



LAND FOR WILDLIFE

SOUTH EAST QUEENSLAND

AUGUST 2019 VOL. 13 NO. 3



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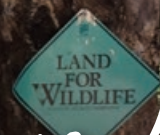
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HIGHER *Agreements*

Land for Wildlife members dedicate considerable hours, effort and funds towards conservation on their property. After many years of commitment, some landholders choose to enter into a higher-level agreement, such as an environmental covenant which remains on title in perpetuity to further protect their hard-earned conservation investment. SEQ is one of the few regions in Queensland whereby Councils offer higher agreements such as Voluntary Conservation Agreements (VCAs) and covenants. All properties with a higher agreement in SEQ are also in Land for Wildlife.



On the Sunshine Coast...

On the Sunshine Coast, 80 Land for Wildlife members have taken the next step by protecting the vegetation on their property through a VCA. An agreement with Council outlines how much contractor assistance a property will receive each year and an Environmental Management Plan (EMP) developed with the landowner guides the on-ground works. If all landowner actions in the EMP have been completed, then a rate rebate is also offered. Many VCA properties contain threatened ecosystems and species as well as important wildlife corridors and waterways. These programs help fulfil Council's nature conservation goals under its Environment and Liveability Strategy. Sunshine Coast Council's 80 VCAs protect over 1200 hectares of native bushland.

In Brisbane...

Brisbane City Council offers three levels of legally-binding VCAs, alongside Land for Wildlife. All three VCAs allow the owner to formally state their intention to conserve and enhance their property's wildlife habitat and access an annual cash management assistance payment. The terms of the agreements vary from expiring on change of ownership of the property, through to the agreement being registered on the property title and binding subsequent owners. Currently, 56 VCAs in Brisbane cover 317 hectares.

In Logan...

In addition to Land for Wildlife, Logan City Council offers eligible landholders three levels of legally-binding agreements. Voluntary Conservation Agreements (VCAs) and Voluntary Conservation Covenants (VCCs) offer support to landholders with high quality vegetation and/or high biodiversity values. The Voluntary Restoration Agreements (VRAs) are targeted at properties that are within Biodiversity and Waterway Corridors that require restoration of vegetation. All higher agreements provide landholders with an annual incentives package as well as \$3,000 - \$5,000 grant funding per year to complete management actions. Currently, 13 VCAs and 6 VCCs in Logan cover 380 hectares.

On the Gold Coast...

On the Gold Coast, landholders with a VCA receive financial assistance and support to conserve native vegetation and wildlife habitat on their property. The program provides peace of mind to landholders in knowing that the habitat is secured through either a statutory environmental covenant or a Nature Refuge. Additionally, the property or part of the property is rezoned to Conservation under the City Plan. Currently, 18 VCAs on the Gold Coast cover 396 hectares.



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

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Front Cover: A Long-nosed Bandicoot forages in the undergrowth for food in the Gold Coast hinterland. Photo by Todd Burrows.



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Welcome TO THE AUGUST 2019 ISSUE

EDITORIAL

So much of life, I find, is about timing. Sometimes things can flow with ease and grace and other times, the same activity is full of difficulty. Knowing when the time is right and when it is time to wait can be tricky. For many ecologists, we have been waiting.

We have been waiting for general recognition and resources to flow into solving a problem we have known about for decades. It hasn't helped that the problem is generally hidden, and the solution is complex and intergenerational. It is uncomfortable and inconvenient.

The recent ABC's Four Corners program called it a crisis. The 2019 UN report called it unprecedented. They are talking about the rapid rate of extinctions that are happening to all kinds of species. These species are our evolutionary companions. The plants, animals and fungi that we ultimately depend on for food, air and water. There are many books and scientific papers out there exploring this sad reality.

However, I want to talk about the people, like you, readers of this newsletter, who are

doing their small bit to prevent extinctions. Yes, there are organisations too. Many organisations and people who are working everyday to ensure the survival of the wondrous array of life on Earth.

Their work is often unglamorous, repetitive and arduous, but it is happening one property at a time, one valley at a time. One weed removed at a time. Land for Wildlife members, in their small bit of the planet, are bringing back threatened species from the brink. It may not be rewilding quolls, but it is making habitat available to nearby struggling wildlife.

It has always been my intent for the role of Regional Coordinator to celebrate the everyday stories of people who are working with nature to restore it back to health. Humans cannot recreate nature. We are part of it. It is bigger than us.

I recently visited a Land for Wildlife property that, through the removal of weeds, has created habitat for the threatened Black-breasted Button-quail, in just five years. Sometimes nature just needs a nudge.

Whether you manage a small property or a large tract of land with a Voluntary Conservation Covenant, we all play our part in providing habitat for threatened species and helping prevent extinctions.

I am encouraged by the range of stories from a diversity of Land for Wildlife members in this edition. For as we know, diversity builds resilience and is essential for healthy people and healthy ecosystems.

Let's share our success stories together and offer the hope we all need. Now is the time to talk about extinctions and the work we are doing collectively to prevent them.

Thank you for being on this journey with us.

Deborah

Deborah Metters & Kylie Gordon
Land for Wildlife Regional Coordinators



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IN PRAISE OF THE HUMBLE *Bandicoot*



Photo by Steve Parish

*With a snout that can delve and dig,
With claws that are strong as steel,
He roots like a pigmy pig
To get his evening meal,
For creeping creatures and worms and roots
Are highly relished by bandicoots.*

Excerpt from *Benjamin Bandicoot* by
AB 'Banjo' Paterson

Most Land for Wildlifers in south-east Queensland (SEQ) will have had some sort of encounter with a bandicoot at one time or another. Whether it is waking to find a pock-marked lawn, a glimpse of a small brownish animal caught in the headlights as it gallops for safety or hearing a strange squeaking grunt in the dark. We have two local species in SEQ:

- the Northern Brown Bandicoot (*Isodon macrourus*), which translates broadly as long-tailed equal-tooth, and
- the Long-nosed Bandicoot (*Perameles nasuta*), which means the notably-nosed pouched-badger.

I'd always assumed that the name 'bandicoot' was taken from one of Australia's many Indigenous languages, but in fact, it was first used in India and is a corruption of the Telugu word 'pandi-kokku', which means pig-rat. However, they are not, as their name might suggest a rodent, but are marsupials and a close relative of the bilby. From the writings of Tom Petrie I have learnt that bandicoots are known as 'yaggo' in the Turrbal language and according to John Mathew as 'dhun-kal' by the Kabi Kabi (Gubbi Gubbi).

