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Your Officers WILDLIFE

6767 0215

FOR

Brisbane City Council

Amanda Maggs	e.	3178
Andrew Wills	- C	3407
Cody Hochen	6	3178
Fflur Collier	<u> </u>	3178
Susan Nolan	<u> </u>	3403
Tony Mlynarik	6	3178

City of Gold Coast

Adrian Cain	<u></u>	5582 8896
Andrew Attewell	<u></u>	5582 8344
Melanie Mott	- C.	5582 8915
Saul Hondow	6	5582 8022
Todd Burrows	6	5582 9128

Gympie Regional Council

Paul Sprecher C 0447 051 329

Ipswich City Council Dani Andlemac

\$ 3810 7173 3810 6666

Lockyer Valley Regional Council

Martin Bennett **\$** 5462 0310

Logan City Council

Ko Oishi

Craig Welden	<u> </u>	3412 4975
lan Parsons	6	3412 4906
Jennie Bacon	<u></u>	3412 4522
Jason Creamer	<u></u>	3412 5034
Nick Swanson	<u></u>	3412 5355
Peter Copping	1 C .	3412 5321

Moreton Bay Regional Council

	<u> </u>	
Adam Richardt	<u></u>	5433 2072
David Curmi	<u></u>	5433 2041
Debbie McQuattie	<u></u>	5433 2145
Nicole Byrne	6	3094 3632
Stefan Hattingh	<u></u>	3480 6362
Wendy Heath	1 C.	3883 5636

Noosa Council

\$ 5329 6256 Dave Burrows

Redland City Council

Maree Manby 3820 1102 / 0438 776 535

Scenic Rim Regional Council Catherine Madden 💪 0458 486 008

Somerset Regional Council Darren McPherson 💪 5424 4000

Sunshine Coast Council

Alan Wynn	C.	0417 774 278
De-Anne Attard	ς.	0477 795 231
Kylie Gordon	C.	0418 398 904
Michael Reif	C	0437 112 071
Nadia Joyce	6	0427 569 990
Nick Clancy	ς.	0407 754 193
Rhonda Bordonaro	S.	0459 737 626
Stephanie Keys	6	0408 665 826

Toowoomba Regional Council Daniel Tay Chean **4688 6514** Sandy Robertson **C** 0415 277 145



Land for Wildlife South East Queensland Team December 2022









www.inaturalist.org/projects/lfwseq To join contact your local LfW Officer

Land for Wildlife South East Queensland acknowledges this Country and its Traditional Custodians. We acknowledge and respect the spiritual relationship between Traditional Custodians and this Country, which has inspired language, songs, dances, lore and dreaming stories over many thousands of years. We pay our respects to the Elders, those who have passed into the dreaming; those here today; those of tomorrow. May we continue to peacefully walk together in gratitude, respect and kindness in caring for this Country and one another.

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

Land for Wildlife South East Queensland is a quarterly publication published by 13 Local Governments in south-east Queensland and distributed free of charge to their Land for Wildlife members.

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

Printed on EcoStar Silk 100% post-consumer recycled paper, FSC certified, chlorine-free process and made carbon neutral. Printed using vegetable based inks.

ISSN 1835-3851 Print run - 4160 copies

Front Cover: Revegetation on a Land for Wildlife property at Bethania, Logan - photo by Nicolas Rakotopare/LfWSEQ.

Front Cover Inset Photos: Deer on fauna monitoring camera, photo courtesy of Scenic Rim Regional Council; Common Brushtail Possum in a chainsaw hollow, photo by Habi-Tec Conservation Arboriculture.

Editor: Deborah Metters Proof-readers: Tony Mlynarik, Todd Burrows and Peter Copping. Prepress: Kingfisher Creative Printer: Greenridge Press



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PROPERTIES

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EDITORIAL

Welcome to the August 2023 Issue

How heartening is the front cover image on this edition? This drone footage of a Land for Wildlife property shows the significant revegetation being undertaken to restore the chain of ponds creekline that flows into the Logan River. Supported by Logan City Council, thousands of native plants have been planted and are now cared for and managed by the landowners.

It is a privilege to meet landowners and to hear about how they have come to conservation. For some people, a connection to nature is in their blood, for others it is a gradual journey. This Logan property has been in the same family for several generations. The owners are now wanting to give back to the landscape some of the trees and wildlife habitats that were removed by their forefathers. They want to create shade, slow down the overland waterflow, improve the quality of water flowing into the river and to leave a positive legacy on this piece of land. Urban encroachment now surrounds them, and any vestiges of the past lowland rainforest or significant Indigenous cultural values could easily be covered up for good.

Thank you to all LfW members who come to conservation, however early or late in life, and for protecting and restoring this country and habitats for wildlife.

In this edition, I have summarised the key findings from the membership survey we conducted last year. I have also added a page of quotes, your quotes, about what success would look like for your property and your suggestions for us as program managers. Feedback, however affirming or confronting, helps move us forward in life and is the cornerstone for businesses, organisations and governments to show leadership and create pathways on which others may walk.

The LfWSEQ program is now 25 years old. That brings with it reliability and solidity. It also means that processes that worked in the past may now be outdated. We aim to strike a balance between retaining processes that our members highly value, and the adoption of new processes that can reach both members and non-LfW members as well.

