LAND FOR WILDLIFE

SOUTH EAST QUEENSLAND

FEBRUARY 2019 VOL. 13 NO. 1

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LAND FOR WILDLIFE
VOLUNTARY WILDLIFE CONSERVATION

Land for Wildlife properties

Land for Wildlife habitat (hectares)

MESSAGE FROM THE STEERING COMMITTEE

For the past 14 years, the delivery of the Land for Wildlife program in south-east Queensland (SEQ) has been overseen by a Steering Committee comprised of representatives from Local Governments in liaison with Healthy Land and Water. Due to recent changes in funding, the Steering Committee has moved to a new arrangement for the regional coordination of the program. The Land for Wildlife Regional Coordinator position will now be managed and fully funded by participating SEQ Local Governments. The day to day delivery of the services provided to you, the landholders, is not expected to change. The Steering Committee would like to extend our sincere thanks and gratitude to Healthy Land and Water for the contribution they have made to the Land for Wildlife SEQ program. SEQ Local Governments look forward to continuing to work with you on the delivery of this valuable program. If you have any queries or concerns regarding the management arrangements of the program, please do not hesitate to contact your local Land for Wildlife Officer.

Land for Wildlife South East Queensland SNAPSHOT*

3,463 Registered properties

933 Working towards registration

7,345 hectares under restoration

62,116 ha RETAINED HABITAT

As at February 2019

*Please note that these total figures are less than previously reported years due to a contraction of reporting area (no longer includes data from Toowoomba or South Burnett Council areas).

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

***Land for Wildlife South East Queensland* is a quarterly publication published by 11 Local Governments in south-east Queensland and distributed free of charge to their Land for Wildlife members.**

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Front Cover: This male Spotted Pea-blue *(Euchrysops cnejus)* was found settled among long grass on a Land for Wildlife property in Brookfield, Brisbane. At only 15mm in length with closed wings, their ornate beauty can be easily overlooked. Photo by Deborah Metters.

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Welcome TO THE FEBRUARY 2019 ISSUE

EDITORIAL

Welcome to the first edition for 2019. Gee it's been a hot dry summer for SEQ. I hope this autumn brings some relief for us, the wildlife and their ecosystems.

Given the extreme summer weather events and long-held records for temperature, atmospheric CO2 and rainfall being broken, I was recently asked if we can present more articles about climate change and other major issues we face.

As Editor, I decided early on in this role to make this publication first and foremost relevant to Land for Wildlife members in SEQ. When I visit Land for Wildlife properties and wander around with their custodians, I generally only hear about treasured wildlife encounters, or ways to control weeds, or the landholders' humble pride in a tree they planted or creek they restored. I wanted this publication to reflect these types of practical and often good news stories that you won't see on TV.

These are the real life, local experiences that we can relate to, learn from and potentially adopt on our own properties. Hopefully they will also keep us going when we do hear about the broader ecological troubles facing us all.

I will endeavour to not shy aware from the big issues, so please continue to send in your suggestions, and I will always try to present them from a perspective relevant to landholders in SEQ.

You may notice a slightly new look and feel to this edition, as well as a new schedule starting with this February issue (sorry it's a bit late). These reflect several changes made to the coordination of the Land for Wildlife program in SEQ over the past few months. Hopefully the services delivered to Land for Wildlife members have not been affected.

I am delighted to introduce Kylie Gordon, former Community Partnerships Officer at Noosa Council, who is sharing the role of Land for Wildlife Regional Coordinator with me. Kylie brings a wealth of skills in private land conservation and local government. It is great to have her on board. Feel free to contact either Kylie or I via our email addresses shown below.

The facing page aims to show how the program is tracking in SEQ. Impressively, 265 new properties joined Land for Wildlife in 2018; one of our biggest growth years yet. It is commendable to see the level of support for conservation on private land from both the community and Councils of SEQ. Hopefully this investment will help hold our wildlife and ecosystems in good stead for the ecological changes we are living through.

As always, I welcome your stories, insights and photographs about your Land for Wildlife journey.

Deborah Metters
Land for Wildlife
Regional Coordinator

Forward all contributions to:
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Your Land for Wildlife Officers

Land for Wildlife South East Queensland Team, November 2018

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SOME NEW TOOLS *of the trade*

Nick Clancy
Conservation Partnerships Officer
Sunshine Coast Council

For every labour intensive task there seems to be clever folk among us who will conjure up a new tool to make the job easier. As more people tackle weeds and take on bush regeneration projects, so too, more new tools are dreamed up and developed in the sheds of Australia.

The 'Prong' series is a range of five robust metal digging tools that rely on leverage principles to take the heavy lifting out of digging. Similar to the 'Tree Popper' these tools come in a range of sizes to suit different applications and the size of the user.

While the largest 'Long Prong' (5.3kg) is not specifically designed for weed removal it is quite effective at removing woody weeds at the sapling stage. It provides a non-chemical alternative for shrub species such as Ochna, Brazilian Cherry and Mock Orange and saplings of tree weeds such as Camphor Laurel, privets and Chinese Celtis.

As with all manual weed removal methods the best results are achieved when there is a reasonable amount of soil moisture as the roots are less likely to snap. The Long Prong is a versatile garden/property tool and is suited to digging holes for tree planting in heavy or compacted soil and in areas with lots of rocks. Other applications include digging up and levering out clumping weed grasses or for dividing and transplanting lomandras.

