

CALGAROO

July 2022



Eucalyptus parramattensis - Calgaroo

**Newsletter of the Parramatta and Hills District Group
Australian Plants Society NSW Ltd**

What's on for the rest of 2022

Saturday 23 July 2 pm: Bushwalk Jones Road Kenthurst.

Saturday 27 August 2 pm: Bushwalk Cobar Ridge, Marramarra National Park.

Saturday 24 September: Celebration of our Group's 50th anniversary. See Page 12

Saturday 22 October 2 pm: Bushwalk.

Saturday 26 November 2 pm: Members' meeting and Christmas Party.

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Bushwalk Jones Road Kenthurst

Saturday 23 July 2 pm

This will be an easy but interesting walk along the fire trail at the end of Jones Road. The flora here on Hawkesbury Sandstone is diverse, and spectacular in places. It should be close to peak flowering time too. Lesley and Ian will be leading this walk.



Rare plants include *Leucopogon fletcheri* subsp. *fletcheri* (endangered), *Darwinia biflora* (vulnerable), and *Tetratheca glandulosa* (vulnerable).

There's a population of *Boronia floribunda* with flowers ranging from pink to pure white. Unusual plants discovered on previous walks include a form of *Phebalium squamulosum* with variegated leaves, and a *Boronia ledifolia* with pure white flowers.

Meet at the end of Jones Road for a 2 pm start.

Styphelia triflora and *Phebalium squamulosum* should be flowering:



Also *Leucopogon fletcheri* and *Boronia ledifolia* (white):



Photos Lesley Waite

A Wide and Open Land - Walking the Last of Western Sydney's Woodlands

Author: Peter Ridgeway

I've just finished reading Peter Ridgeway's book, which I can thoroughly recommend. I found it inspiring and powerful. It contains so much information about the Cumberland Plain landscape, and so much history and background. It's also so very sad!

There's a copy of Peter's book in The Hills Council's library. It can also be purchased from Megalong Books online [here](#).

Review from Megalong Books:

In the Winter of 2019, Peter Ridgeway set out to walk 179 kilometres across the Cumberland Plain, the region of rural land west of Sydney. Carrying his food and water and camping under the stars, he crossed one of the least-known landscapes in Australia, all within view of its largest city.

This book recounts a unique journey across a landscape few Australians will ever see. In this open country, the familiar forests of Sydney's sandstone are replaced by a fertile world of open woodlands, native grasslands and wetlands, home to some of the Nation's most unique and endangered wildlife. The traditional land of the Darug, Gundungurra, and Dharawal peoples, and the birthplace of the first Australian colony, it is a landscape that also holds the key to our entwined and conflicted origins.

What was once a limitless tract of woodland is now being engulfed by the city to its east, in the largest construction project ever undertaken in the Southern Hemisphere - the elimination of an ecosystem and a community. This book provides an immersion in the history, wildlife, and culture of one of Australia's most rapidly-vanishing landscapes, and reveals how the destruction of 'the West' is erasing not only itself, but something central to the identity of all Australians.

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Free tree giveaway

I've picked up three free trees from Bunnings under the NSW Government's tree giveaway program. They're *Acmena smithii* 'Firescreen', *Callistemon citrinus* 'Endeavour', and *Syzygium australe* 'Straight and Narrow', all mature plants in 20mm pots.

You can register for this program at <https://www.dpie.nsw.gov.au/premiers-priorities/greening-our-city/free-tree-give-away>

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The Community Environment Centre

Mayoral visit

The main purpose of the Community Environment Centre at Annangrove is to interest people in and educate them about sustainable living, and to encourage them to appreciate the wonders of nature. Several members of our Group work there as volunteers each Thursday.

Recently the Mayor of The Hills Shire, Peter Gangemi, was shown around the demonstration gardens. It was a very interactive visit, and the Mayor showed genuine interest in what our volunteers are achieving.