There was quite a bit of feedback asking for support in either installing nest boxes or getting access to fauna monitoring cameras. Most councils have processes in place whereby LfW members can borrow cameras or can apply for funding to install nest boxes. Please ask your LfW Officer. Likewise, if you have a rusty, old, falling off the fence type of LfW sign, you are welcome to ask for a new one.

Nearly a third (29%) of LfWSEQ members are 68 years or older. There was a lot of questions asked about how the program can support the continuation of conservation activities on these properties when it is a challenge for landholders to do the work themselves.

It is an exciting time for the program, and I hope that we can roll out new initiatives, guided by your feedback in alignment with Local Government priorities and the values and goals of the LfWSEQ program. As always, I welcome your contributions.

Deborah Metters Land for Wildlife Regional Coordinator

We welcome all contributions.
Please send them to:
The Editor
✓ deborah@seqlfw.com.au
✓ 0437 910 687



Climate & Weather REGIONAL OUTLOOK Aug-Oct 2023

- Daytime and Night-time Temperatures.
- Above median temperatures are very likely with warmer days and warmer nights.

Rainfall. Below median rainfall is likely.

Streamflow. Low streamflows are likely.

Climate Influences

- It is likely that an El Niño will develop.
- It is likely that a positive Indian Ocean Dipole (IOD) will develop.
- Sea surface temperatures have warmed by over 1°C since 1900 and Australia's climate has warmed by about 1.47°C since 1910.

Sources

www.bom.gov.au/climate/outlooks/ www.bom.gov.au/water/ssf/

Weeds to Watch

Jul-Sep 2023

Zig Zag Wattle is native to Central Queensland and has been widely cultivated around SEQ. It is now spreads into bushland areas and hybridises with local Acacia species. The stems zig-zag and have prickles at the base of phyllodes (leaves) and along the stem. Prominent mid-vein in phyllode. Small bright yellow flowers, which flower this time of year. The seeds are likely to be longlived like other Acacias. Control using cut stump method or removal with a lever-type tool.

African Boxthorn (Lycium ferocissimum) - this spiny shrub has relatively large (up to 1cm) orange to red fruit at this time of year. The native boxthorn (Lycium australe) has small leaves and small fruit (<5mm). Control weedy boxthorn using the cut stump method.

Thanks to Brisbane City Council's Weed Identification Tool at weeds.brisbane.qld.gov.au.

A MENTAL HEALTH RETREAT Surprising Benefits of Conservation

hen I started revegetating our small property for climate change, I had no idea how many additional side benefits I would gain, in particular, a mental health retreat.

My journey started at the end of 2019 when, over a short period, multiple trees on our property and surrounding properties started to die. I found this very traumatic as I am a self-confessed nature lover, and I suddenly realised the meaning of 'point of no return' with regards to climate change. If we can't keep our trees alive, we can't live. My way of dealing with problems is action. So, my mission became to plant as many trees as possible on our small parcel of land.

When I began, I did everything wrong, including planting the wrong trees and mistaking native plants as weeds. Through friends I learnt about Land for Wildlife and joined up. Land for Wildlife has taught me so much including what to plant, weed control, deer control, biodiversity, creek erosion repair, wildlife and much more.

It wasn't long before I realised that revegetation had become so much more to me than just climate change. A major spin off which I did not expect was the enormous mental health benefits. As someone who has had mental health issues in the past, going down the back and sitting amongst the trees, listening to the birds and frogs, watching the dragonflies, butterflies, lady bugs, wallabies and goannas and discovering echidna holes is like an elixir to me. As soon as I walk past the garage and start down the back, I feel the stress leave me. Down the back amongst the trees is my refuge.

Part of the mental health benefits is becoming part of a community of likeminded people, friendships that have arisen, and knowledge. Whilst writing this article, my dad passed away. It was my dad that started my journey of loving nature. We always lived on acreage and our holidays were camping at the beach, within forests or outback Australia. When I am down amongst my trees, I feel most connected to my dad and the lovely memories of him are rejuvenated.

Don't get me wrong, it has been hard work with setbacks, like the night the deer learnt to remove the corflute guards with their antlers resulting in multiple trees lost. But dealing with setbacks is part of life. My Land for Wildlife mentor's words of wisdom and looking around at what did survive helps me manage problems in other areas of my life.

We spend so much time and money exercising our physical body that we often forget to exercise our mental and spiritual health. I have learnt that regenerating the bush is more than just trees. It is creating biodiversity, home to our wildlife, life for our planet, and a place to repair and maintain our mental health and spiritual wellbeing. Watching the land come back to life has helped me enormously in all aspects of my life, health and wellbeing and I cannot thank Land for Wildlife enough for being there on every part of that journey.

"Watching the land come back to life has helped me enormously in all aspects of my life"

Article by Ann Whitehouse Land for Wildlife member Brookfield, Brisbane

FANTASTICAL Fasciation

ne of nature's curiosities is the fantastical formations of floral fasciation. A Short-leaved Bitter-Pea (*Daviesia villifera*) bush with abnormally large and thickened stems was discovered during a walk on a Lockyer Valley Land for Wildlife property last year. Fortunately for curious onlookers, Martin Bennett, Lockyer Valley Regional Council's Land for Wildlife Officer, was able to shed light on this remarkable find and discuss the likely cause of the fasciation.

