



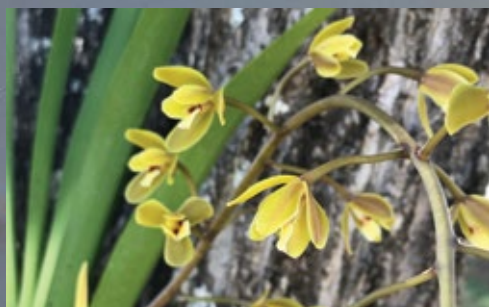
LAND FOR WILDLIFE

SOUTH EAST QUEENSLAND

NOVEMBER 2021 VOL. 15 NO. 4

INSIDE THIS ISSUE

- 2 Land for Wildlife Team
- 3 Editorial
- 3 Climate & Weather Outlook
- 3 Weeds to Watch
- 4 Reviving the Kin Kin Rainforests
- 5 Letter to the Editor
- 5 Weird Night Sounds
- 6 From Paddock to Ephemeral Wetland
- 7 A Little Question
- 8 From Green Blur to Valued Diversity
- 10 Weedy Opuntias
- 11 Controlling Tree Pear
- 12 Dragonfly & Damselfly Lifecycle
- 13 Book Reviews
- 14 Musclemantree Ants and their Canthium Homes
- 16 SEQ Koala Research & Monitoring



Native Cymbidium, p.7



Weedy Opuntias, p.10



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Land for Wildlife South East Queensland Team, December 2020

ANNUAL REPORT

Last year was a huge year for the LfWSEQ program with record high registrations rates. 392 properties joined LfWSEQ adding an extra 3,700ha of land managed for conservation to the program. As well as meeting our new members, Council LfW Officers also revisited 1664 existing LfWSEQ properties. To find out more about how the program is tracking, download our 2020-21 Annual Report at www.lfwseq.com.au/reports



*These above statistics reflect LfWSEQ membership across all 13 Local Governments.

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: Red and Blue Damsels (*Xanthagron erythroneurum*). Photo by Deborah Metters.

Front Cover Inset Photos: Native Cymbidium (*Cymbidium madidum*) flowers, photo by Stephani Macarthur; and Bunny Ears (*Opuntia microdasys*) - an illegally traded regulated cacti in SEQ, photo by Biosecurity Queensland.



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Welcome TO THE NOVEMBER 2021 ISSUE

EDITORIAL

Recently, I was chatting to a Land for Wildlife member who said that he is a glass half-empty person, an outlook usually linked with pessimism. Whereas for him, he sees the empty part of the glass as the potential in people and places and enjoys helping them reach their potential. This is how he approaches his property. He sees what it can look like, and function like, without weeds. Through years of bush regeneration, and the accompanying solace, joy, frustration and hard work, his property looks incredible and is largely weed-free. The rainforest gullies are deep green with native vines and his eucalypt slopes, now mostly freed from dense weedy Green Panic, are visited by Painted Button-quail leaving their circular scapings in the leaf litter.

Being able to see the potential in land, for its intrinsic worth and ecological value, is a skill. It's looking forward while also incorporating our understandings of history. What the country looked like 10, 100, 1000 or 100,000 years ago vastly differ. The megafauna that dominated for eons were huge – truck-sized wombats and car-sized kangaroos, emus and turtles. When they went extinct and people started to manage this country,

human ingenuity and fire were used to reshape this country's potential. When Europeans colonised and the age of fossil fuels started, the potential of land was largely commodified into parts such as timber, fur and agricultural soils.

Forming a historic reference point for guiding present-day land management can be helpful. For example, Regional Ecosystem definitions are designed to paint a picture of the vegetation communities that were here during Indigenous tenure. REs fall short in portraying the wildlife diversity or abundance that once was, but this can be gleaned through other ways.

Seeing the land's ecological potential, removing obstacles and helping nature on its way is the Land for Wildlife journey. Usually that means controlling weeds and encouraging native plants. It can also mean going above and beyond to create habitat for threatened species or controlling threats that could push a species into extinction. For others it is about valuing the land management of First Nations people and re-instating indigenous fire regimes.

With another La Niña on our doorsteps, let's hope the rain is enough to recharge our forests and creeks and help our summer wildlife flourish.

I would like to welcome three new officers to the LfWSEQ network - Adam Richardt and Stefan Hattingh at Moreton Bay and Ko Oishi at Ipswich. It is encouraging to see this increasing investment by councils to help meet the strong demand for this program from the community.

Thank you for the hard work you do to help your property reach its potential for our wildlife, ecosystems and future generations. I always welcome feedback and contributions to this newsletter.

Deborah Metters
Land for Wildlife Regional Coordinator

We welcome all contributions.

Please send them to:

The Editor

✉ deborah@seqlfw.com.au

☎ 0437 910 687



Climate & Weather REGIONAL OUTLOOK Oct-Dec 2021



Daytime and Night-time Temperatures. It is likely that daytime temperatures will be below median with night-time temperatures warmer than average.



Rainfall. Above median rainfall conditions are likely for eastern Australia.



Streamflow. Low to near median streamflows are most likely in south-east Queensland.

Influences

- El Niño-Southern Oscillation (ENSO) is neutral, with a 70% chance of a La Niña forming, which is likely to contribute to wetter than average conditions.
- Southern Annular Mode (SAM) is neutral, but is likely to be positive for November to December. A positive SAM during spring typically brings wetter weather to eastern Australia.
- Indian Ocean Dipole (IOD) is expected to return to neutral in November, having little influence on Australia's climate.
- Australia's climate has warmed by ~1.44°C since 1910.
- In recent decades there has been a trend towards rainfall from high intensity short duration rainfall events.

Sources

www.bom.gov.au/climate/ahead/

www.bom.gov.au/water/ssf

Weeds to Watch Oct-Dec 2021

Green Cestrum is a multi-branched shrub with yellow flowers and black fleshy berries at this time of year. The leaves have a distinctive foul smell when touched. Can be controlled manually (digging up all roots) or with herbicide using cut stump method.



Climbing Asparagus Fern is currently flowering prolifically. Underneath the showy white flowers are thorny stems. Cutting the stems will knock it back, but digging out the crown or using herbicide is needed for long-term control.



Mexican Poppy is a weed of disturbed or degraded lands, sandy creek beds and alluvial flats. Each plant can produce up to 20,000 seeds which are viable for 7 years. They are in flower at this time of year.



Reviving the Kin Kin RAINFORESTS



A massive Giant Water Gum (*Syzigium francisii*) in the Kin Kin district. Image from W.D Francis' book, *Australian Rainforest Trees* (1929).



