#### LAND FOR VILDLIFFE SOUTH EAST QUEENSLAND FEBRUARY 2021 VOL. 15 NO. 1

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Land for Wildlife South East Queensland Team, December 2020



Over the last few years, the 13 Local Governments have created a range of measures to help guide, govern and build resilience for the LfWSEQ program. One of these measures is our *Ten Year Plan 2020-2030*. This plan outlines local and



regional opportunities for collaboration between councils. As LfWSEQ grows, this plan helps ensure that we continue to

deliver the services that our members know and trust. So in turn, our members can continue to look after our wildlife and their habitats. Our plan is available via www.lfwseq.com.au/reports



\*Please note that these figures have increased

substantially since the last edition. This is due to the incorporation of data from Fraser Coast and Gympie regions and the above statistics now reflect LfWSEQ membership across all 13 Local Governments.

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.

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**Front Cover:** An adult male Satin Bowerbird at his bower in the Scenic Rim. Photo by Todd Burrows.

Front Cover Inset Photos (L-R): A Powerful Owl at a daytime roost in Brisbane, photo by Deborah Metters; and a mature Mary River Cod, photo by Jack McCann.

www.lfwseq.com.au

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### EDITORIAL

### Welcome to the FEBRUARY 2021 ISSUE

From all of us here at LfWSEQ, we wish all our members and supporters a year of hope and renewal. Some say that last year created a split of winners and losers. Some businesses boomed, many went to the wall. Some countries fared comparatively OK against covid-19, while others are still in despair. Our forest wildlife were on the losing side of bushfires, whereas late spring rains brought life back to parts of inland Queensland with full wetlands and birds flocking in their thousands.

Surprisingly, the LfWSEQ program seems to have fallen on the bright side of 2020. Last year, we recorded our largest growth in new members since the program began in 1998. Our average annual recruitment is 232 properties per year. Last year, we welcomed 374 properties into the program. We speculate that this peak in applications was due to a couple of factors. Firstly, people were simply home more and refocused their attention to their property. Covid-related lockdowns and restrictions afforded people time to apply for LfW, possibly something they had been 'meaning to do'. Secondly, people worldwide sought refuge in nature away from doomsday news and chaos, with some people asking, "where can I

get some support with all this weeding?". Finally in September, the ABC's Gardening Australia aired an episode where one of the presenters joined LfW Tasmania and proudly planted native trees and installed a LfW sign on his property gate.

Whatever the reasons for people joining, we welcome you all and hope that LfWSEQ can offer the support, advice and encouragement you need to meet your conservation goals for your property.

We also acknowledge that you are joining a collective of landholders who are managing thousands of LfW properties in SEQ. Within the next few months, we will celebrate the 5000th LfWSEQ property – a remarkable milestone built over 22 years of dedication by landholders and the local governments of SEQ.

As the bittersweet adage "There is no Planet B" implies, things cannot grow forever. There is always ebb and flow. Despite the boom in new registrations in 2020, the last few years has presented difficulties for the LfWSEQ program, and we have met them boldly working with the silver lining that disruption can bring. One of these outcomes has been the development of a ten-year strategic plan for LfWSEQ, which is available on our website. This plan aims to build resilience so we can manage the ups and downs and still be around in another 22 years' time. More info about this plan and program statistics can be found on the facing page and backpage.

This edition has a diversity of stories from owls to fish to butterflies, plus the cornerstone of this program – learnings from our LfW members. Personally, I always draw inspiration from landholder stories, and I know other landholders do too. So, thank you for sharing and I always welcome contributions, however small.

Stay safe. Be in touch and thanks for caring for our natural world.

#### 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

Jan-Mar 2021



**Daytime & Night Temperatures.** Very likely that daytime and nighttime temperatures will be warmer than average for south-east Queensland and coastal Queensland.

**Rainfall.** Wetter than average conditions are likely across eastern Australia.

**Streamflow.** Median to low streamflows are most likely in south-east Queensland.

#### Influences

- El Niño-Southern Oscillation (ENSO) A La Niña is active but is likely to be nearing its peak with a return to neutral conditions forecast by the end of May.
- Southern Annular Mode (SAM) is positive and typically enhances the La Niña rainfall.
- Sea surface temperatures are warmer over summer and are likely to influence the wetter and warmer outlook.
- Indian Ocean Dipole (IOD) is neutral and typically does not influence Australian climate over summer.
- Australia's climate has warmed by ~1.4°C since 1910.

#### Sources

www.bom.gov.au/climate/ahead/ www.bom.gov.au/climate/climate-guides/ (south east Queensland)

### Weeds to Watch Jan-Mar 2021

Weedy grasses are loving all this recent summer rain. Shown here (top down) is Green Panic, Signal Grass and Red Natal Grass.

Introduced grasses are often long-lived perennials and grow faster than native grasses. This means they create more biomass and pose a higher fire risk than native grasses.

