



## Attracting microbats to your property, not your swag

A couple of months ago I visited my friend on his Land for Wildlife property. His house is in the middle of remnant dry-vine rainforest and as a result wildlife is abundant, both inside and outside the house. My friend had noticed animal droppings congregating in a corner of the house and he suspected that a microbat might be the culprit. Sure enough, tucked up inside a folded swag were a couple of tiny bats. I took a photograph, looked through the bat section of *Wildlife of Greater Brisbane* book, and worked out that they are Eastern Forest Bats (*Vespadelus pumilus*).

As is the case with so much of Australia's nocturnal fauna, we have a great deal still to learn about microbats. Eastern Forest Bats, like most of Australia's microbats are insectivorous, eating small moths, flies and mosquitoes, chasing and catching their prey on the wing. Microbats eat a lot of insects. Research has shown that one microbat was able to catch 1200 tiny fruit flies in one hour.

Eastern Forest Bats have complex ears designed to capture their echolocation calls. Most microbats emit high frequency calls which are reflected off objects allowing bats to navigate in the dark and detect small prey.

Sometimes you can hear microbats calling. Generally the sounds that we can hear are them 'talking' to each other at their roost or making alarm calls. Humans generally can not hear the echolocation calls of microbats. The audible range of hearing for humans is 20 Hz to 20 kHz. As with most things in nature there are always exceptions to the rule and in SEQ there are two species of microbat whose



Eastern Forest Bats opportunistically use this drying swag as a roost site.



Nest boxes designed for microbats have material hanging down from the box allowing microbats to attach and climb up into the darkened box.

echolocation calls are audible to humans. Yellow-bellied Sheath-tailed Bats call at 19-24 kHz and White-striped Free-tailed Bats call at 11-15 kHz, both audible to humans.

Microbats roost during the day in a range of different structures. They can use tree hollows, caves, under loose bark on trees, underneath dead leaves on tree ferns and staghorns, and also in disused buildings, tunnels, bridges, stormwater drains and under roofs. Some species roost communally, others individually, some roost near water, others in forests.

Microbats are best observed at dusk when they leave their roost and are flying against the dusk sky. As well as installing microbat nest boxes (shown above), the best thing landholders can do to protect microbats is to retain old trees that have hollows and also dead or dying trees, especially burnt out eucalypts that have a hollow core. Hollow trees offer important maternity roosts for microbats during their summer breeding season.

Article and photos by Deborah Metters

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# editorial

In late May, I drove out to Fordsdale in the southern part of the Lockyer Valley for a fabulous workshop for Land for Wildlife members, in particular, their children. It was a day that epitomised why I work with the Land for Wildlife program - community, environment and action. The children (and many adults) were in awe of the wildlife shown. The animals, collective experiences and imagination inspired the children to create stories, songs and art that were recorded digitally for all participants.

While the children were creating their works of art, the adults enjoyed home-made pikelets and chatted about life in the more remote parts of the South East Queensland region. I have great respect for people who have lived on the land for a long time and have an eye for seeing changes in the landscape. The floods of January, especially in parts of the Lockyer created massive and obvious landscape changes, but the more subtle changes over decades to our plants, animals and soils are only noted by those who have honed their observation skills over time.

Some attendees at this Fordsdale workshop had such skills, although they would readily dismiss such comments, and it was a pleasure to spend a couple of hours with them. People chatted about the decline in soil fertility as a result of over-grazing, over-burning and land clearance. The soils, low in fertility and structure, are now more vulnerable to erosion and now grow different plant species.

We looked to the nearby hills and noted scrub trees such as Brigalow holding on in gullies, and how small reliefs in the landscape, like a gully, can offer refuge for fire-sensitive plants and animals. It would seem that such easily-overlooked gullies will become more important as refuges given increased global temperatures.

Discussions often turned to the need for political support for conservation and landholders, and how some support, such as this Council-sponsored workshop, is greatly appreciated and goes a long way.

I often wonder what percentage of Australians have ever even heard of a phascogale or a planigale. I sometimes ask my non-environmental friends, and they think I am just making up names to win scrabble. However, the landholders who are actually looking after our nations' natural assets, such as the phascogales and planigales, are just seeking some recognition, support and community. If the Land for Wildlife program can offer just some support and recognition, then I am very happy to be working here.

I hope you enjoy this edition. Thank you to all contributors, and as always, I welcome any stories that you may wish to share with the Land for Wildlife network.



*Deborah Metters  
Land for Wildlife  
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SEQ Catchments*

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### Landholder Registrations, Land for Wildlife SEQ - 01/06/2011

Registered Properties	Working Towards Registration	Total Area Retained	Total Area under Restoration
2803	663	51,215 ha	3,845 ha

Forward all Letters to the Editor, Fauna Vignettes and My Little Corner contributions to:

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# my little corner

## Graceful Grass

**G**ot the latest newsletter. Magic as always! Lots of stuff of interest and inspiration for me personally.

The Birds Australia people were here recently doing their quarterly survey (30 species) and we were discussing weeds etc. It came up that we here in Gumdale and the local district have a massive invasion of the native Graceful Grass (*Ottochloa gracillima*). It literally solidly carpets the ground and must choke out indigenous species. It is up to 700 mm high, as shown in this photo.

The wet weather has encouraged it but even during the drought we have had solid ground cover of entangled stalks under the trees on 50% of this property. With the clearing of the *Ochna* it has really gotten solid and is a real problem.

Along with this there are similar problems from Creeping Beard Grass (*Oplismenus aemulus*) and Pademelon Grass (*O. hirtellus* subsp. *imbecillis*), both also native species.

It seems to me that without regular burnoffs for the last several decades it has allowed these species to thrive, much to the detriment of other native small species.

### **Jak Guyomar**

Land for Wildlife member  
Gumdale, Brisbane



*Peter Hayes, Land for Wildlife Officer with Brisbane City Council responds ...*

One of the interesting things about working in Land for Wildlife is the range of ecosystems you get to see. The same native species that is thriving in one can be struggling in others. There's no doubt that, at least in Brisbane, native Graceful Grass (*Ottochloa gracillima*) has shown amazing growth in the last couple of summers. In Jak's case he feels it's at a level that is suppressing other natives. This is based on his long-term observations and intimate knowledge of his land.

However on most properties I visit, it's simply good to see a native grass finally out-competing the weeds!