Landholders Simone and Kevin with botanist Bill McDonald retrace the steps of W.D. Francis, owner of this property a century ago and pioneering rainforest botanist.

The track up the hill was steep and took our breath away for a bit as we rested at the top of the ridge. The view down into the valley was stunning with the Booyong trees in flower. The Cooloola sandpatch glistened to the east. We were on Kevin Wilson's and Simone Eisler's 100 hectare Land for Wildlife property at Kin Kin, and were fortunate to have eminent botanist Dr Bill McDonald accompany us to share his botanical knowledge and stories of William Douglas Francis.

W.D. Francis grew up in Wollongong and moved to Queensland in 1906 with his father and brother and took up land at Kin Kin (the same property we were visiting). The surrounding rainforests stimulated an interest in natural history and especially botany. He bought books and a microscope and soon became proficient in plant identification and learnt to recognise most of the rainforest trees by their stems and bark. His collections and observations soon brought him to the attention of C.T. White at the Queensland Herbarium.

W.D. Francis was appointed Assistant Botanist at the Queensland Herbarium in 1919 and with the encouragement of Mr White, continued to collect, describe and photograph rainforest tree species, leading to the publication of his landmark *Australian Rainforest Trees* in 1929. In 1930-31 he spent 12 months at Kew on exchange with C.E. Hubbard. He became Government Botanist after the death of Mr White in 1950 and retired in 1954. The plant species *Syzygium francisii* and *Solanum francisii* and the genus *Franciscodendron* (Sterculiaceae) have been named in his honour.

During the time that W.D. Francis was living at Kin Kin, the district was being cleared of its remnant rainforest. The First Nations people had largely been pushed off their land and many of the first European settlers had come from the Big Scrub district of northern NSW where they had developed a clearing technique called driving. This is where all the trees on a hillside were partially cut, then a large tree at the top of the slope was felled, causing a domino effect where the entire forest collapsed. When the fallen trees and vines had dried out, the material was burnt, then crops or pasture grass sown in the ashes. Very little remnant rainforest was left from this initial clearing in the Kin Kin area. I have come across occasional large trees retained along the creek or for shade but generally even the creeks were cleared. The impact on faunal populations and water quality must have been catastrophic.

As we walked back down the ridge through a patch of regenerating rainforest, I wondered what William thought of all this at the time. A few of the photos in his book were taken in the Kin Kin district and show some massive forest giants such as the *Syzygium francisii* shown left. Apart from some large Moreton Bay Figs standing today, most of W.D. Francis' property was also cleared. Life was a lot harder for people back then and nature conservation wasn't a priority for landowners or the government.

One hundred years later community attitudes and land use patterns have changed in the area. Many of the steep slopes and waterways have regenerated or been replanted with a range of native species. There are now many landowners like Kevin and Simone who see themselves as forest custodians and are nurturing the patches of regenerating rainforest on their properties.

Dave Burrows
Land for Wildlife Officer
Noosa Council

Weird Night Sounds

There are not so many of these night callers around my district now, however at Pacific Haven where I live, in past years I have had many visits to my home by Bush Stone Curlews. One season in fact I had these secretive birds nest on my Land for Wildlife property and safely raise two offspring. Unfortunately, with the development of housing, people and dogs and the increase in marauding foxes, these birds are now rarely seen or heard in the more settled parts of Australia. They are a strange looking bird with very long legs and have a habit of freezing in position when sighted. A few nights ago at home, I was awakened in the middle of the night by the weird call they make, and I answered them back in the best imitation call I could muster. Great to know they are still around so I will have to keep my eyes open in the daytime more.

Alan Peebles
Land for Wildlife member
Pacific Haven, Fraser Coast



The article about Myrtle Rust on the final page of the August newsletter by Nick Swanson was of interest. Highly susceptible host plants like Native Guava (*Rhodomyrtus psidioides*) are likely to become reinfected with Myrtle Rust unless regularly treated with fungicide. This is primarily due to the fact that the fungus attacks the new growing shoots and maintaining optimum levels of fungicide can be a challenge. Some years ago, we tested fungicide control on *Rhodamnia rubescens* and found that monthly fungicide application was required to maintain control of the disease. This of course can vary depending on weather patterns with Myrtle Rust more active during wetter years. A student from Macquarie Uni has also looked at the use of fungicide on *Rhodamnia rubescens* and *Rhodomyrtus psidioides* to control the disease with a similar treatment regime.

While not published, we found that Bayfidan® alone was not that effective when looking to control Myrtle Rust on *Melaleuca quinquenervia*. We used a combination Bayfidan® (triadimenol) + Zaleton® (tebuconazole) with much better results. However, it didn't eliminate the fungus, just reduced the incidence and severity levels in comparison to untreated trees. Another study tested a range of fungicides on two New Zealand Myrtaceae species. It found that the most effective fungicides were those that included a

Native Guava (*Rhodomyrtus psidioides*) showing signs of being infected with Myrtle Rust.

LETTER TO THE EDITOR

demethylation inhibitor and strobilurin mix, notably tebuconazole/trifloxystrobin (Scorpio®) and cyproconazole/azoxystrobin (Amistar® Xtra).

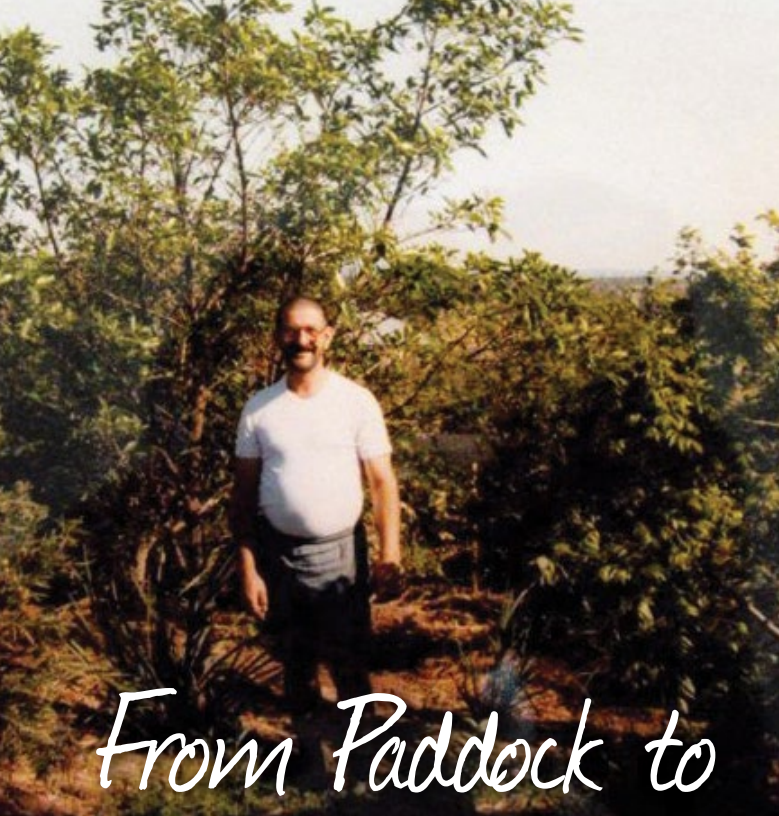
I would recommend that people don't use a single fungicide regularly. Rotation of fungicides containing different active ingredients is recommended to ensure fungicide applications remain effective. The last thing we want is to facilitate fungicide resistance in the rust population through over-use of a single fungicide. Below are recent papers that examine the efficacy of different fungicides.