The much lighter and smaller 'Weeder Prong' (0.9kg) is geared more towards garden applications but is handy for levering out herbaceous weeds with tap roots without the need for kneeling or bending right over. Developed in south-east Queensland by Peter Nicol, these well-made, durable tools are lightweight given their strength and are reasonably priced. For more information see www.prong.com.au.

The 'Wonder Lopper' is a great weed control innovation that has been developed by Jeff Rayner, a bush regeneration business owner and Land for Wildlife member from Maleny. Anyone who has spent time cutting and painting large quantities of woody weed stems will immediately recognise the benefit of this tool. Cutting and painting has always involved carrying a cutting tool such as saw, loppers or secateurs as well as a herbicide container and sometimes a separate applicator such as a brush. This can involve at least two to three hands, lots of kneeling, bending, putting down and picking up and the risk of herbicide spills. Jeff's Wonder Lopper allows the task to be undertaken with one device and removes the need to kneel as well.

> *"Anyone who has spent time cutting and painting large quantities of woody stems will immediately recognise the benefit of this tool."*

The Wonder Lopper is essentially a set of long-handled loppers, connected to a light weight (2.5 litre) backpack. You cut your woody weed stem with the loppers as per normal and then press the primer bulb to apply the herbicide, which is administered via an attached 4mm tube that runs across and down the cutting blade onto the cut-stump.

If you are dealing with larger trees and employing the 'drill and fill' technique, the loppers can be detached and a herbicide application gun with nozzle can be attached for filling the drilled holes. This gun can be calibrated and is adjustable up to 3ml per application and is also used for scrape and paint applications.

Jeff and his staff have been using Wonder Loppers for a number of years and its design has been gradually refined and improved over this time. For landholders that have large quanties of woody weeds this tool could save you a considerable amount of time and effort. It will also reduce the amount of herbicide used, reduce non-target damage and offers a safer application system for both the operator and the environment. For more information you can contact Jeff at habitatsupport@bigpond.com.

The Wonder Lopper combines a herbicide applicator with long-handled loppers. Photos by Jeff Rayner.

The Long Prong makes quick work of removing Ochna, young Camphor Laurels, Lantana and Murraya. Photos by Nick Clancy.

DIFFERENT PLANT *Protection Methods*

Nancy Cramond, Land for Wildlife member, Carindale, Brisbane

I wanted to share our experience with different plant guards on our Land for Wildlife / VCA property in Carindale over the last twenty years. We started revegetation in 1996.

Our longest serving volunteer John, from Save, Care for and Regenerate Urban Bushland (SCRUB), says, "Whatever we plant is just like ice creams and lollies for the wallabies". He is not wrong. Whatever is not caged is eaten.

Originally, in the 1960s, my dad planted Hoop Pine seedlings from the DPI directly into surrounding flourishing lantana. It worked. The lantana is now gone and the Hoop Pines are huge and have babies of their own. We don't encourage lantana for this purpose anymore, so have had to find other means.

No naturally occurring regrowth seedlings are eaten by wallabies, so whatever the recipe is for nursery-grown plants, which come from locally-sourced seed has a particular attraction.

I have seen a wallaby jump on a wire cage till it was flat enough to ravage the plant inside. The post was not substantial enough.

A friend noticed a kookaburra trapped inside a generous wire cage about one metre in diameter. The bird got in but could not fly out. Cages need to be smaller, max. 40-50 cms diameter or much larger.

A cage with the door left open overnight was completely stripped by next morning. Lollies and ice cream! Happy planting.

Plastic Square Mesh

Black plastic square mesh guards, small and large with wood or star pickets. Guards should be about 40-50cm wide and 1-1.2m high when constructed. Used since 2015.

Reason
- Failure of other methods.
- Good air flow for leaves.
- Light and easily constructed.

Outcome - Excellent
- Small guards need to be changed to larger guards as the plant grows to avoid plants being grazed.
- Good for single satellite plants.
- Wood posts prone to white ants.
- Expensive time-wise to be made up but reusable.

Mosaic Planting Pods within Wire Cages

Mosaic plantings using star pickets and heavy gauge chook wire to create cages, or 'pods', approximately 6-10 x 3 metres in size. 12 to 15 star pickets per pod in an oblong shape. Fencing wire around the top of the fence to stabilise it. Staples into the ground to keep wire down and critters out. Pre-prepare site with weeding and spraying. Used since 2015.

Reason
- Tough, recyclable gear.
- Must be left in place for at least 3 years.
- Multiple cages can be placed apart allowing animal movement between.
- Animals can't go over or under the wire unless the 'simple' gate (as shown left) is left open!
- Birds that fly in can fly out.
- This method allows for a broad mix of plants of all heights.

Outcome - Excellent
- Allows workers to get in to weed and water easily.
- Best used in conjunction with tall black plastic mesh caged satellite trees.
- Initially expensive and requiring hard labour installing but very durable in the long term and recyclable.
- Requires vehicular access for initial construction.

Log Mounds/Stick Piles

High, wide mounds of logs and sticks surrounding single planted species. Used in the 1990s.

Reason
- Sourced on site.
- Biodegradable forming mulch as well.
- Little gear required.
- Used where access was difficult.