Fasciation in plants is generally thought to be the result of hormonal imbalances that cause mutations to occur during cell division at the growing tips. Exactly what triggers these imbalances is unknown and there are several possibilities including bacterial, viral or fungal infection, insect attack or physical damage. In a nutshell, there is still much to learn about fasciation.

The word fasciation is derived from the Latin root meaning banded, striped, or bundled. From thick flattened stems to deformed leaves or overly large flowers, fasciation can be displayed in a variety of forms. These quirks of nature may be hugely grotesque deformities, or you may notice more subtle differences, or an unusual variation in the plant's growth.

Fasciation is considered an accident of nature and is an uncommon phenomenon, but if you do come across unusual plant growth that has you mystified and intrigued, you may have just discovered a fascination for all things fasciation.

Article by Amanda Maggs Land for Wildlife Officer Brisbane City Council

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Top-bottom: Fasciation in a Jasminum species, Bull Oak (*Allocasuarina luehmannii*) and Crowded-leaved Wattle (*Acacia conferta*). Photos by Martin Bennett.



Fasciation in a Short-leaved Bitter-Pea (*Daviesia villifera*). Photos by Amanda Maggs (L-C) and Martin Bennett (R).













DEER FRENZY ON TODACCO Trees

en years ago, we extolled the virtues of the exotic weed, Wild Tobacco (*Solanum mauritianum*), as a convenient pioneer species in revegetation projects in an article in the October 2013 Land for Wildlife SEQ newsletter. While nothing has happened to change our views on this, we thought a recent experience with this species was worth reporting in case other readers might have seen something similar.

In early September 2022, at the top of our Mount Mellum property (400 metres above sea level), the focus of our final systematic revegetation efforts, we came upon a line of major damage, clearly animal attack. Interestingly, it was directed specifically and only at mature Wild Tobacco trees, growing amidst a wide range of young, native tree species, many unprotected. Over a narrow swath of about 150 metres, the trunks of ten trees had been stripped of bark, some patchily, others almost completely and effectively ringbarked up to a height of two metres. Several smaller ones had been partly knocked over. The pattern suggested that a single animal, walking along a meandering path, was responsible. Most trunks showed signs of teeth scrapings that were too big for a possum or flying fox. No other trees were touched, and no helpful scats could be found in the vicinity.

One can only speculate what could motivate such behaviour; the bark didn't appear to have been eaten, only stripped off (angrily?!). These plants obviously have a strong odour and their predominant toxic compound is the alkaloid, solasodine (most highly concentrated in the unripe green berries, but found in all the plant's tissues). It is used commercially as a precursor for the production of complex steroidal compounds, such as contraceptive pills and other sex hormones.

Because deer have been sporadically sighted in our wider neighbourhood, we can only assume, through a process of elimination, that this was the culprit here. It might have been a mature male deer driven into a frenzy by a suggestively hormonal fragrance. We have not seen similar damage here since, so placing a camera trap would seem futile. The few trees totally ringbarked have died, while the others are slowly recovering.

Article and photos by Paul and Melissa Prociv Land for Wildlife members Mount Mellum, Sunshine Coast

Wild Tobacco may be a weed, but it can be a very handy one. It has played an important role in helping Paul and Melissa regenerate the paddocks on their property back to rainforest. Wild Tobacco was deliberately left in the once bare, heavily grazed paddocks to help provide shade, deter wallabies from eating planted trees (presumably they avoid the strong odour of Wild Tobacco) and encourage fruit-eating birds (they eat the Wild Tobacco fruit), which in-turn deposit native plant seeds. The damage done to the Wild Tobacco in the top images is presumably from a male deer.

Feral Deer IN SEQ

ustralia is home to six species of feral deer, with four species in SEQ - Red, Rusa, Fallow and Chital. Deer were introduced to Australia over several decades starting in the 1860s and their population continues to increase. The draft National Feral Deer Action Plan states that feral deer have almost doubled their range in the past 20 years. In 1980, there was an estimated 50,000 feral deer in Australia. It is now likely to be 1-2 million. This growth was probably spurred on by the release of farmed deer in the 1990s in response to the venison industry decline.

Like most feral animals, deer are tricky to control and cause grief for many Land for Wildlife members. Deer can damage trees, waterways and fences, and can encourage illegal hunters to trespass. This article gives a brief outline of some impacts of deer, which would be of no surprise to many readers, and also provides some tips from Land for Wildlife Officers.

Every year, male deer shed their old antlers and regrow new ones, larger than the ones the year before. They regularly scratch and rub their antlers on trees, especially during the rutting season. In addition, all deer have scent glands that they rub against trees to mark their territory. All of these actions can damage and kill trees and saplings.

Observations by some LfWSEQ Officers suggest that male deer seem to target saplings that are 2-3m high and about 50mm in diameter as this is the preferred stem size to rub velvet off antlers. This would be consistent with the size of Wild Tobacco trees discussed in the facing article. Unfortunately, this is also the time when landholders think that the tree is established, and then it gets ringbarked.

