanks to Deborah and Errol Stenzel, the team at Watergum and all survey leaders and participants!

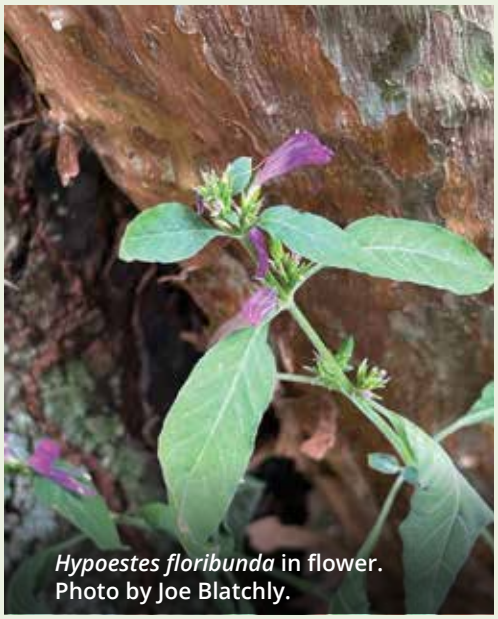
Article by Catherine Madden
Land for Wildlife Officer
Scenic Rim Regional Council

https://www.inaturalist.org/projects/scenic-rim-bioblitz-2023

"I had the wonderful opportunity to explore a remnant dry rainforest on a walk guided by Greg Tasney and Jacob White. Dry rainforest looks quite different to subtropical rainforest. European settlers showed little love for it, calling it 'scrub' and clearing most of it to get at the fertile volcanic soil beneath it. Which makes it all the more amazing that the landowners at this property have preserved the remnant rainforest there! Thank you to Deb Stenzel and family for letting us explore your wonderful property! It's so reassuring to know that such a special landscape is in the hands of people with the knowledge and dedication required to ensure its continuation." **Christian Perrin, Wild BNE**

Ultraviolet light is used to help identify scorpions.

Dr Chris Burwell, Catherine Madden and Christian Perrin at one of the dragonfly and damselfly surveys in 'the canyons'.



***Hypoestes floribunda* in flower. Photo by Joe Blatchly.**

***Acacia brunioides*. Photo by Greg Tasney.**

Twin-spot Hunter (*Austroepigomphus praeruptus*). Photo by Chris Burwell.

Macrozamias
AND THEIR POLLINATORS

Dr Irene Terry collecting thrips from *Macrozamia lucida* in D'Aguilar National Park.

Cycads are one of the most ancient group of gymnosperm (non-flowering) plants on Earth – evolving well before the dinosaurs. In SEQ, most cycads are species of *Macrozamia* and it was initially thought that they were pollinated by the wind. However, long-term research has shown that they are pollinated only by thrips or weevils. It has also been found that individual species of *Macrozamia* produce unique compounds that attract specific pollinators. Some of these compounds are not known anywhere else in the natural world.

The Macrozamias that are pollinated only by thrips are pollinated by thrips from the Genus *Cycadothrips*. Some *Macrozamia* are pollinated only by thrips and some are pollinated by both thrips and weevils. The image here clearly shows the pollen attached to a *Cycadothrips*. The fine hairs covering this thrip are said to aid in the attachment of cycad pollen.

Macrozamias also have another trait that is rare in the plant world – they can produce their own heat, also called thermogenesis. Thermogenesis is known as the production of heat within an organism and while it occurs in all warm-blooded animals it is rare in the plant world. It is said that most plants use this trait to assist in the production or dispersal of chemicals to attract pollinators.

Adult thrips and their larvae only feed on pollen from the male cones. These cones can heat up during the day and the thrips will leave the male cone when it gets too hot. Incredibly, the cones sometimes will heat up to 15ºC above the ambient temperature. The heat produced from one cone could produce enough watts to power a small computer monitor. The female cones also have a chemical signature, but it is weaker than the males. Female cones attract the heat-evicted adult thrips from the male cone, incidentally carrying pollen, and therefore resulting in pollination of the cycad. It doesn't take too many thrips to pollinate the female cones.

The Macrozamias found in the D'Aguilar Range west of Brisbane, produce a chemical signature that lead researcher Dr Irene Terry from the University of Utah describes as a hoppy beer smell, similar to the smell emanating from the XXXX Brewery on Milton Road in Brisbane. Whereas the Macrozamias found at Mt Archer in Rockhampton produce a smell like aniseed. Dr Terry has been coming to Queensland since 2001 researching Macrozamias first upon the invitation of Dr Laurence Mound from CSIRO and is now working with staff from the University of Queensland and has in the past worked with staff from the Queensland Herbarium.