Dr Geoff Pegg
Forest Pathologist
Dept of Agriculture and Fisheries

Carnegie AJ, Kathuria A, Pegg GS, Entwistle P, Nagel M, Giblin FR (2016). Environmental impact of the invasive rust *Puccinia psidii* on Australian native Myrtaceae. *Biological Invasions* 18:127-144.

Fernandez-Winzer L, Berthon KA, Entwistle P, Manea A, Winzer N, Pegg G, Carnegie AJ & Leishman MR (2020). Direct and indirect community effects of the invasive plant pathogen *Austropuccinia psidii* (myrtle rust) in eastern Australian rainforests. *Biological Invasions* 22:2357-2369.

Pathan AK, Cuddy W, Kimberly MO, Adusei-Fosu K, Rolando CA & Park RF (2020). Efficacy of fungicides applied for protectant and curative activity against myrtle rust. *Plant Disease* 104:2123-2129.



From Paddock to

EPHEMERAL WETLAND

When we bought our 20 acre property back in 1990, it was all bare paddocks. We moved here because we wanted somewhere with heavy soils with good grass for horses as my wife keeps miniature horses.

Our property was previously used as a dairy farm and the nearby lowland country around Marburg used to grow sugar cane. Those days are long gone. The good soils have all been overgrazed and over cultivated. I remember trucks and trucks carrying milk from all the local dairies. That kind of land use simply can't be maintained on these soils anymore.

In the 180 years since European colonisation of this area, the country has been transformed. It used to be cool, fertile plains with scattered dry rainforest scrubs. Now, it is dry infertile soils. Most of the area was dense Brigalow (*Acacia harpophylla*) and Belah (*Casuarina cristata*) forests with fertile floodplains growing huge Blue Gums (*Eucalyptus tereticornis*) and Black Tea-trees (*Melaleuca bracteata*). The occasional big Blue Gum has been left and can be seen along Plain and Woolshed Creek floodplains.

I started planting out the front of the property in 1996 with native plants to attract birds. Over time, my plantings have expanded and developed into a shelterbelt corridor that runs from my place up to the nearby Minden Range. This corridor has enabled the Mountain Brushtail Possums (bobucks) to move down the range to my place.

As I learnt more about the region's history, I planted more scrub species to try to recreate the ecosystems that were once here. Many of the scrub species I planted died because the soil and surrounding microclimate had dried out so much since European colonisation; they simply could not survive here anymore. The area out the front of my place was covered in horse manure, and this is the area that now has a wonderful dry rainforest. It is the only area on my property where scrub species can grow.

There are two dams on our property. Both are spring fed and are a bit brackish, but they are great for livestock, ducks and turtles.

We joined Land for Wildlife in 2000 as Working Towards Registration status. About four years later, we were upgraded to Registered as a result of all the plantings I had done.

In the mid-2000s I started to work for Gatton and Esk councils and am now working with Lockyer Valley Regional Council as Environment Officer. I have also worked for Scenic Rim Regional Council. In these roles I have had the privilege to visit hundreds of Land for Wildlife properties. Land for Wildlife is a thing that puts a smile on my face. I have never had to sell the program to anyone – they all come freely to the program with good environmental intentions. Landholders everywhere want to learn about their property and nature. Lots of legislation seems stacked against the environment, so it is good to work with a program that puts the environment and landholders first.

From my 30+ years of planting native plants, I have learnt that you need to put the right plant in the right spot. During the recent drought we had several 45°C days. Many of the Silky Oaks (*Grevillea robusta*) and Maiden's Wattle (*Acacia maidenii*) died, but now they are making fallen timber which is habitat for invertebrates, small reptiles and birds. It is a living forest. I am waiting for some of the threatened plants that I planted to flower and fruit. I don't know how old I will be when that happens!

One of the most exciting projects on my property has been the creation of an ephemeral wetland that would have once been there. I used fill from one of my dams to build a low wall around an old swampy area. Then I planted Swamp Tea-tree (*Melaleuca irbyana*), Black Tea-tree and Belah – similar species to what would have been around the Prenzlau Swamp area. The native grasses and native wetland plants like Ludwigia and Juncus just appeared. They came naturally and thought "this is the right spot". Frogs, yabbies, rails, egrets and herons call this area home when the soil is wet, soft and green.

I know I must be doing something right because when we first moved here, I recorded 15 bird species. Now I have 102 species on my bird list. All the plants I've planted provide a home for some wildlife.

Martin Bennett
Land for Wildlife member
Prenzlau, Somerset



A LITTLE Question

In my role as Land for Wildlife officer, I am privileged to observe nature's interactions with equally intrigued landholders. My mind is often whizzing with thoughts and questions that can't be immediately answered, my pen furiously taking notes for later. Recently I was quizzed about the common name of an orchid, *Cymbidium madidum*, a little question, but one which led me down an intriguing path of discovery, and one I wanted to share in this article.

Cymbidium madidum is a relatively common orchid in SEQ and it's likely that most of us have walked under many more than we realise. They are one of the biggest, boldest epiphytic orchids in Australia and once seen, they are hard to ignore. Now that I've mentioned it, I expect you'll see them everywhere! Whilst there are about 50 species of *Cymbidium* in the world, Australia has only three endemics, including *Cymbidium madidum*. Whilst this species is considered an epiphyte (a non-parasitic plant that grows on another plant), it can also be found growing elsewhere. The two other Australian species (*C. canaliculatum* and *C. suave*) tend to establish in tree hollows, using extensive roots and rhizomes to penetrate deep into decaying heartwood – a key differentiating growth feature to assist identification.