Controlling weedy grasses can be difficult as they quickly develop seed heads with thousands of seeds. Successful control involves spraying or removing grasses prior to seed set, and repeating this process year after year until the seed store in the soil is depleted.



# HOW MANY Powerful OWS ARE IN SEQ?



The table below shows where Powerful Owl pairs and/or their nesting hollows were found in 2018 and 2019 in SEQ. These figures probably suggest a sampling bias towards more surveyors in Brisbane. This bias should be overcome with the help of acoustic monitoring, which is being rolled out in partnership with QUT.

Council	# of nesting hollows	# of breeding pairs	# of additional pairs
Brisbane	11	18	4
Gold Coast	0	1	2
Gympie	0	0	1
lpswich	1	3	2
Lockyer Valley	0	0	1
Logan	3	7	0
Moreton Bay	1	5	3
Redland	6	8	1
Scenic Rim	0	0	3
Sunshine Coast	1	3	0
Toowoomba	1	3	0

Map of Powerful Owl records from SEQ.



In the forests of eastern Australia, apex predators hunt in the night on silent wings. Their large yellow eyes and sharp talons snatch up mostly arboreal prey of possums, gliders, flying foxes and sometimes birds. In urban situations there are records of them taking animals from the ground such as rabbits, rats and even a cat. Over the last three years, the Powerful Owl citizen science project, coordinated by Dr Robert Clemens at BirdLife Australia, has greatly expanded our understanding of this cryptic species in SEQ.

Like all owls, Powerful Owls hunt at night. Research on a male owl fitted with a radio-tracking device showed that they can fly up to 10km per night to hunt. During the day, they roost in dense vegetation, often along creeklines, where it is well protected and cooler. They often hold the remains of the previous night's hunt in their huge yellow talons.

Powerful Owls are Australia's largest owl with males being up to 65cm tall. Hence, it follows that they also require large tree hollows for breeding. These large hollows generally only occur in old-growth mature eucalypts trees that are 100-500 years old. Despite installations of many nest boxes designed for Powerful Owls, they have only ever successfully bred once in a nest box (to which they never returned to again). They simply don't seem to use available nest boxes.

Powerful Owls mate for life and pairs defend their territory yearround. The size of a Powerful Owl territory ranges from 310 to 4740ha, depending on habitat and abundance of prey. If there is lots of food available and good breeding habitat (large hollows), Powerful Owls can occur in high densities. The highest know density is near Sydney with two pairs of owls only 500m apart.

Thanks to data collected from the Powerful Owl citizen science project, we know that there are at least 70 Powerful Owl pairs in SEQ. Breeding success over the past three years ranges from 0.8-1.35 chicks produced per nest, so the population seems to be steady. Across SEQ, only 31 breeding hollows have been located indicating the difficulty in finding active nests and also the paucity of suitable breeding hollows left in SEQ.

The threats to urban Powerful Owls differ to their counterparts living in remote areas. Electrocution on powerlines and vehicle strikes killed at least five Powerful Owls in SEQ in 2018. If Powerful Owls start to eat more ground-based prey in urban areas, it is a concern that they may be affected by secondary poisoning from rodenticides. This is already a huge problem for other owls that primarily prey on mice and rats (see facing page).

The 2019-20 fire season hit forest owls hard. About 31% of Powerful Owl habitat in Australia was burnt. These fires were a game-changer for forest ecology in eastern Australia and will affect forest dependent species, like Powerful Owls, for decades to come. Even if adult birds survived, their large breeding trees may have been lost and prey numbers depleted. It is terribly sad.

The Powerful Owl citizen science project in SEQ has involved thousands of volunteers. Over 500 people have been trained in the identification, monitoring and reporting of Powerful Owls. The project will run for a couple more years and you can join at any time. All trainees learn how to identify male and female Powerful Owls by appearance and by their calls. Adults will start calling soon in March and April as they set up their territories.

If you have seen or heard Powerful Owls, your data is valuable. To learn more or join the project visit www.facebook.com/The Powerful Owl Project or birdlife.org.au/projects

#### Article by Fflur Collier Land for Wildlife Officer Brisbane City Council

## Pest Rodent Control WITHOUT HARMING OWLS

s I was reading about the success of the Powerful Owl project (see facing article), I was reminded of a nasty threat to our owls: secondary poisoning from rodent baits. As Editor of this newsletter, I try to ensure articles are positive and practical to avoid environmental doom overload. I weighed up whether to write this article but decided that most, if not all, Land for Wildlife members would want to help owls, so I hope this goes some way to raising awareness of this issue.

Let's start by looking at the source of the problem, rodenticides. They fall into two broad categories: first-generation and second-generation anticoagulants. First generation rodenticides require the rodent to eat the bait several times before a lethal dose accumulates. Second generation rodenticides act faster and require only one feed for them to be lethal.

The problem with second-generation rodenticides is that they persist in dead and dying animals and when a poisoned mouse or rat is eaten by an owl, the poison can also kill the owl. Owls are not the only non-target animal affected. Rodenticides can also kill pet cats and dogs, birds of prey and other wildlife that scavenge on rodents. Rodenticides also build-up in animals over generations with one generation passing on the poison to their young. For example, 95% of Barn Owls and 100% of Kestrels in the UK now have some levels of rodenticide in their systems.