Macrozamias are found in small populations across Queensland and there are currently 20 named species, of which 13 are listed as threatened (six are Endangered, six are Vulnerable and one is Near Threatened). The threats to both the *Macrozamia* and their obligate pollinators are land clearing, unplanned hot wildfires, inappropriate fire frequencies, illegal harvesting and drought. It could be said that an unplanned hot fire could impact small populations of *Macrozamia* and thereby impact their pollinator species and threaten a locally significant population. It is therefore important to protect not only the *Macrozamia* plants but also the mutualism species – the thrips and weevils.

There is still much to learn about the thrips and their mutualism with *Macrozamia*. Researchers are still yet to understand their life cycle in full as it is unknown where the thrips go to pupate. It is proposed they may pupate deep within the surrounding soil.

Populations of *Macrozamia* in SEQ include the Endangered *Macrozamia pauli-guilielmi* from Tin Can Bay, *Macrozamia douglasii* from the Fraser Coast, *Macrozamia macleayi* found in wetter forests of Brisbane and central Queensland, *Macrozamia lucida* found commonly from the Gold to Sunshine Coasts and the Near Threatened *Macrozamia longispina* found west of Gympie.

I am glad that I happened to meet Dr Terry and one of her colleagues Desley Tree (whom I knew) while walking my dog. Upon hearing of Dr Terry's research, I thought it would be interesting to share it with the Land for Wildlife community.

Article by Craig Welden
Land for Wildlife Officer
Logan City Council

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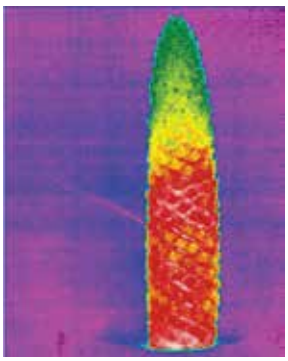
Electron microscope image taken of a pollen loaded *Cycadothrips*. Image courtesy of Desley Tree.



Infrared image of a male *Macrozamia* cone showing thermogenesis. Image courtesy of Jeff Kessler, University of Utah Department of Mechanical Engineering.

Plants: Past, Present and Future

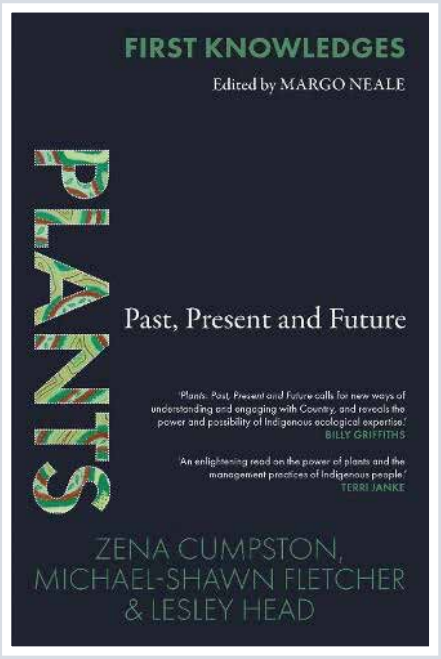
Zena Cumpston, Michael-Shawn Fletcher and Lesley Head
First Knowledge Series - Edited by Margo Neale

"Plants are the foundation of life on Earth. Aboriginal and Torres Strait Islander peoples have always known this to be true", and so the book begins to tell the story of the relationship that Australia's First Peoples have with plants. Readers familiar with Bruce Pascoe's landmark work *Dark Emu* will once again be drawn into the complex web of relationships Indigenous peoples have with plants, fauna, country, and spirituality.

This book at first challenged my 'western' mind and dared me to consider what I knew of Australian plants, which was only a tenth of the knowledge held, used and put into practice by the First Peoples. Amongst others, there are stories of the historic processing of Spinifex to produce a resin with such durability, malleability, and so many practical applications. Of Cumbungi or Bulrush (*Typha* sp.) and the making of fishing nets of so many shapes and sizes and so long lasting yet not forever ghosting through waterways and oceans ensnaring innocent species. Of Quandong (*Santalum* sp.) not just as a gourmet spread but also a medicine and a tonic to support and to heal in today's world.