Moister environments such as rainforests, swamp forests, she-oak groves and open forests conceal *Cymbidium madidum*. Cast your eyes up paperbarks, she-oaks and eucalypts as well as across landscape features like sandy soil, rocks, boulders and cliff faces and you'll soon find one. August to February they put on a pendulous show of small, colourful flowers but have your binoculars handy to enjoy the detail in these little wonders.

Our native bees, genus *Tetragonula*, play an important role in the pollination of this orchid. Like many other orchids, this species' flowers are highly fragrant, but lack edible pollen and nectar – leaving the bees rather disappointed as they search in and out of each flower, leaving a trail of pollinated flowers behind them. However, the female worker bees have been observed scratching and chewing the labellum (a modified petal) before entering the flower, which raises a question as to whether there might be a symbiotic relationship here after all.

As temperatures rise from morning to afternoon, the orchid's scent intensifies. This in turn, increases the visitation by native bees, leading to further pollination. However, even though visitation increases, these clever female worker bees are not completely fooled as they don't recruit their nestmates to join them like they would for rewarding flowers.

One common name of this orchid is Native Cymbidium, but like all common names, there can be duplication with other species. It's not the most descriptive common name, however, the journey of discovery that stemmed from one little question was indeed worthwhile.

**Article and photos by Kylie Gordon
Land for Wildlife Officer
Sunshine Coast Council**



Orchids have complex relationships with other organisms and often need specialised habitat. Clearing is one of their greatest threats, along with illegal collection of plants from the wild.



Historically, stems and pseudobulbs (shown below) were used by Indigenous people and early settlers to control dysentery. Young leaves were a valuable emergency food source, eaten after grating and cooking. The pseudobulbs are high in starch.



References and Further Reading

Bartareau T (1995) The pollination of *Cymbidium madidum* and *C. suave* by native bees – a case of floral reward deception. *The Orchadian* 11(10), 487-495.

Houston TF (2018) *A Guide to Native Bees of Australia*. CSIRO Publishing.

Jones DL (2021) *A Complete Guide to Native Orchids of Australia*. 3rd ed. Reed New Holland.



Brachychiton x turgidulus. A natural hybrid between *Brachychiton populneus* and *B. rupestris*.



Acacia amblygona

From a Green Blur TO VALUED DIVERSITY

When we bought our large bush block in the 1980s in the foothills of Toowoomba's escarpment, the bush around us appeared to be an indistinct blur of green. As 20-somethings, we saw the ad "For the Adventurous" and we liked what we saw - tall ironbarks and views of the mountains and valleys. We called our block 'Ironbark Ridge'.

A neighbour at the time, Pat Scanlan, who we lost some time ago, opened my eyes to the wonder of native plants and took us to a Society for Growing Australian Plants (SGAP) meeting. When he visited, he excitedly identified native plant species and it slowly dawned on us that there were many different plant species.

In recent years, we've taken on weed management and natural regeneration at Ironbark Ridge and have become involved with our local environment group, Lockyer Uplands Catchments Inc (LUCI). We have obtained authorisation for volunteer weed control work at the adjacent Conservation Park owned by Qld Parks and Wildlife Service (QPWS).

The discovery journey of our block started when we joined Land for Wildlife. With his encyclopaedic botanical knowledge, our Land for Wildlife Officer Martin Bennett, identified over 200 plant species and mapped 7 different ecosystems. It was like being handed a diverse treasure chest. This was a game-changer.

Our property is a forested, mountainous bush block, carrying no stock. We're in the western Lockyer Valley with views to Mt Tabletop, the Lockyer Valley and Mt Campbell. It's rugged, wild and biodiverse. The landforms are various and include basalt rock screes, semi-evergreen vine thickets (SEVT), ridgetops, deep gullies and sandstone boulder fields and caves.

Like the geology, our vegetation is a study in contrasts - dry eucalypt forests with ironbarks and Yellow Box (*Eucalyptus melliodora*) with shrubby understoreys,

Brush Box (*Lophostemon confertus*) gullies, Belah (*Casuarina cristata*) forests and SEVT or 'dry rainforest'. Regional Ecosystems (REs) with Endangered or Of-concern status are: 12.9-10.6; 12.9-10.7; 12.9-10.8 and 12.8.21.

What have we done with this property, beside enjoy it? Our number one achievement is that we've hung onto it for 30 years with no clearing (except for the house and tracks). This is a big feat given that over that time so much of the local landscape has been cleared. So, our big trees live to see another day and add more girth to their DBHs.

We have also done targeted weed control around the margins of our most vulnerable ecosystems, namely the SEVT and where we've found Koala scats.

The three main weeds that displace our native vegetation and/or put them at risk of hot wildfires are Lantana, Green Panic and Velvety Tree Pear. Lantana (*Lantana camara*) combined with a robust pasture grass like Green Panic (*Panicum maximum* var. *trichoglume*) creates a fire risk for the vine thicket margins. So, it's in these areas where we concentrate our efforts. We use glyphosate on Lantana but sensibly and always minimising drift and damage to native plants, and we also hand-pick young Lantana seedlings out as well.

Green Panic is a more persistent problem; give me Lantana any day. Green Panic is a tall, bulky dominant grass that dries off to form a fire ladder structure unlike our native grasses. This changes the fire ecology where it grows. Green Panic produces huge amounts of seed and responds almost instantly to rain - great for graziers, terrible for ecosystems. It grows mostly on cleared road edges and ironically, our car acts as a seed disperser.

As we don't run stock, we brushcut Green Panic to flatten it to reduce seed dispersal by wind. After attending recent Indigenous fire management workshops in the Lockyer, we are coming to the conclusion



that we may need to do traditional, cool, small-scale burns (e.g. 10 x 10m) in ecosystems that can recover from fire to encourage native grasses. This might make the native vs exotic grass a fairer fight.

A pricklier threat is Velvet Tree Pear (*Opuntia tomentosa*), which produces sweet 'prickly pear' fruits that birds and feral animals love to feast on and disperse. Tree pears are big plants that steal valuable soil moisture and nutrients in our dry western ecosystems. Dropped, ripe tree pear fruit also support feral animals in places where normally there's insufficient food. Feral pigs and deer wear nicely worn tracks to our tree pear!

On the flipside, being tall means tree pear are easy to spot amongst the trees and surprisingly easy to control. Hard to believe, but this big fellow is our easiest weed to manage. We stem-inject neat glyphosate manually into each tree pear trunk using a hatchet and about 2ml straight to each cut. It's satisfying when a few cuts to the fibrous trunk and some drops of glypho can cause a tall tree pear to eventually brown off and die - with no impact to surrounding vegetation.

