



Newsletter of the Land for Wildlife Program South East Queensland

OCTOBER 2016 Volume 10 Number 4 ISSN 1835-3851



### Greater Gliders - cute, quiet and vulnerable

t's night time on a Land for Wildlife property near Mapleton and the eucalypt forest is quiet and still. Occasionally a Boobook Owl and Marbled Frogmouth call in the distance. What I am trying to see is silent and high in the canopy, not an easy task when the trees are up to 50m tall! A glint of eye shine in the spotlight gives its location away; what I am looking at is a Greater Glider (*Petauroides volans*), one of the largest gliding mammals on Earth.

High up in the canopy Greater Gliders can look similar to brushtail possums, but the fur around their ears is long and fluffy. They also have a longer fluffy tail that is nonprehensile (cannot grip). Greater Gliders can vary in colour from dark grey, brown, grey and cream above, while their bellies are usually white or cream. Their gliding membrane stretches from elbow to ankle and they can glide up to 100m. The glider I am observing decides to move on and I hear a soft thwack as it lands in a nearby tree.

Unlike other gliders that are omnivores eating nectar, insects and sap, the Greater Glider is a herbivore that eats eucalypt leaves and sometimes eucalypt flowers. A Greater Glider will sit quietly in the canopy feeding with the occasional rustling or gum nut falling to the ground - the only noise to give away its location. Like the Australia's largest glider, the Greater Glider, lives in deep, wide hollows in old trees, emerging at night to feed on eucalypt leaves. Image by Steve Parish, Nature Connect.

Koala, the caecum (a pouch between the small and large intestines) is enlarged in the Greater Glider, to help break down the cellulose of eucalypt leaves.

The Greater Glider is found along the coast from central Victoria to northern Queensland. It has recently been added as a vulnerable species to the Commonwealth's *Environment Protection and Biodiversity Conservation Act* as it has suffered a substantial reduction in its population. Threats include habitat loss and fragmentation, too intense and too frequent fires and climate change. Greater Gliders need large tracts of undisturbed forests and, in particular, large hollows in old trees to den in during the day.

Reference: Threatened Species Scientific Committee (2016) *Approved Conservation Advice for* Petauroides volans (*greater glider*). Department of the Environment.

Article by Stephanie Reif Land for Wildlife Officer Sunshine Coast Council

### CONTENTS

- 1 Greater Gliders
- 2 Editorial and Contacts
- 3 Fauna Detective
- 4-5 Fauna Profile The Evening Brown
- 5 My Little Corner The Koala in our Forest
- 6-8 Flora Profile Monocots of Distinction (Xanthorrhoeas)
- 8-9 Landholder Profile Gordon Wilkinson - A Man of Inventions
- 10 Practicalities A Sweet, Sticky Problem: Bees in nest boxes
- 11 Property Profile Mt Mellum Land for Wildlife Local Area Network
- 12 Practicalities Planting Rosellas: One nest at a time
- 13 Book Reviews
- 14-15 Ecosystem Profile Remnants of the once majestic Brigalow Scrub still adorn SEQ
- 16 Philosophy with Phil Land for Wildlifers - The Observers

Published by Healthy Waterways & Catchments through funding from the Australian Government's National Landcare Programme





# editorial

repuscular – what a curious word. Meaning 'twilight', it refers to the time just after dawn and just before dusk. Animals that are active at these times are referred to as being crepuscular (pronounced kruh'puskyuhluh).

Personally, I prefer dusk. I find it peaceful and calming. Like a big sigh. The daytime animals settle and the possums start scratching themselves as they wake. Just as all other butterflies stop flying, the Evening Browns start their bouncing flights. Todd Burrows' article on pg 4 helps solves the mystery as to why this species can sustain flight without sunlight, unlike nearly all other species of butterfly.

Then night falls, and out comes the nocturnal animals, such as owls, gliders and phascogales. We learn in Phil Moran's article on the backpage how we may be able to track down daytime roosting owls by listening to the alarm calls of other diurnal (daytime) birds.

Stephanie Reif's front page article brings home the plight of Australia's largest glider, the Greater Glider. I have only ever seen one Greater Glider, and even that count is overstated. What I saw was two fluffy ears disappearing into a large hollow branch on a Land for Wildlife property in the Redlands. Although brief, I was delighted by my sighting. The Scribbly Gum forest around me was largely intact with old trees festooned with numerous upwardfacing, large hollows. Perfect Greater Glider

habitat. These large gliders like to change rooms regularly and they need many hollows in one area to survive.

For the plant people, this edition profiles the iconic grass trees of SEQ with their resinous 'trunks' and nectar-filled flower spikes. We also take you on a tour of western SEQ to places where you can find remnants of the once extensive Brigalow Scrub. A journey which, I believe, is definitely worth taking.

In this edition, we can be inspired by the collective efforts of Land for Wildlife members around Mt Mellum - a biodiversity hotspot with a supportive, diverse community committed to learning about and improving their properties. Similarly, the solo efforts and innovation of Brisbane Land for Wildlife member, Gordon Wilkinson, are equally impressive.

Regardless of where you go around SEQ, there are stories of landholders making significant contributions to conservation and healthy land management. It is a delight to share this knowledge and passion in the pages of this newsletter. I hope you enjoy this issue and, as always, I welcome your contributions.



**Deborah Metters** Land for Wildlife Regional Coordinator **Healthy Waterways &** Catchments

Registered Properties	Working Towards Registration	Total Area Retained	Total Area under Restoration
3227	874	59,431 ha	6,319 ha

Landholder Registrations, Land for Wildlife SEO - 1/9/2016

Forward all contributions to:

The Editor Land for Wildlife Newsletter SEQ Catchments PO Box 13204 George Street QLD 4003 07 3211 4404 dmetters@segcatchments.com.au

LAND

#### **Print run** - 4795

Back copies from 2007 - 2016 available for download from www.lfwseg.org.au Back copies from 1998 - 2006 available upon request to the Editor. ISSN 1835-3851

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



Land for Wildlife Officers South East Queensland

#### **Brisbane City Council**

All enquiries, 3403 8888 Amanda Maggs Cody Hochen Catherine Madden Susan Nolan **Tony Mlynarik** 

Fflur Collier Peter Hayes

**Gold Coast City Council** Lexie Webster, 5582 8344 Scott Sumner, 5582 8896 Todd Burrows, 5582 9128

**Ipswich City Council** Stephani Grove, 3810 7173

**Lockyer Valley Regional Council** Kaori van Baalen, 5462 0376

Logan City Council Peter Copping, 3412 5321

#### **Moreton Bay Regional Council**

Ainslie Dyki, 5433 2288 Ben Green, 5433 2410 Nicole Byrne, 0419 700 213 Wendy Heath, 3883 5636