Bandicoots have been maligned, impugned and treated as vermin for much of the last 200 years. One of the reasons is that they were mistakenly thought to spread the Paralysis Tick (*Ixodes holocyclus*). There is little evidence



Photo by David Cook

to support this and they are just one of many mammals, birds and sometimes reptiles that play host to Paralysis Ticks.

"Yes, but what about the holes in my lawn!" someone shouts from the back. Recent studies of Quenda (or the Southern Brown Bandicoot) have shown that the digging by bandicoots, along with other native digging mammals, is a vital ecological service. This process, termed bioturbation, increases soil nutrient availability, microbial and fungal activity enough to significantly benefit seedlings that germinate in the spoil heap. This may not seem all that important, but when you consider that a single bandicoot might dig around 45 foraging pits each night it really starts to add up. In fact, it adds up to nearly 4 tonnes of soil cultivated per year. It also appears that the digging done by native animals with an omnivorous diet is more beneficial than the digging done by introduced herbivores such as the rabbit.

Despite falling smack bang in the middle of the 'critical weight range' of 200 grams to 5 kgs, in which our native mammals have been hardest hit by introduced predators such as cats and foxes, our local bandicoots have been remarkably persistent compared to the rest of the bandicoot and bilby clan (Family Peramelidae). Since European settlement,

Northern Brown Bandicoots (above) are more commonly found in open forests, grasslands, canelands and gardens. Whereas Long-nosed Bandicoots (left) prefer wetter, more dense habitat, such as wet sclerophyll forests and rainforests.

Sometimes both species occur in the same location, especially in closed forest habitats that are adjacent to open forest habitats.

two species of bandicoot and one bilby have become extinct, another two are extinct or critically endangered on the mainland, and two more are classified as vulnerable to extinction. Only one, the Southern Brown Bandicoot, still shares the status of common with the Long-Nosed and Northern Brown Bandicoots, but it has experienced significant declines across its former range.

So, why do we still have bandicoots in SEQ when the rest of Australia is losing theirs? It's certainly not due to their intelligence because bandicoots are dumb, really dumb. The ratio of actual brain mass compared to expected brain mass for a given body size is called the encephalisation quotient (EQ). The typical range for mammals is 0.5-1.5. Humans are an extreme case having an EQ of up to 7.0, while at the other end of the scale bandicoots are less than half as brainy as expected with an EQ of less than 0.5. The ability of our two local bandicoots to persist where other marsupials of a similar size have declined is pretty much all down to some fairly impressive reproductive traits.

The Long-nosed and Northern Brown Bandicoots have a gestation period of just 12.5 days (one of the shortest of all marsupials) and conditions for breeding in



Northern Brown Bandicoot

Shorter nose. Shorter round ears.
Longer tail. Heavier build. Darker fur.



Long-nosed Bandicoot

Longer nose. Longer more-pointed ears.
Shorter tail. Slighter build. Paler fur.



A bandicoot foraging pit (or 'snout poke') is usually narrow, conical and 5-15 cm deep with soil piled to one side. Photo by Alan Wynn.



A male Long-nosed Bandicoot is seen here using a scent gland behind its ear to mark out its territory.



Bandicoot scats are commonly found around their diggings. They have a strong 'meaty' smell when fresh. These scats contain soil, insect parts and fibrous plant material derived from the bandicoot's varied diet of insects, larvae, spiders, lizards, earthworms, berries, seeds, roots and fungi. Photo by Alan Wynn.

SEQ are favourable pretty much throughout the year. Females can start breeding at 4-5 months of age and produce up to 4 litters of 2-4 young per year.

The newborn young are about the size of a baked bean and, like other marsupials, are relatively undeveloped. While still attached to the placenta by an umbilical cord they crawl a short distance to a backwards facing pouch where they attach to one of eight teats. They grow rapidly and are ready to leave the pouch at about 50-55 days with weaning occurring at about 60 days. Females can mate again while they have pouch young and give birth to a new litter soon after the previous young have been weaned.

Typically, bandicoots are solitary creatures that only come together for mating. Even young bandicoots are on their own just a few days after being weaned if the mother has given birth to another litter. During the day, they shelter in a camouflaged nest of grass and leaves that sometimes will have soil raked over the top to improve its weatherproofing.

Whether it is because they are common and look a little like a large rat or the

bad press that they have received since European settlement, bandicoots are often overlooked or dismissed by us humans. They deserve better than this. They are essential for the ecological well-being of our forests and despite threats from introduced predators, pets, habitat loss and roads they manage to hang in there. So while they have been lost from urban areas or intense agricultural lands they are still reasonably common where there is suitable habitat.

To help bandicoots return to, or continue to find a home on, your Land for Wildlife property you can help by:

- Retaining or restoring areas of native grass and shrubs.
- Restricting livestock access to areas of bushland.
- Retaining leaf litter and dead timber on the ground.
- Avoid frequent burning.
- Being a responsible pet owner.
- If you have a pool, make a wildlife ramp out of a piece of wood or heavy rope.

References & Further Reading

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Alan Wynn
Conservation Partnerships
Officer
Sunshine Coast Council



Indigenous CULTURAL BURNING

I live on Yuggera/Ugarapul country in the Lockyer Valley. In April 2019 I hosted a Traditional Cultural Burning Workshop at my Land for Wildlife property in Grantham. This workshop was presented by Victor Steffensen, an Indigenous Cultural Fire Practitioner.

People from across SEQ including private landowners, members of the Queensland Fire and Emergency Services, members of rural fire brigades, the Bunya Peoples' Aboriginal Rangers and government officials attended the workshop.

Because I have attended a number of these workshops previously, I have found that to understand the complexities and the simplicities of cultural burning all previous beliefs and opinions needed to be put aside. A fresh and open mind is required.

Firstly, Victor talked about the current situation regarding the politics of fire in the community, as well as mainstream methodologies and timeframes for burning. He explained how he started, was taught by his Elders and was given the task to teach younger Indigenous people so as not to lose the knowledge.

A fire should not be started without first knowing how to read the signs of the land. Traditionally this was done by fire practitioners.

Burning country was a spiritual event. With the first rise of smoke, a warning would be called to all the living creatures in the nearby vicinity. The instinct of wildlife is to crawl, slide or move away to a safe place. The cool burning fires did not burn away at the big trees so the insects and lizards had somewhere safe to go.

Once the fire was moving, the young people were then left to walk with the fire. This was an opportunity to yarn while keeping an eye on the fire. They were not constricted by a timeframe. Community played a big part in fire for Indigenous people and so it should for us today.

