CALGAROO

March 2023

***Eucalyptus parramattensis* - Calgaroo**

Newsletter of the Parramatta and Hills District Group

Australian Plants Society NSW Ltd

What's on in 2023

Saturday 11 March: APS NSW Quarterly gathering 10 am-3 pm
Bundeena. Hosted by the Sutherland group. Details here

Thursday 23 March 11 am: Visit Boongala Gardens
Malcolm and Jenny Johnston's lovely native garden – see page 2.

Saturday 25 March 1.30 pm: Bushwalk at Windsor Downs on the Hakea and Dip Trails
Leader Jennifer Farrer – see page 2.

Saturday/Sunday 22-23 April: Visit Phillip Baird's property at The Branch Karuah.
This will be a weekend away.

Saturday 27 May 2 pm: Members' meeting at Gumnut Hall, Gumnut Place Cherrybrook.
Speaker James Indsto - *Tales from Forensic Botany*.

Saturday 24 June: Bushwalk Challenger Track West Head, Ku-ring-gai Chase NP
Leaders Ian Cox and Lesley Waite.

Saturday 22 July: Visit Mt Annan Botanic Garden

Saturday 26 August: Bushwalk

Saturday 23 September: Members' meeting at Gumnut Hall, Gumnut Place Cherrybrook.

Saturday 28 October: Bushwalk Vineyard Creek Dundas Leader Jennifer Farrer

Saturday 25 November: Members' meeting and end-of-year celebration

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Visit Boongala Gardens Thursday 23 March 11 am

Boongala Gardens won't be open to the public this Autumn, but here's your chance to see it. This visit has been arranged by the Community Environment Centre Annangrove, and members of our Group are welcome. The $10 entry will allow us to stay as long as we like in the gardens and includes the rainforest tour. Bring a picnic lunch. The address is 76 Pitt Town Road Kenthurst. This is one of the best native gardens in Australia.
If you intend to go, please register at itcox@bigpond.com

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Windsor Downs walk Saturday 25 March 1.30 – 4.30 pm

Jennifer Farrer

As a follow-up to Peter Ridgeway's talk about the Cumberland Plain last meeting, we thought it would be a good idea to go and see some Cumberland Plain vegetation.

To access the Windsor Downs Reserve travel along Richmond Road towards Windsor. Turn right into Sanctuary Drive and drive a short distance to the entrance to McCorns Trail. We will only walk a short distance along this trail to see *Persoonia nutans* which should be in flower.

We will then drive to the start of the walk at the Hakea Trail. This trail leads to the nucleus of the Riverstone Meatworks which occupied this site for more than 100 years. During this time it was cleared and used for grazing cattle. There is a dam here, a windmill and water troughs.

This was the view near the dam in February last year. *Bursaria spinosa* is growing under Ironbark trees.

We will return to the cars by the Dip Trail.

To comply with new OH&S requirements it is necessary to register for the walk beforehand: apsparrahills@gmail.com. Please wear closed shoes and a hat and bring water with you.

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A Wide and Open Land

Jennifer Farrer

This is the title of Peter Ridgeway's book telling the story of his walk across the Cumberland Plain in 2019. We were fortunate to have Peter as our guest speaker at the February meeting.

The Cumberland Plain is an area of 2,750 square kilometres surrounded by the sandstone curtain of the Hornsby and Woronora Plateaux and the Blue Mountains. It was the homeland of the Darug, Gundungurra, Dharawal and Darkinjung peoples. After European settlement, it became the food bowl of the colony.

It is a unique ecosystem whose status is now dire. It is home to unique flora and fauna, all of which now have a threatened status. 7% of the vegetation remains but only 2% is conserved and one per cent is public open space. Remarkably, Peter was able to trace a route through the Cumberland Plain through the remaining rural bushland with only some walking through suburbia. This was a route of 178km which he completed in 8 days, camping out at night.

Scheyville National Park

This area is the remains of the Pitt Town Common created in the 18th century to provide common land for grazing and foraging for local settlers. It is on the edge of the Cumberland Plain and actually had a sandstone quarry. It has had many uses over the years including hosting several labour immigration schemes and officer training for the military. It was declared a National Park in 1996. The vegetation is mainly regrowth because of its former use as farmland. However, there is great diversity ranging from Grassy Box Woodland to Rainforest. Longneck Lagoon is a special place. You can find the orchid *Pterostylis saxicola* in the park, which is only found on the borders of the Cumberland Plain.