Due to their cloven hooves and wallowing in mud, deer can cause erosion and reduce water quality to creeks and wetlands. They browse on all vegetation within their reach including grasses, shrubs, vines and low hanging tree branches. Large deer populations can significantly reduce the shrub and groundcover layers, help disperse weeds into forests and can reduce the health of the whole ecosystem. Given deer are such extensive browsers, they compete with native macropods for food resources, especially after fires or in drought.

Feral deer also damage fences, create traffic hazards when they cross roads and they help spread diseases and parasites to domestic stock and pets. Deer can also become aggressive towards domestic animals, especially horses, during the rutting season.

All councils in SEQ have a biosecurity plan that outlines the management of invasive animals, including deer. Councils need to meet their legislative biosecurity obligations by controlling deer on council lands. For example, on the Gold Coast, the four feral deer species are considered by City of Gold Coast as containment species. This means that core deer populations are contained to keep risks low and outlying deer populations are targeted for eradication.

Most councils offer some deer management advice or control services to private landholders depending on the area and the scale of threat. Some landholders directly engage pest animal control businesses or recreational hunters to monitor and/ or shoot deer to keep deer numbers at lower levels. Please note that recreational deer hunting on public lands (e.g. council reserves, State Forests, National Parks) is illegal in Queensland and that, by law, hunters need landholder's permission to enter private lands to hunt.

Anecdotally, LfWSEQ Officers have found:

- Planting a couple of rows of spiky plants, such as Cockspur Thorn (Maclura cochinchinensis) around, or on the edges, of revegetation areas may deter deer from entering the planting site.
- Similar to above point, leave an edge of thick lantana around planting sites as it may act as a protective barrier.
- Deer seem to prefer to rub their antlers on Hoop Pines, so don't plant these as a spiky deterrent.
- Not much will stop deer during drought - they will eat most plants.
- Tall tree guards with heavy duty mesh and star pickets should deter deer.
- Don't plant in a known deer corridor or near a favoured deer watering hole or wallow area.
- There is limited feedback on commercially available ultrasonic deer deterrent devices so it is not clear whether they work or not.
- Scent-based deer deterrent products (either homemade or commercially available) would require regular reapplication and are probably ineffective in the long-term.

If you have feral deer on your property, you may wish to report it to your local council or via the Feral Scan app/website (feralscan. org.au). Information collected by Feral Scan can then be used by pest animal controllers to track deer and help control them.

Article by Deborah Metters Land for Wildlife Regional Coordinator



Rusa Deer in the Mary River valley.





This sapling has died due to ringbarking by deer. Photos above by Nick Clancy.





wo and a half years ago we bought five acres opposite a bushland reserve. We fell in love with the sheer number of trees on the property. Unfortunately, there were no shrubs and hardly any young native plants, as the ground had been mowed and slashed for quite some time before we became the owners. We knew that we could make a difference by transforming the site into a significant place for wildlife.

We straight away got in contact with the Brisbane Land for Wildlife team and had the pleasure of meeting Fflur Collier. We were so glad as we received a lot of useful information, books and plants to help us transform the property back to a natural bushland state.

In the paddock, we started by letting the grass grow to see what might pop up. We got rid of the weeds and planted a few native plants. We keep a mown trail for access around unmown 'islands'.

We were amazed how fast the land started to regenerate. We have so many native seeds stored in the ground, and it is fantastic and interesting to see what comes out of it. We now have a lot of acacias, a variety of gumtrees, dianellas, native grasses, she-oaks, smorgasbord



trees (*Alphitonia excelsa*), and a plethora of native vines, just to name a few.

The groundcover, Koala Bells (*Artanema fimbriatum*), has popped up everywhere after all the rain in 2022.

There are a lot of gumtrees that have also naturally regenerated. When they germinate in my veggie patch, I carefully dig them out and place them into a pot until they get bigger. I do the same with the trees I buy as tubestock and I am surprised how much better they grow once they are planted into the ground.

We have learned to work with nature along the way. There isn't too much weeding involved anymore because nature looks after itself. I just give the emerging native plants a hand by applying native fertiliser and mulch and give them the occasional splash of water.

We aren't short on wildlife either. Our local Koala has a favourite old Blue Gum (*Eucalyptus tereticornis*) tree in the regenerating paddock. We set up drinking stations for the Koalas, lizards and snakes etc. and there are plenty of bird baths spread all around.

We have also built accommodation for the little creatures such as bandicoots and



lizards etc. by stacking piles of branches so they can hide from predators. At the front of the property, we installed a fence that the animals can move through, and we are planting natives for screening and for pollen and nectar.

Recently, we engaged a professional conservation arborist to transform a dead limb on a tree into accommodation for birds and other hollow dependent wildlife. This was done using the chainsaw-carved hollows technique (see article on pages 10-11). Last year we also built and installed around 20 different nest boxes for birds.

Pest animals are still a constant feature in our area, and we are trying to catch the foxes that visit our property at night. Luckily, Brisbane City Council's pest animal management team can help with this, and we already have had some success.

Owning acreage and helping transform it into a wildlife haven may sound too much work for some, but to us it's exciting; there is always something happening. Roaming around to see what is changing or growing offsets the hard work that we put in.