**Noosa Council** Kylie Gordon, 5329 6500

**Redland City Council** Maree Manby, 3820 1106

**Scenic Rim Regional Council** Keith McCosh, 5540 5436

**Somerset Region** Darren McPherson, 5424 4000

#### **Sunshine Coast Council**

Alan Wynn, 5439 6477 Danielle Crawford, 5475 7339 Dave Burrows, 5475 7345 Marc Russell, 5475 7345 Nick Clancy, 5439 6433 Stephanie Reif, 5475 7395

### **Qld Murray-Darling Region**

Toowoomba, Crows Nest and western regions Sandy Robertson, Qld Murray-Darling Committee, 4637 6228

### **Burnett Mary Region**

Gympie, Fraser Coast, North & South Burnett, **Bundaberg and Baffle Creek** 

Burnett Mary Regional Group, 4181 2999

Land for Wildlife South East Queensland is a quarterly publication distributed free of charge to members of the Land for Wildlife program in South East Queensland.

2 Land for Wildlife South East Queensland October 2016

🖵 lfwseq.org.au

facebook.com/lfwseg

## Colouring Competition Extended until 1 December 2016

Due to popular demand, the colouring-in competition in the July newsletter edition is extended. Send your entries to admin@seqcatchments.com.au or post unfolded to PO Box 731, Ipswich 4305. Winners will be announced in the January 2017 newsletter.



# fauna detective



and for Wildlife Officer for the Somerset region, Darren McPherson, provided these photos of dried grass seeds sticking out from gaps in a hardwood fence post. What was doing this? Luckily this mystery was answered soon after in the Land for Wildlife Newsletter for the Queensland Murray-Darling Basin, Spring 2015. A landholder out west had also found these strange tufts on her property and had sent them into her Land for Wildlife Officer, who in turn had sent them on to Chris Burwell, Senior Curator of Entomology at the Queensland Museum.

Chris confirmed that they are nests of a wasp (Genus *Isodontia*) but it is not possible to identify the exact species by their nest alone.



Great prizes to be won across these categories: 1. Most Realistic 2. Most Artistic 3. Under 12's

Species of *Isodontia* wasps nest in pre-existing tubular hollows such as abandoned tunnels made by beetle larvae in wood. Grass stems or leaves are commonly used by these wasps to divide the tubular hollows into a series of cells. Female wasps then lay an egg in each cell. They also place several food items (such as insects) in each cell as food for their emerging larva.

Once the nest has been constructed and filled, the female wasp 'closes' the entrance using tufts of grass stems or seed heads, as shown in these pictures.

*lsodontia* wasps are solitary insects and spend much of their time foraging for food for their larvae and building their nests.

### What's this?





and for Wildlife Officer with Brisbane City Council, Catherine Madden, found this strange animal deposit on an outdoor timber seat. Unsure as to whether it was a scat or a regurgitation, she sent it off for analysis. The result showed that it was a pellet from a Barn Owl. Owls cannot digest fur, bone and feathers of their prey, so they regurgitate them as pellets.





## fauna profile Hiding in the Shadows - The Evening Brown

The various dry season forms of the Evening Brown have camouflaged markings providing some concealment during the inactive winter period.

A nyone that likes to observe butterflies a very productive time to do so. That's because butterflies are ectothermic which makes them reliant on an external source of heat. By basking in the sun and warming their bodies, flight becomes more energy efficient. As a result almost all butterfly species are sun-lovers and are most active when the sun is shining. So sensitive are they that when the sun disappears behind a cloud they usually settle on vegetation and await its return.

Not all butterflies are sun-lovers though. The Evening Brown (*Melanitis leda*) is a species that you won't see flitting about on a bright day. They are crepuscular, being active around dawn, dusk and into the evening. You'll usually only see them during daylight hours if you are traversing through the forest undergrowth and disturb one resting on or near the ground. Return to the same area at dusk and you may witness the prolonged bobbing dance of a pair in courtship or males tightly circling each other and rising into the canopy as they battle over territory.

The Evening Brown is quite a large butterfly species that can be seen throughout the year in SEQ. Males have a wingspan of approximately 60mm with females larger at 63mm. Interestingly the adults have a wet-season (summer) form and a dry-season (winter) form, with the latter being larger and much more variable in colour and markings.

The wet-season form is seen from December to March, and with favourable

conditions several generations can be completed during this time. The multiple eye-spots of the wet-season form possibly offer some protection by deterring predator attacks during this active period. The dry-season form lacks these obvious eye-spots and combined with their varied brown markings have effective camouflage against a background of dead leaves. This concealment suits them well during a less active time when they are reproductively dormant and assumedly longer-lived.

While the majority of adult butterfly species feed on nectar from flowers, the Evening Brown has a preference for tree sap and fermented fallen fruit including those of the Creek Sandpaper Fig (*Ficus coronata*). They don't limit themselves to sap and fermenting fruit though, on a couple of occasions I've even seen them feeding on freshly squashed, road-killed toads.

Females oviposit (lay eggs) during dusk on a variety of native and exotic grasses (Poaceae) and some sedges (Cyperaceae); larvae feed on the fresh leaf growth. Commonly used food plants in SEQ include Kangaroo Grass (*Themeda triandra*), Blady Grass (*Imperata cylindrica*) and Tall Sedge (*Carex appressa*).

Mature larvae are about 60mm in length and are impressive with distinctive facial markings and horns; the bright lime-green body is covered in short setae (hairs) arising from numerous white speckles. Despite being so distinctive and feeding in broad-daylight they are not easy to locate. The larva pictured is the only individual l've ever come across! Before pupating the larvae move to the lower part of the plant attaching themselves to the underside of a leaf with silk. The pupae are uniformly green, blending in well with the host plants they feed on. Pupation is as short as ten days during the warmer months.

How is the Evening Brown able to be active in such dull conditions while other butterfly species are very limited without direct sunlight to fuel them? One Australian study discovered, during dusk, that males maintained a thoracic temperature an average of 8.25°C above







The wet season (summer) form of the Evening Brown has distinctive eye-spots that potentially deter predators during this active time.

the ambient temperature. While some species of insects use shivering to raise body temperature this has never been observed in the Evening Brown. Although no clear mechanism was found, a suggestion from the study was that heat created by flight itself could outweigh that lost by convective cooling. The densely hairy body of this species would assist in this retention of heat. More research needs to be done but it's a good insight into how the physiology of the Evening Brown allows it to do things most other butterfly species cannot.