The authors write of a future rich with the opportunity to learn, respect and share in the knowledge and uses of plants that is millennia in the making. Underlying all of this is their and the Elders' incredible generosity to share this knowledge not just for their people but also to those who have come after. Through their storytelling I began to glimpse the opportunity to see plants and their connection with us and our country. I also see that there might just be a way to address the wounds and heal the damage colonisation has done to its First Peoples, their country, and embrace a better interconnected future for all peoples who live in this land.

This is an excellent book that challenges, saddens, amazes and inspires the reader to view history clearly and to take responsibility for the tragedies of the past. To understand the underpinning science and accuracy of the knowledge provided as equal to any of the most rigorous of western scientific discipline. To respect the rights of the First Peoples to their knowledge and their right to determine how that is shared. To learn ways to incorporate this knowledge into daily life and to learn to live lightly upon country.



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224 pages | 13 x 19cm
Published by Thames & Hudson Australia
www.thamesandhudson.com.au

Review by Christopher Joyce

Aboriginal Peoples and Birds in Australia

Philip A. Clarke

This book explores the complex historical and cultural relationships that First Nations people have with the rich and diverse species of birds across Australia. It highlights the significance of birds for First Nations people in ceremony, creation stories, the spirit world, and for food, medicine and material culture.

The author draws upon his own personal experiences and research working as an anthropologist and academic and takes the reader to places across Australia he has worked in (be sure to have a map at hand).

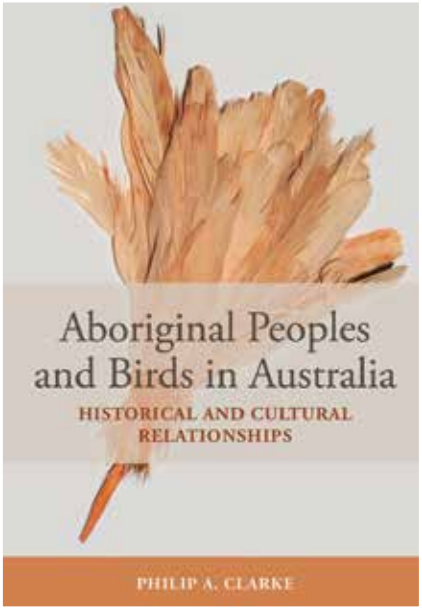
The author has stressed that information is from 'outside' public records such as from archived documents and that 'inside' sacred traditional knowledge is protected.

The book is organised thematically, with chapters focusing on the broad relationships that First Nations people have with birds, such as birds and the spirit world, bird nomenclature, hunting, food preparation and medicine. The book will appeal to a wide audience including those who want to gain a better understanding of etho-ornithology and environmental knowledge.

The author asks the reader to consider incorporating traditional forms of environmental knowledge into current understandings and management of natural and cultural landscapes.

I think the book could have benefited from the dispersal of the author's wonderful images throughout the book to illustrate the various chapter's themes, rather than shown as colour plates in the middle of the book.

Overall, I enjoyed reading this book and would recommend it to anyone interested in Australia's First Nations people's relationships with birds and country.



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Review by Craig Welden

Supporting Conservation
WITH IPSWICH LANDHOLDERS

"There has been a significant increase in the birds at my place since I've been planting trees." Ann Joubert, Land for Wildlife member, Thagoona.

In February this year, about 70 landholders from the Ipswich region descended on Ivory Rock's Convention Centre to meet each other and discuss conservation. At the end of the day, all landholders received a tray of native plants, tree guards, nest boxes, plant identification books and/or Cane Toad traps.

The native plants were custom selected for each landholder based on the ecosystems on their properties and the restoration work being undertaken. Three nurseries supplied the diverse selection of native plants. For example, the Brigalow and semi-evergreen vine thicket (vine scrub) species were sourced from Tanglewood Natives Nursery. Wallum Nurseries supplied the rainforest species and Paten Park Native Nursery supplied most of the eucalypt forest species. The trays of plants looked amazingly healthy.

"We've only been in the program for six months but have already learnt a lot and are happy to take home these plants and nest boxes today". Oscar and Sylvia Sanjurjo, Land for Wildlife members, Tallegalla.

All nest boxes supplied were from the Cyplas™ range of nest boxes from Hollow Log Homes. They are made from 100% recycled plastic and Queensland Cypress and have a lifespan of 30+ years. This is three times longer than the average nest box.

The Cane Toad traps provided are designed to trap Cane Toad tadpoles using a lure that is manufactured from the paratoid glands of Cane Toads. The plastic tubs, lures and instructions are all produced by Watergum, an environmental non-profit organisation and are available for sale online.