Ecosystems change with time and with variations in their environment. Drought will favour some species over others, then a few wet summers sees a different species take over. Frequent burning can

result in an abundance of some species to the detriment of others, just as a lack of burning will allow others to dominate. Nature is never really 'in balance'; any seemingly steady state is usually more like an occasional pause between fluctuations.

Yes, some native species can behave like weeds due to changes in their environment. But most often the positives outweigh the negatives. On other properties in Brisbane we have seen Graceful Grass provide ideal conditions for other native herbs and ground covers to regenerate. The thick mat it creates provides shelter for small mammals and reptiles, as well as insects. It is quite likely that the inevitable return of drier conditions will see *Ottochloa* and *Oplismenus* again die back and another species dominate.

In the meantime it might be worth celebrating that a local native plant is giving the weeds a run for their money.

## Lifer!

**F**inally, I got the Pale-vented Bush Hen (photo right). In birding circles, this is known as a lifer - it's the first time I have seen this species in my life. And it all happened on Peter French's Land for Wildlife property at Yugar (see page 11 for his property's profile). Ed Surman and I were lucky to see a whole family of bush hens moving around the waterhole on Peter's place that was once a dry gully.

While on Peter's property, I also photographed the brightly coloured larvae of the Painted Pine Moth, also called the Painted Acacia Moth (photo far right). This larvae feeds on a range of plants including wattles (*Acacia* sp.) and pines (*Pinus* sp.).

### **Deborah Metters**

Land for Wildlife Regional Coordinator



# flora profile

## Orchids and Fungi: what the hell is an obligate myco-heterotroph?



Article and photographs by Alan Wynn  
Land for Wildlife Officer  
Sunshine Coast Council

Orchids have the ability to captivate most people's attention, probably more than any other plant. The combination of their relative rarity in the landscape, flowers that vary from the delicate and minute to the large and showy, and complex lifecycles makes them fascinating for many of us who enjoy looking at plants.

I was reminded of this recently while on a walk around a Land for Wildlife property on the Blackall Range near Montville. I was at the back of the group when I was halted as the people ahead of me stopped and milled around. Binoculars were being raised, cameras dug out of backpacks and people were pointing and making "oohs" and "aahs" of captivation. Being at the back of the group I couldn't see anything and was becoming agitated at the prospect of missing out on seeing the rare bird I was sure everyone else was admiring. Comments like "we've never seen one of those here before" weren't helping but, just as I was about to resort to some serious elbow work, the group moved on to reveal a King Orchid (*Dendrobium speciosum*) in full, magnificent flower.

Worldwide the orchids, with an estimated 20-30,000 species (this number varies widely from source to source), are one of the most diverse groups of plants. With nearly 200 species found in SEQ the orchids are only surpassed locally, in terms of sheer diversity, by the grasses (Poaceae) and daisies (Asteraceae).

Bet you never knew that they all start life as a parasite?

Orchids produce more seed per flower than any other flowering plant. Their seeds are minute and have no endosperm to help them establish. In order to germinate, develop and persist they need to be colonised by a fungi.

Young orchids obtain sugars and inorganic nutrients (such as nitrogen and phosphorous) from the fungi. At this stage the fungi do not get anything in return

from the orchid so it can be described as a parasitic relationship.

This relationship between orchids and fungi whereby the orchid gets all, or part of its food from fungi, is called myco-heterotrophic. Despite the parasitic beginnings of orchids, many orchids develop leaves as they mature and are no longer completely dependent on fungi for food. In most fully photosynthetic orchids, the orchid matures and it is able to produce its own sugars, however it may still rely on its fungal partner for inorganic nutrients.

Before scientists knew about the relationships between leafless orchids and fungi, it was mistakenly thought that leafless orchids derived their food from decomposing plant matter. Now we know that fungi are essential to leafless orchids and that the relationship between the orchid and fungi continues throughout the life of the orchid. Leafless terrestrial orchids are now correctly referred to as obligate myco-heterotrophs (that is that they depend completely on the relationship with a fungi). An example of a leafless orchid found in SEQ is the stunning Spotted Hyacinth Orchid (*Dipodium variegatum*).

Most terrestrial orchids only have associations with mycorrhizal fungi (that is fungi that is in contact with plant roots). However recently it has been shown that some of the leafless terrestrial orchids obtain nutrients via association with saprotrophic fungi (fungi that breaks down dead organic matter). Research on the Bootlace Orchid (*Erythrorchis cassythoides*) revealed that it had associations with both mycorrhizal and saprotrophic fungi, which effectively allows it to receive nutrition from both living and dead plant material.

An important outcome of the research into orchid-fungi relationships is for the conservation of rare and threatened species. It is now understood that some rare orchids have very specific fungal partnerships and that these must be protected to ensure the survival of the orchid.

*Warning – technical jargon alert.* This article has, despite my best efforts to avoid them, a few words many people do not normally encounter.

**endosperm** – the starchy food reserve found in most seeds

**mycorrhiza** – a symbiotic association formed when microscopic fungi either form a sheath around plant roots or penetrate plant cells

**saprotrophic** – organisms that feed on dead organic material



The magnificent King Orchid (*Dendrobium speciosum*) begins life as seed that is as fine as dust and must encounter the right fungi to parasitise in order to germinate and develop. King Orchids are usually found in rainforests and wet gullies growing on rocks and on trees.



The Rosy Hyacinth Orchid (*Dipodium roseum*) is one of our more noticeable leafless terrestrial orchids due to its bright colour. The Slender Hyacinth Orchid (*Dipodium variegatum*) and Blotched Hyacinth Orchid (*D. punctatum*) are also similar in colour. It is dependent on a parasitic relationship with mycorrhizal fungi. These hyacinth orchids are found in eucalypt forests.





### What to do to protect orchids on your property?

Orchids rely on having a diverse ecosystem both in terms of structure and species richness. Disturbances like slashing or too frequent burning will destroy the intricate relationships necessary for them to survive and reproduce. Terrestrial orchids have varied responses to fire; some are stimulated by fire for flowering while others will be inhibited from flowering.

Many orchids have specific insect pollinators and they too will be more likely to be present in a diverse healthy ecosystem as opposed to one degraded by weeds or other disturbances.

Inappropriate use of herbicides or pesticides may impact directly on orchids or indirectly via their fungal partners, their insect pollinators or the trees and shrubs that the fungi rely on.