#### **References & Further Reading**

- Australian Caterpillars and their Butterflies and Moths - http://lepidoptera.butterflyhouse.com. au
- Braby MF (2015) The Complete Field Guide to Butterflies of Australia, 2<sup>nd</sup> ed. CSIRO Publishing.
- Braby MF (2000) Butterflies of Australia: Their identification, biology and distribution, Vol 2. CSIRO Publishing.
- Brisbane Insects and Spiders www. brisbaneinsects.com
- Kemp DJ (2002) Visual mate-searching behaviour in the evening brown butterfly, *Melanitis leda* (L.) (Lepidoptera: Nymphalidae). *Australian Journal* of Entomology **41**, 300–305
- Orr A & Kitching R (2010) *The Butterflies of Australia.* Allen & Unwin.



Article and photographs by Todd Burrows Land for Wildlife Officer City of Gold Coast



### The Koala in our Forest (and on our doorstep)

The sound of male Koalas grunting in the night (and sometimes during the day) with their extra vocal cord folds, so they can call louder than any other marsupial, was a surprise when we moved to our patch of forest in Upper Brookfield. Apparently they aren't supposed to occur at the elevation of our property, but given their reducing habitat, the type of eucalypts / corymbias on our property, as well as the integrity of the forest corridor, they were there.

No matter how much you think that the Australian icon is overdone, seeing a Koala siting in a tree on 'your' land is amazing.

After we heard the calls, we saw a couple of male Koalas. We also semi-regularly saw a Koala who often found a tree or walked along the ground close to our house. Without fail they preferred shortish and relatively thin grey gums (*Eucalyptus propinqua*) or at a pinch an ironbark or stringy. When it was really hot, they would come up to the ridge next to our house to get the breeze and press against the cool bark. We would see less in winter as they hung out at the bottom of the gully, but every year without fail, in mating season we would hear the piggy grunt.

In February this year, at about 10pm there was a knock at our screen door. After looking out twice and seeing nothing, we suddenly realised it was a Koala trying to climb the door. This isn't usual behaviour and we realised that its eyes had the red look of chlamydia. We called the RSPCA and within half an hour they were there, complete with rubber gauntlets. We were told that the animal would be taken to Australia Zoo and that we could call them to see how it was the next day.

We did call, and it was sad news, the chlamydia was too advanced and, we then found out, it was a female who had to be euthanased.

It turns out that the majority of the Koalas we saw was actually just 'our girl', who was obviously used to our residence and human noises and was quite happy to sit in a tree next to us.

Did she come to us for help? Was the screen door the next best thing to a tree because she had mislaid the forest? Is it better that she was looked after rather than having a hard time in the wild? All we know is that we miss her, and hope that another lady Koala comes to take up residence at our place to respond to the fellas who are looking for a date. Our forest is ready and waiting.

Article and photo by Frances and Alan Hayter Land for Wildlife members Upper Brookfield, Brisbane

# flora profile

Monocots of Distinctio

Blue-leaved Grass Trees (Xanthorrhoea glauca) on the Main Range. Photo by

rass trees, belonging to the genera *Xanthorrhoea*, have a fascinating and unique biology and are some of the most distinctive plants in Australian flora.

Like all grasses, grass trees are actually monocots. 'Monocot' is short for monocotyledon, which refers to plants that have only one leaf arising from a germinating seed. In contrast, dicots, or dicotyledons, have two seed leaves. Other common monocots include bamboo, sugar cane, gingers, lillies, orchids and grains such as rice, wheat and corn.

However unlike other monocots, some Xanthorrhoea species have a tree-like form and can look as though they have a single or branched 'trunk'. All grass trees have a fibrous root system typical of monocots that extends into the soil from the base of the leaves. The unusual roots are contractile (able to shrink) and the apex of plants can be 10cm below the ground surface. Even if it is a species of Xanthorrhoea that forms a trunk, the plant may exist as a 'trunkless' plant with just a rosette of leaves at ground level for up to 30 years before an above-ground trunk becomes visible.

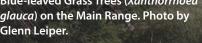
The trunk is formed from accumulated old leaf bases, rings of secondary vascular bundles (plant tissues that transport nutrients and water), and resin that strengthens the stem. Nutrient transport is via aerial roots that run down the centre of the 'trunk'.

Their ability to produce copious amounts of resin is a distinctive feature of Xanthorrhoeas. The word Xanthorrhoea comes from the Greek xanthos, meaning yellow, and rheo, meaning to flow, referring to the resin.

Grass trees are long-lived and slowgrowing. Research has shown that they can reach 250 years of age. An exception to this was a remarkably tall grass tree in southwestern Australia, which was six metres high and estimated to be 450 years old.

Xanthorrhoeas have an amazing resilience to fire as the living growth is shielded within the old, dead leaf bases of the trunk and the tightly packed moist young leaves protect the apex. Plants are highly flammable, burning quickly at high heat (up to 1000°C). Many species of grass tree flower profusely after fire and are fertilised by the nutrients from the burnt leaf skirt.

Xanthorrhoeas provided a range of resources for indigenous Australians and early non-indigenous settlers. The resin was used like a hard-setting glue and



waterproofing agent. A range of food was also provided by grass trees such as tender leaf bases, flour ground from the seeds, edible grubs, nectar from the flower stalks and honey extracted from bee's nest within the grass tree.

Xanthorrhoeas also provide valuable wildlife habitat and are a source of food and shelter for a surprising diversity of animals and insects.

Xanthorrhoeas are an important source of nectar and seed for many bird and insect species, including Emus, cockatoos, rosellas, lorikeets and honeyeaters. Black cockatoos are known to rip open flower spikes to extricate beetle larvae. When in flower, the spear of the plant also attracts bees, ants and butterflies, which in turn attract insect-eating birds.



A Sugar Glider feeding from a grass tree flower spike. Photo courtesy of Brisbane City Council.



A Scarlet Honeyeater and bee taking nectar and pollen from a grass tree flower spike. Photo by Leanne Jackwitz.



Cross-sections of Xanthorrhoea leaves can assist identification. Photos of *X. latifolia, macronema* and *glauca* by John Tann. Photo of *X. johnsonii* by Tahlia Clark.

Many native bee species visit Xanthorrhoea flowers for pollen and nectar, but some species also make nests within the pithy stems of intact, old, dry flower stalks. One of these species is the Green Carpenter Bee (*Xylocopa aeratus*). Female Green Carpenter Bees hollow out the inside of flower stalks with their jaws, and then supply their eggs with small bundles of pollen and nectar.

