



**August 2024**

Welcome to the August edition of *Streamlines*, the quarterly newsletter from Pullen Pullen Catchments Group. The subjects of the articles in this issue are wide ranging – from fire ants to ferns!

This issue begins with a brief update from the Invasive Species Council on the activities of the Imported Red Fire Ant which featured in the May issue of *Streamlines*. It continues with Jim William’s final report on his experiment allowing his nature strip/verge to revert to its original state with minimal human interference.

John Ness has come up with another fascinating article, this time describing the world’s biggest weed – our own *Eucalyptus grandis*.

Our Creek Catchment Officer, Brendan, submitted a report from the Fern Study Group, part of the Australian Native Plants Society (Australia), on a visit to Moggill Conservation Park on June 2<sup>nd</sup>. This prompted me to put together some general information about ferns as an introduction.

Finally, we have an advertisement for the Fabulous Fauna Community Field Day, part of the Collared Delma project, on October 5<sup>th</sup>.

*The position of Secretary is still open. Liz has been Secretary for well over 10 years and is more than ready to move on to the next phase of her life. Please contact her on [contactus@pullenpullencatchments.org.au](mailto:contactus@pullenpullencatchments.org.au) if you are interested or know anyone else who would be interested. She would dearly love to relinquish the position before our AGM in early December.*

All members are invited to submit articles to *Streamlines* via [helian@pretirementresorts.com.au](mailto:helian@pretirementresorts.com.au). The deadline for the next issue is 15<sup>th</sup> November 2024.

Happy reading!

Helen Ogle

Editor

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# Pullen Pullen Catchments Group

## A Landcare Group

### Website

[www.pullenpullencatchments.org.au](http://www.pullenpullencatchments.org.au)

**Meetings** are held at 6 pm on the first Wednesday of each month at Pullenvale Environmental Education Centre, 250 Grandview Road, Pullenvale unless advised otherwise.

### Committee Members 2024

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### Membership Options

Membership fees are:

Annual Membership – \$20 per person payable on March 1 each year; Life Membership – \$100 per person

We are delighted to accept donations.

- Send a cheque payable to PPCG to PO Box 1390, Kenmore, 4069 or
- Transfer the funds electronically to BSB 064 152, Account No.10107038 Ref: your name.

**Working Bees** Tools, gloves, etc are provided at Working Bees. Just wear sturdy boots and sunsafe clothing and bring water and a hat!

Anstead Bushland Reserve – 1<sup>st</sup> Sunday of the month, 8.30 – 11 am (April-September), 7 – 9.30 am (October-March); 2<sup>nd</sup> and 4<sup>th</sup> Saturdays of the month when advertised, 2-4.30 pm (April-September), 3.30-6 pm (October – March)

Pullenvale Forest Park – 2<sup>nd</sup> Sunday of the month, 8.30 – 11 am (April-September), 7.30 – 9.30 am (October-March)

Woodward Place Park – 3<sup>rd</sup> Sunday of the month, 8.30 – 11 am (April-September), 7.30 – 9.30 am (October-March)

See also the Events Calendar on the website (<https://www.pullenpullencatchments.org.au/events-calendar/>)



"The PPCG acknowledges the support of the Lord Mayor's Community Sustainability and Environmental Grants Programs for a grant to help with administrative, bushcare and educational costs"

*Dedicated to a better Brisbane*

## Red Imported Fire Ants - Update

'You've probably seen it on the news. Fire ants are still on the march. They've entered the Murray Darling Basin catchment in Queensland, spread into northern NSW and now threaten vulnerable Wallum sedge frog habitat on the Sunshine Coast.

Fire ants can be lethal to humans, and government reports have said they will have a greater economic impact than cane toads, feral cats, foxes and rabbits - combined.

We've successfully secured \$593m from governments for the fire ant fight, but it's not enough to ensure fire ants are successfully eradicated. We're also yet to secure commitments from the major political parties contesting the upcoming Queensland election, that they will continue to fund the fire ant fight. That puts all Australians and our environment at great risk.'

Dr. Robert Puckett, an Associate Professor and Extension Entomologist at Texas A&M University shared what it's like living a life sentence with fire ants and his extensive research on fire ant management in a talk at the Invasive Species Council at Currumbin Sanctuary on Sunday 18<sup>th</sup> August. Dr Puckett's work, particularly on the ecology and biocontrol of fire ants, has significantly advanced our understanding of these tiny killers in Australia. The talk can be viewed on Youtube.

'Last time Dr Puckett visited Australia with the Invasive Species Council, he helped convince politicians, treasury and decision makers of the threat, resulting in \$411 million of government funding for fire ant eradication.