The USA, Canada and EU have banned the public sale of second-generation rodenticides with licensed pest controllers being the only people still allowed to use them, and first-generation rodenticides can only be purchased by the public in tamper-proof bait stations.

So that is all quite depressing especially given owls are such magnificent creatures and any encounter with one is a privileged wildlife moment. So what can we do?

If you need to control introduced rodents

(please don't trap our native mice and rats), try to use the old-style manual mice and rat traps, or live cage traps or modern electric traps. Mechanical and electrical traps do not pass on any poisons.

Try to make your house and garden less attractive to pest mice and rats. For example, use rodent-proof compost heaps and chicken feeders that only release food needed by your chickens. Collect fallen orchard fruit and don't leave out pet food overnight. Remove material where mice and rats nest or shelter. Block openings where mice or rats are entering buildings. By restricting the amount of free food and shelter for rodents, their numbers should not boom to pest levels.

If you do need to use a poison, there are now products on the market that do not use anticoagulants. They instead use sodium chloride (salt) and cause rodents to die of dehydration.

Buying rodent poison can be tricky as you will have to look closely for the active ingredient. First-generation anticoagulants have an active ingredient of either warfarin or coumateralyl. Second-generation rodenticides are usually labelled 'singledose action' or 'one feed' and contain active ingredients of either brodifacoum, bromadiolone, difethialone or difenacoum. All common household brands like *RatSak*, *The Big Cheese* and *Talon* use either first or second-generation rodenticides or salt – please read the labels.

People have campaigned for many years to change laws relating to rodenticide use in Australia and I take my hat off to them. I am sure that it is only a matter of time before our love and ecological understanding of owls wins.

For more information visit: www.actforbirds.org/ratpoison www.landcaretas.org.au/rodenticides www.barnowltrust.org.uk

Article by Deborah Metters Land for Wildlife Regional Coordinator



Be careful not to confuse our native Bush Rat (*Rattus fuscipes*) shown left with the pest Black Rat (*Rattus rattus*), above. The Black Rat's tail is much longer than its body and it has large ears. Photo left thanks to Sunshine Coast Council. Photos above thanks to City of Gold Coast.



Southern Boobooks can often be found roosting in sheds such as this one at Chermside. Research from Western Australia in 2017 found that 70% of boobooks have measurable levels of rat poison in their blood (PhD research by Michael Lohr). Photo by Ged Tranter.



Shown here is a healthy Barn Owl in Brisbane. Barn Owls are natural pest controllers of mice and rats. Some farms and schools have installed Barn Owl nest boxes to encourage owls to control rat populations. Photo by Ged Tranter.

This constructed fish ladder replaced a historic 2.8m weir on the Bremer River and now allows for native fish passage at this site. Anyone can visit this site at the end of Chubb Street, One Mile, Ipswich.

# HIDDEN GEMS OF NATIVE WILDLIFE

I fyou're anything like me, you can't walk past a creek without sneaking over and staring into the water to get a glimpse at what might be living in there. Often, it's amazing how much life you can see even in a relatively ordinary waterway. Many of our schooling native fish species are visible just below the surface, actively going about their day. Despite Australia's native fish diversity, unfortunately, the 'out of sight, out of mind' perspective means that so often they are the forgotten guys of our native fauna, and their value and importance is often overlooked and under appreciated.

Here in Ipswich (and across south-east Queensland), we are lucky to have a range of native fish species throughout our catchments. If you were to scoop with a dip net in any waterway in Ipswich, you could catch up to 34 of the native species occupying our freshwater habitats.

Seventeen of these native species are 'potamodromous', meaning that they spend their entire lifecycle in freshwater for spawning, recruitment and habitat. Common local potamodromous species include Flyspecked Hardyheads (*Craterocephalus stercusmuscarum*), Rainbowfish (*Melanotaenia duboulayi*), Firetail Gudgeons (*Hypseleotris gallii*), Australian Smelt (*Retropinna semoni*), Eeltailed Catfish (*Tandanus tandanus*) and Spangled Perch (*Leiopotherapon unicolor*).

The Bremer catchment is also home to some significant potamodromous fish, including the endangered Mary River Cod (*Maccullochella mariensis*), and the vulnerable Queensland Lungfish (*Neoceratodus forsteri*). Both of these species have had conservation populations established in the Bremer to expand their distribution and abundance across their natural range. The establishment of Mary River Cod also serves to fill the trophic void left by the large freshwater Brisbane River Cod, which was once common throughout Brisbane's catchments, but unfortunately went extinct around the 1940s.