The dense leaf skirts of grass trees are habitat for fairywrens, scrub-wrens, lizards and small mammals. Studies have shown that grass trees provide important nesting habitats for ground dwelling mammals such as the Yellowfooted Antechinus and the Common Dunnart.

According to *Mangroves to Mountains* (2008), there are five species of *Xanthorrhoea* growing in South East Queensland (SEQ), all of which are profiled briefly here (continued on page 8). Please note that *X. latifolia* subspecies *maxima* will be added to the new edition of *Mangroves to Mountains*, which is currently being worked on, and when released, will be reviewed in this newsletter.



Xanthorrhoea latifolia subsp. maxima

Thick trunked plant to 4m in eucalypt forests at Springbrook and Lamington on rhyolite soils. Occasionally multi-trunked. Leaves to 15mm wide. Very different to coastal *X. latifola,* which is trunkless with leaves to 6mm wide. Photos by Glenn Leiper.



#### Forest Grass Tree (Xanthorrhoea johnsonii)

This plant is widely distributed and probably the most commonly seen grass tree in SEQ. It has a trunk to 4m, usually unbranched, with a flower spike to 2m. It grows on well-drained slopes and ridges. In Brisbane, stands of *X. johnsonii* can be encountered in Toohey Forest, Karawatha Forest and Chermside Hills Reserve. Photo taken near Main Range National Park by Liz Gould.



Blue-leaved Grass Tree (Xanthorrhoea glauca)

This species has a trunk to 5m, and is sometimes multi-trunked, with blue-grey foliage and flower spikes to 2m. It is found on hills and in mountainous areas such as on Main Range at Cunningham's Gap and also around Rathdowney and Boonah on heavy, black, basalt soils. Photo by Glenn Leiper.



#### Xanthorrhoea latifolia

This species is a trunkless or unbranched grass tree to 2m with a flowering spike to 2m. It is found in dry eucalypt forests with sandy or stony soils. Photo by Deborah Metters.



**Bottle Brush Grass Tree (***Xanthorrhoea macronema***)** An identifying feature of this plant is the short flower spike, being less than 10% of the length of its stalk. It is a trunkless grass tree growing to 1m in eucalypt forests on coastal sands and ranges on moist rocky slopes. In Brisbane, this species can be seen at Mt Gravatt Reserve and Karawatha Forest. Photos by Liz Gould.



#### Wallum Grass Tree (Xanthorrhoea fulva)

This plant grows in periodically waterlogged sand in moist coastal heathland areas and can be found in the wet heathlands behind Peregian Beach and Marcus Beach, and also on Moreton Island. It is a trunkless species, often forming massed colonies. Leaves are glaucous with flower spikes to 2.5m. It has a restricted distribution, occurring only on the coast from Central NSW to SEQ. Photo taken on Moreton Island by Glenn Leiper.

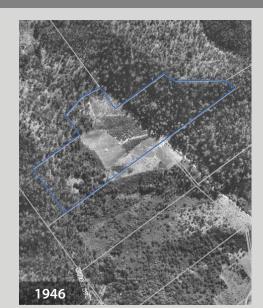
#### **References and Further Reading**

- Catterall CP & Wallace CJ (eds.) (1987) *An Island in Suburbia: The natural and social history of Toohey Forest*. Griffith University. Fire & Biodiversity Consortium (1999) *Fire in Bushland Conservation*.
- Cox D, Glazebrook J, Leiper G & Rathie K (2008) *Mangroves to Mountains: A field guide to native plants of south-east Queensland*. SGAP, Logan branch.
- Garden JG, McAlpine CA, Possingham HP & Jones DN (2007) Habitat structure is more important than vegetation composition for local-level management of native terrestrial reptile and small mammal species living in urban remnants. *Austral Ecology*, **32**:6.
- www.anbg.gov.au www.australiannativebees.com www.birdlife.org.au



Article by Amanda Maggs Land for Wildlife Officer Brisbane City Council

### These maps show the transformation of Gordon Wilkinson's property since 1946.







Never underestimate the efforts of one person!

# **landholder profile** Gordon Wilkinson - A Man of Inventions

One of Gordon's first memories of his property was of crawling on his hands and knees under impenetrable thickets of tree-sized groundsel along a wallaby track until he happened upon a rare sighting of a family of Black-breasted Button-quails. That was in 1973, the year he purchased his property in the upper catchment of Wonga Creek on Savages Rd, Brookfield.

Gordon's property is protected under a Voluntary Conservation Agreement (VCA) with Brisbane City Council's Wildlife Conservation Partnerships Program. He joined the program in 1996, and set to work restoring approximately seven hectares of land that had been logged for timber or cleared and farmed for banana, paw paw and other crops. Over the next 20 years Gordon has done what can only be described as a phenomenal job, tackling the weeds, restoring the soil fertility, stabilising the slopes, and revegetating the area with native plants.

The topography of Gordon's property does not make for a typical revegetation project. With the average gradient of slopes around 1:2.4, and in some places as steep as 1:1, careful consideration must be given to what, where and how plants could be planted. Previous land uses has caused tremendous soil loss on the slopes and required remediation before planting or natural regeneration could occur.

Rainfall also plays a critical role in determining what can be done. Gordon's rainfall records, collected since 1984, show the property gets on average 1000mm a year, with the highest rainfall of 1769.25 mm charted in 1988 and the lowest of 605.25 mm in 1999. The aspect of the slopes means they dry out rapidly and ongoing grazing by wallabies make establishment of plantings particularly difficult. Gordon has come up with some particularly resourceful and practical strategies to tackle the challenging circumstances the property presents.

To start with, Gordon chooses to work with the Glycine (*Neonotonia wightii*) growing on the slopes, rather than seeing it as a weed to be removed. He does this by cutting the foliage and digging out the roots of the Glycine from about a 1 square metre area, plants a native plant, then re-lays the Glycine foliage around the planting as mulch. The Glycine does not reshoot and is used to build up soil fertility as it is impractical to drag mulch up slopes. Glycine is also used to cover chicken wire guards around plantings to create a protective micro-climate.

Woody stems of the weed Anzac Daisy (*Montanoa hihiscifolia*) and home grown bamboo are used as stakes for plantings. Periodic weeding of the Glycine is done with a brush hook and after 3-5 years the Glycine thins and gradually disappears as the canopy grows and shades it out.

Perhaps the most inventive strategy that Gordon employs is his watering system. This utilises approximately forty 44 gallon drums with 2 sheets of corrugated iron laid on the slope above. The corrugated iron is attached to each drum, collecting rainwater to drain into the drums, where it can be dipped into with a watering can (refer to photograph above). This is a simple but elegant solution for watering on inaccessible slopes where it is impractical to have a tank or to drag hoses through dense Glycine.