If you find an orchid on your property and wish to identify it, there are a few good books and websites available as shown in the further reading section. *Mangroves to Mountains* provides a good starting point for most of the commonly found orchids in SEQ.

The endangered Swamp Orchid (*Phaius australis*) is an impressive plant (right) and forms beautiful flowers (above). Its leaves can photosynthesise, therefore it is likely to be dependent on a fungal endophyte only to germinate and establish. It has been speculated that there may be a link between fungal specificity and orchid rarity, implying that rare orchids may need very specific fungi to germinate and that fungi occurrence may be the factor limiting some orchids.

The understanding of orchid-fungi relationships is still expanding and can be very technical. If you want to learn more about this fascinating topic, I can suggest typing myco-heterotrophy into your internet browser.

Article continues on page 15 with more orchid photographs and a further reading section.



The Bootlace Orchid (*Erythrorchis cassythoides*) was shown to have both saprotrophic and mycorrhizal fungal relationships. It can be differentiated from the Giant Climbing Orchid by its fragrant flowers and it is usually found in open eucalypt forests.



One of the most spectacular of the local leafless orchids is the Giant Climbing Orchid (*Pseudovanilla foliata*) seen here bearing many large seed pods.



# property profile

## Spinach Creek Floods and Wildlife

Article by James Kerr and Judy Whistler  
Land for Wildlife members  
Fordsdale, Lockyer Valley



There's been a lot of media focus since recent record flooding in the Lockyer Valley on the human impact of these events. Perhaps less well known are the environmental impacts of such intense storm events.

We live in the southern part of the Lockyer Valley along Spinach Creek adjacent to Dwyers Scrub Conservation Park and have been members of Land for Wildlife for quite a number of years.

The first thing a visitor would notice in this area is the large number of land slips, there are literally hundreds. These generally occur on certain soil formations usually associated with Brigalow Scrub, remnant or cleared, and to a lesser extent, vine scrub.

These soils are formed from rock known as Winwill Conglomerate, which is a sedimentary layer extending about 30 – 40 metres above the valley floor. This means that when slips occur, the soil goes directly into the creeks or adjacent to them.

The clay layers exposed are usually sodic and highly dispersing. Subsequent rainfall is less easily absorbed and run-off creates rills down the slip face, which in many places brings sediment and salt directly into the creek water. The plume of silt can extend for some distance downstream. No doubt the salt and nutrients would affect Moreton Bay and the Brisbane watershed.

Many aquatic creatures are susceptible to changes in water quality – invertebrates, crayfish, amphibians and small fish such as Bony Bream and Purple-spotted Gudgeons, which are normally abundant in Spinach Creek when it is running as it is.

On top of this, the physical nature of Spinach Creek has changed dramatically since the events of January 11th which here was much more intense than the 1974 floods. The creek has changed from a V shape to a side U shape.



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*"...what we saw here in January was probably the equivalent of hundreds of years of soil movement concentrated into one event and may take many years to recover."*

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James Kerr and Judy Whistler inspect the changes to Spinach Creek after the devastating floods of January.

The water height and volume was such that giant boulders weighing many tonnes had been moved down stream and, in a kind of domino effect, the predominant vegetation along the creek bed, Black Tea-tree (*Melaleuca bracteata*) have 80% disappeared, either completely torn out by the roots or broken off, with smaller trees laid flat. With the resilience of the system, some of the remaining fallen tea-trees are starting to re-shoot and lomandras are starting to re-grow.

In the short term tea-trees are a very obvious source of nectar for birds, mammals and insects such as native bees. Because a large number of creeks in this region were similarly affected, creatures which rely on such vegetation have little alternative refuge.

With advice from SEQ Catchments we are attempting remedial actions, through the planting of deep rooted native trees such as Belah (*Casuarina cristata*) above recently appearing cracks in the soils and creeping grasses such as salt tolerant couch and vetiver in herring-bone patterns across the slip faces.

In conclusion, while the land form in this area has been shaped by land slip and rock fall, what we saw here in January was probably the equivalent of hundreds of years of soil movement concentrated into one event and may take many years to recover. With more extreme weather predicted with a changing climate the future may well hold more intense wet periods and perhaps more intense dry periods.

# pest profile

## Common Blackbirds found at Springbrook

Article by Barb Eldred  
Land for Wildlife member  
Springbrook, Gold Coast

*Sing a song of sixpence,  
A pocket full of rye;  
Four and twenty blackbirds baked in a pie!*

Everyone knows the whimsical rhyme about the funny blackbirds in the pie. They are an integral part of the English countryside where their song in spring has been the subject of many a lyrical outpouring. Lovely song. Wonderful bird.

Yes. In their place. But not here.

In January 2011, a female or immature Common Blackbird was sighted on a property adjacent to the National Park at Springbrook. A male was later identified by a group of bird observers. This is the first known recorded sighting in the Queensland coastal area of this introduced species. Common Blackbirds were introduced to Melbourne back in the 1850s, and while most bird books tell us they are found only around Melbourne, they are now scattered in pockets in many places in Queensland, namely Toowoomba, Warwick and Stanthorpe areas where they were first seen in 1986 at Cooby Dam. It would seem that their range continues to expand.

The introduced Common Blackbird (*Turdus merula*) is approximately 25 centimetres from head to tail and is most obvious during spring and summer when the breeding males sing from vantage points.

The male is black with a bright orange to yellow bill and eye-ring. The female has dark grey-brown upper parts and mottled, light grey-brown underparts, a paler chin and dull brownish-yellow bill and is similar to our native thrushes, the Bassian and the Russet-tailed Thrushes. Juvenile blackbirds are similar to females, with lighter underparts and streaked crown. Blackbirds are also superficially similar to the introduced Common Starling (*Sturnus vulgaris*).

Blackbirds have a high, fine 'tsee' contact call, a distinctive song, and a harsh, almost screeching chatter of alarm when in flight. A distinctive characteristic is that they

move in jerky hops over the ground rather than walking. The female blackbirds are easy to confuse with the native Bassian and Russet-tailed Thrushes, but the blackbird is more even-coloured and dull and are much more secretive in their movement and freeze when disturbed. The native thrushes will flee when approached but the blackbird seems to hide near shrub bases and will freeze. The native thrushes will feed in the open but the blackbird does not seem to do this.

Blackbirds are considered pests because they damage a variety of soft fruits including figs, grapes, olives, berries and stone fruit. If fruit is available, they will consume it throughout the year.