Victor explained the different curing times (when the land is ready), depending on the tree species present, and the corresponding months desirable to burn those areas. Too much leaf litter restricted the growth of grasses, herbs and shrubs. Fires that are too hot dry out the ground below the surface killing all the microorganisms.

He pointed out that all country is not burnt, such as deep gullies and rainforest areas. Some areas are bush food country, and some are bush medicine country and these factors are also taken into account.

Nowadays we have an altered landscape for a variety of reasons including the introduction of exotic plant species, past land uses, the wrong fires and invasive native plants. The task for us, Victor pointed out, is to heal the country.

Depending on the site, the healing process will differ. There is no one size fits all. These healing processes could vary from more regular burning every year or removing the weed species first before burning.

Victor explained there were no set time frames for burning different ecological communities. That is, no five to seven-year periods or twenty to thirty-year intervals as often advised. It was all about the knowledge to read the country correctly, and with that knowledge comes safety. Thanks to Victor for passing on his knowledge.

Sally Jenyns
Land for Wildlife member
Grantham, Lockyer Valley



Large old habitat trees should have the leaf litter raked from around the base so the tree does not ignite.



After a cool, slow, cultural burn the ground should be patchy with unburnt areas.



Victor tending fire.
Photos by Martin Bennett.



Further Reading

Firesticks (www.firesticks.org.au). An Indigenous led network re-invigorating the use of cultural burning.

Living Knowledge Place (www.livingknowledgeplace.com.au). Showcasing Indigenous projects from across Australia.

Mulong (www.mulong.com.au). A multi-media, environmental consultancy led by Victor Steffensen.

Caring for THE LOCKYER UPLANDS

In 2015, a small group of landholders in the western Lockyer met to discuss their concerns about the condition of their local conservation park, Dwyers Scrub. The park protects a wonderful patch of semi-evergreen vine thicket that was being overtaken by weeds, namely Cat's Claw Creeper and Madeira Vine. Turning their concerns into action, the Friends of Dwyers Scrub (FoDS) group sought registration as Queensland Parks and Wildlife Service (QPWS) volunteers and embarked on a monthly weeding program.

Almost from the outset of this work, it became clear to the group that the health of Dwyers Scrub and its capacity to provide habitats for native wildlife was largely dependent on the health of habitats in the surrounding landscape. If we were going to succeed in protecting the park's biodiversity, we needed to involve more surrounding landholders in conserving and connecting patches of native vegetation.

Reflecting this broader agenda, FoDS became Lockyer Uplands Catchments Inc (LUCI) in 2016. The group embarked on a journey to raise awareness of connectivity conservation by engaging more landholders and supporters to improve and protect native vegetation and wildlife habitats on local properties.

LUCI currently has 43 members, most of whom are landholders with properties located in the Main Range to Helidon Hills regional biodiversity corridor. Together, LUCI members are working on conservation activities covering just over 3,000 ha of private land and 259 ha of protected parks.

While the monthly weeding program in Dwyers Scrub is a continuing labour of love for the original group of volunteers, LUCI now engages with its members and the wider community through a range of other activities.

The group is very proud of its ongoing citizen science project on Glossy Black-Cockatoos (GBCs), which commenced in 2016 under the mentorship of Dr Guy Castley of Griffith University. The project involves eight properties in the long-term monitoring of the presence of the GBC in the landscape and an investigation of GBC feed tree flowering, pollinating and fruiting cycles. The project is supported by Lockyer Valley Regional Council and will inform LUCI's GBC habitat conservation measures and add to the understanding of the species. The GBC along with the Koala and Black-breasted Button-quail, all present in the LUCI landscape, are the three marker species LUCI has adopted for prioritising its habitat conservation and monitoring activities.

Since mid-2018, some LUCI members have met quarterly as a Biodiversity Property Planning group, to share and learn from each other's approach to managing and improving the biodiversity on their property. In addition to peer support, each meeting also includes an educational component on a particular topic.

Our autumn and spring Special Interest Walks on members' properties are proving popular with each walk an educational experience in local flora and fauna and ecosystems and an opportunity to connect with members, neighbours and supporters. LUCI's annual breakfast is also a popular event regularly attracting around 50 people, with guest speakers talking on diverse topics including the value of insects, feral animal management and technology for assessing biocondition.

LUCI has a strong connection to the Land for Wildlife program. A number of LUCI's members are also Land for Wildlife members and LUCI provides an extra layer of connection for those members. LUCI's work is enriched by the involvement of the Lockyer's Land for Wildlife Officer, Martin Bennett. Well



Ecologists Martin Bennett and Rod Hobson share their knowledge with LUCI members on a Special Interest Walk.



LUCI members and researchers survey Glossy Black-Cockatoo feed trees in the western Lockyer.

known for his amazing knowledge of native flora and ecosystems, Martin is a willing expert/participant on our Special Interest Walks, a mentor with our Property Planning Group and a point of referral for any of our questions about Regional Ecosystems and flora identification.

LUCI's overall goal is to improve the health of native habitat on private and public land in our local landscape and to better connect these patches to facilitate movement of wildlife and safeguard genetic diversity. LUCI's vision is to see a connected landscape from Main Range to Helidon Hills.

LUCI hopes to undertake more biodiversity surveying of flora, fauna and fungi in order to build a picture of the ecological values of our local landscape. This will require expert assistance and LUCI is always on the lookout for people willing to provide expert knowledge and field skills. Meanwhile, on-ground, LUCI will continue to support members in conservation activities on their properties and, ideally, engage with more landholders, including Land for Wildlife members, in biodiversity property planning events and peer support activities.

To find out more about LUCI, visit www.lockyeruplandscatchmentsinc.wordpress.com or email lucatchmentsinc@gmail.com

Diane Guthrie
Land for Wildlife member
East Egypt, Lockyer Valley
and President of LUCI



Dwyers Scrub is one of the few parks in the Lockyer that contain semi-evergreen (dry) vine thickets, which are botanically rich. Invasive weeds, above left, are gradually being managed by volunteers from LUCI (above right) in partnership with QPWS Rangers.





Catch 'em YOUNG

*Emerald Dove by Georgia (left).
Bandicoot by Mandukhai (middle)
Scrub Turkey by Alexander (above).*

A three metre long, tanned carpet snake skin started it all.

This curio from my youthful travels across Australia had such an impact on my then two year old grandson Henry, his Dad thought other little ones might enjoy inspecting it too.

And the snake skin was certainly a big hit. Suddenly, Grandad Hammond was a pen pal celebrity to 17 pre-kindergarten children.