The other 17 native species are 'diadromous', which means that they need both freshwater and estuarine habitats throughout their lifecycle. These obligate movements generally occur at stages of a species lifecycle, usually associated with spawning and recruitment. Unlike their northern salmonid counterparts which spawn in freshwater, Australian diadromous fish generally spawn in saltwater habitats, with the youngof-year juveniles migrating upstream to freshwater nursery habitats. Local migratory or diadromous fish in Ipswich include Australian Bass (Percalates novemaculeata), Empire Gudgeons (Hypseleotris compressa), Sea Mullet (Mugil cephalus), Freshwater Mullet (Trachystoma petardi), Bullrout (Notesthes robusta) and Long-finned Eels (Anguilla reinhardtii).

The large-scale migrations of Long-finned Eel is perhaps the most remarkable lifecycle of all our native fish. Mature Long-finned Eels migrate from upstream freshwater habitats, out to deep-sea trenches in the Pacific Ocean thousands of kilometres offshore before they spawn and die. The juveniles, known as elvers or glass eels, then ride ocean currents for up to a year, before recruiting to the former range of their parents. A truly amazing journey of an often-disregarded species.

Clearing of bushland, including along the riparian zone, has reduced the abundance and diversity of native fish populations and has reduced freshwater habitats. Clearing results in soil erosion, sedimentation and a lack of complex in-stream habitats such as woody debris and vegetation beds. When riparian vegetation is removed, streambanks become unstable and erode, contributing large amounts of sediment to waterways. This in-turn, reduces water quality, smothers rock bars, fills-in deeppool habitats and often kills aquatic plants.

Barriers to migrating fish, such as causeways, culvert crossings and weirs, also significantly impact fish communities. A recent project identified 13,629 potential barriers to fish passage in SEQ, impeding the dispersive movements of potamodromous species and the critical migrations of diadromous species.

Our waterways have also become permanent holiday homes for introduced fish species, including Carp (*Cyprinus carpio*), Tilapia (*Oreochromis mossambicus*), Mosquitofish (*Gambusia holbrooki*) and Goldfish (*Carassius auratus*). All of these species are prolific in our waterways and they compete with native fish for resources such as food, refuge and territory. All pest fish have been released into waterways by people, so it is critically important to never release aquarium fish into a natural waterway, to avoid creating new wild pest fish populations.

Despite these threats, there is lots we can all do to facilitate waterway recovery for fish communities or to simply enjoy keeping native fish at home. If you're lucky enough to live on a waterway, one of the greatest influences you can have on native fish is to maintain a dense buffer of native riparian vegetation. This provides bank stability, improves water quality, provides woody debris and also contributes terrestrial food sources to native fish. It's also critical to leave any fallen logs on your streambanks and within the waterway to provide habitat and flow dissipation. It is also worth considering using natural erosion mitigation such as jute matting



and coir logs on steep riparian sites to maintain mulch and topsoil.

Small native schooling fish can be easily kept in a pond or bathtub in your garden, keeping in mind the pond needs to be 40-50cm off the ground for Cane Toad exclusion. Placing the pond in a shaded spot, and including some driftwood and pots of native aquatic vegetation such as Vallisneria (*Vallisneria nana*) and Water Lilies (*Nymphaea* sp.), will go a long way to keeping your fish happy. Suitable species include Pacific Blue-eyes (*Pseudomugil signifier*), Rainbowfish, Firetail Gudgeons, Empire Gudgeons, Olive Perchlets (*Ambassis agasizii*) and Flyspecked Hardyheads, which are all non-aggressive community species.

As with all environmental matters, increasing community awareness of how interesting and diverse our native fish communities are is critical to encouraging stewardship of our waterways and vital fish habitats. Next time you are walking past a creek, have a look at what's happening below the surface, chances are you'll be amazed at what you see.

#### Article and photos by Jack McCann Waterway Health Officer Ipswich City Council

#### Photos from top left:

Jack holding a Queensland Lungfish from the Bremer River.

Native fish from the Bremer River, including Sea Mullet, Rainbowfish, Hardyhead, Firetail Gudgeon, Australian Smelt and Empire Gudgeon.

Juvenile Bullrout (stonefish) are common in the Bremer catchment and should be handled with extreme care!

This juvenile Long-finned Eel was sampled ascending the Bremer River fish ladder.

Common pest fish including Goldfish, Tilapia, Mosquitofish and Platys.

All fish shown were counted, identified and measured using a fish cradle (semi-circular PVC with holes drilled into one end and a ruler). When the cradle is tilted, the water drains out, the fish line up and photos are taken. Native fish are then released back into the water, while the introduced fish are disposed of humanely.



# BELLTHORPE STAYS A Wildlife Haven

Bellthorpe Stays Nature Retreat is a Land for Wildlife property located half-way between Woodford and Maleny. This idyllic 170ha property comprises a working farm with an ecotourism venture and shares a 2km boundary with Bellthorpe National Park. Less than half the land has been cleared for cattle grazing or timber, with all rainforest sections remaining largely untouched, other than for weed control around the margins or for access tracks.