Blackbirds have also been implicated in the spread of weed species including blackberry. They are aggressive and compete with native species. Unlike the native species of thrush whose foraging pattern leaves the under-surface of leaf litter intact, blackbirds seem to dig deeper through to the dirt leaving areas more susceptible to erosion.

They can also get infested with ticks and may spread some of the diseases carried by ticks such as Lyme disease.

Blackbirds have infiltrated Southern Queensland with breeding reported in Toowoomba and Highfields. Toowoomba Bird Observers have set up a monitoring programme and through community effort, we have the opportunity to prevent this species becoming an established pest in Queensland.



The Common Blackbird was introduced to Australia in the 1850s and is commonly found around Melbourne and also in cooler parts of Queensland such as Toowoomba, Stanthorpe and Warwick. It has only recently turned up at Springbrook in the Gold Coast hinterland.

Top photo by Adam Blyth,  
[www.pixelatedempire.com](http://www.pixelatedempire.com)

Left photo by Leo Berzins.

### What should I do?

If you think you have seen a Common Blackbird in Southern Queensland, please contact the Blackbird Hotline on 4699 4365 or 4633 0553 or write to the Toowoomba Bird Observers at PO Box 4730 Toowoomba East 4350

Alternatively, you can enter details with the Blackbird Report Form on [www.toowoombabirdobservers.org.au](http://www.toowoombabirdobservers.org.au) If possible, please take a photograph to assist with confirmation (good luck!!).

There are many traps available which can be used to trap blackbirds. You can get more information on traps from the Blackbird Hotline or the Toowoomba Bird Observers. Removal of eggs can help reduce their numbers, but it is recommended that you do not destroy the nest as females will lay eggs again in the same place and you will know where she is.

Article based on information from Toowoomba Bird Observers website and personal contact.



# pest profile

## Invasive Pest Animals in Brisbane

Article by Jenny Wong  
Community Engagement Officer  
Brisbane City Council

Photos by G. Alchin  
Pest Officer, Brisbane City Council

Over the last few years, there has been a significant increase in the number of reports involving invasive species in particular the European Red Fox. Feral deer, rabbits and wild dogs are also regularly sighted in suburban streets.

The negative environmental impacts associated with these invasive animals are detrimental to the city's habitat areas.

Council actively manages invasive fauna species to retain biodiversity, reduce impacts on native wildlife and keep their numbers to a minimum. Invasive fauna management occurs within Brisbane City's natural areas and Council facilitates the control of these species on private land.

Invasive species have a negative impact on native wildlife by predation, competition for food and shelter, destroying and modifying habitat, and by spreading diseases.

The European Red Fox is the most devastating of the introduced predators and has colonised the majority of suburbs in the Brisbane region. Foxes in the Brisbane region are regularly sighted in most urban areas, preferring creek banks, gardens, parklands and most natural areas with patches of dense vegetation. Suburbs that comprise of small acreage properties have the capacity to sustain relatively high populations of foxes.

The fox is an opportunistic hunter that predated on both native fauna and domestic livestock. Free range poultry are relatively easy prey for the fox as well as many threatened ground dwelling native animals such as the Northern Brown Bandicoot, possums, gliders, reptiles and amphibians. Research undertaken on the stomach contents of foxes caught in Brisbane have identified that they contained 46% native species, the prey species were equal to or less than 5 kg.

Sightings of wild dogs and dingo-hybrids are also being reported in suburban Brisbane. They have been sighted in Upper



The European Red Fox is found widely across Brisbane.

Kedron, Mitchelton, Ferny Grove, Stretton, Ellen Grove and the western suburbs of Pullenvale Ward. These areas provide wild dogs with suitable habitat for shelter, den sites, abundance of small prey such as possums, poultry, domestic pets, small livestock, easily obtainable alternative food sources (compost heaps, domestic pet food, rubbish bins and road kills) and unlimited water sources (dams and ponds).

Wild dogs are also opportunistic hunters and the presence of wild dogs in urban areas have been the cause of complaints due to incidents of threatening behaviour towards humans, family pets and medium-sized livestock.

Rabbits have been sighted in Belmont, Capalaba West, Chandler, Gumdale, Inala, Ransome and Wakerley. Their population density varies depending on the season

and the impact of biological controls. Rabbits can cause considerable damage to newly regenerated sites as well as residents' gardens, lawns and ornamental trees.

Wild deer have impacted on Brisbane's natural environment by browsing and trampling through vegetation, competing with native fauna for resources and habitat degradation and fouling waterways. They have also impacted on the community by damaging residential gardens and fences, causing traffic hazards, attracting illegal hunting, carrying diseases and parasites which may be transmitted to humans, and impacting on agriculture.

Control methods vary depending on species. Soft-jawed foot-hold traps are commonly used for many invasive species and self mustering traps are used to capture deer. The setting of traps can be



Wild dogs in Brisbane's suburbs pose threats to domestic pets, livestock and native wildlife.





A herd of wild deer in Brisbane's western suburbs (above) and an example of the damage that they cause to vegetation (right).

very labour intensive and time consuming. Invasive species management on public land may pose many constraints as traps can be triggered by domestic animals especially dogs being allowed to roam off-leash.

Council is focused on protecting and regenerating habitat as well as informing the community about invasive species and the negative impact they have on biodiversity. The Land Protection (Pest and Stock Route Management) Act 2002 imposes a legal obligation on Council to undertake appropriate pest management programs within the city to control/manage invasive species, both fauna and flora.

Reported sightings of invasive species are acted on by Council's Pest Management Team. A co-ordinated effort by landowners and Council is recommended to control and manage the impact invasive species have on our city's environment. Land for Wildlife members are encouraged to work in collaboration with Council to control invasive species by reducing pest animal harbourage (ie piles of old timber, disused sheds, car bodies, lantana, etc) from their land and adopting a co-ordinated invasive species pest management plan.

Council works closely with Land for Wildlife members and regularly conducts workshops on how to effectively manage invasive species as well as providing expert advice and on-ground assistance.

To report a feral animal sighting, phone Council on 3403 8888 and mention you are a Land for Wildlife member. For more information about invasive species in Brisbane visit [www.brisbane.qld.gov.au](http://www.brisbane.qld.gov.au)

## Case Study

Mrs Edith Smith and her son, Mr John Smith, have been Land for Wildlife partners since 1998. Their 28.03 hectare property at Upper Brookfield is home to a diversity of fauna species.