Now the 3-4 year olds at the Guardian Child Care Centre in the heart of Brisbane CBD are drawing and discussing bandicoots, snakes, wallabies, echidnas, emerald doves, feral pigs and much more.

Frankly, I'd forgotten how perceptive and knowledgeable tiny tots can be. To my shame, I thought in child care it would be all painting and nursery rhymes. How wrong I was.

Daily reports emailed from the Centre reveal the amazing comments and insights displayed by the children. They've discussed everything from whale teeth and solar power through to the Traditional Owners of this country.

"I'm sure you didn't expect such a prolonged and complex engagement when you sent along the snake skin with Henry," noted Stephanie Costa, the early learning educator who, with her team, is impressively guiding her charges into the natural world.

"When Henry heard about our time lapse camera (used to monitor freshwater mussel movements) he quickly related it to a trail cam he claims you have on your property. He tells us you have seen echidna and a bandicoot... we have so many questions!" Stephanie wrote.

A description of our Land for Wildlife property and what we are doing to the 8.8 hectares was soon penned. Another big hit was a sheaf of printed-out photos, organised by my wife Ann, which displayed the myriad of fauna captured on our night motion camera.

Stephanie explained, "Living in suburban and urban areas, the interaction that our children have with land as large and wild as yours is limited. For many of them, nature has been an ambient force. They had never considered that you might not just live on the land, but also shape it to ensure that natural ecosystems are preserved."

"None of us had any idea that Land for Wildlife could aid in this, but the children understand that working collaboratively can make tasks more manageable as we share information and labour and support one another," she said.

"When the children learned about the Land for Wildlife project, the first reaction was a relief. After reading about and viewing images of all the animals that call your property home, they were concerned about the scope of your responsibility. Finding out that predatory plants such as lantana exist and that you also work to keep them at bay only added to that worry.

"It also introduced the idea of other 'experts' in the field - people who devote their time and make a living through caring for natural environments" Stephanie noted.

"It is so rare that children are given an opportunity to contribute their voice to serious social and ethical issues in a genuine way, despite the fact that they will be amongst those most impacted in the decades to come."

Stephanie said the children had been inspired to use role play and creative expression to learn about Land for Wildlife. "They will often pretend to be you and Ann as they play at planting trees, clearing weeds, caring for animals, exploring and building."

The Centre's curriculum focusses heavily on 'project learning' and "on children actively taking on the roles of co-researcher, investigator and author alongside educators," she said.

Stephanie had been pleasantly surprised "by the children's sustained drive to critically research and investigate native animals and plants and readily adopt the role of advocate for vulnerable species."

"Their ability to adapt and reframe their knowledge, to think laterally about obstacles that appear insurmountable to adults, and their absolute certainty that they can affect change, has been incredibly inspiring."

The feedback, through weeks of correspondence with the Centre people, has been a joy.

To see the photographs of those little folk carefully drawing their versions of our night shots, is fabulous.

And to think they are getting the groundings to be future champions of our precious Australian flora and fauna, is priceless.

Phil Hammond
Land for Wildlife member
Kidaman Creek, Sunshine Coast



*Microbat by Henry (above)
and in preparation (below).*





Australia is still revealing its sweet secrets to its new human inhabitants. Indigenous peoples have known about, valued and celebrated its sugary delights for thousands of years. In pre-sugar farming times, sweet food was prized. Today, sugar filled food is hard to avoid.

The Australian environment produces a range of sugary sweets including lerps, honeydew, nectar, fruit, manna and honey. All are found here in south-east Queensland. This article focusses on just one of these sweet treats – lerps. Early European settlers documented the widespread use and efficient collection techniques of lerp by Indigenous people. Many settlers also valued and collected this free sweet resource.

In autumn, I find the ground and my car covered in lerps fallen from the Gum-topped Box (*Eucalyptus moluccana*) trees above. I scoop them up in my palm, check to see that my neighbours are not watching, and then eat the lot. Why I am embarrassed to eat nature's nectar? In writing this, I am changing my attitude to proudly value this country's gifts more.

When people outside of the environment industry ask, what are lerps, and I tell them that they are sugary insect excretions, they look at me sideways. Except for honey, I guess we don't eat many insect excretions. And I should probably choose a different word than 'excretions' if I am going to win people over to lerp-eating.

Despite the fact that fruits and seeds are the by-product of insect pollination, and arguably all food is the result of insect-derived soil formation, we don't eat many insects or their by-products directly, except for honey. Let me introduce you to lerps.

Lerps are basically pure starch with some proteins and fats. They are white in colour, about 5mm in size and look like round, pointy hats. They are created by psyllids. Psyllids are tiny sap-sucking insects. Like many insects, adult female psyllids lay eggs, which hatch into nymphs, which transition through various nymphal stages before emerging as adults. An adult psyllid is about 4mm in size. Psyllids build lerps, which act like tents, to protect them from predators and drying winds.

Psyllids draw sap out of leaves and create their hut-like homes (lerps) to live in. Unfortunately for psyllids, their homes taste sweet (containing more starch than cane sugar) and are prized food of birds, mammals and opportunistic humans. The level of sweetness fluctuates depending on the season, weather and the species of psyllid. Yes, there are over 300 species of psyllid in Australia. Some are associated with only one species of tree, whereas other psyllid species can live on several plant species.

Lerp is a highly valued resource in the Australian environment. It is eaten by flying foxes, possums, gliders and a variety of birds such as pardalotes, honeyeaters, friarbirds, whistlers, silvereyes and thornbills. Some birds such as pardalotes, weebills and small honeyeaters virtually live off lerps in some seasons.

When psyllids imbibe tree sap their gut absorbs the amino acids and nutrients, but they quickly excrete the water (as honeydew) and sugar (as lerp). I can certainly remember standing, camping or parking my car under trees that are raining down honeydew. This sticky sweet substance can make a mess of objects left under these trees. This honeydew is difficult to collect, and I was unable to find much literature on it. Whereas lerps are relatively easy to collect and have been slightly better researched – although it would seem we still have lots to learn about their valuable role in Australian ecology.

Tim Low's book, *Where Song Began*, draws a wonderful link between Australia's nutrient poor soils, sugary excretions such as lerp and our wildlife. He also writes about how lerps on plantation eucalypts, derived from Australia, have created a whole new sugary bounty for wildlife in other continents.

As with all topics in nature, this story about lerps is just the tip of the iceberg. I hope it helps raise some awareness of just one of Australia's natural sweet treats and gives us all the confidence to enjoy this bountiful product when we can.