When asked what he liked most about the being a Land for Wildlife member, Gordon said that the greatest benefit was that the program was community orientated. It was the sharing of knowledge and experience with like-minded people who are involved in the program, the swapping of ideas and knowing that you are not on your own when faced with trying circumstances, be it drought or wallabies, that made it worthwhile.

Gordon has had a deep and practical interest in nature since early childhood. Trained in agriculture and environmental science with extensive experience in land management together with 20 years working on nature conservation with Queensland National Parks and Wildlife have all helped to equip him to tackle the difficult task of regenerating his property.

Gordon estimates he has planted almost 4500 trees on his property, with a 50% survival rate. Considering the challenges that he has faced along the way, and that every single plant needs to be protected from wallaby grazing, the sheer enormity of Gordon's endeavours comes into focus.

Today, when you look around Gordon's property, you can see a canopy of Red Kamala as the dominant regrowth plant - a gradual restoration of dry rainforest where once it was clear land. On the opposite slope there are Brushbox and further up Spotted Gum forest with a diverse shrub layer that is naturally regenerating. When asked what he thought his greatest achievement was, Gordon's response was to say, "Seeing the tangible results – seeing the canopy form. It's been a big tough struggle. It will be worth it to see the forest become self-perpetuating."

Article by Amanda Maggs and Cody Hochen Land for Wildlife Officers Brisbane City Council

# practicalities

### A Sweet, Sticky Problem: **Bees in nest boxes**

est boxes are a great way to increase N the number of hollows and therefore the number of hollow dependant animals using your property. Installing them does require some maintenance, as a couple of introduced species can occasionally use nest boxes. One of these introduced species is the European Honey Bee (Apis mellifera); the bee that produces the honey we eat.

Sometimes native bees will also use nest boxes. Native bees are much smaller than European Honey Bees and are black in colour. If you do get native bees in your nest box... congratulations! This is a perfect example of what nest boxes are for, and you'll have lots of good native pollinators on your property.

If you see European Honey Bees coming and going from a nest box and they have not been there long, you can try deterring them by getting the garden hose out and giving them a good wet down. This often works if the bees have only just moved into their new home as the bees will quickly get the idea that the hollow is too wet, and it is an unsuitable new home.

Sometimes smaller nest boxes such as small parrot or glider boxes will have a hive of bees settle temporarily. These bees often





These gliders were found in a glider nest box that had old honeycomb (insert photo) attached to the roof of the box. It is thought that a colony of European Honey Bees used this box temporarily. However, because glider nest boxes are too small for honeybee hives to sustainably survive, the hive quickly moved on. It looks like the gliders may have nibbled on the honeycomb as a sweet treat! Photos taken from Alex Forest Bushland Conservation Reserve, a registered Land for Wildlife property at Alexandra Headland.

move on in a couple of weeks or months as the box is too small for the hive to be sustainable. Possum boxes and other larger nest boxes usually attract permanent hives as the box is large enough to support an active bee hive.

If European Honey Bees have become established in a nest box, using a nonresidual insecticide to kill the bees is your next best option. Such insecticides are commercially available and are branded as a wasp control, usually with the active chemical being d-Allethrin and/or d-Phenothrin. Such non-residual chemicals allow you the option of leaving the honey and honeycomb for the gliders and possums to eat. Therefore, you do not have to bring the nestbox down to clean it out.

If you are using a residual insecticide, you will need to take the nest box down, clean it out and dispose of the honey and honeycomb after treatment. Regardless of which insecticide you use, treated honey should not be harvested for human consumption.

Unfortunately, it is unlikely that an apiarist will come out and acquire the bee hive, as once European Honey Bees have swarmed, they are more likely to swarm again and not stay put in a constructed bee hive.

This home-made nest box on a Land for Wildlife property at Flaxton became occupied by a colony of native bees. One of the telltale signs of native bees is the dark, reddish wax and stains around the entrance. Keep an eye out for the small, stingless, black native bees that will come and go on warm days.

When dealing with European Honey Bees in a nest box it is important to remember, "safety first". Not only are you dealing with an insect that can give a painful sting, you are doing so at heights. Be prepared to keep a cool and level head up the ladder and cover up all skin preferably with overalls, rubber gloves and a mozzie head net (available from camping and disposals stores). Use a ladder safely preferably with two people present (one to climb and one to hold the ladder steady) and always try to have three points of contact with the ladder at all times (e.g. two arms and one leg or one arm and two legs).

If you are using chemicals, always follow instructions, use as directed and preferably use a wasp spray that you can spray from four metres away.

For more information on nest boxes and monitoring please see the Land for Wildlife Note A2 on Nest Boxes in your Land for Wildlife folder or download it from www. lfwseq.org.au

Thanks to Alan and Stacey Franks from Hollow Log Homes for their comments on this article.

#### **References & Further Reading**

Franks A & S (2007) Nest Boxes for Wildlife: A practical guide. The Green Book Company.





# property profile

Mt Mellum Land for Wildlife Local Area Network

Mt Mellum landholders enjoy a birding workshop - one of many activities organised through this Land for Wildlife Local Area Network.

t's 6am on a warm, breezy Saturday. Cars are being parked on the paddock, binoculars, insect repellent, hats and water bottles are coming out as people gather. We greet each other, welcome and introduce visitors, acknowledge the traditional custodians, attend to the health and safety briefing. As well as regulars, a few visitors join us, people who know and love their birds.

We hear some tips on how to listen for the birds around us, led by Deborah Metters, our Land for Wildlife Regional Coordinator. Then off we amble for two hours of wandering along bush tracks, stopping to listen and discuss what we might be hearing and seeing, learning pointers on how to match the sights and sounds of the birds we're seeing to their names.

Along the way people stop to look at plants, have quiet side chats, wander off on their own, feed the younger boys, as well as listen to, watch and discuss the birdlife. Then it's back to the deck for a scrumptious shared breakfast provided by all. It's another morning with the Mt Mellum Land for Wildlife Local Area Network.

Mt Mellum is a smallish mountain (approx. 400m high) at the southern end of the Blackall Range in the Sunshine Coast Hinterland, overlooking the magnificent Glass House Mountains to the south. The geological landscape is basalt flows at the top of the hill meeting Landsborough sandstone further down. It's a rich place for flora and fauna.

The Sunshine Coast Council has purchased several properties around the mountain as part of their acquisitions program to preserve places of biological importance and create connectivity corridors. There is no township of Mt Mellum, rather a series of houses dotted in rural properties along the main roads around, up and down the mountain.