Article by Anita and Hubert Meier Land for Wildlife members Ransome, Brisbane



Several water points have been set up for wildlife during the dry months and have been used by Koalas, possums and magpies. Note the Koala up the tree on the right side of the middle image. Photos L-R by Anita Meier.



Koala Bells is a low herb with striking mauve flowers that grows to about 60cm high. It is a delicate plant that needs protection and moisture and is uncommon in Brisbane's east. In November 2022, it appeared throughout the unmown regenerating paddocks on Anita and Hubert's property after the soaking rains. It is a likely attractor of butterflies, native blue-banded bees, hoverflies and moths.



This old habitat tree had hollows cut into it by professional arborists using the method described overleaf. Photos above and feature photo by Fflur Collier.



This wildlife friendly fencing was installed to help wildlife move across into the neighbouring bushland reserve. Photo by Anita Meier.



Gympie Geology Field Day

The Gympie Land for Wildlife program recently hosted a field day investigating the geology of the Gympie district with Warwick Willmott. Warwick is a geologist who has worked on geological mapping, and resource and geological hazard investigations across Queensland. He likes to bring geology to the public and has written several booklets in a *Rocks and Landscape* series. These were reviewed in the February 2023 LfWSEQ newsletter to accompany an article by De-Anne Attard discussing key points from similar workshops that Warwick delivered for Sunshine Coast Land for Wildlife members.

The geology of the Gympie district is very complex and is best understood by looking at key events in time and in sequence. Some events are still not well understood. In sequence, below are the eight main events that contributed to the geological framework of the Gympie area.

- 1. Building out the edge of the ancient continent in an ancient subduction zone
- Migration of the subduction zone eastwards, to give further rocks; heating of the crust to give granites; and final crumpling
- 3. Stretching and stabilising the continental edge
- 4. Gradual sagging of the continent and accumulation of sediments
- 5. Fracturing, subsidence and crumpling of the Maryborough Basin to the north, including small bodies of granite
- 6. Eruption of small basalt volcanoes
- 7. Period of deep weathering
- 8. Modern alluvium

The presentation and field day looked at the rocks, landforms and soils from each of these events. All participants appreciated Warwick's ability to explain these geological events in a way which was both entertaining and enlightening.

Article and photo by Paul Sprecher Environment Officer Gympie Regional Council





Chainsaw hollows, or chainsaw-carved cavities, are an alternative way to reinstate hollows into bushland areas. Shown here are chainsaw hollows that were installed in Logan City Council reserves. The back plate is being held in two of the images. It will be reattached once the hollow and entrance hole has been carved. In living trees, such as the ones depicted here, the tree heals and calluses the cut section fusing the back plate into place.



Chainsaw Hollows AN ALTERNATIVE TO NEST BOXES

s an alternative to nest boxes, chainsaw-carved cavities (also known as chainsaw hollows) are an innovative approach for creating additional habitat opportunities for arboreal, hollow-dependent species. In SEQ, over 130 species of animals have been identified as hollow-dependent. Given that historic land clearing has resulted in the large-scale loss of mature hollow-bearing trees throughout Australia, innovative solutions for providing additional hollows are vital.

Natural hollows that form in trunks or branches of mature trees provide vital habitat for a diverse range of vertebrates and invertebrates including birds, frogs, gliders, microbats, possums and pythons. Large hollows can take upwards of 100 years to form, meaning large trees with hollows can often be a limited resource. The best option for ensuring these vital habitat resources remain is by leaving large, veteran trees in place, regardless of whether they are living or dead.

Where trees must be cleared, the addition of artificial hollows (either chainsaw hollows or nest boxes) can assist with providing suitable habitat for hollow-dependent species. They can be installed in trees that have not formed natural hollows or can be used to provide supplementary hollows in addition to naturally formed hollows. Chainsaw hollows can be carved into live or dead trees. When a tree requires limb reductions for safety, this provides an ideal opportunity to install chainsaw hollows.

Creating chainsaw hollows needs to be done by a highly skilled arborist who will first decide if hollows can be created without causing damage to a live tree. Generally, a large tree requiring branch reductions for safety purposes will be selected or a dead tree (stag). The arborist will assess a tree looking for any structural weaknesses and determine how to safely carve hollows. Chainsaw hollows can last the life of a tree compared to an average service





A successful example of chainsaw hollows can be found at Jerry's Downfall Reserve and Wearing Park at Munruben. About 20 carved hollows were installed in early 2021. Roughly one year later, the hollows were monitored and they were being used by Brush-tailed Possums, Little Corellas, Rainbow Lorikeets, Scaly-breasted Lorikeets and Squirrel Gliders. Shown above are chainsaw hollows being used by Dollarbirds

Shown above are chainsaw hollows being used by Dollarbirds and Sulphur-crested Cockatoos.

life of ten years for a timber nest box, so it is important that they are installed correctly for their long-term effectiveness.

To create a chainsaw hollow, a section of the tree limb (known as a backplate) is first cut out. A cavity is then carved into the limb to create the hollow. After carving out the hollow space and an entrance hole, the backplate is then reattached. A live tree will often heal over the cut section, known as callusing. Once a tree limb has callused, the original chainsaw cut for the backplate blends into the tree limb seamlessly. The hollow entrance can look nearly identical to a natural forming hollow. A faceplate may also be used but is more prone to cracking as the hollow entrance will need to be carved into the faceplate itself.