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## Part 3 - Transforming our Nature Strips into a Resource for Nature

Jim Williams

### Nature Strip Update

Some 30 months ago, we commenced the transformation of our nature strip from a misused and neglected wasteland into a wonderful "native" nature strip. The intent was for the land to be used by nature and to walk the walk. A couple of Streamlines articles have been previously written (see: [Streamlines 2022 05.pdf \(pullenpullencatchments.org.au\)](#) and [Streamlines 2022 08.pdf \(pullenpullencatchments.org.au\)](#)) so an update is long overdue.

The first comment is that the endeavour has been supported wonderfully by our neighbours and indeed has now spread to include some of their areas and is ongoing. Being someone who champions nature's ability to restore itself, the species planted are endemic to the local area whilst meeting the BCC generous guidelines. It really does hearten me to see our council support residents, who are wanting to do this. The project continues to evolve with climate and time, as I witness nature reclaiming the microenvironment. In reflection would I have changed any of the journey? Probably not. For me the key is to respect what nature intends, to the best of my ability and knowledge.

### Seeing Nature

One example for me was accepting that the soil is indeed very poor, just as evolution has deemed, so no effort was needed in trying to change this. Indigenous plants have this provenance in exposed locations (full sun, NW aspect).

The other often overlooked aspect is mulch. What and how much? Well, the answers are very simple to determine, I looked at healthy weed free bush of a similar environment, down on my knees. I saw very thin layered forest litter (typically only maybe 15mm). Once again this is what evolution results in, in the natural world. It is illogical to think that we somehow know better. I find it all very straight forward and achievable simply by not trying to control nature and try simply respecting it instead.

Competition in the natural world is everywhere, it aids resilience for species that manage to survive and adapt (Charles Darwin). Once again to see this, simply go into an area of weed free healthy bush and observe how the natural world shows us the results of competition. For me, the point to be observed here is that very rarely do we see plants growing in isolation in a natural environment, it would be a foreign unnatural world. So, when planting natives, I always plant crowded communities, a variety of indigenous species close to one another, thereby promoting competition. In the long term the toughest will survive as nature intends.

### A challenge

Gardening is not my forte, I am very much aligned with natural bush regeneration, allowing nature to be in control and not my ego. So, the nature strip project had placed me outside my preferred place. Thirty months ago, a couple of naturally occurring plants (*Cyperus gracilis* and *Plantago debilis*) had somehow managed to survive, everything else was gardening and needed planting, watering and lightly mulching. One small area, maybe only 2m x 1m has been mass seeded with a variety of locally collected grass seed. One section the seed has been treated with fire and smoke whilst the other, not. Time will tell and may be of some interest.



Two recent views of Jim's nature strip

### Messy is good.

The bush (our natural world) is messy and I love the natural world. So, our nature strip intrinsically reflects this. It gives me a wonderful sense of “welcome home to nature” when I approach home, often with kookaburras sitting on the fence eyeing the lizards darting between the clumps of tussock grasses, fallen branches and forest litter. I would prefer to place some rock and hollow decaying logs; however, the guidelines do not allow for this, which I respect. It is also rewarding to see the postie drive along the “native grass pathway” each day, sharing a journey through the evolving landscape.

### Maintenance

Up to 15 minutes a month is spent maintaining the nature strip. If a long dry period presents itself, I will water from tanks once every couple of weeks, until the plants are well established. The 1.2 m wide grass footpath space (council requirement) is kept short (mass planted with *Cyperus gracilis*) and overhanging branches are kept pruned back to allow for foot traffic and the postie's motorbike. If the native tussock grasses grow above knee height, they are pruned back. As the environment evolves it does tend to support the natural germination of native trees that would not normally be welcomed on a nature strip (Eucalyptus etc), so these are kept well pruned back. The gutter is regularly kept free of debris so that the overall endeavour is well presented to the public.

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## World's Biggest Weed?

**John Ness**

*Eucalyptus grandis*, also known as the Sydney blue gum or Rose gum, was the first tree to have its genome sequenced well over a decade ago. The commercial driver for this was to see if the genetics of the tree could be altered to make the tree more tolerant to colder weather. This was so the massive plantations of *E. grandis* on the western coasts of North and South America could be expanded further north and south respectively. In the event, the genetic approach was perhaps superfluous as global warming has inadvertently accomplished this feat of extending the habitable range of the tree!

It is not only the western coastal regions of North and South America that host huge populations of *E. grandis* which is the most planted hardwood tree in the world. One reason for this is that the tree grows quite quickly at a rate of around 1m per annum in height for the first 40 years or so if the soil is reasonable and there is adequate rain.

The tree is now widely distributed in South Africa and is out-competing local forests especially in the mountainous regions so it has become a weed. One *E. grandis* planted at the end of World War 1 on the east coast of South Africa has



White-trunked *Eucalyptus grandis* in a native forest

now reached a height of 81m, only about 5m shorter than the largest known specimen in Australia, and it is widely considered to be the largest tree known to have been planted by humans.