In the last few years, the Smiths have noticed an increase in the number of invasive species especially wild dogs and foxes on their property as well as on neighbouring properties. The Smiths recognised the harmful impacts these pest animals have on the environment and commenced working with Council's Invasive Species Management Team on an invasive species management program.

Eleven wild dogs, nine foxes, two Fallow Deer, one Rusa Deer and one feral cat have been removed from the Smiths' property since 2007.

It has been a successful partnership with minimal intrusion into the Smiths' daily lives. Mr Smith checks on the set traps regularly and would contact Council only when he noticed an animal had been caught. A Council Compliance Officer would then remove the animal as expeditiously as possible.

Council continues to work with the Smiths to monitor and control the number of invasive species on their property.



The Smith's property contains remnant dry rainforest scrub that was once widely found across Brisbane and is now only found in small isolated patches. Shown here is damage to scrub trees caused by wild deer. Photos by Sue Nolan.



# flora profile

## The River Lily and its Moth



Article by Stephanie Reif  
Land for Wildlife Officer  
Sunshine Coast Council



River Lillies have a beautiful showy flower. Photo by Mark Crocker.

What a summer and autumn we've had for plant growth, and as a result the insects are taking full advantage of it. But there's something going on outside... my native River Lilies (*Crinum pedunculatum*) are disappearing. Initially I thought that the newly planted lilies hadn't survived the wet. Then my apparently healthy mature River Lilies started turning into brown mush!

I asked around and checked on the internet and discovered a moth caterpillar is doing the damage. Whilst the caterpillars do substantial damage I think it must leave the plant susceptible to mould and fungus attack as well. My crinums have been planted for wildlife but there is something about sharing that these caterpillars haven't learned – they're not supposed to demolish the whole plant, especially not ones that I've planted.

But we have to remember that it's not for us to decide these things. The caterpillar or moth might themselves turn into food for a microbat or insectivorous bird. It's just a bit hard when you're attached to a plant that you planted and have watched grow over

the years. Luckily I have some seedlings from one of the plants that succumbed to the caterpillars. So far the moths haven't found them so I will wait until it gets cooler and the caterpillars aren't so active to plant them out, then I'll just have to let nature take its course.

### Moth profile

The caterpillar of the Lily Moth (*Spodoptera picta*, previously *Calogramma picta*) has black, white and yellow stripes down the length of its body. The adult Lily Moth has a body length of 2 cm and a wingspan of 4 cm. It has a brownish red, white and black pattern on its forewings and white hindwings. Whilst its natural host plant is *Crinum pedunculatum* it also eats exotics like *Hippeastrum* and *Clivia*.

After hatching, the first instar of the caterpillars feed together. As they get larger they feed singly either on the surface of the leaves or they can bore into the centre of the plant. Caterpillars hide during the day and often damage the plant so badly it doesn't recover.

### Plant profile

The River or Swamp Lily (*Crinum pedunculatum*) has large strappy leaves up to a metre long and 10 cm wide, with large white showy flowers. Its large seeds are approximately 4 cm long and germinate easily. They can be direct seeded into the ground or grown straight in tubes. River Lily is found in coastal New South Wales and Queensland as well as Papua New Guinea and some Pacific Islands. It is found in streams and tidal areas but can withstand quite dry conditions as well and is useful in revegetation along creeks.

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- Common I (1990) *Moths of Australia*. Melbourne University Press, Carlton.
- Brisbane Insects website - [www.brisbaneinsects.com](http://www.brisbaneinsects.com)
- SOWN website - [saveourwaterwaysnow.com.au](http://saveourwaterwaysnow.com.au)



River Lillies are useful plants for revegetation, especially along creeks. These healthy plants were grown from seed directly into these tubes. Photos by Stephanie Reif.



Unfortunately, the larvae of the Lily Moth was keen on eating all of the River Lillies that I had planted, leaving nothing of the plant remaining except a brown mush.



The culprit - larvae of the Lily Moth.



# property profile

## Seeing a Property's Potential

Article by Peter French  
Land for Wildlife member  
Yugar, Moreton Bay

In August 2003 we acquired this property due to its potential i.e. it had a number of mature Eucalypts and Black Wattle on a sloping block towards a seasonal gully.

It had been mowed from boundary to boundary with the exception of large clumps of lantana which surrounded the mature trees. These trees were also covered in Climbing Asparagus and Cats Claw Creeper.

Over the years of mowing there were large areas heavily infested with Mother of Millions and we are still finding this pest appearing after good rain. In most cases it can now be hand picked.

The gully was seasonal due to a build of silt over the years and at some stage was used as a rubbish tip. It had been partly taken over by Camphor Laurel, Jacarandas and Groundsel. These trees and large bushes were either poisoned or dug out.

An excavator was used to clear the silt and lift some of the metal and glass out of the gully. Most of the silt was used to create an island and raise the level on the down side to create a dam wall. It is now (or perhaps once again) a permanent waterhole that has a diverse range of wildlife such as waterbirds, frogs, lizards, snakes, bandicoots and rodents, see photos below left.

A large portion of the mowed area was left to recover, however, due to the long dry spells during the early years not many trees appeared but the native grasses made a remarkable recovery.

With the advice of Land for Wildlife officers in the selection of native species, plantings were undertaken as weather and water availability permitted. During good years many hundreds of trees were established and total plantings now exceed 1300. Many pioneer species are re-establishing with the return of wetter years.

The number of bird species observed now exceeds 38 where previously Noisy Miners ruled.

We adopted two methods of getting rid of most of the lantana. Both are relative easy and very effective. For the tall clumps around the gum trees a passage was cut to access the main stem which was scraped and painted with Glyphosate this resulted in about a 90% kill. The dead lantana was left for approximately 6 months then it was broken down and left to become a very good source of mulch.

The second method involved a bobcat using the bucket to crush flat an area of approximately 10 x 30 metres. The regrowth was vigorous and easily sprayed and killed. This left a dense layer of dead lantana and the plantings in this area grow well with no weeds as the soil was not disturbed.

The bobcat took approximately 15 minutes to complete the operation and the operator was surprised at its effectiveness.

We are still having a constant battle with Asparagus Fern re-appearing from the seeds from years ago.