Chainsaw hollows carved into either live or dead trees generally remain cooler and more humid throughout the day when compared with nest boxes which track ambient temperatures throughout the day. This is mainly due to the fact that the wood that surrounds chainsaw hollows is much thicker and better insulated than the walls of nest boxes.

When deciding where to place a nest box, the position of the sun throughout the day is a major consideration. The preferred orientation for nest boxes is east or south facing to avoid high temperatures in summer unless suitable shade is available to minimise heat from the midday sun from a westerly orientation. Some glider species may prefer north or west facing nest boxes during winter months, but the majority of the time avoiding westerly sun is preferred. Orientation is still a consideration when determining placement for chainsaw hollows, but it is not as important as the hollow is within the tree itself.

Other considerations when installing chainsaw hollows or nest boxes are the tree species they are being installed in and the provision of habitat resources (food, water and shade) for hollowdependent wildlife in the surrounding environment. Ideally, the surrounding environment will have a nearby waterbody and a variety of feed trees such as different Acacia and Eucalypt species, to provide foraging opportunities for a diverse array of wildlife all year round. Chainsaw hollows can provide a worthwhile alternative to traditional nest boxes for providing supplementary hollows or used alongside nest boxes for additional habitat resources. When designed to replicate characteristics of natural hollows such as temperature stability, physical complexity, and protection from adverse weather, both forms of human-created hollows can provide important habitat resources where large, hollow-bearing trees are limited.

If you are interested in chainsaw hollows for your property, please consult your local Land for Wildlife Officer for any legalities or permits required and the Queensland Arboricultural Association (QAA) for suitably qualified arborists in your area.

Article by lan Parsons Land for Wildlife Officer Logan City Council

Photos by Jason Harris-organ and Steve Collom (Habi-Tec Conservation Arboriculture)

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Your Feedback, Our Planning MEMBERSHIP SURVEY RESULTS

Some of the LfWSEQ Officer network and Ipswich LfW members at a workshop, Pine Mountain, June 2023.

Very 7-10 years, the LfWSEQ program undertakes a major survey of our membership to find out if the products and services we are offering are helping our members achieve their nature conservation goals. Survey results feed into the LfWSEQ ten-year planning cycle and help guide how and where we invest program resources. The most recent survey was conducted in August last year with the final report released a couple of months ago. Here are some key findings.

Over 1500 members completed the survey representing 29% of the total LfWSEQ membership. Overwhelmingly our members said that we should continue with current services, especially those that directly help achieve on-ground conservation outcomes such as grants, incentives and training.

There was a clear message that we need to expand and diversify LfWSEQ content online. This will make it easier for more people to access services and to learn about conservation principles and techniques being implemented by LfWSEQ members. In addition to more digital content, our members still highly value meeting other LfWSEQ members in person and want more peer-to-peer networking opportunities to see how other LfWSEQ members are managing their properties.

Weed control remains the number one land management challenge faced by LfWSEQ members. Our members have thankfully seen improvements in the environmental health of their properties due to their involvement with LfWSEQ. The longer their membership with LfWSEQ, the greater the environmental improvements. This includes an increase in the perceived presence of threatened species. Looking to the future, our members expect that the ecological condition of their properties will continue to improve and that the support offered through LfWSEQ will help them achieve their goals.

"LfW has been a wonderful service for myself and our family across four properties and three decades. I have enjoyed spreading the word and now have six neighbours who have joined over the past couple of decades from my sharing what the aims and purposes are, and from the sign, which is on my entrance." Over 1.8 million native plants have been planted by survey respondents, which when extrapolated to the full LfWSEQ membership, equates to the planting of up to 6.8 million native plants. One third of these plants have been provided through the LfWSEQ program, while 44% have been purchased and 13% self-propagated by members. That is an impressive investment by our members to restoring degraded lands and re-establishing habitats.

Similar to environmental improvements, members report that their knowledge and skills in conservation land management have also improved because of their involvement in LfWSEQ, and importantly, that they want to keep learning. Members also spoke about the personal benefits that they attribute to being a part of LfWSEQ, such as a sense of purpose, improved mental health and personal well-being. In turn, this feedback buoys our sense of purpose as program managers to deliver high quality services and be at the forefront of conservation.

Impressively, survey respondents invested \$22.9 million into conservation management of their properties in 2021/22. This includes both cash and time and represents a minimum 5:1 return on investment for Local Governments. Extrapolated to the full LfWSEQ membership, researchers suggested that LfWSEQ generates economic activity of \$20-70m per annum for SEQ.

Consistent with past surveys, LfWSEQ members are actively promoting the program. The survey researchers were impressed by our high net promoter scale result of 69% promoters – a figure that businesses in the private sector could only dream of. I would like to say thank you to all members who have ever said a good word about Land for Wildlife.

The report recommended that we could improve how we communicate voluntary conservation covenants and how we monitor program goals. There is much for us to integrate from the survey findings into program delivery going forward to ensure that we remain current with technology, member expectations, restoration sciences, working with First Nations People and building community and ecological resilience. We look forward to continuing this journey with you all.

Article by Deborah Metters Land for Wildlife Regional Coordinator

QUOTES FROM LFWSEQ MEMBERS VIA THE MEMBERSHIP SURVEY

SUCCESS LOOKS LIKE...