We do this work with help from our insect friends, the introduced Cochineal (*Dactylopius opuntiae*), which attack young tree pear. It's a team effort - we get the old tree pear and Cochineal bugs get the young ones.

The feral animal problem is a tricky one. We've had pigs, deer, foxes and feral cats pass through our property for harbourage and watering at our neighbour's dams. The damage they do to emerging vegetation can be extensive such as ring-barking young trees, digging out wallows and causing erosion in gullies. They also probably threaten vulnerable species like the Black-breasted Button-quail and Koala. With help from council and a local pest contractor we're learning more about how to attract these animals to a specified location for humane despatch. We also

hope by reducing tree pear fruit supply this will reduce interest from feral animals - no more free snacks from our place.

We find with any manual, unmechanised work the bush returns an immediate, intrinsic reward. As we work, we often observe birds, reptiles and other critters nearby and discover hidden plants along the way. Where we have removed Lantana, we've found native plants and entire hidden gullies, providing us with positive reinforcement. I don't think we'll ever stop!

As technology improves and becomes more affordable, we're now learning to use remote sensing cameras, GPS devices and mapping software to reveal and record our flora and fauna. As we approach our retirement years, we're acutely aware of our obligations to pass on this patch in the best bio-condition we can achieve, and to pass on our observations and learnings for the next generation's stewardship. The gift of learning more about our property is only possible with support from organisations and groups like LUCI, Lockyer Valley Regional Council, Land for Wildlife, QPWS, Native Plants Queensland and University of Queensland. We are always eager to learn more and meet more people.

While we do our best to keep our bush connected to other wildlife corridors, our friends, family and local community keep us connected to people who enjoy, respect and care for nature in the Lockyer Uplands. We are keen to connect with other landholders who are actively managing and restoring SEVT, so if this is you, feel free to drop us a line at kiddz4@bigpond.com

Mark and Penny Kidd
Land for Wildlife members
Stockyard, Lockyer Valley



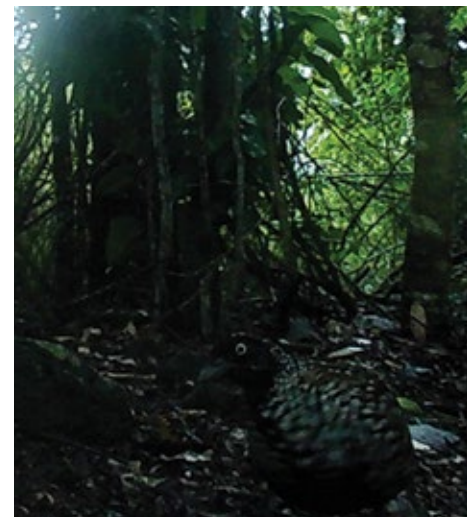
Above left: Mark standing next to a dead fallen Velvet Tree Pear - controlled using the technique described on pg 11.

Above L-R: Greg Tasney, Deborah Metters, Ute Sohnrey, Penny Kidd, Martin Bennett, Mark Kidd on a bird and plant walk at Ironbark Ridge. Photo by Jens Sohnrey.



Skeleton Fork Fern (*Psilotum nudum*).

A female Black-breasted Button-quail caught on fauna camera in a vine thicket on Ironbark Ridge.



Weedy OPUNTIAS

Opuntias are a genus of cacti that includes the infamous Prickly Pear and the Velvety Tree Pear, which is profiled on the facing page. There are no cacti native to Australia, but they grow incredibly well here, especially in drier parts of the country.

There are many factors that make Opuntias difficult to control and manage. Firstly, they reproduce and spread across the landscape easily. Their reddish-purple fruits are readily eaten by wildlife and their seeds are dispersed in the scats of bird, feral pigs, deer, foxes and small mammals. All Opuntias also reproduce asexually from a leaf pad or fruit that has landed on the ground. So if a large tree pear falls to the ground, it can sprout from every live leaf pad that touches the ground. The vegetative parts of cacti can also easily get caught and distributed in vehicles, footwear, wildlife, livestock, floodwaters and dumped garden waste.

Secondly, there are no naturally occurring insects or animals that control weedy cacti, except for the biocontrol agents that have been deliberately introduced. Thirdly, cacti are popular ornamental garden plants and are collected, propagated and sold in backyard nurseries. Some are even sold online and are posted to buyers as cacti can survive long periods without light or water.

There are 12 species of weedy cacti established in Queensland and they are difficult and expensive to manage. Once naturalised, cacti pose a serious risk to people, wildlife, stock and agriculture.

This article focuses on the four most commonly found Opuntias in SEQ. All are regulated (banned) under the *Biosecurity Act 2014*. The Indian Fig (*Opuntia ficus-indica*) is one to watch out for. It is currently unregulated and cultivated for its fruit, however this species can escape into bushland, especially ironbark and Brigalow forests, and may become an invasive weed in the future.

A team at Biosecurity Queensland is tasked with managing the illegal trade of regulated cacti in SEQ. Over the last financial year, they seized over 1600 regulated cacti from 18 different species. If you want to grow cacti, only buy them from registered nurseries. If you are aware of banned cacti being kept or sold, please call your local council or Biosecurity Queensland on 13 25 23. Many of the regulated cacti infestations in Queensland started out as ornamental backyard garden plants.

Deborah Metters Regional Coordinator

Thanks to Martin Bennett at Lockyer Valley Regional Council and Stacy Harris at Biosecurity Queensland for help with this article.



Prickly Pear (*Opuntia stricta*). Only grows to ~1m high. Yellow flowers, yellow prickles and red-purple ripe fruit.



Velvety Tree Pear (*Opuntia tomentosa*). The most common Opuntia in SEQ covering thousands of hectares of land across Queensland. Red flowers, grey prickles and red ripe fruit. Its leaf pads are velvety to touch. It can grow to 10m tall.



Tiger Pear (*Opuntia aurantiaca*). This low-growing scrambling Opuntia has long, square-looking stems, barbed spines, yellow flowers and red ripe fruit. It generally grows in wetter areas such as around dams and wetlands. Tiger Pear lacks viable seed and only reproduces asexually.



Bunny Ears (*Opuntia microdasys*). This Opuntia is of particular concern in SEQ as it can spread quickly and is popular with cacti collectors. Any Bunny Ear plants (in the wild or in cultivation) must be reported immediately to Biosecurity Queensland (phone 13 25 23). A Biosecurity Officer will attend the site and advise on control measures. Bunny Ears lack the obvious spines of other Opuntias, but it is covered in yellow or white hair-like prickles that cause serious skin irritations. The leaf pads often grow in pairs giving the appearance of bunny ears. In the past two years, numerous cultivated backyard Bunny Ears plants have been found throughout SEQ and have been immediately controlled by authorities. Photos thanks to Biosecurity Queensland.