There are other trees that were planted much earlier including cuttings from the apple tree that is supposed to have inspired Newton to formulate his theory of gravity but none of these have reached the size of this South African *E. grandis*. Given its location this tree also now has the distinction of being the largest weed specimen in the world.

There is a certain irony in this and even a frisson of schadenfreude since Australia has been especially blessed by a wonderful variety of weeds, and the associated weeding work, from our friends in Africa so it is nice to be able to return this favour.

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## Ferns

**Helen Ogle**

Ferns have been around for some 360 million years. They are widely distributed around the world, with the greatest abundance in the tropics. They live in a wide variety of habitats, from remote mountain elevations, to dry desert rock faces, bodies of water or open fields. Many are epiphytes growing on tropical trees. Ferns often grow in places where various environmental factors limit the success of flowering plants.

Ferns are perennial but most do not become woody. Like flowering and cone-bearing plants, ferns have specialised tissues that carry water and nutrients around the plant. However, they do not have seeds or flowers but reproduce by spores.

Spores produced on the underside of leaves of a mature plant germinate in moist conditions and produce structures called prothalli (singular: prothallus) that resemble a liverwort. Prothalli are green, heart- or kidney-shaped and one cell thick. They are anchored to the soil by rhizoids (root-like structures) which also absorb water and minerals from the soil.

Prothalli produce male reproductive structures (antheridia containing flagellate sperm) and female reproductive structures (archegonia). Archegonia are flask-shaped and contain a single egg at the base. Eggs are fertilised when sperm swim down the neck of the archegonia. Mature plants develop from the fertilised egg.



Fern life cycle (From Te Ara The Encyclopedia of New Zealand)

Mature fern plants consist of stems, leaves and roots. Fern stems are often loosely called rhizomes (underground stems), even though they grow underground only in some species. Epiphytic species and many of the terrestrial ones have above-ground creeping stolons and some, such as the tree ferns, have above-ground erect semi-woody trunks.

Ferns have complex leaves called megaphylls that have multiple veins and may be simple in shape or highly divided into leaf segments. New leaves typically expand by the unrolling (termed circinate vernation) of a tight spiral called a crozier or fiddlehead into fronds. Some leaves produce spores, others do not. Fern spores are borne in sporangia which are usually clustered to form sori. The sporangia may be covered with a protective coating called an indusium. The arrangement of the sporangia is important in classification.



Fiddleheads



Simple leaves of Bird's nest fern



Part of a deeply divided leaf



Various arrangements of sporangia on the undersides of leaves

Roots are underground non-photosynthetic structures that take up water and nutrients from soil. They are always fibrous and are structurally very similar to the roots of seed plants.

Some ferns are among the world's most serious weed species, including the bracken fern (*Pteridium aquilinum*) growing in the Scottish highlands and (the mosquito fern (*Azolla*) growing in tropical lakes. Both species form large aggressively spreading colonies. Some fern genera, such as *Azolla*, can fix nitrogen and make a significant input to the nitrogen nutrition of rice paddies. They also play certain roles in folklore.



Researchers in a field of bracken



Azolla on the surface of a tropical lake

Ferns are not of major economic importance, but some are used for food, medicine, as biofertilizer, as ornamental plants, and for remediating contaminated soil. They have been the subject of research for their ability to remove some chemical pollutants from the atmosphere.

## Ray of Sunshine

Starting at the Anstead Bushland Reserve, the group (Peter, Leith, Susan, Michelle, Helen and Brendan) gathered to confirm the day's program. The plan was to approach the Moggill Conservation Reserve from two different access points. The first from the south and then from the north. Helen and Jeremy carried out a recce the previous week to map out the more fern rich pockets of the park.

The morning chill drove the group forward, voluntarily plunging themselves into a gully off Wirraburra Road where the sun rarely shines. But it was here that the group was going to learn a lesson in *Adiantum hispidulum* var. *whitei* (a maidenhair fern) identification and experience *Selaginella brisbanensis*, which is uncommon within the Brisbane city limits. Exposed banks and a dense canopy is usually a great recipe for fern happiness and the gully delivered. The phrase "pinnae along the primary rachis are divided pinnately" is permanently imprinted onto fernie brains thanks to a certain P. Bostock.



*Adiantum hispidulum*



*Selaginella brisbanensis*

After some pottering around and finding our bearings, the holy grail of *Adiantum hispidulum* var. *whitei* was soon discovered on the southern bank. The frond was immaculate, fully formed and distinctive compared to *A. hispidulum* var. *hispidulum*. A sense of accomplishment swept over the group.