Outcome - Poor
- Too fragile to protect against large browsers.
- Prone to white ant destruction opening the way for turkey and echidna diggings.
- Flatten out prior to plant establishment.

Corflute

Small and large green corflute triangular flat pack plant guards with wooden stakes. Used from 2000 until 2015.

Reason
- Lightweight, easily handled and assembled.
- Commonly issued and can be sprayed around with herbicide.

Outcome - Poor
- Most plants failed to thrive, died or went mouldy and/or were broiled alive.
- Grown plants were regularly eaten off at the top of the plastic (both sizes).
- Wooden posts were eaten by termites or knocked over by browsers.

Plastic Sheaths/Bags

Stiff, translucent plastic sheaths (+/- 50 cm high) with green sticks. Used in the late 1990s.

Reason
- Commonly issued at the time and they looked cheap and mass produced.

Outcome - Poor
- The bags fell down like old socks and required too much follow up.
- Water pooled inside the bags which encouraged mozzies and algae and made the plants mouldy.
- Plants were suffocated by fallen bags or easily knocked over by browsers.
- They were ugly and had to be retrieved.

January 2017

July 2018

A successful mosaic planting 'pod' using wire and star pickets.

Hoop Pines were planted into the middle of lantana thickets back in the 1960s. Now they form a self-regenerating, shady grove.

Photos by Susan Nolan and Fflur Collier
Conservation Partnerships Officers
Brisbane City Council

Adult Madeira Beetles

Danielle Outram
Article and photographs
Conservation Partnerships Officer
Sunshine Coast Council

Madeira Vine and Cat's Claw Creeper
TRIALLING BIOCONTROL ON THE SUNSHINE COAST

What's the first image that pops into your head when I say the words 'biological control'? I can almost guarantee that it's the Cane Toad. Cane Toads were introduced from Hawaii in 1935 by the Bureau of Sugar Experiment Stations in an attempt to control beetles that were decimating sugar cane crops. Unfortunately very little risk assessment and experimentation was done in Australian conditions, and we all know what happened next.

However, spare a thought for the mighty success stories attributed to biocontrol. Prickly Pears rendered more than 40,000km^2 of farmland unproductive by the early 1900s, however when the Cactoblastis Moth (whose larvae eat the prickly pear leaves) was introduced in 1925, it all but wiped out the population of Prickly Pear.

These days great care and experimentation goes into selecting biocontrol agents and testing their suitability for the Australian environment. Procedures and approvals are established within numerous layers of legislation. Once a potential agent has been identified, rigorous testing is conducted to ensure the agent will not damage native flora and fauna, agricultural stock or crops. This is first done at the agent's place of origin and then if successful and low risk, back on Australian soil. The entire process can take several years to complete and is expensive.

In early 2018, the Sunshine Coast Land for Wildlife team decided to undertake a trial release of biocontrol agents on private lands for some of the most difficult and invasive weeds we have – Cat's Claw Creeper and Madeira Vine. While biocontrol agents have been released on Council reserves for some years, this was the first time that these agents were strategically released on private lands.

Cat's Claw and Madeira Vine are nasty weeds and are known as ecosystem destroyers. They are difficult to control, particularly big infestations, and if left unchecked, they can transform a healthy native ecosystem into a weedy mess. After seeing some amazing results along Obi Obi Creek (which flows into the Mary River) where large patches of Madeira Vine were completely defoliated, I was keen to find out more about these biocontrol agents.

For Cat's Claw Creeper, the Leaf-mining Jewel Beetle and the Tingid Bug have been released for biocontrol purposes. Adult Jewel Beetles chew the Cat's Claw leaves, then lay one egg per day. The emerging larvae mine through the leaves (see the disc-shaped larvae casing in the picture right). The adult Tingid Bug sucks and feeds on the contents of the leaves.

The Madeira Beetle has been released for Madeira Vine. The adults and larvae chew holes through Madeira Vine leaves (no, not the tubers unfortunately) and slime the leaves reducing the overall leaf area and vigour of the plant.

Now it's important to note, none of these biocontrol agents actually eradicate their target vines and conventional control methods are still required in conjunction with biocontrol to achieve an effective result. What they do is reduce the weed's health and vigour to such an extent as to reduce production of fertile material (such as tubers and seeds). This slows down weed spread and liberates the native trees that the vines are growing on (preventing them from being smothered). The other cool thing is that the insects are mobile, with anecdotal evidence of them moving 3-4kms. So when you release them on one property, and they run out of leaf they will move to the closest source of their host plant (which is fabulous if you have neighbours close by who aren't doing much to control their infestations).

Leaf-mining Jewel Beetles lay their eggs in a distinctive raised circular case on Cat's Claw Creeper leaves.

One tiny Tingid Bug (on finger) and the typical feeding marks they create on Cat's Claw Creeper.

Local suppliers of these biocontrol agents were engaged to breed us up large quantities of the insects. I was lucky enough to get a tour of the mass rearing facility at Gympie Landcare. Large mesh greenhouses contain hundreds of host plants where the insects are then bred up in small enclosures and allowed to complete their full lifecycle before being collected for release.

We chose strategic locations where Cat's Claw and Madeira Vine infestations are severe. The chosen sites had the highest potential to not only knock back the infestation on the target property, but also spread to nearby properties, creeks and cliffs where the weeds were running rampant and were difficult to access by conventional control methods. Between 300-500 insects were released at each site. We mapped the release data and linked it to other biocontrol work being carried out by Council and other organisations and will help us assess the broader landscape success of the agents.