**Article and photos by Deborah Metters
Land for Wildlife Regional Coordinator**



Lerps abundantly fall to the ground at my place during autumn. They collect on my car and get stuck in the windscreen wipers and bonnet air intake area. I have driven kilometres away to have Noisy Miners and butcherbirds land on my bonnet and eat the lerps. They clearly value this sweet treat so much that they work their way back and forth along the windscreen, even while I am sitting in my car.

Platypus eDNA

TURNING CRIME SCENE TECHNOLOGY INTO A CONSERVATION TOOL



Dani Andlemac
Conservation Partnerships Officer
Ipswich City Council



Woogaroo Creek (top) and the Bremer River (above) are two sites in Ipswich that have been surveyed for Platypus using eDNA testing. Photos by WPSQ.

The Platypus is a unique and fascinating creature. It is one of two species of monotreme (egg-laying mammals) found in Australia, the other being the Short-beaked Echidna. The Platypus is found in and around freshwater ecosystems, including permanent streams, rivers, lakes and even dams. Platypus prefer habitats with intact vegetated creekbanks with overhanging plants, earthen banks and streams with a depth between 1-5m. Platypus also require habitat connectivity to support breeding, dispersal and to ensure that they have access to adequate food sources in response to changing conditions such as flood and drought.

Localised declines have been recorded across the country and the Platypus is now listed as 'near threatened' on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species. They are also vulnerable to local extinctions if waterways are not managed properly. The main threatening processes impacting upon Platypus populations are urbanisation and agriculture, which result in habitat degradation, habitat fragmentation and decline in movement between populations. They are also vulnerable to predation from both natural predators, such as goannas and Wedge-tailed Eagles, and introduced predators such as foxes, cats and dogs.

The Platypus can be an elusive critter that is difficult to monitor due to their shyness and nocturnal habit. There are a few tell-tale signs of their presence, such as ripples, bubbles and the presence of burrows. However, positive sightings are a rare occurrence. Therefore, identifying and monitoring populations has been a

challenge and accurate information on population trends is limited.

The Wildlife Preservation Society of Queensland's (WPSQ) PlatypusWatch network has been working in collaboration with Councils in SEQ, including Ipswich City Council, to undertake environmental DNA (eDNA) testing. The Platypus signature and test, using eDNA, was developed by cesar Australia. Some eDNA testing can detect the presence of a species from a single drop of water or a speck of dust. In this case, a sample of water can be taken from the environment to a laboratory where a test determines whether it contains the DNA of the Platypus.

Much like a crime scene, the Platypus leaves DNA behind them as they swim, crawl and walk. DNA can be obtained from Platypus skin cells, hair, faeces and mucous that is shed into the water. The Platypus DNA is retained in the water for approximately three days, so a positive result means that a Platypus was present in that general location within the previous three days. Half a glass of water is all that is needed to detect the presence of a Platypus. eDNA testing is a true game-changer in Platypus conservation.

eDNA testing can produce significantly less false-negative results than the observation surveys that were previously undertaken by WPSQ and is an effective method of quickly determining the presence of Platypus within waterways. eDNA Platypus surveys are unobtrusive as samples can be taken in any location and no contact is required with the animals.

In Ipswich the results have been very interesting, suggesting numerous populations in unlikely spots and no

evidence in locations of seemingly suitable habitat. The Mid-Brisbane catchment is emerging as a hotspot for activity and may well be a source for dispersing populations.

While eDNA currently doesn't currently provide information on numbers or populations, or data on health status, sex or abundance, it does provide data on the presence and absence and therefore distribution range over large areas. Therefore, eDNA is currently used as a tool that can be used alongside other traditional methods of Platypus surveys, such as trapping and surveying, depending on the intent of the study.

The exciting news is that this technology is not only available for the Platypus but can be used to confirm the presence of hundreds of different species of animals. Second generation eDNA is looking at things like estimating densities and identifying and tracking movements of individuals. It will be fascinating to see how this technology will progress and be integrated into management practices in the future.

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Commelinas are a group of groundcover herbs commonly referred to as dayflowers due to the fact that the delicate flowers only last a day or so.

In south-east Queensland (SEQ) there are three species of *Commelina* that all have a similar looking small, but brilliant, blue, three-petalled flower. There are two native *Commelinas*, Blue *Commelina* (*Commelina diffusa*) and the Queensland Wandering Sailor (*Commelina lanceolata*). Then there is the introduced weed, Hairy *Commelina* (*Commelina benghalensis*). There are a couple features that will help you tell the natives from the weed.

Many Land for Wildlife folk will be familiar with Blue *Commelina* as it is extremely common and grows prolifically as a spreading groundcover anywhere with moist shady conditions. In the right conditions it grows so quickly and densely that it is considered by some as a nuisance weed of manicured garden beds and veggie patches and is commonly mistaken for a weed in the bush. It is a valuable groundcover in the bush because it can seal up an area of bare soil after weed control or a disturbance to help inhibit weed regrowth. It quickly provides habitat for invertebrates on the forest floor. It has weak stems with soft fleshy leaves up to 7cm x 15mm in size. The stems lying along the ground will eagerly take root as it spreads, but tend to die back during the dry season.

Queensland Wandering Sailor is Blue *Commelina*'s daintier cousin. It has a similar growth habit but is far less vigorous, far less common and is restricted to rocky and well drained sites in eucalypt forests. Living up to its botanical name *Commelina lanceolata* has longer and more 'lance-like' leaves than Blue *Commelina*, growing up to 12cm x 15mm in size.

Hairy *Commelina* hails from Africa and Asia and is a notable environmental weed smothering the ground layer in waterways, disturbed bushlands and crops in Australia. It grows like Blue *Commelina* on steroids. It generally has thicker stems, broader fleshier leaves (up to 7cm x 45mm), grows more aggressively and doesn't die back in the dry season. The common name, 'Hairy', is

Dayflowers

NATIVE VS. WEEDY COMMELINAS

a little misleading as all three *Commelina* species can have fine white hairy stems and leaves. The hairs used to identify this weed species are the dark reddish-brown hairs on the leaf sheath, unfortunately they are not always dark and can be white like the two native species.

The sure-fire way to tell the natives apart from the weed is to have a close squiz at the flowers. Blue *Commelina* and Queensland Wandering Sailor have three petals of equal size. On Hairy *Commelina* the upper two petals of the flower are the same size, with the lower petal being much less prominent.