*Blechnum spinulosum*, *Adiantum atroviride* and a lone *Pteris tremula* played their parts to brighten the shadowy ravine, but it was something all the more delicate that the group was still searching for. *Selaginella brisbanensis* was soon discovered clinging to a rock wall competing with the local moss for space. The group learned how to identify the strobili (cluster of spore-bearing leaves), which to the naked eye in a dark gully, are not readily distinguishable from the infertile terminal leaves.



*Blechnum spinulosum*



*Pteris tremula*

This area where the selaginella thrived also signalled the end of the short sojourn into the tributary where large boulders and upward protruding bedrock formed natural barriers to the group's advance. On emerging back onto the road the group spotted the remnants of an old bridge spanning Little Ugly Creek embellished with moss and a firework of *Cheilanthes sieberi*.

To access the northern climes of the Moggill Conservation Park the fernies drove around to the Mill Road end to enter at the gate to Pullen Creek Break. Shortly after entering, the group turned right and abandoned the Break, descending a dry tributary of Pullen Creek. This ran parallel to the Break. It was here that familiar ferns emerged from the undergrowth competing with the weedy *Aristolochia elegans* (Dutchman's pipe).



*Cheilanthes sieberi*



Elegant *Pteris tremula* specimens stood tall bearing neatly tucked-in sporangia. *Blechnum neohollandicum* imitating metal with their ornamental pock-marked shiny fronds and their unbending nature. This was in contrast to the softer foliage of *Lastreopsis decomposita*.

Individual *Platyserium bifurcatum* (elkhorn fern), *P. superbum* (staghorn fern) together with *Drynaria rigidula* formed a Polypodiaceae posse. The *D. rigidula* was particularly difficult to find as it was shrouded by undergrowth sitting precipitously on top of a steep bank. The group then retraced their steps to the Break and descended in a southerly direction following the contours of the creek.



*Blechnum neohollandicum*



*Lastreopsis decomposita*



*Drynaria rigidula*

Deep in the park at a crossing, *Christella dentata* drew the group toward the water, which also served as an invitation to observe a rose robin. The robin was an exhibitionist and enjoyed plunging in and out of the creek's clear water with an audience.

*Adiantum formosum* (bird's nest fern) and *Blechnum spinulosum* appeared close to the path with *Adiantum hispidulum* var. *hispidulum* in among the rocks on the creek line.

Not long after, *Cheilanthes sieberi* was encountered again, but this time shrouded by arching dianella leaves. Next up, *Nephrolepis cordifolia*, which requires no further elaboration.

Step in the aspleniums: *Asplenium australasicum* (birds nest fern) loomed large at the top of the creek bank with the daintier *Asplenium attenuatum* peeking out from under the nearby tree roots. *Pyrrhosia confluens* (felt fern) was caught clambering up a tree.

On a side trail further up the bank, *Pellaea paradoxa* emerged from the shadows in a patch shared with coral-like fungi rising out of the dense leaf litter. To conclude the walk, the group found *Pyrrhosia rupestris* ascending a slender tree clad in lichen.



*Pyrrhosia confluens*



*Pellaea paradoxa*



*Pyrrhosia rupestris*

At this stage the group started to yearn for the winter sun and headed back. The Moggill Conservation Park proved to be a fern hot spot and demonstrated that it truly is a priceless gem in Brisbane's biodiversity crown.



Collared Delma - a threatened species of legless lizard. Images: Mervyn Mason©



FREE EVENT

### FABULOUS FAUNA GIVE-AWAYS

Free native plants!

Information on local weeds, native plants & how to improve habitat for local wildlife.

# FABULOUS FAUNA COMMUNITY FIELD DAY

Join us for a jam-packed wildlife morning!

Danny the scent detection dog | Geckoes wildlife encounter | Bushtekniq *Delma* Adventure play | information & talks | morning tea & more!

RESERVE YOUR SPOT

VIEW THE AGENDA FOR MORE INFO



<https://events.humanitix.com/fabulous-fauna-community-field-day>

5 OCT 2024 | 9 AM - 12 PM

Anstead Bushland Reserve

(Entry opposite 645 Hawkesbury Rd, Anstead)

An Australian Government Initiative

Supported by Dedicated to a better Brisbane

Pullen Pullen Catchments Group

KHULO CREEK CATCHMENT GROUP

Lockyer Uplands Catchments Inc

This project received grant funding from the Australian Government Saving Native Species Program and is a partnership between Lockyer Uplands Catchments Inc., Pullen Pullen Catchments Group Inc. and Kholo Creek Catchment Group. Learn more about us at: [www.lockyeruplandscatchmentsinc.org.au](http://www.lockyeruplandscatchmentsinc.org.au), [www.pullenpullencatchments.org.au](http://www.pullenpullencatchments.org.au) and [www.facebook.com/kholocreek](http://www.facebook.com/kholocreek)