"A vibrant and alive property for all wildlife, a loud and uplifting morning chorus to celebrate the day, the hoot of the owls and squabbles of possums and nightlife."

"A property that native animals, family and the community can equally enjoy."

"Weed free, wildlife friendly and diverse, predominantly endemic native vegetation, diversity of bush tucker plants, Indigenous land management practices."

"Greater Glider nesting box camera being reinstalled in the box and hooked up to a live feed so that I could easily monitor wildlife behaviour of this threatened species."

"Having purchased a property with 90% coverage of lantana our goal is for it to be 100% removed."

"A natural woodland and area for koalas, wallabies, smaller marsupials and birds."

"Lantana and privet under control with native plants in their place. Refuge for native animals."

"Quality pasture with limited weeds. Good quality water in dam. Increase of wildlife."

"To restore the ecological diversity of the property to what it was before clearing."

"Fencing off creek and restore riparian areas while keeping the land productive for the existing cattle business." "Our waterways are clean, clear and healthy with wildlife."

"Good weed and pasture management to enable profitable farming and a balanced ecosystem of both domestic and native animals and plants."

"We bought in 1978; it as ex dairy; there were very few trees and lots of groundsel. It is now a forest so original aim has been achieved."

"More visits from native wildlife and beneficial insects."

"A self-sustaining native sub-tropical and sclerophyll forest, with a minimum of invasive weed species (lantana) and with a good access tracks."

"To have a fire management plan in place in cooperation with my fire warden (as we back on to Conondale National Park)."

"A self-sustaining weed free rainforest maintained by selfregeneration and home to lots of wildlife and birds including some endangered species."

"Family and friends would be involved in conserving the property."

"All surrounding neighbours are members of LfW and we have an amazing relationship and all care for the land and animals together."

"Drought proof, abundance of native bees, flora and bird life."

SUGGESTIONS...

"A group member chat page."

"Regular meet ups are usually scheduled during work hours which excludes working aged members."

"I would love to attend more workshops but they are at a time that is difficult for me to attend."

"Would like to have detailed information on accessing funding for small projects, especially related to waterway and riparian regeneration and conservation."

"Would love access to fox and feral cat traps."

"Practical cool burning workshops. I offer my property as a site."

"Would like support for Indigenous fire management please."

"As a working towards member it is not ideal that there is no sign applicable. My neighbours do not approve of our choices and have mentioned that they think it encourages vermin and snakes. A sign for working towards members would inform passers of our involvement in LfW."

"Where and how to start clearing weeds. To be able to access physical help to do this. As aged pensioners it is overwhelming for just the two of us." "Our main barrier to land management is our advancing years. Could you help us to not get old!"

"Yearly contact from our council contact person."

"An annual check-in from our local LfW officer would be great, for a property walkover and general discussion."

"LfW needs to find a way of becoming more relevant to the general population. Make it easier and make it fun; provide, publicise and recognise participation at all levels....provide graduated aims and objectives."

"I would like more organised site visits and networking opportunities among fellow LfW property owners."

"Access to nest boxes and people to install them. Access to monitoring cameras."

"Workshops on using technology for property management such as drones."

"I can't find anyone willing to help put up nest boxes. I would like help with that."

"I would love a wildlife monitoring camera as we see quite a few signs that native fauna are roaming around our house."

"Assistance for older landowners to physically manage weeds especially when new infestations occur."

The Hunter BECOMES THE HUNTED

ave you ever seen a seemingly mummified spider resting on the leaf of a small shrub or a blade of grass? It may have encountered a gruesome demise caused by a certain group of fungi called entomopathogenic fungi. Entomopathogenic fungi inhabit the soil and rely on invertebrate hosts to grow, spore and spread through the environment.

These fungi first attach to an external part of the invertebrate as a microscopic spore. Once attached to the host they begin to germinate growing hyphae (long branching filaments) and eventually colonise the outer body part. After entering the body cavity, they can parasitise the host and debilitate or kill the individual. There are many species of entomopathogenic fungi, some require species-specific hosts, whereas others are generalists.

In spiders, it is thought that the opisthosoma (abdomen or posterior part of the body) must be easier for fungal spores to penetrate than the much harder exoskeleton. This is likely why the opisthosoma typically becomes mummified first and then is later colonised by fungal mycelium (root-like structures) and fruiting bodies.

The four huntsman spiders (*Heteropoda* sp.) in the header photograph have all been frozen in time - killed by the entomopathogenic fungi. In time, the fungal fruiting bodies would have emerged from the spiders' abdomens and distributed their spores to land on other unsuspecting host spiders.

Although spider hosts are known to become infected at various life stages (from eggs to adults), adults seem to the most common subject. It is hypothesised that fungal spores are dispersed more widely via adult spiders. Entomopathogenic fungi are common throughout bushland areas and are known to regulate invertebrate populations. More research is needed to understand the interactions between these fungi, their host species and broader ecological impacts. So next time you see a mummified spider, spare a thought for the ill-fate of the host and the fascinating capacity for fungi to thrive and virtually grow legs to move through the environment, via their hosts.