The mix of rainforest, wet sclerophyll forest, creeks, palm groves, small dams and open paddocks is a haven for wildlife, especially birds, some of which visit the feeders on the verandahs of the cabins. Key species include Regent Bowerbird, Paradise Riflebird, Marbled Frogmouth, Crested Shrike-tit and Wompoo Fruit-Dove (the emblem for the property). Butterflies abound too, with the Richmond Birdwing, Four-barred Swallowtail and Regent Skipper being notable highlights on our second visit here in October 2020. The extensive wetlands provide a valuable refuge for frogs, including the Giant Barred Frog, and dragonflies.

Hosts David and Wendy Clark have created an extensive network of graded walking tracks (ranging from a couple of hundred metres to a few kilometres and varying in difficulty) that crisscross the property leading to picturesque waterfalls, pristine rainforest, spring-fed creeks or the lookout with views over the Mary Valley. The more remote sections of the property are rather like being in your own private national park (we hardly saw any other visitors while out bushwalking). Other areas have been revegetated over the past 12 years.

Dave and Wendy can make arrangements for environmental groups to visit their property. Over the years, Birds Queensland, the Queensland Mycological Society and the Sunshine Coast Branch of Native Plants Queensland have all surveyed for flora, fauna and fungi. The accommodation comprises a cottage near the farmhouse and three privately situated cabins on the ridgetop above. Further information at www.bellstays.com.au

Article and photos by Peter Storer Land for Wildlife member Wights Mountain, Moreton Bay

> Photos from top: Wompoo Fruit-Dove, Palm Creek, Regent Skipper butterfly and a male Paradise Riflebird.



### YOUNG BOWERBIRDS AND

## their Practice Bowers

was wandering around the yard enjoying the cool July weather and quietly adding to my to-do list when I noticed an untidy pile of sticks in the garden bed at the front of the house. I was about to add 'tidy-up garden beds' to my list when I looked again and saw that the untidy pile of sticks actually had an intricate structure to it, and surrounding it was a smattering of blue objects. Incredibly, despite being surrounded by extensive and diverse bushland in Brisbane, a Satin Bowerbird had chosen to build its bower in a garden right next to our house. Excited, I headed off to share this find with our three young boys.

Revegetation and bush regeneration have been passions of mine for some time. I've been lucky enough to work on a number of properties over the years, and even more lucky to have moved to a bush block in Upper Brookfield where I've been able to indulge my passion for revegetation over the last 5 years. We joined the Land for Wildlife program as soon as we could, and the support, guidance and enthusiasm of the team over the years, in particular Catherine Madden, Fflur Collier and Cody Hochen, has been invaluable.

After discovering the bower, I was able to borrow a fauna camera through the program, surreptitiously placing it near the bower to record the comings and goings. What followed was an interesting revelation to me. The bower turned out to be what is called a 'practice bower'. Typically, mature male Satin Bowerbirds build a bower decorated with predominantly blue objects to attract females. They undertake a courtship dance, parading favourite blue objects, and if the dance-off is successful, mating occurs at the bower site. The female than builds a separate nest where the eggs are laid. The practice bower is where immature male bowerbirds learn the art of bower building and courtship displays. After leaving the camera in place for a week, we recorded hundreds of images of this behaviour, with up to four immature male bowerbirds gathering objects, adding and rearranging sticks and often performing for each other. Leaves, blue pegs, Blue Billy Goat flowers, a blue biro, blue bottle lids, 'nerf gun' bullets and various bits of blue streamers made up the bulk of the objects that were proudly displayed. Sadly, most of the objects were plastics gleaned from the local area.

The bowerbirds chose to build their bower in garden beds planted with native species. With the exception of some grevilleas and native gardenias, all are local endemic species. The vegetation surrounding the bower is comprised of sparse clumping species like lomandras, dianella and native ginger with smaller shrubs like butterfly bush, hovea, native holly and bursaria providing structure under the larger grevilleas. This provided open ground between clumping plants that enabled the construction of the bower, with a dense mid-stratum providing shelter.

The bowerbirds seem to have packed up for the season as I write, probably heading higher up in the D'Aguilar Ranges as part of a seasonal altitudinal migration. Whilst the use of native species in the garden beds may or may not have influenced the placement of the bower, I'd like to think it did, and I hope they return in the coming years to utilise our garden.

Article and photos by Phil MacDonald Land for Wildlife member Upper Brookfield, Brisbane



#### Fauna camera photos from top:

Two Satin Bowerbirds in immature plumage.

Two Satin Bowerbirds - the bird to the right is in partial adult plumage, suggesting it is about 5-6 years old. They start developing adult plumage at age five.

Two Satin Bowerbirds - the bird in the bower is in adult plumage suggesting it is at least 7 years old with the righthand bird in partial adult plumage.

This Satin Bowerbird is making his eyes bulge - one of the various acts performed during courtship displays.





# Tips and Tricks from our Restoration ALONG LONDON CREEK

In 2014 we bought a 40ha block of land adjacent to our house property, which is already in the Land for Wildlife program and primarily managed for conservation. We acquired the block with the intention of preserving the habitat, including the magnificent old trees, different ecosystems and the known populations of various 'at risk' fauna. So, we acquired a block of land we didn't need, all the while wondering whether or not we had time and energy to care for it.