Next time you see beautiful little blue flowers on the forest floor take the time to make sure you are enjoying a native *Commelina* and not the invasive weed. If you have the weed Hairy *Commelina*, small infestations can be controlled manually with the knowledge that any stem fragment left lying around can take root. Large infestations may need specialist herbicide advice so please talk to your local Land for Wildlife Officer or refer to the recommendations in the *SEQ Ecological Restoration Framework*. Taking action early will help make sure that this invasive dayflower has seen its day.



References & Further Reading

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www.iucngisd.org

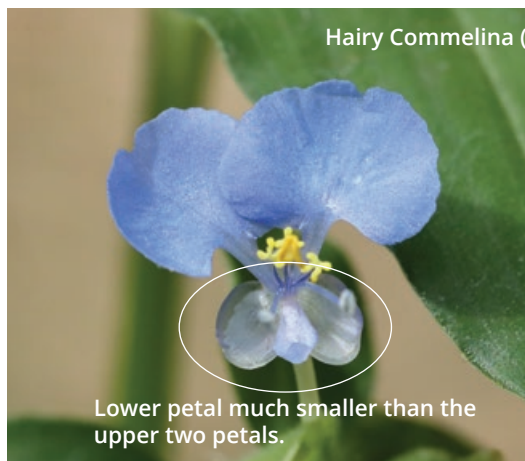
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Scott Sumner
Conservation Partnerships
Officer
City of Gold Coast



PLANT SENSES

How they see, smell & know

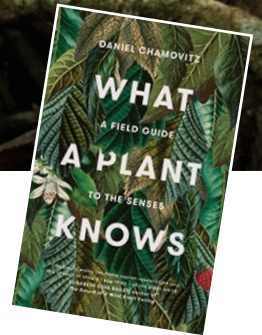
Plants have been around for a very long time and they have many senses that have enabled them to adapt and thrive on Earth. This article is based on the easy to read book, *What a Plant Knows*, in which the author takes us on a tour of plant senses. This book provides a glimpse into very complex plant processes without being overwhelming. The history of plant studies was also a delight to read, showing how clever people devised experiments to discover subtle plant senses. Amazingly, plants and animals have similar processes for certain phenomena, after all, we are all descendents from the first life on Earth.

Back to the book. Seven different plant senses are discussed - in layman's terms. The history of who and how these senses were discovered is also included with each sense. Through these senses, Dr Chamovitz discusses broader plant processes and abilities of plants to adapt to changes in their environment. He also compares these senses with human abilities, and I gained a good insight into this fascinating world as well.

Firstly, plants 'see' - they respond to light and colours and even infrared and ultraviolet. Plants convert light into energy via a green dye called chlorophyll - enough energy to manufacture sugars and other high energy molecules - and this miraculously drives the whole ecology of the animal kingdom (where animals depend on plants for food). However, plants also grow towards the light. The growing tip of a plant has no eyes, but it measures the amount of light and grows toward it. This ability certainly helps the light factories in each leaf and ensures that plants increase their survival.

Then, they 'smell' - they respond to odour molecules in the air. Fruits ripen when they smell ethylene. Ripe fruits all give off ethylene, to ensure that fruits ripen together. I've noticed that bananas are very good at giving off ethylene. Injured leaves (like those being eaten by caterpillars) give off smells that warn other leaves about the attack, which encourages them to increase their defences - more "yukky" compounds such as phenols and tannins. The ability to smell is very narrow, unlike humans who

What a Plant Knows
By Daniel Chamovitz
Paperback | Nov 2017 | \$29.99
208 pages | Scribe Publications



have thousands of different receptors. Surprisingly, plants also release chemicals for other organisms to smell, such as perfume in flowers and aromatic compounds in leaves.

They 'taste' - they respond to soluble molecules in water. Roots seek out minerals and water in the soil. The growing tip of a root has special receptors for certain nutrients. Also, roots release chemicals to favour their own development and restrict other species. So, plants taste a whole bunch of other chemicals as well.

They 'feel' - they respond to touch or pressure. Only some plants do this and apparently, some don't like being touched and grow away from pressure. Vines, on the other hand, have special responses to touch. They feel another plant and start winding around it. Many different flowers can feel, especially pollinators, and they contrive to give the right pollinator a good dusting of pollen. The Venus Fly Trap snaps shut on the right-sized insect in order to eat it. Then there is the Sensitive Plant whose leaves close after touching. It is all done through water pressure and the changing concentration of potassium ions. Amazingly, electrical signals are involved as well.

They 'hear' - they respond to vibrations in the air. Whilst they appear to be deaf to music, plants respond to a limited range of sounds or vibrations. Some plants grow towards the sound of running water. Some release pollen with the buzzing of bees.

They 'know where they are' or have proprioception - they respond to gravity and know which way is vertical. Shoots grow up and roots grow down - always. Special structures in a root tip, called statoliths, enable roots to know which way is down. Likewise, statoliths in the endodermis of stems enable shoots to know which way is up.

They 'remember' - they respond to past events, especially trauma. Past damage can change a plant's growth pattern and creation of defensive chemicals.

So plants 'know' stuff. I always knew that. When they talk to me, I get the sense that they know a lot more than they are letting on. Secrets they are not allowed to tell. Imagine how much stuff the ancient ones know? I'm saddened to find out that my trees don't like being hugged or touched, apparently. They don't recognise me at all - I am irrelevant to them. Well, that was a surprise. I've a good mind to go out and give them all a good thrashing - ungrateful bunch. After all the weeding I've done for them.



Photos by the Queensland Museum courtesy of Scenic Rim Regional Council.



Keith McCosh
Conservation Partnerships Officer
Scenic Rim Regional Council

Butterfly Host Plants of South-east Queensland and Northern New South Wales (4th ed.)

Butterfly and Other Invertebrates Club (BOIC)

Recent covers of this Land for Wildlife newsletter give away my personal interest in the ecology and beauty of butterflies. Knowing a bit about butterflies offers me a window into other aspects of nature such as plant identification, plant health, seasons, climate and wildlife movements.

This booklet ties in perfectly with my interest in butterflies and the plants that they depend upon during their larval (caterpillar) stage of life. These plants are referred to as butterfly 'host plants', and this booklet lists them all for SEQ.

The clever aspect of this booklet is its reverse index. Firstly, it is indexed by plant name and plant form (e.g. tree, shrub, herb, grass, mistletoe). Secondly, it is indexed alphabetically by the butterfly's common name. Thus, it is helpful if you want to work out what plant to grow to attract a certain species of butterfly. Plus, it is helpful to work out what plant species might be around if you identify a butterfly and think it might be searching for, or recently emerged from, a host plant.