So what's the result? Well as I write this I'm still in the process of fortnightly pickups from the breeding facilities. The project is still very much in its infancy. We've got ongoing monitoring and reporting plans in place so that we can determine the success of the releases. You see as much as the risks have been assessed to the highest level possible, there's still a lot we don't know about successful release quantities (do we release 100, 500 or several thousand at a site?), preferred microclimates/conditions for each insect, how successful they'll be, how they move around the landscape and to what extent our native critters predate upon and reduce biocontrol populations. So monitoring and evaluation are vital at this stage.

If you would like to get some biocontrol agents for Cat's Claw or Madeira Vine for your property, have a chat to your Land for Wildlife Officer about the suitability of your infestation. Some local suppliers of the insects include Gympie Landcare (bio-control@gympielandcare.org.au) and Mooloolah and District Landcare (mrwl.projects@gmail.com). You can contact them directly for prices and availability.

Madeira Beetles are raised in mass breeding facilities such as this one at Gympie Landcare. Beetles complete a full lifecycle before they are collected and released at strategic locations, including Land for Wildlife properties.

Madeira Beetles bottled up and ready to be released into Madeira Vine infestations.

Chewed Madeira Vine leaves are a good indication that Madeira Beetles are doing their job.

Dave Burrows, Conservation Partnerships Officer with Sunshine Coast Council, is releasing Madeira Beetles onto Madeira Vine near Walli Creek, Kenilworth.

THE ONCE NOT-SO-COMMON Bronzewing

Paul Grimshaw
Article and photographs
Land for Wildlife member
Mt Crosby, Brisbane

From my experience in participating in 'Bird Twitches' (birding competitions) in the early 1990s Common Bronzewings were not that common in south-east Queensland (SEQ).

It wasn't until the early 2000s that Common Bronzewings started to appear closer to the coast in SEQ. In about 2008, I was backing into my driveway at Mt Crosby when I saw, to my amazement, a small a group of Common Bronzewings standing in the driveway – six in all. Soon afterwards, I started to see them inhabiting our bushland on a more permanent basis. Common Bronzewings are still on our property and are now also in small numbers in our local catchment area.

The Common Bronzewing occurs across much of Australia and inhabits a broad range of environments including woodlands, open forests, coastal heaths and mallee. It avoids treeless plains, deserts and wetter, dense forests. It feeds exclusively on the ground eating mainly seeds including fallen Acacia and other legume seeds. Like many woodland birds, Common Bronzewings prefer habitat with grasses, shrubs and fallen timber.

In February 2016 a pair nested on a large stump only three metres from our house (see image lower right). They hatched two young, but it is unknown whether these chicks reached adulthood.

Our Common Bronzewings get harassed regularly by Noisy Miners and there are local Grey Butcherbirds that would not be averse to killing Common Bronzewing chicks or juveniles given the chance. Rather amusingly, when adult bronzewings are dive-bombed by Noisy Miners their response is to raise one wing as a Noisy Miner passes above them. This tactic by the bronzewing seems to work in most instances as the culprit Noisy Miner gives up dive-bombing very quickly.

In April 2018 our resident bronzewing pair decided to nest even more closely to our house. They nested in a hanging pot full of native violets on our front veranda. They patiently sat on this curious nest for three weeks, while putting up with us while we had our breakfasts on the veranda. Unfortunately they eventually abandoned this nest and its one egg possibly because of the cold snap we were having as winter was not far away.

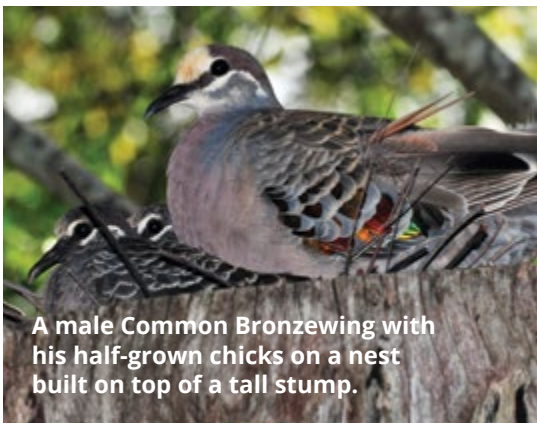
I was having breakfast on the front veranda in July 2018, when I heard a loud, deep "oom, oom" coming from behind me. When I looked round I saw the male Common Bronzewing sitting on the hanging pot plant again. Interestingly, he was sitting on the same pot that the pair had been nesting on before, even though the pot had been shifted slightly to another spot. Also even though there are five other hanging pots to choose from, including one that my wife had especially made up for them, with small twigs and grass, they knew which one they had used before.

Again in late June 2018 (still mid-winter) they decided to nest on the big stump and the female laid one egg there. However for some reason they abandoned that nest and are now back on the hanging pot. The front veranda is a sun trap and is sheltered from the westerly winds so I guess that is why they have decided to nest there, even though we use this spot to have our breakfasts in winter. However this doesn't seem to deter them.

The distinctly colourful markings of Common Bronzewings cannot be fully appreciated unless seen up close. Mostly what you see of them as they swiftly fly away is a brownish blur and sometimes a flash of rufous colour of their underwing. You can see one of the reasons why we love having bronzewings hanging around. They are so splendidly colourful when seen up close.