In 2016 we established a Nature Refuge agreement over the block and called it Mount Mellum West Nature Refuge. The agreement cites significant natural resources including:

- 'Of concern' Regional Ecosystems 12.9-10.16 (Hoop Pine vine forest on old soils) and 12.8.8 (Sydney Blue Gum, *Eucalyptus* saligna, &/or Flooded Gum, *E. grandis*, tall open forest on old igneous rocks).
- Known populations of threatened species including Koala, Richmond Birdwing butterfly and Giant Barred Frog
- Landscape connectivity with surrounding Nature Refuges and Environmental Reserves.

Six years on, we have done a lot of work with assistance from Sunshine Coast Council. We received support from neighbours, Hinterland Bushlinks and even from an Ecuadorian man missing his time in nature. This wonderful support partially answers our problem regarding energy and time for a second block.

In addition, the Queensland Government offers grants to Nature Refuge landholders. Projects must contribute to the ecological values of the Nature Refuge, be completed within six months and must be equally matched by the landholder, either in cash or in kind. That can be a lot of weed slashing/pulling/spraying, hole digging, tree planting, believe me. Thank goodness for the piggy bank and muscles.

We divided our major projects into three phases. Phase Zero happened back in 2015 with help from neighbours Paul and Melissa. Many a day was spent working with them, including one memorable day when they/we brushcut all the way downhill to London Creek on the logging track. Brushcutting an 800m track with a fall of 100m was quite a day's work. (Thanks P&M.)

Phase One started in early 2019 and restored a track to enable vehicle access to the riparian zone on the northern end of the block where London Creek flows. It was overgrown with an infestation of weeds and practically inaccessible on the rutted-out old logging track.

Phase Two ran from late 2019 to early 2020, during which we controlled Slash Pines using the drill-and-fill method, cleared Lantana, native raspberries, Setaria Grass and other invasive plants, and revegetated the area with suitable native pioneers and long-term desirables. The grant section of this project is now completed but maintenance work will continue for years.







#### Our learnings are many, including:

- Silky Cucumber (*Trichosanthes subvelutina*) has very large fruit (don't stand under the vines!).
- Sometimes there are native seedlings in the weeds even when there are no stakes.
- Sometimes there aren't seedlings in the weeds, even when there are stakes.
- Never underestimate the weed recovery rate it is always faster than the seedling growth rate.
- Never overestimate your ability to work in the heat and humidity.

- Cobbler's Peg seeds prefer the neck and ears to the socks.
- Enjoy every moment working in nature, and observe closely, as it will look very different within weeks.
- Take everything you need as it's a long hike back to get any forgotten tools.
- To create good comparison photos, physically mark a point at the site to ensure the same perspective.
- Trust nature to run the process.

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





# Scrappy Sida

### **BUTTERFLY BEAUTY**

eauty is supposedly in the eye of the beholder, but I challenge any beholder to find beauty in the scrappy native herb, *Sida hackettiana*. Most native Sida look like weeds, but even by Sida-standards, *S. hackettiana* is scroungy. It has long, spindly canes that rise to about two metres tall and usually droop at the end, as though it's hanging its head in shame. Its flowers are among the smallest of all Sida, and each plant only seems to flower for a week or so each year. It's hardly ornamental garden material.

It is a species that is abundant in pastures throughout Pine Mountain, but rarely occurs within intact vine thicket. As a result, I normally thin them out of my planted areas, with the justification that even though it is a native species, it doesn't belong in rainforest and it probably competes to some degree with the young seedlings I'm planting. Nevertheless, I do leave the odd one in place, simply because it is native and provides a little protection for the developing trees. I'm glad I did leave some! When they began flowering, I noticed the flowers were teaming with what I ignorantly assumed was one species of tiny blue butterfly. Knowing full well how tricky it is to identify small Australian butterflies without a good view, I fetched my camera in an attempt to name the mystery butterfly. It turns out my mystery butterfly was at least eight species! Almost every photo I took ended up being a different species. Here are the ones I've been able to identify.

So, it appears *Sida hackettiana* does have a redeeming feature after all. If nothing else, it has opened my eyes to the world of tiny native butterflies. I might have to allow a few more Sida to reach maturity next year.

Article and photos by Chris Wiley Land for Wildlife member Pine Mountain, Ipswich





The larvae of the Spotted Pea-blue (*Euchrysops cnejus*) breeds on various species of peas including the weed, Siratro. Too bad they don't eat more of it!



The Two-spotted Line-blue (*Nacaduba biocellata*) was the smallest butterfly present and is 24mm in size. The two orange-bordered spots on the hindwing are diagnostic.



largest butterfly present at only 28-30mm in size.





The Short-tailed Line-blue (*Prosotas felderi*) was common, which isn't surprising given that many of its larval food plants are found in the Pine Mountain vine scrub.