As the trees have now become established understory plantings can now take place. It is a low maintenance block due to the natural bush land setting with paths throughout.

When we first arrived the nights were silent without any sign of life. The first year I disposed of 300 large Cane Toads. I collect and use 100 to 300 smaller Cane Toads that move in each year for fertilizer around the trees. The summer nights are now filled with the sound of crickets, frogs and owls.

*"Our journey in restoring the land is similar to the many I have read about in [Land for Wildlife] articles, however each has its own uniqueness. Collectively [they] would be a good reference point for anyone starting out in converting a "park" into a home for wildlife."  
Peter French.*

A silted up gully has been turned into a wildlife-packed waterhole.



before



Former lawns now have native grasses, shrubs, trees and wildlife.



after





# ecosystem profile

## The important role of birds and bats in rainforest regeneration

Article based on a brochure prepared by Cath Moran for the World Wide Fund for Nature (Australia) as part of its Rainforest Recovery program. Information is based on research conducted in the Sunshine Coast region, including many Land for Wildlife properties.

In subtropical SEQ, rainforest plants are dispersed by 25 different bird species and three bats (two flying-foxes and the Eastern Tube-nosed Bat). Different types of birds and bats disperse different types of plants. For example, only a few large bird species can disperse large fruits. Without these birds, plants with large fruits may not be dispersed.

Birds such as the Topknot Pigeon, Lewin's Honeyeater, Australasian Figbird, fruit-doves and bowerbirds all disperse seeds from over 70 native plant species. Flying-foxes disperse at least 50 plant species.

Birds and bats feed on fleshy fruits of rainforest plants and disperse the seeds of more than two-thirds of the plant species in Australian rainforests. Most of the plants that are not dispersed by animals are dispersed by wind.

The movement (dispersal) of seeds is a crucial part of forest regeneration. The dispersal of seeds throughout the forest



The Rose-crowned Fruit-dove (above) is an important disperser of rainforest seeds but is uncommon in isolated patches of rainforest. Photo by Chris Charles.

The Woompoo Fruit-dove (left) disperses seeds of many rainforest plants. Photo by David and Diane Armbrust.

increases the chances that seedlings will grow and survive. Also, dispersal allows plants to colonise new areas, including land that has been cleared. The presence, or absence, of seed-dispersing birds or bats directly affects where rainforests can naturally regenerate.

Some rainforest bird and bat species are uncommon or missing from small rainforest patches and plantings. These include fruit-doves, bowerbirds and the Eastern Tube-nosed Bat. Because of this, some plants may not be dispersed in these areas. Plants most likely to be affected include those with fruits wider than one centimetre and from particular families such as native laurels (from the family Lauraceae), Myrtaceae and Rubiaceae.

Because of limited dispersal, natural regeneration of these plants will be low. In these small and isolated patches we can not expect mature rainforests to develop by natural regeneration. Some plants will be missing or rare.

Restoring rainforest on cleared land will provide fruit and other resources for birds and bats. This is especially important for those species that do not use the small, isolated patches of rainforest that are left in highly-cleared landscapes. These species are much more abundant in patches where the surrounding landscape is covered by more rainforest (recent research suggests at least 60% rainforest), although forest patches do not have to be joined to one another.

Rainforest fruits come in all shapes and sizes. They will be eaten, and their seeds dispersed, by a range of animals. Photo by Cath Moran.

### What can you do?

Plant fleshy-fruited plants. This may encourage seed dispersers to feed there and, at the same time, birds and bats may bring in seeds to the site. It is unlikely that a suite of fleshy-fruited rainforest plants will naturally establish in small, isolated patches of rainforest or reforested areas, so it is important that people plant these species.

Plant fleshy-fruited plant species that are known to be eaten by wide range of seed dispersers. Example of these species are:  
Arecaceae (palms e.g. *Archontophoenix*)  
Araliaceae (e.g. *Polyscias*)  
Elaeocarpaceae (e.g. *Sloanea* and *Elaeocarpus* with small fruit)  
Moraceae (figs e.g. *Ficus macrophylla*, *F. obliqua*, *F. superba*, *F. watkinsiana*).

Plant fleshy-fruited plant species that are unlikely to be dispersed naturally into small rainforest remnants, regrowth or replanted sites. Examples of these species are:

Lamiaceae (e.g. *Gmelina* and *Vitex*)  
Lauraceae (laurels e.g. *Cryptocarya*, *Cinnamomum*, *Endiandra* and *Neolitsea*)  
Meliaceae (e.g. *Dysoxylum*, *Synoum*)  
Myrtaceae (e.g. *Syzygium*)  
Rubiaceae (e.g. *Aida*, *Atractocarpus*, *Hodgkinsonia*, *Ixora*, *Morinda*, *Psychotria* and *Canthium*).

Any plants with fruits wider than 1 cm.

### Endnote and Reference

This research was conducted at Griffith University. The full brochure is available from the Griffith University website or from the author at [c.moran@griffith.edu.au](mailto:c.moran@griffith.edu.au)

Moran C and Catterall CP (2009) Reduced dispersal of native plant species as a consequence of the reduced abundance of frugivore species in fragmented rainforest. *Biological Conservation* 142: 541-552.





# book reviews

## Growing Australian Plants in Subtropical Gardens

by Jan Sked

To me, this book reflects a maturity in how Australians relate to our native plants. This is not a field guide or a book trying to justify why we should grow native plants, instead it assumes a level of interest in native plants, propagation and native garden design. As such, this book is a fresh addition to my library and has already proved useful for my suburban garden.

This book may interest Land for Wildlife members in designing and managing land around their residential areas. Often these areas around buildings contain introduced plants that may 'escape' into the bushland.

The main section of this book is divided by plant forms – groundcovers, shrubs, trees for suburban gardens, trees for parks, palms, ferns and vines. Each section lists species alphabetically by scientific name, a feature that again assumes a level of interest in native plants. Each species has a detailed description including its height, colour, growth form, where it grows naturally, soil preference, maintenance tips and methods for propagation.