The female took the night shift sitting on the hanging pot nest.

The male bronzewing did the day shift sitting on the nest.



A male Common Bronzewing with his half-grown chicks on a nest built on top of a tall stump.

DEEP TIME, SPINY CRAYFISH & Stewardship

Michael Reif
Conservation Partnerships Officer
Sunshine Coast Council

One of the things I love is exploring the forest at my place after sunset. As you venture out in the dark to see what you can find, you realise there's a whole world of life active at night that you just won't see during the day. When I turn off the torch and just listen, I sometimes ponder how long some of the animals have lived here. One I've spent some time looking for is the Blackall Range Spiny Crayfish (*Euastacus urospinosus*) and it got me thinking about time itself.

The Blackall Range Spiny Crayfish is a small burrowing crayfish found on the Blackall and Conondale Ranges in the upper catchments of the Mary and Brisbane Rivers usually above 300m in elevation. They are found in streams and gullies dominated by Piccabeen Palms (*Archontophoenix cunninghamiana*) and they generally occur where crayfish of the genus *Cherax* are absent. They are a truly endemic species found nowhere else in the world and the estimated area of their suitable habitat is only 76 km². All *Euastacus* species generally inhabit flowing, cool water streams usually in mountainous country separated by steep ridges or areas of low, flat land.

Other species of *Euastacus* in SEQ include:

- Conondale Spiny Crayfish (*E. hystricosus*), which has an overlapping range with *E. urospinosus*.
- Mt Glorious Spiny Crayfish (*E. setosus*) found in the D'Aguilar Range.
- *E. jagara* found on the Great Dividing Range south-west of Ipswich.
- Lamington Spiny Crayfish (*E. sulcatus*) found in the Gold Coast hinterland.
- *E. maidae* found only in the upper reaches of Currumbin Creek.
- Strong Spiny Crayfish (*E. valentulus*) found in southern SEQ and north-east NSW.

This genus is notable in that many species are only found on specific mountain ranges where they have been isolated for millions of years as climate change reduced their suitable habitat. They generally prefer cooler water so as you go further north they are found at higher altitudes. This requirement for cool water is thought to be a barrier to them moving between mountain ranges as they cannot survive in the surrounding lowlands. There are 53 species along the east coast of Australia with 33 found only in elevations above 250 metres. In Queensland there are 15 species of *Euastacus* and the only ones that occur near sea level are in the very far south-east near the NSW border.

So how does a small, burrowing crayfish lead to me pondering time itself? As I delved deeper into the research the latest DNA testing suggests that the current mix of *Euastacus* all shared a common ancestor in the Miocene over 5 million years ago. As our climate became drier the rainforests that had previously dominated were restricted to areas with a suitable cool, wet climate. Mountainous areas became key refugia for rainforests and their associated wildlife.

Euastacus crayfish have become effectively isolated on their mountaintop 'islands' since the Miocene and have evolved into the different species we find today. DNA testing has found that the Blackall Range Spiny Crayfish has been a separate species from its closest relative the Mt Glorious Spiny Crayfish for 1.5-2 million years!

My family history is European, and you only have to go back ten thousand years to find my ancestors all living as small groups of hunter gatherers. Compared to spiny crayfish, ten thousand years is not a long time as they have lived here as a distinct species for 150-200 times longer! Even if you go back as far as the evolution of our species in Africa the spiny crayfish still have more than a million years on us. It puts a whole new twist on the question of how long do you have to live somewhere to be considered a 'real' local?

It's when I'm in the forest at night that I realise if I'm really lucky I might get to share this land I call home with spiny crayfish for another 50-odd years. To think it's been their home for millions of years is humbling to say the least. It's also inspiring to think that by conserving my small patch I'm helping maintain a species that was here for millions of years before *Homo sapiens* evolved!

A special thanks to Mark Ponniah for his useful comments on evolutionary time lines.

The Blackall Range Spiny Crayfish is rarely seen, only coming out from their burrows on rainy nights. Photo by Michael Reif.

Cool water streams and dense Picabeen Palm forests provide perfect habitat for spiny crayfish. They spend most of their lives in deep burrows (below) that they dig into the damp, cool soil. Photos by Deborah Metters.

References

Hurry C (2015) Comparative phylogeography and the population genetics of three endangered freshwater *Euastacus* spp. crayfish... *PhD Thesis.* Griffith University.

McCormack R & Van Der Werf P (2013) The distribution, ecology and conservation status of *Euastacus urospinosus*... *Memoirs of the Queensland Museum – Nature* 56(2), 639-646.

Morgan G (1997) Freshwater crayfish of the genus *Euastacus* from New South Wales, with a key to all species of the genus. *Records of the Australian Museum, Supplement* 23: 1-110.

Ponniah M & Hughes J (2004) The evolution of Queensland spiny mountain crayfish of the genus *Euastacus*... *Evolution* 58(5) 1073-1085.

TREE-TOP *Hunters*

Deborah Metters
Article and photographs
Regional Coordinator

A distinctive crest gives bazas their alternate name of Crested Hawk.

In reviewing *Australian Birds of Prey in Flight* (facing page), I saw an opportunity to write about a commonly seen raptor in SEQ, the Pacific Baza. I chose the baza because it is reasonably easy to identify (for a raptor) when perched or flying especially if using binoculars.