Londonderry – Castlereagh

This area is defined by large amounts of sediments from an ancestral Hawkesbury River which is comprised of a mixture of sandstone and shale. As this area had no agricultural value it has been conserved. The largest patch of intact bushland is the 448 hectares of Castlereagh Nature Reserve. Also in this area is the unique Agnes Banks Nature Reserve which is 50 hectares of pure sand over the original river deposit.
All the endemic species of the Cumberland Plain are found in Castlereagh NR including *Dillwynia tenuifolia, Grevillea juniperina, Allocasuarina glareicola, Pultenaea parviflora, Micromyrtus minutifolia and Persoonia nutans.*

Shane's Park

This 558 hectares site will become Yeraldea NP. It has vegetation similar to Londonderry Forest but has never been strip-mined or logged. The land was purchased in the late 1960s to install very low-frequency antennae for air navigation. This passive use of the land has conserved vegetation. This includes one of the only intact Chain-o- Ponds meadows to remain in the Cumberland Plain. This unique system is a series of freshwater ponds from which the water flows under the surface through the alluvium sand belt above the clay. Most have now been destroyed by erosion.

Western Sydney Parklands

This large parkland was compulsorily acquired from farmland in 1972 to become a green belt. There has been a revegetation program and there are also patches of old-growth

forest. It has a very large network of walking and cycle trails, many of them concrete. One of the special flora growing there is *Pimelea spicata* which has a very limited range. It only occurs here and in the Illawarra. Another feature of this plant is its longevity. Plants have been recorded living for more than 50 years.

Elizabeth Macarthur Agricultural Institute – Cowpasture Plains
The EMAI area includes intact rainforest. Peter showed us photos of some very large trees which he thinks are a naturally occurring hybrid of *Eucalyptus botryoides and Eucalyptus saligna.* There is also another intact Chain-o-Ponds Meadow. He added to this photo emus, kangaroos and sulphur-crested cockatoos, the animals which frequented the Chain-o-Ponds as described by Caley. Sulphur-crested cockatoos have only taken up residence in the Sydney suburbs in the last 50 years, probably because of the abundance of food.

Peter concluded his talk by telling us that there is no such thing as The Cumberland Plain! It is a name created by botanists in the 1980s to describe the various vegetation communities found there. Like the word Brush which in the 19th century described rainforest, the word Plain now also has a different meaning. A Plain was an area without trees that was not necessarily flat. And it is not even in the County of Cumberland!

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Australian Plants Society Parramatta and Hills Group
ANNUAL REPORT 2022
Jennifer Farrer (Secretary)

We commenced 2022 with our Annual General Meeting. The guest speaker was Professor Michelle Leishman from Macquarie University who spoke about her ongoing project to identify plants that will cope with the increasing temperatures we can expect in our suburbs in the next decades.

In February Angie Michaelis gave a presentation on ways to manage Shady Gardens. A topic of interest to many members.

In April after record-breaking rains in the previous two months, Jennifer Farrer led a bushwalk along the Porters Road Fire trail which is located on a ridge that provided an opportunity to enjoy looking at Hawkesbury Sandstone flora without too many puddles.

In May we hosted the NSW Region Gathering. Numbers were fewer than we had expected, probably because of the continuing bad weather. Peter Olde gave a presentation on Grevilleas Suitable for Pots. We appreciated the hard work our members put in to make the day a success.

In June Lachlan Turner gave us some tips on bushland photography. This presentation was eagerly awaited as it had been postponed twice due to the lockdowns in 2020 and 2021.

In July Ian Cox and Lesley Waite led a bushwalk at Jones Road Kenthurst. This is a particular hotspot for Hawkesbury Sandstone flora.

In August Marilyn Cross led a bushwalk along Cobah Ridge in Marramarra National Park. This is also a rewarding location for Hawkesbury Sandstone flora. We saw a lot of plants in flower before the afternoon walk was cut short by an unexpected rain shower.

In September we celebrated our 50th anniversary with a luncheon at Muirfield Golf Club, North Rocks. Members past and present and members of other Groups and the NSW Region Board attended. The guest speaker was Brian Roach, who entertained us with many anecdotes.

September was also the month when the ANPSA Biennial Conference was held at Kiama. Some members of our Group attended some of the excellent conference sessions. Parramatta Hills also hosted one day of the post-conference tour of Sydney with a bushwalk at Jones Road, led by Lesley Waite, a visit to Ian Cox's garden and a walk at Windsor Downs led by Jennifer Farrer and Pip Gibian.