You can tell from detail in every plant description that the author, Jan Sked, has a lifetime of interest and passion for native

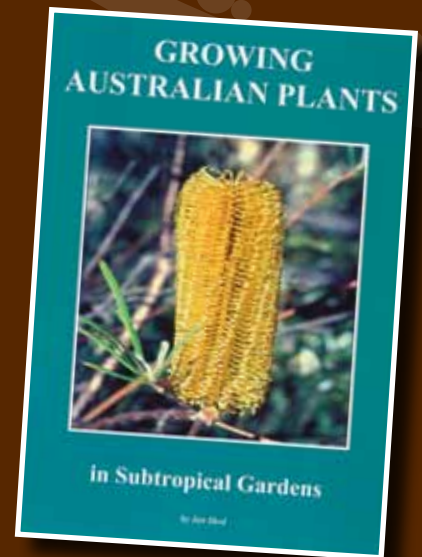
plants. Her personal and horticultural passion has extended to giving back to the community through her long-term work with the Society for Growing Australian Plants (SGAP) and authoring of other books on native gardens and bushfoods.

In the introduction, Jan mentions that she has added a pronunciation guide for scientific names to help readers feel more comfortable speaking them. I think that this is an excellent feature.

At the back of the book there is a tabular index showing the size, form, flower/fruit colour, flowering season, aspect and soil preference for over 1100 plants. A remarkable collection of information.

Jan has lived in Lawnton, just north of Brisbane, for 45 years and this book reflects her local knowledge of the plants of South East Queensland. This is a great reference book for anyone interested in native plants and gardening for this region.

Note: SGAP has their Spring Flower Show and Plants Market on 17-18 September at Mt Coot-tha Botanic Gardens - a great opportunity to buy and admire native plants and flowers.



Published by Society for Growing Australian Plants (SGAP), Pine Rivers Branch, 2011  
Paperback, A4 size, some colour photographs & line sketches, 192 pages  
ISBN: 978 0 646 54183 9  
Price: \$35 plus \$10 postage in Qld or \$12 postage Australia-wide.  
Available from SGAP Pine Rivers Branch, PO Box 41 Lawnton Q 4501.  
Phone 07 3285 3322  
Email jansked@powerup.com.au

*Book review by Deborah Metters  
Land for Wildlife Regional Coordinator*

## Rocks and Landscapes of Brisbane and Ipswich

by Warwick Willmott and Neville Stevens

This handy little paperback begins with the line, "Brisbane (and Ipswich) has probably the most complex geological history of all the Australian capital cities." Based on this statement, I imagine a number of reactions.

- Those with an interest in rocks will no doubt become more interested,
- Likewise, flora lovers will recognise that complex also means diverse, and will also read on, and
- Those of us who struggled with geology may be tempted to drift off.... but

Do not be fooled people! Behind what may seem to some as a relatively drab-looking cover, lies information of almost biblical proportions, and answers to questions you haven't even thought of yet!

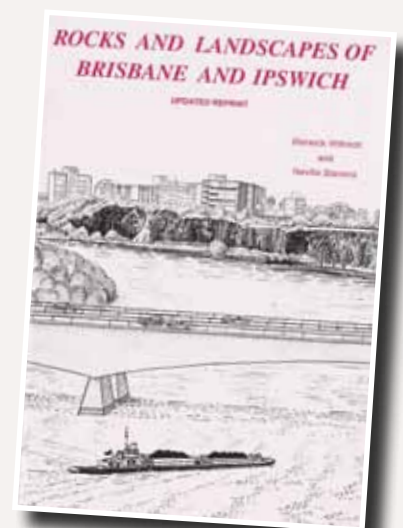
Originally published in 1992, this book draws on years of professional and academic work undertaken by the two authors. It presents the fascinating geological history of our region in a fashion

that is not just interesting, but EASY for all to understand (even me!).

I really enjoyed the use of well known landmarks (like our own Denmark Hill here in Ipswich) to illustrate various rock types. This made it easy to visualise examples and relate these back to the text. For the really practical people, the book also includes a number of self-guided tours where examples of the major formations can be viewed without the need to dig deep holes in other people's yards!

*Rocks and Landscapes of Brisbane and Ipswich* gave me much more than simply a better understanding of the local geology (and a study full of odd rocks). I found that it gave me a much clearer view of the relationships that formed our landscape. After all, it is the underlying geology that dictates the various soil types, and of course the vegetation and animals that they support.

*Book review by Peter Copping  
Land for Wildlife Officer, Ipswich City Council*



Published by Geological Society of Australia, Queensland Division  
Paperback, black and white, 72 pages  
ISBN 0 909869 81 2  
Price: \$9.90  
Available from Geological Society of Australia website [www.gsa.org.au](http://www.gsa.org.au)

# flora profile

## For the Love of Lichens

Article and photographs by Jutta Godwin  
President, Cubberla-Witton Catchments  
Network

Article first appeared in The Queensland  
Mycologist, The Bulletin of the  
Queensland Mycological Society, Vol 6  
Issue 1, Autumn 2011.

**D**on't forget your magnifying glasses when you go bush. It's the little things that can make a walk very exciting. Once you discover the beauty of lichens along the way, you'll be hooked.

Australia's still growing list of lichens currently consists of 3616 species (including Island territories, with 35% considered to be endemic. Half of the named species are known from Queensland, and more species are expected to be discovered.

Lichens are a fascinating symbiosis between a fungus and one or more photosynthesising algae or, to a lesser extent, cyanobacteria. The partnership works well. The photosynthetic partner(s) contribute(s) to this partnership by providing carbohydrates while the fungus gives the lichen its body and ensures protection against moisture loss and UV exposure.

Given time, moisture and some light, lichens grow on almost any substrate, including man-made structures. In a natural environment they grow on soil, rocks, bark of trees, dead wood, and even leaves of rainforest vegetation.

Lichens are categorised according to their growth forms. They are aptly named fruticose when they have a shrubby appearance and can be hanging or grow upright. They can truly look like miniature shrubs with branches, attached to their substrate at one point only.

They are called foliose when they have a leaf-like and mostly flat appearance, grow in lobes, have a distinctive upper as well as lower surface, and are only loosely attached to the surface they grow on.

Crustose species are very thin and attached to the surface like a crust. Any removal of the lichen means taking parts of the



A juvenile Spiny Leaf Insect (*Extatosoma tiaratum*) disguises itself on foliose lichen.

substrate as well. Squamulose lichens like *Cladonia rigida* (shown right), have small scale-like primary structures from which secondary fruticose ones arise.

Lichens generally reproduce vegetatively via structures on the lichen surface that contain both fungal threads and algal cells. Both easily break off and disperse to new locations where they may start new lichens.