In addition to the small blue butterflies, which are from the Family Lycaenidae (Blues and Coppers), I also photographed two species from the Family Hesperiidae (Skippers). Above left is the Greenish Grass-dart (*Ocybadistes walkeri*) and above is the Dingy Grass-skipper (*Toxidia peron*). Larvae of these skippers feed on various species of native and introduced grasses.

#### **BOOK REVIEWS**

Late last year saw the release of two new field guides to the butterflies of Australia. Both have their merits and are unlike any other butterfly books currently on the market.

The Field Guide to the Butterflies of Australia by Garry Sankowsky is a sturdy 400 page A5 book. It is the first national butterfly field guide that includes photos of larval host plants. It also packs in photos of butterfly eggs, pupae, larvae and both adult female and male butterflies. To get all of this into a 400 page book, some photos are tiny. Some pages (remember this is an A5 book) have 19 photographs. Even though some images are small, they still convey the intended message. I like how the author chose to include so many visuals. It shows the complexities of a butterfly's lifecycle and their dependence on plants during their larval phase.

Each species has a distribution map, which I find useful. The larval host plants listed include a mix of native and introduced species. Recommendations are provided for garden host plants, and some of these recommendations are surprising, if not contentious, as some include introduced species.

At the start of each Family or Subfamily section is a one-page description about that group of butterflies and includes some fabulous information about their longevity, migrations, over-wintering strategies and other traits. These pages alone are a reason to buy this book.

If there is one downside to the book, and again this will be contentious, the author has chosen to use common names from *The Butterflies of*  Australia by Albert Orr and Roger Kitching rather than the common names used in *Butterflies of Australia* by M.F. Braby. My interest in butterflies stretches to 15 years, but I gather the debate around common names has been going on for a lot longer. Personally, I think Braby common names are easier, such as Fuscous Swallowtail rather than Capaneus Swallowtail.

As a different resource, the *Naturalist's Guide* to the Butterflies of Australia by Peter Rowland and Rachel Whitlock is a tidy, consistently laid out small book with generally four images per opening. This book is smaller than the other one with 180 pages and B6 in size. It covers 300 of the most commonly seen butterflies in Australia. The common names used follow those of Braby, but other known common names are also listed – a big thanks to the authors for doing this.

This book uses photographs from amateur wildlife photographers. They are bold and delightful, but generally only show one image of an adult butterfly per species. Given its small compact size, information about larval host plants has been kept to a minimum and there is no distribution map.

Both books add to the mix of butterfly field guides on the market. Sankowsky's book would more suit those wanting to dive deeper into the ecology and lifecycles of butterflies, whereas Rowland and Whitlock's book is an introductory guide for someone starting out on their butterfly journey. Both are welcomed and worthwhile additions to this wonderful field of interest.

**Review by Deborah Metters** 



Paperback | 2020 | \$35 Reed New Holland Publishers



Paperback | 2020 | \$25 John Beaufoy Publishing

### Herbicide-free METHODS OF WEED CONTROL

Some landholders choose to manage weeds without using herbicides due to concerns around health, chemical resistance in plants, pollution and toxicity to non-target organisms. Non-chemical methods of weed control offer options for landholders. However, they are generally less effective and potentially more expensive than using herbicide. Arguably, non-chemical methods are not at all viable for treating woody weeds, vigorous invasive vines, weeds with tap roots or tubers and large/old weeds.

If you are considering the use of natural weed control methods, we suggest developing a weed management plan that integrates multiple management strategies. Your Land for Wildlife Officer can assist you with this. You can read more about how to develop a weed management plan or weed management methods in Notes EW1 and EW2 of the Land for Wildlife technical notes.

This article explores some alternatives to traditional herbicides.

#### **Ground Covers**

Ground covers are designed to inhibit weed germination, block sunlight and exert physical pressure on emerging weed seedlings. Examples include organic plant-based mulches, paper, cardboard, newspaper, cloth, fabrics, carpets, weed mat and polyethylene sheets. This method of weed control is not be suitable for areas that have a good native seed bank where natural regeneration can occur.

Pros: Beneficial on sites that have a low natural regeneration capacity (highly disturbed sites); prevents soil hydrophobia; regulates soil temperature; retains soil moisture; can prevent soil erosion.

Cons: Installing near waterways/streams can lead to ground covers ending up in the waterway during high rainfall events; does not allow for natural regeneration; high soil moisture and residue levels may also increase incidence of disease; can be costly; is not a practical option over large areas, and plastic covers can cause long-term pollution.

#### **Organic Herbicides**

Organic herbicides (e.g. rubbing alcohol, dish soap, white vinegar, salt, lemon juice, botanical oils) are non-selective, foliar-applied herbicides that cause plant death or growth suppression. They may be effective treatments for herbaceous weeds, fresh shoots, and young growth. For larger weeds, cut them and spray the regrowth with the organic herbicide.