This booklet has a long and rich history. Its first iteration began in 1992 when Helen Schwencke and Frank Jordan compiled a list of butterfly host plants for SEQ. Thanks to the work of BOIC members, Daphne Bowden, John Moss and many others, this list was turned into the 1st edition booklet produced in 2002. The 2nd edition (2005) and 3rd edition (2010) continued to expand content and improve presentation thanks to the work of BOIC members like Peter Hendry and Ross Kendall. This latest 4th edition (2019) is the result of dedicated effort by John, Ross, Daphne and Peter and others to further update, revise and advance this booklet.

If you are at all interested in attracting butterflies to your garden or working out what butterfly host plants might be on your property, this booklet is a must-have. It is very reasonably priced considering the years of knowledge and refinement that have gone into its creation. Thanks to all BOIC members who have contributed to this wonderful resource.

Review by Deborah Metters



Paperback | A5 size | April 2019
86 pages
\$12 BOIC members
\$16 non-members
Plus \$3 postage
Available by emailing BOIC at
info@boic.org.au or from BOIC
displays such as at the Native
Plants Qld Spring Flower Show

Habitat: A Practical Guide to Creating a Wildlife-friendly Australian Garden

AB Bishop

This book is possibly the most comprehensive I have ever read on the subject of creating wildlife habitat in the garden. Small wonder that it became the best-selling gardening book in Australia in 2018.

The author describes herself as a horticulturalist, conservationist, writer and public speaker, and believes that our gardens should be created as much for the use by local wildlife as they are for our own pleasure and production.

The book begins with a discussion about the reasons why biodiversity and ecosystems are important - at backyard and regional scales, with an emphasis on how important gardens are in protecting and improving natural systems. I noticed a comforting message throughout the book about the urgent need to manage our land better, and this begins with an understanding of the critical bonds that link the land with the plants and animals that it supports.

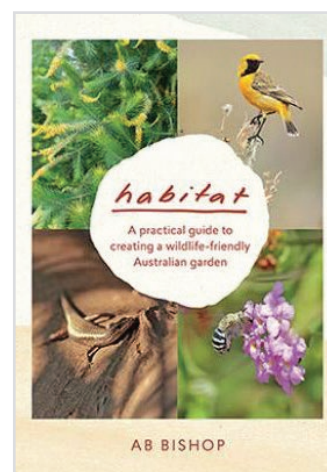
The following chapters tackle the range of fauna that are likely to frequent, or live within a garden habitat, the types of plants that should

be considered to attract the various types of animals, and more importantly to me, the reasons why animals are attracted to some gardens and not others. There are in depth discussions about insects, earthworms, reptiles, birds, frogs and mammals to name a few. Plus, a comprehensive chapter on garden design, which covers topics from weight restrictions on balconies, through to hard landscaping, irrigation, maintenance and microclimates.

The book is written from a practical perspective, and is thoroughly supported with tables, diagrams, incredible photographs and case studies from across the continent. It is a publication that I will be using as a reference for many years to come.

So if you are interested in the complex web of interactions that is the Australian landscape, or simply want to attract frogs or butterflies to your garden, then I can guarantee you will find what you require in this fascinating book.

Review by Peter Copping



Paperback | Oct 2018 | \$39.99
336 pages | Colour photos
Murdoch Books

Great Escapes

UNDERSTANDING DISPERSAL METHODS OF GARDEN PLANTS



Nick Clancy
Conservation Partnerships Officer
Sunshine Coast Council

Uncredited photos by
Kylie Gordon & Deborah Metters

Many Land for Wildlife members not only love the bush but are also avid gardeners. For those of us that live in a bushland setting, our gardens grow immediately adjacent to the forest. It brings great joy to see bush birds venture into our gardens where we can observe them at close range and feel comfort in the fact that we are providing them with a habitat where they can safely access the resources they require. Native critters of all types visit our gardens to access the bounty of well watered and plump produce laid on. On many properties the boundary between the garden and the bush easily becomes blurred as the two blend seamlessly into each other...or do they?

When we plant something new in our gardens we are effectively introducing something new into the local ecosystem. After all, a garden is not a closed system. A new plant with small fleshy fruits will soon be discovered by fruit-eating birds and bats, which in turn fly away with the seed inside them and deposit it (with a squirt of fertiliser) in the nearby bushland. This is exactly how some environmental weeds such as Coral Berry (*Ardisia crenata*) and Broad-leaved Pepper Tree (*Schinus terebinthifolius*) have become established.

As part of my role in identifying threats to the natural values found on Land for Wildlife properties, I sometimes sheepishly point out to the landholder a known bushland weed growing in pride of place

in their garden. Occasionally the response I receive is, "I will just keep an eye on it and make sure it doesn't get away". But the thing is, many of these plants persist in the environment much longer than we do. We have all visited the site of an old farmhouse where the original inhabitants are long-gone, the original dwelling is all but a few bricks, however some of the original garden plants (think Mother-of-Millions) are still thriving and have spread throughout the surrounding landscape. The worst of the garden escapees have evolved dispersal methods that not even a Trumpesque garden border will stop.

The first group of escape artists are the high fliers which sail away, high above the border, like a carefree hang-glider using the power of wind and riding the thermal uplifts far over the horizon. Popular flowering trees such as the Golden Trumpet (*Handroanthus chryotrichus* syn. *Tabebuia chrysotricha*) and African Tulip (*Spathodea campanulata* spp. *nilotica*) fall into this category. Once their seed pods open, the seeds are specifically adapted to drift away on the breeze to naturalise in a new land.

Another group of specialised escapees keen on a long voyage are the water weeds. Aquatic weeds such as Salvinia (*Salvinia molesta*) and Water Lettuce (*Pistia stratiotes*), just to name a couple, may start life as an innocent addition to a well-intended frog pond. During a torrential downpour they see their opportunity



The High Fliers

Golden Trumpet (top) and African Tulip (above) trees disperse their seeds into the air hoping the breeze will carry them to new areas. Photos by Tatters, Flickr.

The Fruity Offerings

Many weeds produce abundant fleshy fruits, enticing birds and bats to disperse the seeds far and wide. Broad-leaved Pepper (right) and Coral Berry (far right) fall into this category.



Photo by Toshihiro Gamo, Flickr.

The Sacrificial Limbs

These weeds will happily break off stems or leaves and let them wash away to set up shop in new locations. The groundcover, Creeping Inch Weed (left header) and Singapore Daisy (right) regularly use this technique to propagate.



and are soon sailing downstream and celebrating their escape to a new life of opportunity in the neighbour's dam. Here they will establish and generations of their progeny will continue the family tradition of dispersal and colonising new water bodies right through the catchment.