Lesley explains the flower parts of Grevillea 'Firesprite', and Chris shows how easy it is to grow sweet potatoes.

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Amazing Fungi

Why are they important?

It's no secret that Earth's biodiversity is at risk. According to the International Union for the Conservation of Nature, 26% of all mammals, 14% of birds and 41% of amphibians are currently threatened worldwide, mainly due to human impacts such as climate change and development. Other forms of life are also under pressure, but they are harder to count and assess. Some scientists have warned of mass insect die-offs, although others say the case hasn't been proved.

And then there are fungi – organisms that often go unnoticed, with an estimated 2 million to 4 million species. Fewer than 150,000 fungi have received formal scientific descriptions and classifications. If you enjoy bread, wine or soy sauce, or have taken penicillin or immunosuppressant drugs, thank fungi, which make all of these products possible. Except for baker's yeast and button mushrooms, most fungi remain overlooked and thrive hidden in the dark and damp. But scientists agree that they are valuable organisms worth protecting. The amazing biological fungal kingdom includes everything from bracket fungi, moulds and yeasts to mushrooms and more.



Fried eggs for breakfast?

Fungi are not plants, although they're usually stocked near fresh produce in grocery stores. In fact, they're more closely related to animals. But fungi have some unique features that set them apart. They grow by budding or as long, often branching, threadlike tubes. To reproduce, fungi typically form spores, a stage for spreading and dormancy. Rather than taking food into their bodies to eat, fungi release enzymes onto their food to break it down and then absorb sugars that are released. The fungal kingdom is very diverse, so many fungi break the mould.

Fungi play essential ecological roles worldwide. Some have been forming critical partnerships with plant roots for hundreds of millions of years. Others break down dead plants and animals and return key nutrients to the soil so other life forms can use them. We can only partially appreciate the benefits fungi provide, since scientists have a narrow and very incomplete view of the fungal kingdom. Imagine trying to assemble a 4-million-piece jigsaw puzzle with only 3% to 5% of the pieces.

Mycologists struggle to formally describe Earth's fungal biodiversity while simultaneously assessing various species' conservation status and tracking losses. The International Union for Conservation of Nature's Red List of Threatened Species includes 551 fungi, compared to 58,343 plants and 12,100 insects. About 60% of these listed fungal species are gilled mushrooms or lichenised fungi, which represent a very narrow sampling of the fungal kingdom. **Extract from The Conversation, 17 May 2022**

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From little things, big things grow!

From Wollongong Botanic Garden

Yesterday (8th June) we headed out to Harrigan Park to plant out the city's first Tiny Forest with the help of some AMAZING students from Tarrawanna Public School.

This Tiny Forest is now filled with a diverse and dense mix of native plants, chosen to replicate the layers of a forest. The plants are very close to each other to encourage faster vertical growth.

Once the plants establish, they will provide extra shade for the community, cooler air, absorb harmful carbon emissions, help restore local biodiversity and attract wildlife.

Drop by to check out this new Tiny Forest in Tarrawanna!

This is just the first of many Tiny Forests we'll establish in Wollongong. For more info visit

<https://wollongong.nsw.gov.au/.../urban.../tiny-forests>



Sydney's seed bank moves to new premises

Laura Chung and Amelia McGuire

From the SMH

Sealed behind corridors, labs and quarantine areas is a room where vaults, containing some of the state's most important artefacts, house plants that can be used to solve crimes, track climate change and paint a picture of what Australia looked like decades ago.

For Brett Summerell, chief botanist at the Royal Botanic Garden Sydney, the new Herbarium is like something out of a James Bond movie.



The Herbarium, temperature-controlled at 16 degrees, stores 1.4 million specimens of seeds and plants collected from Australia and its Pacific Island neighbours, in 70,000 boxes that are all meticulously ordered.

Among the collections lie seeds collected by Joseph Banks and Dr Daniel Solander on their voyage with James Cook over 250 years ago.