Many local Mt Mellum landholders are committed to Land for Wildlife, and it is these people who gather every three months or so for a Saturday morning gettogether. We're a varied group; working singles and families, retired people, those who live on their land, others who live elsewhere. Some joined Land for Wildlife years ago, others are working towards that registration. Our block sizes vary greatly, and even include three smaller blocks whose owners are working towards Land for Wildlife registration as one unit.

Several years ago, a question was raised in a Land for Wildlife publication, asking if anyone saw benefit in beginning a Local Area Network in their area. After tossing the idea around with our Land for Wildlife Officers Nick Clancy and Alan Wynn, the early stages of the group kicked off.

Initially, there were individual discussions with some would-be members and then a general invitation to local Land for Wildlife landholders to a walk, morning tea and a discussion at the Councilowned Mt Mellum East Nature Refuge. A questionnaire followed, which led to our first 'official walk' at a wonderful property down in a gully, an area full of original and planted Richmond Birdwing Vines (*Pararistolochia praevenosa*).

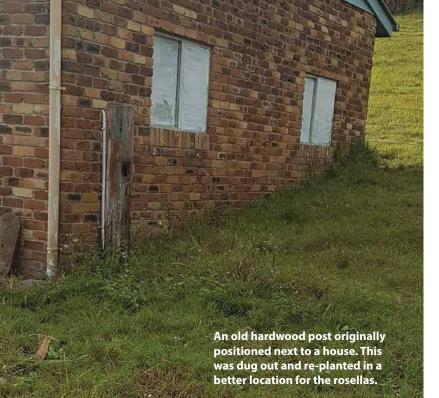
Bev Hand, a local elder, was generous with her time and knowledge for that first wander. We saw evidence of earlier Kabi Kabi inhabitation through grinding grooves on the rocky creek bed and were introduced to that patch of bush through Kabi Kabi eyes.

Generosity has been a theme of the group, from members opening their properties, to sharing information, fauna camera images, maps, delicious food and much more. The natural tendency to 'have the place looking good' has taken over a bit, but really, with lots to do, who has time to remove the weeds to have the place looking spiffy for neighbours and friends?

Our intentions are to create a group of people who encourage each other in the care and love of the bush and its inhabitants, to increase our knowledge and understanding of the ecosystems, the flora, the fauna and the interrelationships within them, to enjoy ourselves socially, and to include Land for Wildlife newcomers on our little mountain. Deep thanks to Alan Wynn for his advice and encouragement in this process.

Where next? Well, after several years of gatherings, we have more properties to visit when we're invited, much to learn through educational events, networking with neighbours, discussions about how we impact the landscape and visits from experts. Of course the urge to share our successes, present our problems and discuss our land management issues is ongoing. Whatever we do, it will be done in a spirit of cooperation as a diverse group is brought together by our commitment to the care of the flora and fauna of Mt Mellum.

#### Article by Christine McMaster Land for Wildlife member Mt Mellum, Sunshine Coast



# practicalities

### Planting Rosellas: One nest at a time!

No, not the botanical type, but the Pale Headed (*Platycercus adscitus*) or Crimson Rosella (*Platycercus elegans*) type!

If, like us, you run cattle on your property, or own a property which used to run some, you may have noticed that rosellas have a great liking of old corner fence posts. With age and termite action, these posts transform themselves into beautiful nice hollow wooden pipes.

These posts become perfect rosella nesting habitat and years after years, we have witnessed our regulars coming back and raising happy families from within these old posts.

Should you have to replace or remove these old hollow posts, we suggest you transplant them!

- 1. Dig a nice post hole.
- **2.** Then add a carefully extracted old post (they become quite fragile when hollow).
- **3.** There you are, a brand new, natural and rustic looking rosella nest that you can locate where convenient and safe.

Article and photos by Olivier and Sandrine Fillon Land for Wildlife members Cedar Creek, Moreton Bay





A recently transplanted old hardwood fence post that has been hollowed out over time. Pale-headed Rosellas have already been seen investigating this post as a potential nesting site.

# books & factsheets

### **Reptiles of the Scenic Rim**

#### By Steve K. Wilson

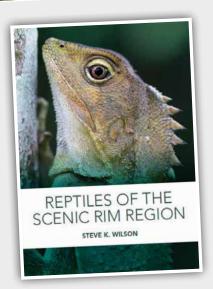
t is hard to believe how lucky we are in the Scenic Rim to have such a diverse and beautiful assemblage of fauna, flora and landscapes. We are now very pleased to have an informative and colourful publication created for us by the wellknown herpetologist, researcher, author and photographer Steve K. Wilson.

The book is designed as an introduction to the reptiles that live in the region. It seeks to highlight some of the more familiar and interesting species and draw attention to reptiles as an integral component of the broader biodiversity of the region.

Steve has set this book out in an interesting and enjoyable manner, with each section covering several species of reptiles. Under those sections there are descriptions and interesting information on behaviour, diet, habitat and breeding. The sections covered are Identifying Reptiles, Dangerous Snakes, Town Dwellers, Homes and Gardens, Along the Waterways, The Mountain Retreats, Eucalypt Forests, Little Snake Lost, First Aid, and a complete list of the reptiles of the Scenic Rim.

One of the interesting sections is Little Snake Lost, which is a story of a researcher some 20 years ago that came across a tiny blind snake in the Fassifern Valley. This specimen has been preserved and was recently named as *Anilios insperatus*, or Fassifern Blind Snake. No other specimens have ever been found to date. Although this book doesn't cover all of the species of reptiles in the Scenic Rim it is nonetheless is really good read about 58 species that do occur here.

This book is available from Scenic Rim Regional Council and local Information Centres (Beaudesert, Boonah, Canungra, Rathdowney, Tamborine) and also The Piccabeen Bookshop, Tamborine Mountain.



Published by Scenic Rim Regional Council, 2016 Paperback, A5 format, 112 pages Price: \$10 to \$12

Review by Martin Bennett Acting Land for Wildlife Officer Scenic Rim Regional Council

### **Regional Ecosystems of SEQ**

I am fortunate to live in an area which was originally forested with dry rainforest. Recently, I was preparing an application for funding to enhance and re-establish a patch of this interesting plant community. Wanting to appear knowledgeable in the application, through my favourite search engine, I stumbled upon SEQ Catchments' newly published series of factsheets titled Regional Ecosystems of South East Queensland.

What a great resource these are. Each factsheet includes background information regarding the regional ecosystem (RE) – a general description, differences and similarities to like REs and uses a full page map to show the RE's past and present distribution. For landholders and bush restorers, the factsheets provide practical, useful information about management (especially control of weeds) and restoration and regeneration. A comprehensive listing of the common plant species of each RE is also provided.