Some of these escapees simply spread via vegetative growth, that is, when left unchecked they just continue growing. Vines and groundcovers are the best at this. In high rainfall areas climbing plants such as Syngonium, planted to get that 'tropical' look will climb up and over every tree in reach until it creates its own exotic jungle at the expense of all the natives it smothers.

Meanwhile on the forest floor, shade tolerant ground covers such as Creeping Inch Weed (*Callisia repens*) will even sacrifice a limb. They make their escape via overland flows and hop away in search of new understoreys in which to replenish, dominate and conquer.

Animals and gardeners are unwitting accomplices in facilitating the successful escape of clingy customers such as Cobbler's Pegs (*Bidens pilosa*) and Silver-leaved Desmodium (*Desmodium uncinatum*), which latch their seeds onto unsuspecting passers-by. They stow away, hitch a ride and then jump off at a new location ready to germinate once the conditions are conducive.

Some escapees are so hard-core that they even go as far as using ballistics to disperse beyond the garden border for the life of freedom that the bush has to offer. When the seed pods of Euphorbias such as Painted Spurge (*E. cyathophora*) dry out, the tension grows along the sides of the pod until it explodes and expels the seeds with considerable force away from the parent plant.

Other covert garden escapees are so subtle in their dispersal techniques that you will not even know they are on the move until they are beyond the perimeter. The popular Queensland Silver Wattle (*Acacia podalyriifolia*), which although a native is also an environmental weed outside its natural range, employs a militia army of ants to carry its seeds across

the garden border gradually naturalising further and further into the bush.

Other border crosses can simply be a symptom of another management issue. For example, you may have a thriving plume of exotic grass and weeds growing downslope of your chicken pen. The excess nutrients from the chicken coup that wash downslope are the cause of the problem and once dealt with, the weed problem will become much easier to manage.

My purpose here is not to point the finger at anyone for inadvertently planting the wrong thing, after all, no plant comes with a label from the nursery saying, 'likely to become a bushland weed'. In fact, it is estimated that an incredible 28,000 species of exotic plants have been introduced to Australia. Many of these are garden plants. This means there are now more exotic species of plants in Australia than there are natives! Nearly 3,000 of these introduced plants have now naturalised in bushland, while an additional 6,000 have been documented as becoming weedy in another country and may simply be 'sleeper' weeds, biding their time to cross the garden border.

With such a large percentage of Australians having their origins in another continent, it's obvious that there is an underlying desire to surround ourselves with exotic plants. By gaining a better understanding of the dispersal methods of garden plants we can better gauge the risk of them escaping and naturalising in bushland.

Australia has an incredible diversity of native plants, approximately 25,000 species, and of these approximately 11,000 have been brought into cultivation. In south-east Queensland we have approximately 3,000 species of plants that call our region home. Within this number there is a myriad of shapes, sizes, colour and texture for gardeners to choose from when selecting plants for the garden. Of course, there are also many exotic species that can be planted in the garden that will not escape across the border into the bush - the trick is knowing which ones.

The Clingy Customers

These weeds have developed hooks and hairs that stick to passing animals who unwittingly give a free ride to the dispersing seeds. Cobbler's Pegs (top) and Silver-leaved Desmodium (above) fall into this category.

Be part of the solution by...

- Check your garden and remove plants that are known escapees or that have exhibited bad behaviour.
- Be informed about what you plant and how it spreads, if unsure check with your Land for Wildlife Officer.
- Get to know the plants in your local area that are suitable for your garden - most Councils have a list of local native plants available from nurseries.
- Don't assume that because it's 'native' it's benign.
- Dispose of green waste thoughtfully, i.e. don't dump it in or on the edge of the bush.
- Maintain natural and remnant vegetation features.
- Consider nutrient run-off.
- Talk to your friends, family and neighbours about weeds in their gardens.
- Use these online resources:
Invasive Plants - www.daf.qld.gov.au
Weeds to Whack - www.saveourwaterwaysnow.com.au
Weed Watch - www.technigro.com.au/weed-watch/

THREE YEARS AND GROWING Facebook

Land for Wildlife in SEQ began 20 years ago and has grown significantly, as the figures on page 2 show. It has evolved with each and every change and challenge along the way. Technology looked quite different then to how it does now.

Several years ago, a survey showed that Land for Wildlife members were highly satisfied with the program, but there was an increasing demand to enhance its social dimensions. To help meet this demand it was decided to trial Facebook, and so in 2016 the LfWSEQ Facebook page was created by a dedicated team of tech-savvy officers.

The LfWSEQ Facebook page is a unique aspect of the program as it reinforces the knowledge and expertise of its followers on a range of land conservation topics that couldn't be achieved as quickly through other mechanisms. Engagement with posts has helped increase the reach of the page to new audiences, which has led to an increase in program membership. Of course, as the LfWSEQ membership grows, so too do the important on-ground outcomes.

In just three years, and with over 6,000 followers, the LfWSEQ Facebook page has enabled people to connect and talk about conservation. If you haven't already 'liked' the LfWSEQ Facebook page, jump online, check it out, hit 'like' and connect with the wonderful Land for Wildlife SEQ network!



One of our most popular series of posts showed the changing tenants of this habitat tree on a Brisbane Land for Wildlife property. Photos by Peter Metzdorf.



LOGAN'S 300th Property

In the past 6 months, Logan City Council has signed up 20 new Land for Wildlife properties, quickly surpassing its 300th Land for Wildlife property signing. Reaching milestones like this encourages you to reflect on how far the Land for Wildlife program has come in Logan and how it's evolved over time.

The Land for Wildlife agreement area in Logan now makes up over 5,000 ha which is just over 5% of the total Logan City Council area. With over 70 different Regional Ecosystems across Logan, there is also a diverse range of vegetation types covered under the program, including endangered Swamp Tea-Tree (*Melaleuca irbyana*) forests, vine scrub, open forest woodlands and patches of rainforest.

The diversity isn't just limited to vegetation types. Something that has stood out in Logan is the diversity in our member base. In recent years we've noticed that more and more landholders of different backgrounds and ages are signing up to the program. The growing diversity in our members involved in the program is encouraging as it shows that the Land for Wildlife message is reaching further than our traditional demographic. This may also explain the increased interest in the program in recent years and will hopefully ensure the program continues to grow while also meeting the needs of our existing membership base.

Land for Wildlife South East Queensland proudly delivered by:



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