#### Crash grazing

Crash grazing is the use of domesticated animals such as goats, cattle, sheep or llamas to minimise weed biomass and increase the effectiveness of weed management. Goats consume a variety of plants and can suppress a wide range of weeds.

Pros: Crash grazing can significantly suppresses weed quantities and allow access to difficult areas; cost effective method; complements existing land uses for some landholders; fuel hazard reduction.

Cons: Weed seed can survive the gastro-intestinal tract of some livestock; weed seeds can stick to animal's fur and be transported to other areas; will not eradicate the weed species; must be used with other strategies; does not work for all weed species; grazing animals can increase soil erosion, compact soil and increase nutrient loads in waterways; non-selective (may impact non-target species) especially in dry conditions where preferred fodder is scarce, or where species such as goats may have a preference for non-target species; horses may ringbark trees.



Pros: Home remedies are cheap and practical at a small scale; biodegradable; reduce the risk to human health.

Cons: Organic herbicides are less effective, more expensive, and more labour intensive than chemical control, particularly with larger weeds, plants with runners, rhizomes, or tap roots and woody weeds; can kill arthropods; potential to change the pH and salinity of the soil; impractical at a large scale.



#### **Heat treatments**

Heat treatments include high energy light, boiling water, steam, fire, flame weeding and hot foam. Extreme heat can destroy plant cells and result in the death of the plant. Some heat treatment methods (e.g. steam, flame weeding) are useful where conservation or health considerations are high (e.g. near waterways) and weed density is low. Heat treatment methods are most effective on young annual weeds and least effective on older perennial weeds.

Pros: No chemicals; can be an economical and time-effective strategy, appropriate use of fire (ecological and Indigenous cultural burns) can encourage natural regeneration.

Cons: Can be dangerous to people and property; not selective; can require expensive equipment; should not be used in fire-sensitive ecosystems.



Madeira Beetles (a biological control agent) have chewed through these leaves of the invasive Madeira Vine weed. Photo by Danielle Outram.



Leaf-mining Jewel Beetles (another biocontrol agent) have eaten these leaves of Cat's Claw Creeper, an invasive weed. Photo by Deborah Metters.

#### **Mechanical Removal**

Mechanic removal uses machines, tools or person power to physically remove, reduce and suppress weeds. Hand weeding is most effective against annual and biennial weeds when the entire root system is removed.

Pros: Most effective when utilised prior to weeds going to seed; no chemical output into the environment; depletes root reserves after repeated cutting; effective when used with other strategies; can be very cost effective.

Cons: Can stimulate further weed emergence; potential to cause erosion particularly in areas near/around a stream or on dispersive soils; broad-scale clearing is not permitted in some areas (e.g. some watercourses); the use of machinery (e.g. tractors) to undertake mechanical removal can lead to destruction of non-target species; risk of seed spread if undertaken after the weeds have seeded; some methods of mechanical removal are costly; need safe access to the site (e.g. cannot work when the soil moisture is too high).



#### **Biological Agents**

Biological agents include deliberately introduced exotic insects, mites, rusts, fungi or other pathogens that have undergone rigorous biological control testing in laboratories. They are released into the environment to control specific weed species. Landholders can purchase some biocontrol agents from providers such as Gympie District Landcare.

Pros: Low labour input for landholders; can be a very cost effective; does not introduce any chemicals into the environment that may have adverse effects on ecosystems; can be very successful; self-perpetuating and self-regulating as biological control agent becomes integrated into the ecosystem; good for inaccessible areas; useful in sensitive aquatic areas.

Cons: Large input costs needed from government and research facilities; can have non-target impacts that can have economic and environmental ramifications; extensive development and establishment phases; does not eradicate weeds, but can be used in combination with other management strategies; successful programs may take more than 10 years to be effective; success depends on perpetuation and survival of the pathogen; limited stock availability of biological control agents.

#### Article by Danielle Andlemac Land for Wildlife Officer Ipswich City Council Uncredited photos supplied by Ipswich City Council

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

www.dpi.nsw.gov.au/biosecurity/weeds/weed-control/generalmanagement/integrated-weed-management www.environment.gov.au/biodiversity/invasive/weeds/management/



### PROGRAM STAT

At the heart of the LfWSEQ program is our members. With support from councils, these landholders undertake conservation to help our wildlife and habitats. Many LfWSEQ members dedicate their whole properties to conservation, whereas others set aside certain sections of their property or incorporate conservation principles into other land management activities.

We recognise that there is a no one-size-fits-all recipe for conservation. Each property is unique, and every landholder has different skills.

The 13 local governments that deliver LfWSEQ are committed to the program's success and recognise that community demand for conservation is still as strong today as it was 22 years ago when

the program started. In fact, in 2020, LfWSEQ recorded its highest ever growth rate - a testament to the trust built between the program and thousands of landholders across SEQ. We say thank you to all our members.

Below is a snapshot of the program's statistics, showing how the program has faced challenges with funding, coordination and natural disasters, but continues to go from strength to strength.



\*Under-reported fields as data is still to be entered

MAN DULANS