Article by De-Anne Attard Land for Wildlife Officer Sunshine Coast Council

References and Further Reading

Evans, HC (1982) Entomogenous fungi in tropical forest ecosystems: an appraisal. *Ecological Entomology* 7: 47-60. Wolfgang N (Ed.) (2013) *Spider Ecophysiology*. Springer-Verlag Berlin. During a recent walk on a Land for Wildlife property, my colleague Alan Wynn found some trapdoor spider burrows in an area that had previously been cleared of vegetation. This was an exciting discovery as female trapdoor spiders can live up to 20 years and rarely venture out of, or far from, their burrow. They require relatively stable, undisturbed soil to survive so they can be an indicator of a healthy ecosystem.

Out of one trapdoor entrance was an emerging fungal fruiting body. Alan excavated the spider from its burrow to learn more about its fate and discovered the poor spider encased in fungal hyphae from the fruiting body of a Cordyceps species, a type of entomopathogenic fungi. Photos below by Alan Wynn.



GRASSY GROUNDCOVERS AND Refous Bettongs

Rufous Bettongs and other macropods, like these Pretty-faced Wallabies, need patches of mown and unmown grass. This probably echoes long unburnt and recently burnt habitats that would have been present in the past through Indigenous fire management.

he Rufous Bettong is an adorable, nocturnal mammal of eucalypt forest and grassy habitats. They are a very small wallaby with silvery-ginger fur, a whitish tail, very short forearms and long, thin hindlegs. The book, *Wildlife of Greater Brisbane*, says they are solitary however, sometimes we see them in small groups of twos or threes.

Although these little creatures are listed as Least Concern under the Queensland *Nature Conservation Act*, they are uncommon in SEQ, as is evidenced by the few sightings recorded in Atlas of Living Australia or WildNet.

We have sighted Rufous Bettongs at our property irregularly over the last 20 years. Usually at night, unless you happen to startle one out of its grassy nest by stumbling upon it during the day.

We have noticed that various management practices are helpful to Rufous Bettong and hope these practices will keep them on our place for generations to come.

- Continuous grazing and Rufous Bettong don't mix. They need thick, grassy ground cover and limited disturbance. Constant livestock grazing causes too much disturbance over too much ground and does not allow for the dense growth and groundcover that the Rufous Bettongs need.
- They seem to like some variety in the age of growth of grassy groundcover habitat. We mow occasional sections through the Kangaroo Grass and other native grasses, which allows for fresh, green growth and wildflowers to come through. They seem to like feeding across this open ground at night.
- They particularly like large clumping grasses, so we avoid mowing these, and we leave patches of unmown grassy cover.
- We have created a refuge paddock around a treated erosion headwall. Livestock rarely have access, so this small paddock provides great refugia for the Rufous Bettong.
- Mowing the occasional patch of grassy groundcover ensures the ground is 100% covered, creates easier access, reduces fire risk and allows growth of native herbaceous plants. This variety seems to suit the Rufous Bettong. They feed over this patch on multiple nights, sharing it with bandicoots, brushtail possums, Pretty-faced Wallabies (also called Whiptail Wallabies) and European hares.

Article and photos by Lois and Lara Solyma Land for Wildlife members Croftby, Scenic Rim







Powerful OW MONITORING PROJECT

he Powerful Owl is a very impressive bird. A common reaction people have when they see one for the first time is "Wow!" Standing approximately 65cm tall with a wingspan of about 140cm they are our largest nocturnal bird - big enough to snatch a possum or a flying fox for dinner.

If a Powerful Owl is staring at you, it's like its piercing eyes will burn two holes straight through you! As well as the large yellow eyes and v-shaped pattern on their feathers, they have huge yellow feet with a seriously decent set of talons.

Powerful Owls inhabit open forests and woodlands, and use sheltered gullies with a dense understorey, especially along watercourses, to roost in during the day. Powerful Owls are also found in urban and periurban areas particularly in the more leafy suburbs and also large bushland properties such as those owned by Land for Wildlife members.

Birdlife Australia's Powerful Owl Project engages volunteers and landowners to help determine the distribution and numbers of Powerful Owls and to monitor Powerful Owl nesting success.

A number of Land for Wildlife members have been regularly monitoring Powerful Owls on their properties and we invite more of you to become involved. We are also looking for large properties to deploy acoustic monitoring devices to pick up calls of Powerful Owls and their chicks. They have a loud "whooooo..... hooooo" call. Regardless of whether you decide to participate on an ongoing basis, we would really like to hear from you if you have seen or heard Powerful Owls on your property, or have suitable habitat for them.

We are particularly keen to know if you have a Powerful Owl nest site or a potential nest site on your property. Powerful Owls require large hollow bearing trees to nest in. These trees are invariably eucalypts with a trunk diameter of at least 75cm and have a large hollow with an entrance of about 25cm or more – big enough to fit two growing owl chicks and their mum inside.

Article by Andrew Dinwoodie Powerful Owl Project Coordinator Birdlife Australia





To learn more about Powerful Owls visit https://birdlife.org.au/bird-profiles/powerful-owl/

For information about Birdlife Australia's Powerful Owl Project visit https://birdlife.org.au/projects/powerfulowl-project/

Please email us at powerfulowl-bris@birdlife.org.au if you would like to join us or to record a Powerful Owl sighting.