I am lucky to have a pair of bazas visit my local area for a few weeks every year. Their loud double-note call (written as "whee chu") alerts me to their presence. For the last two years, they have had a young bird in tow and all three of them are very vocal.

Bazas are great birds to watch. Actually, all birds are, but bazas are so engaging with their large, round yellow eyes and somewhat dopey look. They are not too fussed by having humans close-by and sometimes perch only ten or so metres off my back deck.

Watching them hunt is fascinating. They basically crash into the foliage of tall trees, feet first, trying to catch stick insects, large grasshoppers, treefrogs, small reptiles or other small prey. I have seen them catch and eat cicadas and stick insects. They often glide slowly from tree to tree looking for prey. Unlike many other raptors that fly off as soon as a person shows up, Pacific Bazas, often continue to hunt with people around enabling you to follow them through the forest.

Bazas have a few physical features that stand out, helping to narrow down their identification. Their striking yellow eyes are probably the first thing you will notice. Depending on what angle you see them from, bazas have a prominent crest on the back of their head giving them their alternate name of Crested Hawk. Their lower breast has beautiful, dark horizontal striping.

When in flight, their wings are particularly wide (not wingspan width, but width of each wing) and you can often see the barring on their breast if using binoculars.

Pacific Bazas are found throughout SEQ from subtropical rainforests to open woodlands and in suburban areas; wherever their prey is found. Bazas 'show up' in SEQ usually from early winter to mid-spring and stay for their breeding season (October-January). During this time they are vocal and can readily be seen. It is not really known where they go to outside of their breeding season, but there are certainly fewer sightings in SEQ and if they are seen, the birds are usually silent.

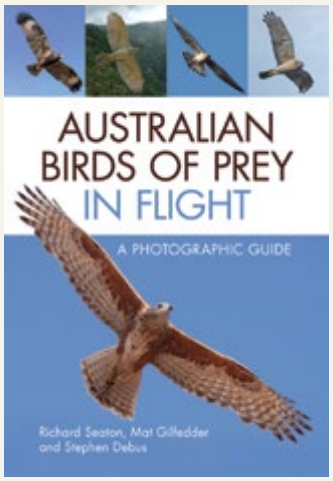
Although I have not witnessed it myself, bazas have a spectacular courtship display whereby the male flies up high, then stalls in flight, and then falls straight down with closed wings before rising again and repeating the performance. Although we are now heading into the quiet time for bazas in SEQ, I recommend keeping an ear open for their call and I hope you are lucky enough to witness one of their hunting or courtship displays.

Bazas hunt in the forest canopy eating a range of prey, such as this cicada.

This Pacific Baza was seen taking a bath next to a busy road in the Redlands.

Australian Birds of Prey in Flight

Richard Seaton, Mat Gilfedder, Stephen Debus Review by Deborah Metters



As a keen birder with an interest in bird photography, I have been looking forward to this book since I first heard about it a year ago. Well, the wait has certainly been worthwhile.

This book sets a new standard in photographic field guides as it presents at least nine images for each species. Multiple angles in flight are depicted such as flying directly towards the observer, directly away from, gliding and banking left and right.

This book's design is also ground-breaking. All images of birds have been clipped to the edge of the image and superimposed on an appropriate habitat background or on blue sky. The resulting collage enables the reader to easily compare our native of birds of prey and quickly conveys a sense of habitat for each species.

At the back of the book are greyscale images of birds in flight with labels pointing to key identification features such as rounded tail, slender wings and V-shape flight.

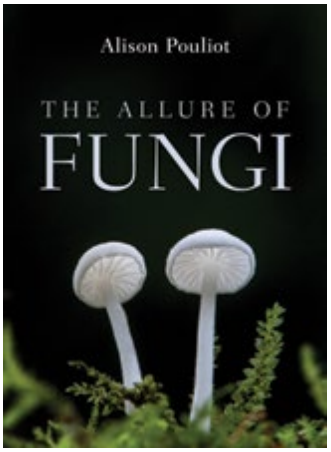
Nearly 50 photographers contributed images to this book – a feat that would have been impossible only a decade ago. The authors successfully tapped into Australia's rich birding community of eBirders and photographers. Together, they have bought to life the images and distribution maps.

Impressively, all proceeds from sales go to the BirdLife Australia Raptor Group.

Paperback | Feb 2019 | $39.99
144 pages | Colour photos
CSIRO Publishing

The Allure of Fungi

Alison Pouliot Review by Deborah Metters



Based on the title of this book, I wondered if this was an identification guide, a photographic work of art or an invitation for innovative cooks to harvest wild foods. In fact, there is something for everyone in this book.

The author's writing style is rich, evocative and poetic. She presents a multitude of perspectives about Australian fungi, from uses by Traditional Owners, to compelling subject matter of artists, to the scientific study of fungi by mycologists and those with an interest in fungi to help conservation.

The reasons why native fungi are unfortunately omitted from general public discourse as well as from the ecological and restoration fields are explored. Solutions to this deficit are also presented.