This Landholder Support Day was organised and delivered by Ko, Dani and Shania, the Conservation Partnerships Team at Ipswich City Council. After many years of policy review and building the suite of conservation programs at Ipswich, this Landholder Support Day showed that Ipswich is well and truly in the delivery phase of offering support services to landholders. The landholders who were invited to this day are involved in either Land for Wildlife, Corridor Conservation Agreement or Biodiversity Conservation Agreement programs.

It should be noted that only Land for Wildlife members who have migrated over to the new program model received an invite to attend. This means that they have had a revisit to their property by either Ko, Dani or Shania and have received an up-to-date property management plan, which outlines the ecosystems and key natural values, priority threats such as weeds and step-by-step recommendations for how to manage those threats. By migrating your property to the new program, landholders are also eligible to receive grants and incentives to help meet the goals of the management plan. If you haven't already migrated across to the new program model but are keen to do so, please contact Ko, Dani or Shania to schedule a visit.

In total over 4600 native plants, 43 nest boxes, 30 Cane Toad traps and copies of *Mangroves to Mountains* were given to landholders on this day. It is great to see Ipswich's Land for Wildlife program up and running and supporting landholders in the great conservation work that they are doing.

Article and photos by Deborah Metters
Land for Wildlife Regional Coordinator

Resources

Hollow Log Homes – www.hollowloghomes.com.au
Paten Park Native Nursery – www.ppnn.org.au
Tanglewood Natives Nursery – www.tanglewoodnatives.com.au
Wallum Nurseries – www.wallumnurseries.com
Watergum – www.watergum.org

"Where we live is called Pine Mountain, but there was just one remnant Hoop Pine left on our place when we moved there. We are doing our best to help restore it to its former glory." Kevin and Debbi Jeffrey, Land for Wildlife members, Pine Mountain.

Emily Vincent from Watergum demonstrating how to use a Cane Toad tadpole trap. Photo courtesy of Ipswich City Council.

"I love this program because it enthuses you. It helps you to see past the hard work and you can get excited by nature." Marina Whitchurch, Land for Wildlife member, Lanefield.

Ko Oishi showing planting techniques at the Landholder Support Day. Photo courtesy of Ipswich City Council.

L to R: Shania Watson, Ko Oishi and Danielle Andlemac - the Ipswich City Council Conservation Partnerships Team at the Landholder Support Day.

Land for Wildlife South East Queensland proudly delivered by:

LAND FOR WILDLIFE
VOLUNTARY WILDLIFE CONSERVATION

Macro Phone Lens

FOR INSECT IDENTIFICATION

Invertebrates play a significant role in the ecology of this planet. They pollinate many of our native plant species, have led to numerous medical discoveries, provide food and help to maintain ecosystem balance. Despite this, people tend to overlook most invertebrates, other than butterflies and bees.

I was one of those people until I discovered iNaturalist a few years ago and wanted to record all naturally occurring plants and animals in my suburban backyard. Invertebrates quickly became the most interesting subject and they now make up the majority of my species on my iNaturalist list. I have now recorded 85 species of invertebrates just in my backyard and am continually finding species I haven't recorded before.

One of those invertebrates is a tiny 2mm psyllid that I found on one of the Brown Kurrajongs (*Commersonia bartramia*) in my backyard. I took some photos of this psyllid using a clip-on macro phone lens. These clip-on lenses are very useful, particularly for small insects, as they allow you to take a clear enough photo to provide enough detail for potential identification.

In this instance, my photo provided enough detail for an excited entomologist from Melbourne to message me on iNaturalist about the psyllid potentially being a new species in the genus *Diclidphlebia*, which was previously thought to not occur in Australia. The distinguishing characteristic of this genus is the small hairs that can be seen along the veins of the wings, which would not have been visible without the macro lens attachment.

With tens of thousands of invertebrate species yet to be formally described in Australia, there are many important discoveries still to be made. So, if you're wanting to contribute valuable citizen science data, I recommend taking a closer look at invertebrates and consider purchasing a simple clip-on macro lens for your phone. They only cost $10-$15 and are readily available online.

Article and photos by Nick Swanson
Land for Wildlife Officer
Logan City Council

A macro lens clipped onto a smart phone can open up a whole new world of invertebrate photography.

This tiny 2mm psyllid might not only be a new species for Australia, but a new genus for Australia. Photo taken with the clip-on macro lens shown left.