Controlling TREE PEAR

Earlier this year I had the chance to see how Land for Wildlife landholders are successfully tackling the scourge of Velvety Tree Pear (*Opuntia tomentosa*) on two very different properties. Both landholders have tried various methods over the years and both have landed on the same method as the most effective and efficient.

Before I launch into describing hatchets and sauce bottles, it is worthwhile recounting the story of tree pear in Australia to understand why we are here today still fighting this weed.

Tree pear and other *Opuntia* species were primarily introduced to Australia to support the cochineal industry. Cochineals are a small, scale insect native to South America that feed on *Opuntias* and were harvested for their prized red dye that was used extensively in the clothing industry.

Opuntias were first cultivated in 1822 around Scone in NSW, and over the following decades they became established in the wild. By the 1920s, five species of *Opuntia* (collectively referred to as 'prickly pear') covered 25 million hectares in Queensland and were spreading at a rate of about 1 million hectares annually. The country was literally clogged with prickly pear. Ironically, a cochineal industry was never established in Australia.

Various government-led schemes were adopted in the early 1900s to control the prickly pear infestation including a bounty on Emus, currawongs and crows/ravens. The logic went along these lines: birds spread prickly pear, so let's get rid of birds. Over a two-year period in the mid-1920s, over 200,000 birds were killed and 100,000 Emu eggs destroyed. Dangerous poisons like sulphuric acid and arsenic were also used, as was fire and mechanical removal, but none worked on the scale required.

It wasn't until the release of the *Cactoblastis* Moth (*Cactoblastis cactorum*), a moth native to Argentina whose larva feed on *Opuntia*, in 1926 that the prickly pear infestation started to reduce. Within seven years, most of the prickly pear in Queensland was killed due to a moth.

Cochineals and *Cactoblastis* Moth larvae are still chewing away on prickly pear, but they will never eradicate it. So this is where landholders, modern herbicides and hatchets come into play.

The technique I am describing is very effective, but it takes a few weeks to

months to fully kill a tree pear. Tools required include safety gear (e.g. chemical-resistant gloves, protective glasses, face mask and bushcare clothing), a sharp hatchet and either an old tomato sauce-type plastic bottle or a hand-held spray bottle. You may wish to add dye to the herbicide so that you can see where you have treated the plant. One landholder I visited uses straight glyphosate, the other uses straight Amitrol T. Both are approved herbicides for use on tree pear.

The trick is to make one angled cut into the tree pear so it holds the herbicide. Apply the herbicide straight after cutting. No need to cut too deep – just make sure the herbicide can get into the cambium layer allowing the plant to naturally distribute the herbicide throughout the tree. Circle the tree pear in cuts about half a metre off the ground, leaving about 10cm gap between each cut. You don't want to ringbark the tree pear as that will make it collapse and the live leaf pads will sprout where they touch the ground.

Given that Cochineal and *Cactoblastis* Moth larvae prefer young tree pears, landholders generally target the large mature tree pears for herbicide control, leaving the young trees for the biocontrols. One landholder does not use herbicide on tree pear if there is a biocontrol agent within 30-50m of the plant. They also translocate 'infected' leaf pads to areas that don't have biocontrol agents and this has proved very successful especially with Cochineal. Foliar spray is also occasionally used if a live tree pear falls over.

Tree pear is more common in the drier parts of SEQ and some Land for Wildlife members are making remarkable progress on controlling infestations of tree pear using this technique. If you wish to know more about tree pear control, please have a chat with your Land for Wildlife Officer.

Article and photos by Deborah Metters



Signs of *Cactoblastis* Moth larvae feeding on this tree pear.



Cochineal leave distinctive white deposits when they eat tree pear.

Water and Wings:

THE LIFECYCLE OF DRAGONFLIES AND DAMSELFLIES

A male Australian Emperor (*Anax papuensis*) - a 'classic' dragonfly with robust body, large close-set eyes and, at rest, it sits with its wings stretched out wide.

With the onset of summer, most dams and creeks will have dragonflies or damselflies darting over the water's surface. Catching the sunlight, they can display their bright red, green and blue colours and look quite stunning.

Two new field guides, reviewed on facing page, provide an excellent starting point for learning about and identifying our local dragonflies and damselflies. Like many insects, we are more familiar with their winged adult stage, but less so with their early lifecycle stages as an egg and larva (also called nymph). Most adult dragonflies and damselflies live for a couple of months. During this time, they can be seen flying around, catching small prey (they are especially adept at catching mosquitos) and defending their flight territory.

Adult dragonflies and damselflies are also commonly seen mating as their 'embrace' creates an obvious loop-like structure. Some may suggest that it is heart-shaped, but there is little romance in the world of dragonflies and damselflies. The male dragonfly or damselfly 'catches' the female by hooking his tail around the back of her head or neck and locks her into place. The female then loops her abdomen around to join the underbody of the male to mate. They may stay in this embrace for many minutes.

The female will later lay eggs either in or near water. Once the eggs hatch the larvae live in water or nearby soaks. Larvae can live for up to a year and are mostly entirely aquatic where they feed on other small aquatic invertebrates. Dragonfly and damselfly larva have modified mouthparts that can be flicked out to catch prey and are then retracted, grasping their prey, to their mouth for eating. The main way to tell the difference between dragonfly and damselfly larva is by the shape of their abdomen. Damselflies have external fan-like gills that they breathe through. Dragonflies have a simple tapered abdomen.

As adults, dragonflies are generally larger and more robust than damselflies, they generally perch with their wings straight out, perpendicular to their body and they have large eyes that are close together or even touching. In comparison, damselflies are daintier and generally perch with their wings close to their bodies and their eyes are set apart. Of course, in nature there are always exceptions to these rules.

While it is summer, it is much easier to identify adult dragonflies and damselflies, rather than netting their larvae in aquatic surveys. The *Dragonflies and Damselflies of the Gold Coast* field guide is applicable for all SEQ and is an excellent resource with incredible photos.

Article and uncredited photos by Deborah Metters



Red and Blue Damsels (*Xanthagrion erythroneurum*) about to mate, forming a heart-shaped loop.



A male Eastern Billabong (*Austroagrion watsoni*) - a 'classic' damselfly with wings folded along its body, eyes set wide apart and it looks more dainty than the above Australian Emperor.