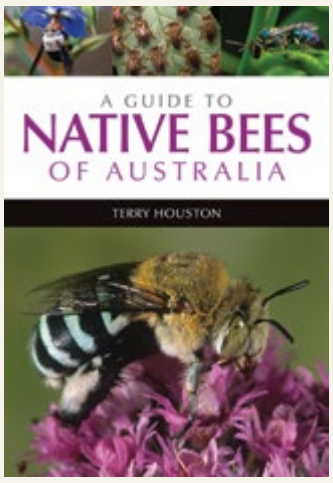
At the heart of any conversation that attempts to improve the perceived value or status of Australian fungi is understanding that life of Earth, and certainly humans, depend on fungi for survival. Fungi are vital to processes that underpin our food production and the air we breathe. They also look other-worldly and make great subject matters for art and creative inspirations.

So if you have an interest in fungi, for whatever reason, you will probably enjoy the stories and wonderful photographs portrayed in this book.

Paperback | Sept 2018 | $49.99
280 pages | Colour photos
CSIRO Publishing

A Guide to Native Bees of Australia

Terry Houston Review by Kylie Gordon



The natural world continues to be a wonder as scientists in December last year confirm their discovery of 26 new species of bees in South Australia. The author, Terry Houston, also acknowledges that his field of entomology continues to present new revelations – possibly the reason he's dedicated over 50 years of his life studying bees. The culmination of this time and in-depth knowledge has paid off for his readers.

Aside from the stunning macro photography and detailed illustrations, the part of the book that most stands out to me is the first section. It is written in a way that takes you on a journey from the very basics of what a bee is, right through to how they have evolved, their behaviour, role and ecology in Australia.

The second section leads you into the identification of bees – with a clear focus on family identification. Beware that common names are few and far between in the bee world, partly since there are many species that appear similar which would lead to long and convoluted names.

One final comment on this book is that further reading and discovery is encouraged – the author has included a section of recommended books and websites and a comprehensive bibliography. Needless to say, I think this book is the bees' knees and worth making a bee-line to the book store for!

So, it seems there is much more to uncover in the bee world – whether you are a budding entomologist or a generalist with an eagerness for knowledge. I often wonder what they will discover next in south-east Queensland.

Paperback | Aug 2018 | $49.99
280 pages | Colour photos
CSIRO Publishing

BLUE BUTTERFLIES of SEQ

An adult Indigo Flash showing the iridescent blue and purple colours of its upperwing. Generally, blue butterflies only perch with their wings open in the full sun.

Todd Burrows
Article and photographs
Conservation Partnerships Officer
City of Gold Coast

South-east Queensland (SEQ) has a diverse variety of butterflies and some of the larger and colourful species like the Blue Triangle and Orchard Swallowtail are quite well known. One of the groups of smaller sized butterflies, that are less well recognised, are the 'blues' of the family Lycaenidae. There are over 60 species of blues in SEQ that range in size from 14 to 53mm wingspan.

The common name is derived from the fact that most species in this family possess a variable amount of iridescent blue scales on the upper-wings, a lesser number lack the blue scales but have iridescent scales of purple, copper or orange. Despite their small size, many of them rival the beauty of their larger relatives. In particular, the 'jewels' (genus *Hypochrysops*) are stunning!

Butterflies are more abundant on the wing through the warmer months, especially with good rain, as these are the conditions in which the host plants are growing and flowering, providing food for butterfly larvae. Some species have a very limited number of larval host plants while others are more generalised and will feed on a wide variety of species. The Plumbago Blue and Cycad Blue are examples of species that have benefited from the widespread planting of their host plants (plumbago and cycads) in gardens.

Butterflies in general have interesting transformative life cycles but many of the blues also have fascinating interactions with ants during their larval stage. In most cases both parties benefit from these associations, the larvae receive protection from predators and parasites and the ants receive sugary and nitrogen-rich food rewards and 'feel-good' chemicals from the larvae.

For some blues the relationships with ants are casual and don't significantly influence survival, but for others like the Imperial Hairstreak, survival is greatly decreased without the ants in constant attendance. These relationships are not always beneficial to the ants though; for example, the threatened Mangrove Ant-blue *(Acrodipsas illidgei)* spends its larval stage inside an ant nest feeding on the ant larva, chemically suppressing ant aggression.

Small butterflies can be difficult to identify but digital photography combined with good field guides has certainly made this task much easier. Some species of blues are rarely seen and one of the only opportunities to view them is by visiting the tops of mountains where the butterflies gather to find a mate in a phenomenon called 'hill-topping'. It is an amazing sight to see a large number of butterfly species battling over the best territories.

Knowing the host plants is a good starting point to know where to look for certain species of butterfly. Some butterfly species can be attracted to urban gardens and rural properties that grow host plants. There are several excellent books (see references) that document butterfly host plants for SEQ.

As with most wildlife, blue butterflies benefit from healthy habitats, especially bushland areas with an understorey of native grasses, herbs and shrubs. If you have a photo of a blue butterfly and want to identify it, send your image to your Land for Wildlife Officer and we will try to identify it for you.

References

Braby MF (2016) *The Complete Field Guide to Butterflies of Australia* (2nd ed.). CSIRO Publishing.

Braby MF (2000) *Butterflies of Australia: Their Identification, Biology and Distribution*. CSIRO Publishing.

Orr A & Kitching R (2011) *The Butterflies of Australia*. Allen & Unwin.

Moss JT (2013) *Butterfly Host Plants of south-east Queensland and northern New South Wales.* Butterfly and Other Invertebrates Club.