The factsheet for the RE in which I was interested – Brigalow open forest on sedimentary rocks (RE 12.9-10.6) – provides the advice that restoration "is likely to require intensive effort" and "is likely to throw up some interesting challenges along the way". From experience, I agree!

The factsheets are very well presented, are illustrated with excellent photographs and written in non-technical language. They are each eight pages in length.

With funding from the Australian Government's National Landcare Programme, factsheets describing 24 of South East Queensland's ecosystems have been prepared. They were compiled by Peter Young of Vegworx and edited by past and current staff of SEQ Catchments.

Every Land for Wildlife (LfW) property in SEQ would have a RE code describing the native vegetation, whether it be remnant or regrowth. Check your LfW assessment form, or ask your LfW Officer.

PS. My grant application was successful. Now I look forward to the "intensive effort" and "challenges" of restoring just a little bit more of this wonderful ecosystem.

Review by Bob Hampson Land for Wildlife member Marburg, Ipswich



The following Regional Ecosystems have been profiled in this factsheet series:

12.3.1	12.5.13	12.9-10.11
12.3.2	12.8.13 🏷	12.9-10.15
12.3.3	12.8.16	12.9-10.16
12.3.4 57 -7	12.8.21	12.11.8
12.3.7	12.8.23	12.11.11
12.3.11	12.9-10.6	12.11.13
12.3.14	12.9-10.7	12.12.8
12.5.3	12.9-10.7	1212.13
	12.9-10.0	

Available for free download from the SEQ Catchments website at www.seqcatchments.com.au/ resources-fact-sheets.html or ask your Land for Wildlife Officer for a copy.

# ecosystem profile

Remnants of the once-majestic Brigalow Scrub still adorn SEQ

> Brigalow Scrub, on the right of this photo, can still be seen in parts of the Scenic Rim, Lockyer and Somerset regions.

The word "brigalow" may be a familiar term to many Australians, but how many would know that it refers to a wattle tree and can be found an hour's drive from Brisbane's CBD? This article aims to demystify this iconic tree and its associated ecosystem, the "Brigalow Scrub".

Brigalow (Acacia harpophylla) is a slowgrowing, long-lived tree, which historically grew in dense stands across the drier parts of Central Queensland extending into South East Queensland (SEQ). Brigalow grows on relatively fertile soils and these areas were heavily cleared by early non-indigenous settlers. Patches of Brigalow Scrub can still be found today in the Lockyer, Scenic Rim, Ipswich and Somerset regions such as around Rosewood, Boonah and Gatton.

Brigalow often grows in association with, or adjacent to, dry rainforests or vine-thickets. A Brigalow canopy often hides a diversity of dry rainforest or vine-thicket plants. Brigalow, dry rainforests and vine-thickets are commonly referred to as "Softwood Scrubs". Many Softwood Scrub plants have thick, tough leaves with spines, adapted to dry conditions.

Due to the extensive clearing, Brigalow Scrub is listed as an Endangered ecosystem under the Commonwealth Government's *Environment Protection and Biodiversity Conservation Act*, acknowledging that less than 10% of the original extent of this ecosystem remains.

In SEQ, there are three main regional ecosystems (REs) that describe Brigalow: 1. RE 12.8.23 2. RE 12.9-10.16 3. RE 12.3.10a All of these ecosystems are listed as Endangered under Queensland's Vegetation Management Act.

RE 12.8.23 describes Brigalow that grows on basalt geology with dark, cracking clay soils. Examples can be seen driving along Cochranes Road at Tallegalla, along Boonah-Fassifern Road near Boonah. The lower slopes of Mount French also show RE 12.8.23. Mapping done by Healthy Waterways and Catchments (formerly SEQ Catchments) shows that only 5% of the original extent of this ecosystem remains in SEQ, equating to about 416 hectares. RE 12.8.23 is not protected in any reserves, but 48 ha occurs on several Land for Wildlife properties around Marburg and Coolana.

RE 12.9-10.16 describes Brigalow that grows on sedimentary geology with brown, cracking clay soils. Examples of this RE can be seen driving along Glamorganvale Road between Glamorganvale and Lowood, and also around the township of Kalbar. Mapping shows that only 2% of the original extent of this ecosystem remains in SEQ, or about 757 hectares. Only 7 hectares of RE 12.9-10.16 are in reserves, but thankfully, 203 hectares of this ecosystem occurs on 50 Land for Wildlife properties, representing over 25% of the entire ecosystem!

RE 12.3.10a is the most cleared of all Brigalow ecosystems with only 50 hectares remaining in the Lockyer Valley and Scenic Rim areas. This ecosystem occurs on alluvial flats near creeks and rivers. Examples of RE 12.3.10a can be seen along the Warrego Hwy at Forest Hill, at the back of the Lowood Showgrounds and around Lower Mount Walker. Given its slow growth and that individual trees can reach several hundred years of age, Brigalow timber is heavy and dense. It was a valued commodity and historically used for fenceposts, church pews, houses and sheds, as well as being manufactured into spears by indigenous people. Briglow and Rosewood (*Acacia fasciculifera*) are the oldest Acacias growing in SEQ.

Brigalow Scrub can be a difficult ecosystem to restore, but it is possible and examples can be found in SEQ. It all starts with finding local provenance seed. Why is local seed so important? The appearance of Brigalow differs widely across its range. West of the Great Dividing Range, the leaves of Brigalow are silver in colour, whereas here in SEQ, the leaves are generally dull-green or olive coloured. If ecological restoration is the aim, it is important to source Brigalow seeds from plants naturally occurring in SEQ to try to retain the genetics and the aesthetics of SEQ Brigalow.

This first step is easier said than done. Brigalow is a lazy seeder, preferring to direct energy into its roots and suckering (sending up new shoots from the roots). So obtaining local provenance seed can be difficult as one plant may produce only a few seed pods once or twice a decade. Unlike seeds of other Acacias, Brigalow seeds lack a hard protective coat and will quickly germinate when dampened. Seeds that do fall to the ground remain viable for less than a year. Interestingly, it has been suggested that Brigalow may have developed its preference for suckering rather than setting seed in response to root and stem damage done by the now-extinct megafauna that roamed Australia tens of thousands of years ago.



Brigalow leaves are usually silver in colour (above left) in inland Queensland, or dull, olive green (above right) in South East Queensland. Similar to other wattles, Brigalow has yellow, puff-ball flowers that appear in late winter / early spring.