The fungal partner can independently produce fruiting bodies such as the little cup shapes visible on *Ramalina celastri*. Yet to form a lichen, it needs to create a new association with an alga or cyanobacteria.

Lichen identification starts with the description of structure, surface texture, and by distinguishing the reproductive methods. Colour can be important but is unreliable as it varies with moisture content. Spot testing is an important (yet limited) method. Very small amounts of chemicals are applied to the lichen. Any potential colour change in the affected area may give clues to the lichen's identify.

Lichens dry out easily (see *Heterodea muelleri* shown right) but are equally fast in re-absorbing water after rainfall or from the atmosphere. Photosynthesis is resumed without delay once the lichen re-hydrates.

Lichens are pioneers and hardy survivors, found in all habitats. Their acids break down rocks and help the formation of soils. They are able to colonise areas bare of any vegetation by contributing to the creation of protective soil crusts. Growth in lichens is slow compared to that of our trees, shrubs and flowering plants. It depends on the type of habitat, on climate, and, of

course, on the type of lichen. Among the slowest growing lichens is *Rhizocarpon geographicum* developing in maritime Antarctica at a rate of 16 mm per century.

How our native animals use lichens needs to be further explored. We know of a range of invertebrates that feed on lichens, among them mites, moth larvae, snails and slugs. Others use them to disguise themselves by covering their body with fragments of lichens or have evolved to resemble lichens like the Spiny Leaf Insect (shown above). Birds build nests with lichen fragments and some of our small mammals are known to feed on lichens.

Lichens are ideal biological indicators because of the easy way they can absorb and store water, minerals, sulphur dioxide and nitrogen compounds. In the northern hemisphere lichens are used to measure climate change and man-made atmospheric pollution. Tolerance levels differ among lichens with fruticose lichens being the most sensitive ones.

A lot of community education is needed to avoid the potentially damaging effects on slow-growing lichens through hiking, mountain biking and other leisure activities. Fires, whether controlled or wild, destroy many lichens in natural settings. A few months ago, a search for ground lichens after back-burning in Mt Coot-tha's foothills revealed a group of *Cladonia* species in an unburnt gully. Among them was *Cladonia sulcata* which is particularly exciting as Queensland records for *C. sulcata* are only known from northern parts of the State.





From top: Fruticose *Ramalina celastri*, taken in Indooroopilly, but also seen in the Lamington area. Squamulose *Cladonia rigida*, pictured on dead wood in Indooroopilly. Foliose *Heterodea muelleri*, a fungimap target species and common in SEQ's open eucalypt forests, here shown after rain (left) and in dry form (right).

#### Further Reading

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Purvis W (2000) *Lichens*. The Natural History Museum.

Kantvilas G & Jarman SJ (1999) *Lichens of rainforest in Tasmania and south-eastern Australia*. Flora of Australia Supplementary Series Number 9, Australian Biological Resources Study.

[www.anbg.gov.au/lichen](http://www.anbg.gov.au/lichen) (highly recommended new website)

[www.anbg.gov.au/abrs/lichenlist/introduction.html](http://www.anbg.gov.au/abrs/lichenlist/introduction.html)

<http://members.westnet.com.au/roderickrogers/> (focus on subtropical Qld lichens)

For more information on the Queensland Mycological Society, please visit [www.qms.asn.au](http://www.qms.asn.au)

## Orchids and Fungi

article continued from page 5...



This Potato Orchid (*Gastrodia sesamoides*) is fairly common but often overlooked due to the fact that, like many leafless terrestrial orchids, the only part to be seen above ground is the flower and it is not brightly coloured. It grows in moist, shady eucalypt forests.



As the common name suggests, the flowers of the Slender Sun Orchid (*Thelymitra pauciflora*) open up to face the sun. This orchid is usually found growing on moist sites in eucalypt forests.

#### Resources and further reading

<http://www.ourshopfront.com/kabi/index.php> - Australian Native Orchid Society (QLD) – Kabi Group Inc. Photos of locally native orchids

<http://www.banjarah.com/> - Information and photos of Australian terrestrial orchids.

<http://www.anbg.gov.au/> - Australian National Botanic Gardens. Basic information on orchids and fungi.

<http://en.wikipedia.org/wiki/Mycoheterotrophic> - Definition of terms

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Land for Wildlife Regional Coordination is proudly managed by SEQ Catchments with support from the Australian Government.

The small Helmet Orchid (*Corybas barbae*) flowers in autumn and can be found growing in colonies in eucalypt forests.

Photo by Alan Wynn.



## The Atlas of Living Australia www.ala.org.au

Recording sightings of animals or plants is commonplace among many landholders, amateur naturalists and scientists. Sightings have traditionally been recorded in a field diary, a spreadsheet or may contribute to a formal survey. Many formalised surveys have been recorded in State government and non-government databases and were difficult for the general public to access... until now.

The Atlas of Living Australia (ALA) aims to bring together all information and records about Australian plants, animals and other life into one central location, and to organise this information that is useful to the general public, landholders, naturalists, scientists and policy makers.

The ALA has created a website that allows everyone to access Australia's biodiversity information. It provides a central place for finding out what species lives where, and also provides a place where you can record your own sightings. Your records will also help build the Atlas.

The website provides easy-to-navigate tabs using simple language to help you get to where you want to go. 'Explore' lets you

search by either common name or scientific name for any plant, animal or fungi and it can auto-complete words if you aren't quite sure of the exact name. 'Explore' also enables you to search records in your local area or a region and provides a map of all records for that area.

Nearly every species is shown with a photograph, distribution map and description.

The 'Share' tab allows you to upload your sightings, photos or ideas. You can upload individual species records one at a time or a whole dataset (numerous records) at once.

The 'Tools' tab opens up a world of detailed mapping capabilities with the ability to not only show where species have been recorded, but also where they could occur (predictive mapping) given certain environmental conditions.

Under the 'Atlas contributors' tab there are links to some amazing websites covering the whole diversity of Australian life such as Flora of Australia, Encyclopedia of Life, Ants Down Under, Find a Spider Guide and Australian Fungi – A Blog. Many of these



websites have incredibly detailed and beautiful photographs of species.

I would encourage all Land for Wildlife members to visit the ALA website, produce a map of species that are found in your local area and consider uploading your own records.

Article by Deborah Metters

Opinions expressed by contributors to the Land for Wildlife newsletter are not necessarily those of the Land for Wildlife program nor any of the supporting agencies.

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