Speckled Line-Blue
(Catopyrops florinda)

Host plants: Flowers, flower buds and young terminal leaves of Poison Peach *(Trema tomentosa)*, Native Mulberry *(Pipturus argenteus)*, Tulipwood *(Harpullia pendula)* and Nicker Bean *(Caesalpinia bonduc)*.

Habitat: Usually near rainforests especially in regenerating areas where Native Mulberry and Poison Peach are common pioneer plants.

Shown above from top: An adult female, a larva and pupa with attendant ants.

Common Grass Blue
(Zizina otis)

Host plants: Feeds on young leaves, flower buds, flowers and seedpods of a wide variety of native and introduced low-spreading legumes.

Habitat: Open grassy areas such as pastures, sports fields and suburban gardens. Probably the most common blue butterfly in SEQ.

Small Green-banded Blue
(Psychonotis caelius)

Host plants: Leaves of Red Ash *(Alphitonia excelsa)* and White Ash *(Alphitonia petriei)*.

Habitat: Wherever the host plants are established, including rainforest, woodlands, suburban parks and gardens.

Plumbago Blue
(Leptotes plinius)

Host plants: Flowers and flower buds of the Native Plumbago *(Plumbago zeylanica)* and introduced Plumbago *(P. auriculata)*.

Habitat: Open woodland and dry rainforests where the native host plant grows and also in suburban areas where the introduced host plant is often grown as an ornamental.

Hairy Line-Blue
(Erysichton lineata)

Host plants: Flowers and flower buds of a diverse range of rainforest species from different genera including *Syzigium*, *Macadamia*, *Alectryon*, *Cupaniopsis*, *Harpullia*, *Jagera* and *Brachychiton*.

Habitat: Edges of rainforest but also within suburban gardens where the host plants are grown.

Imperial Hairstreak
(Jalmenus evagoras)

Host plants: Various Acacia species, including Blackwood *(A. melanoxylon),* Green Wattle *(A. irrorata)* and Black Wattles *(A. concurrens / A. leiocalyx)* but must have established populations of the larval attendant ants *Iridomyrmex* species.

Habitat: Eucalypt woodland and open forest preferring more open areas where the host plants are regularly found.

Shown: A gathering of adults with a pupa and attendant ants.

Indigo Flash
(Rapala varuna)

Host plants: Flower buds and flowers of Millaa Millaa Vine *(Elaeagnus triflora)*, Native Mulberry (*Pipturus argenteus*), Red Ash *(Alphitonia excelsa)*, Foambark *(Jagera pseudorhus)*, Lychee *(Litchi chinensis)* and the weed Indian Siris *(Albizia lebbeck)*.

Habitat: Wide variety of habitats, wherever the host plants grow.

LOCKYER VALLEY'S *Big Year*

2018 was a big year for the Lockyer Valley's Land for Wildlife program. Twenty new properties joined the program – the largest surge in membership in a decade.

The area around Flagstone Creek Conservation Park, on the western edge of the SEQ region, is particularly interesting. Three properties that neighbour this conservation park joined Land for Wildlife last year. Some of these Land for Wildlife members are working voluntarily with Queensland Parks and Wildlife Service to control weeds within the reserve. They are focusing most of their efforts on controlling Velvet Tree Pear *(Opuntia tomentosa)* by injecting herbicide into the stems.

There are now six Land for Wildlife properties that border the Flagstone Creek Conservation Park surrounding the reserve on three sides. In total, these properties manage 434 hectares of land, primarily for conservation. Another 150 hectare property in this region is also in the pipeline to join Land for Wildlife.

Properties in the Flagstone Creek area are packed full of interesting native plants and wildlife. There is a bottle tree *(Brachychiton x turgidulus)* that is a natural hybrid between the Queensland Bottle Tree *(B. rupestris)* and the Kurrajong *(B. populneus)*. There are many rocky screes with vine scrubs containing unique plants and fascinating wildlife from button-quails to rainforest snails. These scrubs often adjoin open eucalypt woodlands with ironbarks and Yellow Box *(Eucalyptus melliodora)* trees. The wildlife of this area is a fascinating mix of coastal and inland species, with many invertebrates new to science.

Welcome to all new Lockyer Land for Wildlife members and a big thanks for protecting this remarkable part of SEQ.

GOLD COAST HITS *5000 hectares*

Word-of-mouth is a wonderful thing. We learn about the best products to buy, tradespeople to use and places to eat. People also learn about programs like Land for Wildlife. Even after 20 years of the program running, long-term landholders are still finding out about it through their neighbours, friends and family.

On the Gold Coast, one of the most populated regions in SEQ, long-term landholders on large properties are still joining the program, based on word-of-mouth recommendations. Only recently, a landholder on a large property at Springbrook joined the program. This tipped the Gold Coast's Land for Wildlife 'estate' over the 5,000 hectare mark. Impressive.

Springbrook is an incredible place for biodiversity. It is home to amazing wildlife and forms part of the World Heritage listed Gondwana Rainforests. Equally impressive are the restoration efforts that have taken place over the last 60 years. Vast areas of Springbrook were cleared in the 1960s, but many of these once bare hills are now dense regenerating rainforests. It certainly can give us all hope as to what can be achieved over the next 60 years.

Thanks to all the new Gold Coast Land for Wildlife members and those who are protecting our internationally-valued natural assets.

Land for Wildlife South East Queensland proudly delivered by:

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