A freshly emerged adult Water Prince (*Hydrobasileus brevistylus*) hangs off its empty nymph case. Newly-emerged adults are pale in colour and weak flyers. It takes time for their bodies to harden and to develop adult colours, at which time they can start hunting.



Dragonfly larva.



Damselfly larva.

Photos by Narelle Power

ACE Guide to Eucalypts, Brisbane

Rod Fensham

This booklet covers 37 eucalypt species found in Brisbane's bushland reserves. There is one naturalised eucalypt (Cadaghi, *Corymbia torelliana*) and 36 local species. Rather encouragingly, the introduction promises that most eucalypts can be identified at a glance once the eye is trained.

The introduction gives an overview of the eucalypts of the Brisbane Region, their distribution and habitat types. Importantly, Aboriginal knowledge of eucalypts is acknowledged, and names of eucalypts are provided in local language.

Unlike other eucalypt ID keys, the ACE Guide uses a combination of bark texture and leaf colour (discolourous or concolorous when comparing the upper and lower sides of leaves) to initially group and identify species. Each species is given a page of life-sized high-resolution colour photos of adult and juvenile leaves, buds, fruit (gumnuts) and bark textures.

Alphabetical ordering makes it easy to quickly

flick through the book to find a species, and the highly visual photographic layout, with succinct descriptions, makes it easy to judge the size, scale and detail of eucalypt features. On the flip side, eucalypts that you may mentally group together (e.g ironbarks or stringybarks) are not side-by-side for comparison. So, for some, there may be some adjustment to using the booklet, but one that is straight forward to follow.

Lastly, this lightweight booklet is a handy size (like a tall pamphlet) to take into the field. It has a map and quick-reference list to help you find particular species in Brisbane's bushland reserves.

The author is a botanist at the University of Queensland and the Queensland Herbarium with a broad experience researching the flora and vegetation of Australia.

Review by Amanda Maggs
Land for Wildlife Officer
Brisbane City Council



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Available directly from the author via:
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Dragonfly and Damselfly Field Guides

Late last year and early this year, saw the publication of two field guides about Australian dragonflies. First off the press was *Dragonflies and Damselflies of the Gold Coast* by Damian White, Narelle Power and Chris Burwell. Then came the long-awaited 2nd edition of *The Complete Field Guide to Dragonflies* of Australia by Gunther Theischinger and John Hawking. Both books coincidentally have an image of the stunning Sapphire Rockmaster on their covers.

Dragonflies and Damselflies of the Gold Coast is a 100-page A5 book covering the 85 known species found on the Gold Coast and 21 other species that are known from within 100km. Each of the known species has a full page devoted to it, with stunning, large, live images showing the sexual dimorphism of male and female. The accompanied text provides information to assist with identification, including species description, habitat, key identification features, distribution and local record locations. Page colour coding for each family is a useful way to help navigate through the publication.

I've already used this book to easily identify three species I encountered for the first time on the Gold Coast. Although specific to this region, the book covers the vast majority of species you are likely to encounter within SEQ. What a great resource to have access to, and for only \$15.

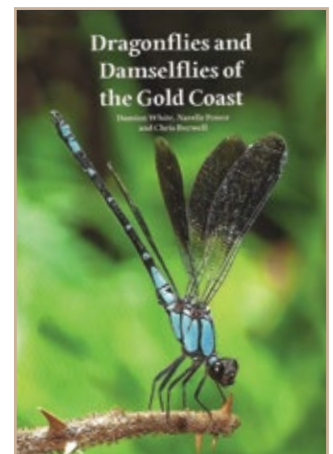
The 2nd edition of *The Complete Field Guide to Dragonflies of Australia* is a 400-page A5

book covering all known Australian species (approx.-330). The book provides a description for each family and genus. Each species has a description of adult and larva, with a distribution map and diagrams to assist with identification.

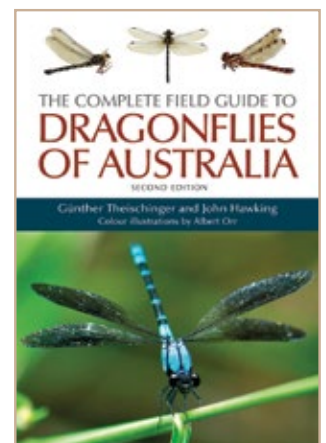
Image quality is variable, and most species are only represented by one adult image, some with images of the larva. Quite a few of the images are of preserved specimens. The book also provides detailed keys and diagrams in the back, to help with difficult identifications. New to this edition are coloured illustrations of some species by Albert Orr. It's an impressive body of work.

Both books are high quality publications that complement each other and were a must for my ever-expanding field guide collection. The local field guide is now the go-to book for this interesting group of insects in our region. The complete field guide will come more in handy when I'm travelling further afield but is also useful to delve into further aspects of local species.

Review by Todd Burrows
Land for Wildlife Officer
City of Gold Coast



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112 pages | \$15 + postage
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narelle.power@ddwfauna.com.au



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Muscleman Tree Ants

& THEIR CANTHIUM HOMES

On our block near Blackbutt, I encountered this amazing wood filled with tunnels, holes and beautiful patterns. I have called it 'Fae Wood' because of its fairy-like appearance, but the real story of how these patterns are created is better than a fairy tale.

Fae Wood is derived from dead branches of Shiny-leaved Canthium (*Psyrax odorata* forma *odorata*) that have been excavated by a colony of Muscleman Tree Ants (*Podomyrma* sp.). It is an incredible story that I love telling.

Shiny-leaved Canthium is a reasonably common shrub of dry rainforests across SEQ. It is often called Sweet Susie because of the blooms of small white flowers that have a sweet citrus scent. The leaves are dark, vibrant and shiny. As the tree grows, the new ends of its branches swell with a nutritious pith. Inside these branches an incredible city of ant life plays out.

Muscleman Tree Ants spend nearly their entire lives within the swollen branches of Shiny-leaved Canthium. A colony of Muscleman Tree Ants starts when a young queen leaves a colony to find a new home. She mates while on her nuptial flight and flies off with a mealy bug in her jaws to find a new swollen branch of Shiny-leaved Canthium. Why a mealy bug? Muscleman Tree Ants act as farmers and carry the mealy bug to the best feeding sites within canthium stems. The mealy bugs feed by sucking sweet juice out of canthium stems. With their antennae, the ants gently stroke the bugs to encourage the bugs to excrete a sweet, nectar-like substance, which the ants eat.