Over the past year, the historic collections have moved to a new facility at Mount Annan in Sydney's southwest. Their old home, in the city, was built about 50 years ago and staff had to contend with mould and insects as they tried to protect the seeds. But now, the facility will keep the seeds, and the history contained in them, alive.

"The Herbarium collections are a snapshot of plant diversity over time and space," Dr Summerell said. "The collections get used for mundane plant identification to try and understand if new weeds have been introduced, or what species may have poisoned cattle, through to the things like forensic botany, that is, what plant material may be associated with a crime," he said.

"Because we have this collection and groups of collections, we can also start to look at things like how flowering times have changed over 250 years and how the environment might be changing."

Among the collections are plants that have become extinct, including species that once thrived in Turramurra in the 1850s before the area was urbanised.

As part of the move, each specimen has been digitalized, and will be accessible to people around the world. Dr Summerell said this would decrease the number of times each specimen has to be taken out of storage and so preserve their condition.

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The Seed Hunter

Kemii Maguire

From ABC New England



Botanist Gavin Phillips has spent the past six years searching for the rare and endangered Torrington Pea (*Almaleea cambagei*). He never imagined finding a budding plant on the second-last day of his career as a professional "seed hunter".

Gavin Phillips collects seeds from different terrain across Australia, from rocky mountains to moist creek beds. (Supplied: Gavin Phillips)

Hired by Sydney's Royal Botanic Gardens, seed collectors gather and monitor samples from native plants, ranging from orchids to indigenous bush foods.

"I'm one of only a few that do this in the country," Mr Phillips said. "There's probably only one or two of us ... in each state."

'Most satisfying find' in career

The Torrington Pea is known as a "bacon and egg" plant due to its colouring, only growing in the Torrington state conservation area (SCA) near the Queensland-New South Wales border.

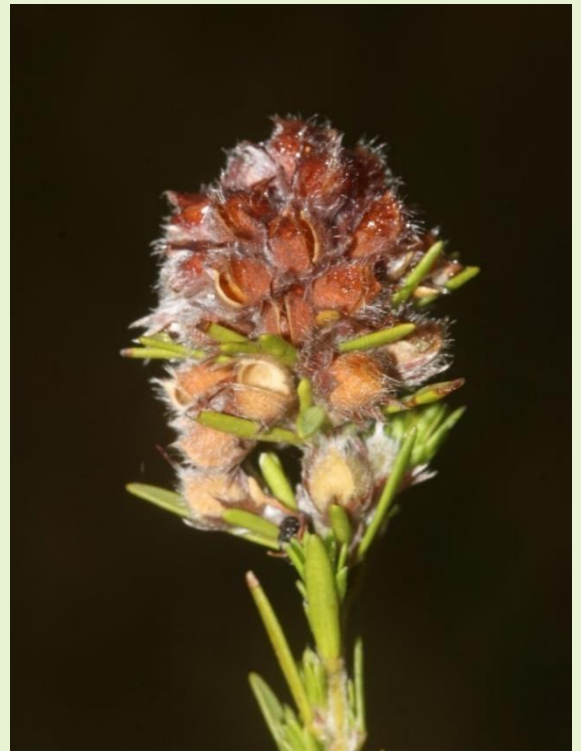
It is one of the thousands of threatened species that have been tracked by the Australian Plant Bank, as part of its Saving Our Species program.

The Torrington Pea, Almaleea cambagei (Supplied: Gavin Phillips)

The manager of the Royal Botanic Garden's seed bank and restoration research, Peter Cuneo, said seed hunters would take up to fifty trips per year across the state to find seeds.

"It's one of the most major native seed banks in Australia," Dr Cuneo said. "The Torrington Pea however is very hard to locate. It's spindly; it only occurs in swamps above 900 metres altitude. Seed hunters will have to go to very unusual areas to try and find plants like this."