Once obtained, Brigalow seeds germinate readily but will take about a year before they are ready to plant out. It is best to plant pioneering Softwood Scrub species around them so that the Brigalow have some shade and shelter to get started. For the first five years, Brigalow plants will grow very slowly until they get a decent root system established. Then they will head skywards.

Preferably, plant Brigalow in solid blocks close together (1.5m centres) rather than in rows. Specimens planted 16 years ago around Minden are now 5-10m tall. If a whole paddock was planted with Brigalow, after 20 years, it could look similar to a remnant Brigalow ecosystem. Brigalow trees reach their full height (about 30m) at about 50 years of age and some trees are known to be hundreds of years old.

Brigalow has been planted along several roads and highways in SEQ. An attractive stand of the silver-leaf form can be seen along the Warrego Highway near Marburg. It is uncertain why there are such distinct silver-leaf and dull green-leaf forms of Brigalow. One suggestion posed by the co-author, Martin Bennett, is that the silver-leaved form is favoured in hotter environments as the light colour may help reflect heat. In addition, the silver coating can sometimes be rubbed-off possibly implying that this textured silver layer may be able to hold water and dew better than a shiny, smooth green leaf.

Brigalow Scrub is often rich in plant diversity. On one Brigalow covered bluff near Rosewood, co-author Martin Bennett, recorded 190 plant species in just 4 hours. Unfortunately, most Brigalow patches now contain only about 80 plant species, as they have been heavily degraded by clearing, too much fire and overgrazing. Like subtropical rainforests, dry rainforests (e.g. Softwood Scrubs and Brigalow) are intolerant of fire and mature Brigalow trees and seeds in the soil will die from exposure to fire.

Over time, Brigalow Scrubs form a dense layer of understorey leaves, fallen timber and seasonal herbs and grasses. This understorey structure combined with dense shade provide perfect habitat for ground-dwelling animals such as the Blackbreasted Button-quail, skinks and leaf-litter invertebrates such as ants and land snails. Brigalow Scrubs also attract rainforest birds such as Eastern Yellow Robins, as well as woodland bird species such as Greycrowned Babblers.

Brigalow is a fascinating ecosystem, a mix of rainforest and dry woodland. We hope that this article inspires you to go for a trip out to the Lockyer, Scenic Rim, Ipswich or Somerset regions to see some Brigalow and learn more about it first-hand. We also hope that if you have Brigalow on your property that you are proud to be custodians of the few remaining patches that we have left in SEQ, and if you do see it flowering and setting seed, please let your Land for Wildlife Officer know.

For more information on Brigalow ecosystems, including plant lists for revegetation, download a copy of the relevant RE Factsheets from www. seqcatchments.com.au > resources > factsheets or ask your Land for Wildlife Officer for a copy. 66 Brid

Brigalow may have developed its preference for suckering rather than setting seed in response to root and stem damage done by the now-extinct megafauna



Brigalow patches are often even-aged and of a similar height. This is a result of past disturbance after which the Brigalow re-grew from root suckers.

#### References

- Coaldrake JE (1971) Variation in some floral, seed, and growth characteristics of *Acacia harpophylla* (brigalow). *Aust. J. Bot.* **19**, 335-52.
- Johnson RW (1964) *Ecology and control* of *Brigalow in Queensland*. Queensland Department of Primary Industries.
- Nix H (1994) The Brigalow. Chapter 10, pp. 198-233, In: Dovers S (Ed) Australian Environmental History: Essays and Cases. Oxford University Press.

Article by Martin Bennett Acting Land for Wildlife Officer, Scenic Rim Regional Council and Deborah Metters, Land for Wildlife Regional Coordinator



An adult Southern Boobook taking shelter in the carport on a Land for Wildlife property at Greenbank.

## Philosophy with Phil Land for Wildlifers - The Observers

and for Wildlife people get it. In my experience they learn so much simply by observing the rich tapestry of Mother Nature. I call my place 'A university without the sandstone' and I research and follow up to learn more.

I drive a bit, and I listen to Radio National whilst doing this (who said men can't multi task!). Recently they had a guy from the United States talking about the variety of bird alarm calls. Birds have different pitches for alarm calls that say, for example, raptor flying, raptor perching, snake on ground and snake in the tree.

On my weekly trip to Bribie Island to visit my Mum, I stopped in a bit of bushland on the way back. The birds were going off. Not just the mickeys (Noisy Miners) but also the butcherbirds and even a magpie. Mickeys, I reckon, are unreliable indicators of a true 'alarm' as they carry on about anything, but the combination of birds in alarm mode got me interested. I went back to the car, retrieved my camera and went looking. I expected to find a carpet python, the usual cause of such a commotion, particularly at midday. A lot of looking was required until I finally saw the culprits. There perched in midcanopy were two owls. I was looking, but they were looking too - straight at me! Initially I thought, and hoped, they might be juvenile Powerful Owls. I took some photos (see image to the right) and went home and started researching. My research included me asking trusted colleagues including our local bird expert. It turns out that they were a pair of juvenile Southern Boobooks.

The Southern Boobook is the smallest and most common owl in Australia. It is commonly known as a 'Mopoke' as its distinctive call sounds like 'boo-book' or 'mo-poke'. I hear them regularly, but don't see them often. Southern Boobooks feed on insects, small mammals, moths and even small bats.

You can hear their call, and all other owl calls, via www.owlpages.com/sounds.php. Scroll through the pages until you get to Southern Boobook Owl (*Ninox boobook*), which should correctly be *Ninox novaeseelandiae*, which is Latin for the owl of New Zealand.

Technically, there are four subspecies of the

Southern Boobook – one here in Australia, one in New Zealand and two extinct ones, on Lord Howe and Norfolk Islands. Enjoy looking, listening, observing and researching your own Land for Wildlife property – you never know what you might find.





Phi-los-o-phy (say fuh'losuhfee) n. a system of principles for guidance in practical affairs. Macquarie Dictionary.

Phil Moran Land for Wildlife member Cooran, Sunshine Coast Manager, Noosa and Districts Landcare

Land for Wildlife South East Queensland is proudly supported by:



Land for Wildlife South East Queensland newsletter is published by Healthy Waterways & Catchments (formerly SEQ Catchments) through funding from the Australian Government's National Landcare Programme. Opinions expressed by contributors to the Land for Wildlife South East Queensland newsletter are not necessarily those of the Land for Wildlife program nor any of the supporting agencies. Printed on EcoStar Silk 100% post-consumer recycled paper, FSC certified, chlorine-free process and made carbon neutral. Printed by Greenridge Press, Toowoomba using vegetable based inks.