Within a branch of a Shiny-leaved Canthium tree, there is this whole world of ants and mealy bugs. If you split open a nest, all the ants scatter and it is impossible to get a good photograph, so I have drawn these pictures. Within one ant colony there are eggs, larvae (like little worms that get carried around by worker ants), pupae and adults. The colony grows with many workers and their broods. Some workers carry eggs to hatching chambers, groomed by licking them. Other jobs include nest construction, adding tunnels and chambers and taking care of the scale bugs and the queen. All nests are connected by scent trails. The ants use their antennae to smell, touch, taste and hear, and their swollen legs containing extra muscle to help them grip bark.

While the Shiny-leaved Canthium gives the ants and their mealy bugs a home, the ants provide the tree with pollination services and a defence force if there is an attacking insect or animal.

After many years of observing the amazing and highly elusive Muscleman Tree Ant, I recently had the absolute honour to witness the relocation of a whole ant colony. Remember that these ants live inside the branch and rarely come out, so when I saw heaps of ants out and about, I knew something major was happening. I saw a winged queen getting carried by the ants while other ants were digging a new hole into a fresh new branch that had sprouted from the base of a Shiny-leaved Canthium. At night they all went back home.



When the branch of a Shiny-leaved Canthium totally dries out and drops off the tree, I pick them up and peel the bark off to expose this wonderful wood. Each piece I have collected, cleaned, cut, sanded, stained and oiled to create this unique wood (Fae Wood), which I use to make jewellery and other items. I have been a big supporter of the Children's Hospital Foundation in Brisbane for many years, and I donate a gold coin from everything I sell to this wonderful cause.

The next day they were all out again, and I noticed two more holes and a curious scar down the new growth branch. It looked like it had been scored by the ants and divots cut out along it. It looked like a new potential 'housing estate'. Over the next couple of weeks, I kept observing them digging. It seemed that while one ant dug, she had a sentry to keep watch.

I did not realize at first, but I was observing the moving of a whole colony of Musclemann Tree Ants. Eventually, the ants carried everything over to the new holes - the eggs, larvae, pupae and the scale (mealy) bugs. And soon enough, the old branch they had lived in died.

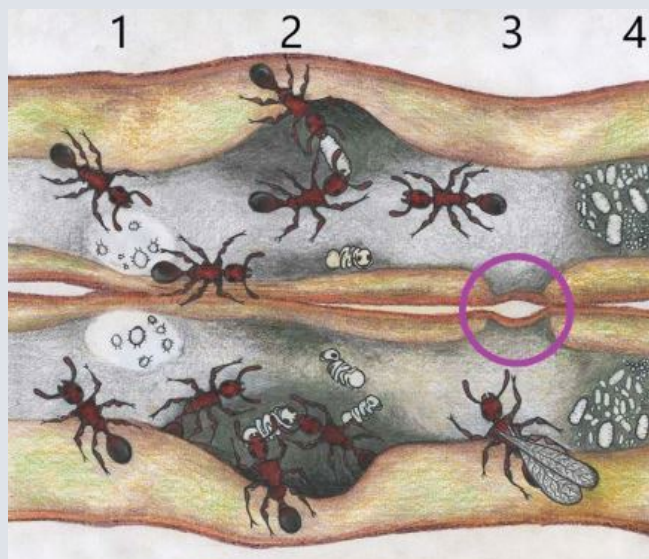
I have loved watching the Musclemann Tree Ants and telling everyone about them. If anyone else has been watching these utterly unique ants, I would love to hear from you.

Article and photos by Lori Mouse
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Shiny-leaved Canthium is a shrub/small tree that grows in dry rainforests across SEQ. It often suckers from the roots forming new plants and it also resprouts from the base of the trunk (as shown in photo).

The sweet smelling flowers of Shiny-leaved Canthium give this plant its common name, Sweet Susie.



A Musclemann Tree Ant Nest Illustration

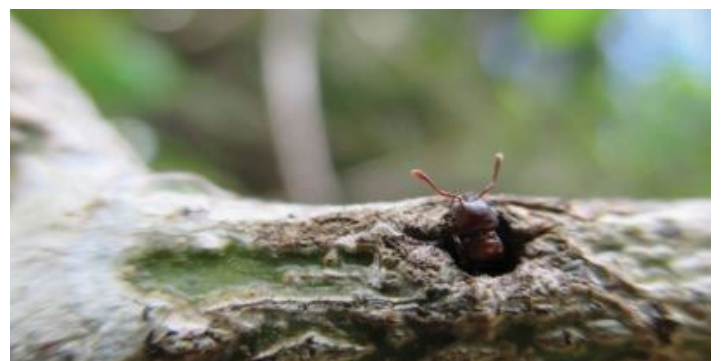
Section 1 - White circles with scale (mealy) bugs. When the scale bugs suck the juice from the stem, it crystallises to form a white powder.

Section 2 - Ants holding a white larva up top with the lower ants holding a white pupa.

Section 3 - Two sides of the hole that the ants go in and out of (circled) and a young winged queen.

Section 4 - Eggs and larvae.

Over 100 ants in all their various lifestages and their scale bugs can live together in a branch of Shiny-leaved Canthium the length of your finger. Amazing!



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Support THE SEQ KOALA RESEARCH & MONITORING PROGRAM BY HAVING YOUR PROPERTY SURVEYED

Have you seen a Koala on your property? Do you hear them bellowing at night? Or do you live in an area mapped as Koala habitat? If yes, then the Department of Environment and Science's Koala Research and Monitoring Team would like to visit you!

The South East Queensland Koala Research and Monitoring Program (the Program) operates across SEQ to collect data to measure progress towards the population target and vision outlined in the *SEQ Koala Conservation Strategy 2020-2025*. The Strategy sets the Queensland Government's direction in reversing the decline in Koala populations across SEQ, and sets targets for Koala conservation, including Koala populations in SEQ.

The Program monitors sites across SEQ that are mapped as Koala habitat, both in urban and rural areas. Hundreds of sites located across private, local and state government-owned land have been randomly selected for surveys to get a representative sample of SEQ Koalas.

Surveys have already been completed in the Noosa, Redlands and Gold Coast local government areas. The team surveys on foot, collecting Koala sighting, location and tree information that is used to monitor population trends. Landholders work with us to arrange access and provide property insights and are welcome to join us for surveys.

At the end of our surveys, results are provided to the local council, QPWS and private landholders. By surveying both public and privately-owned properties, we can collect vital data that contributes to monitoring and conserving Koalas across SEQ.

The Program is currently active across the Somerset, Lockyer, Ipswich, Scenic Rim, Logan and southern half of the Brisbane local government areas.

If you are interested in having your property surveyed as part of the Program, please get in touch with the Koala Research and Monitoring Team via email KoalaSurvey@des.qld.gov.au to learn more or sign up.