A trip through the Torrington SCA in late November was Mr Phillips' last seed hunting venture, before moving roles inside the Plant Bank. On his second-last day, a seeding Torrington Pea was found.



Dr Cuneo said that although it had taken a seed hunter like Mr Phillips six years to track down a seeding plant, it was not uncommon.

"You can go up to ten years tracking down a single specimen," he said.

Researchers will now collect, dry, and store the seeds at the Australian Plant Bank.

"We'll also germinate a few of the seeds, to test their viability," Dr Cuneo said.

"It's almost an insurance policy for these native plants, if they almost go extinct."

The Australian Botanic Garden's seed vault has 15 researchers studying the native rainforest and threatened species seeds for landscape restoration work. (ABC Rural: Sarina Locke)



For Mr Phillips, it was one of the most satisfying finds of his career. "The Torrington Pea had frustrated me. I had found a couple of plants over the years that never flowered," he said. This year, researchers have focused on areas affected by the 2019-2020 bushfires, which proved to be a positive for the elusive pea.

"Those fires had created a whole range of seeding plants," Mr Phillips said. "It's a really good way to wind up this trip and wind up my job."

Mr Phillips is now looking into formal endangered listings for plants in his new role.

Inside the life of a seed hunter

An ordinary day for Mr Phillips ran from enduring the sweltering humidity of a creek bed to scaling a mountain.

For plants such as the Torrington Pea, seed hunters will make several trips to the same area and same plant, to monitor its life and track when it will flower.

The high time of the collecting season usually starts in November when there's a late spring, through to February.

"I've probably done more than a hundred treks across New South Wales," he said.

"When we're looking for one small plant, for example, we use a mapping-grab GPS to find it again. Sometimes you're just looking for a plant that is a centimetre high."

Mr Phillips says kangaroos are the natural enemy of a seed hunter.

"Especially for things like orchids, because they are juicy, like lollies to kangaroos," he said.

"You can be tracking a plant for years, and all that work marking it out is gone, especially in times of drought."

Mr Phillips first entered the seed collecting industry looking to complement his love of the outdoors.

"I grew up rock climbing; my family had a property, and it's been such a satisfying career path. It's a bit of a unique job."

How anyone can be a seed hunter

Mr Phillips said there was a lot that the average Australian can do to help seed hunters like himself. Seed hunters regularly look at plant databases and other people's observations online. "Everyone has a phone with a camera," he said.

Mr Phillips says bushwalkers are a treasure trove for everyday plant sightings.

"There's so many apps now, like iNaturalist, which track plants, no matter how unusual." He also urged people to take photos of plants that weren't just flowers. "If people would start recording things like fruiting trees, or when seeds are coming out, that information comes to seed hunters. Something as simple as that is such a big help to people like me."

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Eucalyptus sp. Cattai

Calgaroo of June 2021 included a link to the following article from The Sydney Morning Herald. I thought it'd be worthwhile to bring you the whole article! Steve Douglas, featured here, once lived at Kenthurst, and was a member of our Group. ***Eucalyptus sp. Cattai* is only found in The Hills LGA.**

Saving Sydney's rarest eucalypt from extinction

Peter Hannam

When Steve Douglas was a budding ecology student, a quarter of a century ago, he discovered what turned out to be a new species of tree on a street corner just a few hundred metres from his home in Sydney's Hills District.

"It was more a case of driving past it [than walking by]," Dr Douglas, now a private ecologist said.

The multi-trunk tree was, on closer inspection, not a common scaly bark eucalyptus like a neighbouring tree. "So, what was it?"



Ecologist Steve Douglas beside the eucalyptus species, dubbed *Eucalyptus sp. Cattai*, that he discovered walking near his home in the Hills District of north-western Sydney. (Wolter Peeters)

The protracted assessment process to determine and name a species gathered dust for years as the tree became increasingly threatened by land development. (And Dr Douglas earned no credit from his discovery for his master's research on "Significant Plants of the Greater Cattai Region".)

The government gave it an initial listing as endangered in 1999 before finally declaring it to be critically endangered in 2015. It is dubbed *Eucalyptus sp. Cattai* pending the granting of a final name for what is now greater Sydney's rarest eucalypt.

The fate of the *E. sp. Cattai* has taken a few twists down the years, offering insights into the management of rare plants and animals and how at-risk species can be held back from the brink of extinction.

Seed pods of *E. sp. Cattai* were collected from a range of plants by Enhua Lee and colleagues in the NSW Department of Environment to be grown into seedlings. Puzzlingly, no juvenile plants have been found in the wild.

The NSW government has given the tree a priority in its Saving Our Species program – a scheme itself up for review by the end of June – and started replanting it in a national park more than 50 kilometres from natural stands. Predicted climate change was one factor in the locality choice.

The program now counts 152 projects and is investigating similar actions for more than 400 threatened species and animals, and 39 ecological communities. NSW has about 1000 species known to be threatened.

That the *E. sp. Cattai* might need some extra help was clear to Enhua Lee, a conservation



ecologist within the Environment Department, who counted some 660 of the 4-5 metre trees in the wild with their leathery and lance-shaped leaves but found only mature individuals.

“I’d like to know the answer to that – why are there no seedlings?” Dr Lee said. “We don’t know what stimulates natural germination.”

Steve Douglas with one of the seedlings bred for replanting in the wild at the Australian Botanic Garden at Mount Annan. (Wolter Peeters)

That the plant generates seeds is obvious enough. A visit by the Herald with Dr Douglas to the original tree he spotted found it producing seeds but there was no sign of any taking hold nearby.

A team at The Australian Botanic Garden at Mt Annan, led by Brett Summerell, stepped in to investigate the genetics of the *Cattai* between October 2018 and February 2019, and breed a variety of the plants.

These were then moved to a secret location in the national park starting last August, beginning with a batch of sixty plants with another sixty to come.



One of the plantings that is taking hold in its new home. The secret location was chosen because of its suitable soils but also because it will likely be suited to predicted climate change in the region.

“We obtained a significant proportion of the total variety [of the Cattai],” Dr Summerell said. “We managed to get good genetic variability, which is not always the case.”

Out in the national park, each of the plantings is protected with a metal mesh, with most doing well despite signs of wallaby tastings. “They’re all looking good, although they have been chomped on a bit,” he said.



Dr Lee set the plants up at distances of at least eight metres in groups of six. “I’d noticed that they have this tendency to clump up, so I’m mimicking this natural feature,” she said.

Even though the wet weather has been good, Dr Lee will still water the plants if they don’t receive at least 1 millimetre of rain over five days. Monitoring will last until at least 2026.

Ecologist Enhua Lee (left) from the NSW Government’s Saving Our Species unit checks on the progress of one of the plantings of the Cattai tree in its new climate-friendly location south of Sydney. She is joined by Brett Summerell, director of Science and Conservation at the Royal Botanic Garden. (Wolter Peeters)

The decision to relocate the plant was prompted by the trees' restricted range and the fact that most were on private land in one of Sydney’s fastest-growing development zones.

Researchers picked the new home in part because future predictions indicate it will still be suitable if conditions dry and heat up as expected.

Dr Summerell said similar calculations are being applied for other species being moved, such as the *Hibbertia fumana*, Rothbury *Persoonia* and some orchids.

“Most of these don’t necessarily have an explicit climate change perspective, but as the technology has developed we are starting to include the genomics and climate modelling in both the location selection and in the way in which plants are arranged to maximise genetic exchange,” he said.

Dr Douglas, who has identified at least five new species, said “there’s an absolute warehouse full of species likely to need translocation due to climate change. Most of these will be at high elevations where there simply isn’t anywhere higher for them to move or even to be moved locally.”

Those challenges, combined with current threats from habitat loss and invasive pests among others, mean that many more species are going to need interventions like those for the E. sp. Cattai in the future.

“There needs to be recurrent funding – not just for five years - to recruit and retain staff with the appropriate skills,” Dr Douglas said. “You’d be losing things before they have got a name and even before they get [an endangered] listing.”

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Stomata on the underside of this *Grevillea robusta* are open, and trying desperately to unload water. Potting mix is saturated.

A GOOD reason to NOT prune waterlogged plants. They NEED all those leaves to drain moisture AWAY from the roots.
From Changers Green Nursery, Queensland.



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Parramatta and Hills Group’s 50th Anniversary

Jennifer Farrer

In September this year, our Group will celebrate the 50th anniversary of its first meeting. This auspicious occasion deserves a celebration.

This will be a lunch to be held on Saturday 24 September at 12.30 pm at Muirfield Golf Course, North Rocks. We are hoping that as many members as possible will be able to attend. Please keep the date free. We would also like to invite former members who may have moved away from our area or who have become involved in other activities. If you are still in touch with anyone who used to be a member of our Group it would be good to have their name and contact details so we can send them an invitation.

I am also putting together a photographic record of all the things we have done. This will be made into a PowerPoint presentation to play on the day. I am looking for photos of members on walks and excursions, at meetings or plant sales and displays. Often, we take photos of the plants we see when we are out and about, but this time we want to emphasise the Society part of our name rather than the Plants. So, do you have photos of our stalls at the Samuel Gilbert School fetes which we attended for many years? Can you

find photos of members out on walks or excursions to places such as Mt Annan? What about our Propagation Group sales at North Rocks Shopping Centre, or just learning new skills at Bidjiwong Nursery?

Over to you.

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Basic Bushland Photography

Joan Hayes

At last, Lachlan Turner has presented his long-awaited, and very interesting talk at our meeting on 25th June 2022. We've previously postponed this talk three times due to Covid lockdowns and other unforeseen issues but it was well worth the wait.



Lachlan was employed in the NSW Education Department in various tech and admin roles for approximately 40 years, he is a volunteer at the Hills Shire Community Environment Centre at Annangrove, he writes a monthly column, "Hidden in the Hills", published in three local Hills District magazines, and has authored several other publications. In 2018 he was awarded The Hills Council's Award for Community Contribution – Environment and Sustainability.

The purpose of the talk was to present us with an appreciation of the diversity of our local bushland environment, and to demonstrate some inspirational examples for those who are keen to search out some of the hidden wonders that exist in our local bushland.

Cameras and Accessories

Lachlan started with information on the different cameras that might be suitable for bushland photography, and various accessories that help to improve our experience and results. He also discussed tripods and interchangeable lenses for more specialist photography. But don't despair - we can all start with whatever camera we might have or the trusty smartphone that so many of us carry these days.

Rule of Thirds

This is a convention that is followed by those who are passionate about their photography to produce the ideal image. Lachlan shared Good, Fair and Poor examples of the use of the Rule of Thirds on a landscape, a flower portrait and a casual shot of an orchid, and explained why the use of this rule worked on some photos and not on others.

Let's Make Tracks

Bush tracks can look a little uninteresting, but look a little closer and there can be a lot more to them than first meets the eye. Stop for a moment and take a look at the surroundings. Features may not immediately strike the eye as being significant, but take a moment and you might be amazed at what you see. Look beyond the track, many trees have interesting bark and contrasting colour that can create a great photo; they can also have intricate shapes and texture. Look up and appreciate the grandeur of the canopy and create a wonderful memory of your bushwalk.

What else can you point a camera at?

Flowers, Birds, Fungi, Insects, Animals, Reptiles, Rocks, Plants, and Water can all make an interesting subject for you to photograph; just use your imagination.

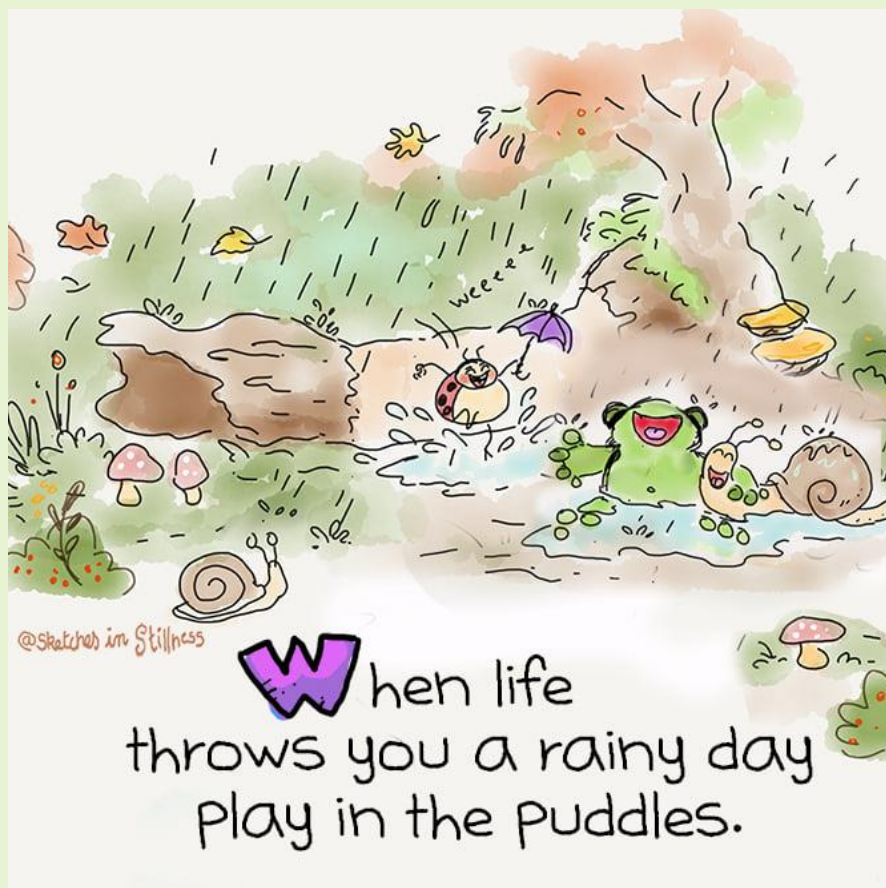
Take an imaginative look at rock formations; they may resemble some living or imaginary object. Study the textures and colours. You may be surprised at what you see! Water is quite often overlooked. Look for the reflections on still water; blue sky, clouds, and trees; reflections offer a very pleasant water subject. Look for interesting ripples; these may be created by swimming birds or other animals. Water running over rocks can also be an interesting subject. Just stop for a moment, be still and keep an eye out for what may emerge.



Rainbow Lorikeets certainly have good taste!

Photo Lachlan Turner

Much of the information covered in Lachlan's talk is available in the booklet we were all given. If you were not able to attend you can pick up a copy at the Hills Shire's Community Environment Centre on Currie Avenue Annangrove on a Thursday.



And to finish, this wonderful photo from Kevin Stokes of *Grevillea dielsiana*, a spreading shrub from the Geraldton, Mullewa districts of Western Australia:



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Share your stories . . .

What have you been doing?

Email me at itcox@bigpond.com for the next *Calgaroo*.

In the spirit of reconciliation, we acknowledge the Traditional Custodians of our Country, the people of the Dharug Nation, whose cultures and customs have nurtured, and continue to nurture, this land since time immemorial. We honour and celebrate the spiritual, cultural and customary connections of Traditional Owners to Country and the biodiversity that forms part of that Country. We pay our respect to Elders past, present and future, and extend that respect to all Aboriginal and Torres Strait Islander peoples today.

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Parramatta and Hills District Group

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