In October we went walking again. This time to a favourite spot – The Quarry Road fire trail at Dural. This was a last-minute arrangement to replace the planned activity which could not go ahead once again because of the rain. Although rain was forecast, we defied the rain gods and had a productive time.

In November we had our end-of-year afternoon tea and a talk on Ferns by Kevin Mills.
In November our Group made a submission to the Hills Shire Council on the proposed development of the former Pony Club site at Fred Caterson Reserve for three elite Rugby Fields and a clubhouse.

In conclusion, I would like to thank the 2022 committee – Pip Gibian, Tony Maxwell, Ian Cox, Ben Turco, Joan Hayes, Daniel Mc Donald and Ricki Nash for their hard work and support.

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Minutes of the Annual General Meeting of the Parramatta and Hills Group of the Australian Plants Society

Held at Gumnut Hall, Cherrybrook on Saturday 25 February 2023 at 3.10 pm.

Present: Tony Maxwell, Ben Turco, Daniel McDonald, Joan Hayes, Ian Cox, Lesley Waite, Alan and Jean Wright, Erica and Jim Nash, Jennifer Farrer, Linda Pine, Phillip Baird, Jillian Michie, James Indsto, Gordon Willock, Chris Cheetham, Ron and Barbara Gornall, Mark Bartolo, Marilyn Cross and 13 visitors

Apologies: Pip Gibian and Jeff O'Neill

The Secretary, Jennifer Farrer, presented the Annual Report.

In the absence of the Treasurer, Pip Gibian, the Treasurer's Report was not tabled but is attached to these minutes.

Election of Office Bearers
President: No nomination
Secretary: Jennifer Farrer - nominated by Ron Gornall, seconded by Ian Cox
Treasurer and Membership Officer: Pip Gibian - nominated by Jennifer Farrer, seconded by Ron Gornall
Publicity Officer: Ben Turco - nominated by Jennifer Farrer, seconded by Lesley Waite
Conservation Officer: Erica Nash - nominated by Jennifer Farrer, seconded by Ben Turco

Calgaroo Editor: Ian Cox - nominated by Ron Gornall, seconded by Lesley Waite
Social Media Editor: Joan Hayes - nominated by Ian Cox, seconded by Lesley Waite
Propagation Officer: Lesley Waite - nominated by Barbara Gornall, seconded by Erica Nash
Committee members: Linda Pine - nominated by Ian Cox, seconded by Jennifer Farrer
Daniel McDonald - nominated by Jennifer Farrer, seconded by Ron Gornall
NSW Region Representative: Tony Maxwell - nominated by Linda Pine, seconded by Ron Gornall

Tony Maxwell will continue to hold the position of Immediate Past President.
Sue Bell has indicated her willingness to continue as the group's Webmaster. This is not a position on the committee.

The Committee members for 2022 were thanked for their contributions.

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Treasurer's report for year ended 31 December 2022

Pip Gibian

Income	**$**
Membership fees	490.00
Plant sales	245.00
Raffles	45.00
Interest	16.50
Refund APS NSW	341.72
Total Income	**1,138.22**
Expenses	
Subscription for Sue Bell	56.00
Meeting expenses	794.68
Calgaroo expenses	92.00
50th Anniversary celebrations	2,287.00
Total Expenses	**3,229.68**
Loss for the year	**2,091.46**

Assets at 31 December 2022	
CBA Bank	455.17
Bendigo Bank Term Deposit	5,000.06
Petty Cash	195.00
Total Assets	**5,650.23**

There were 59 members at 31 December 2022 (53 last year).

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Dr Peter Gangemi **27 February 2023**
Mayor
The Hills Shire Council
3 Columbia Court, Norwest NSW 2153

Dear Dr Gangemi,

Re: Request to protect critically endangered bushland in Fred Caterson Reserve from development impacts.

The Australian Plants Society NSW Limited (APS NSW) is a community organisation with over 1500 members across New South Wales, including a well-established Parramatta and Hills District Group which recently celebrated its 50th anniversary. We are part of an Australia-wide organisation with over 5,000 passionate members.

We strongly advocate the protection and conservation of our unique natural areas including bushland, waterways and marine areas, and the incredibly diverse flora and fauna that inhabit these areas.

Very recently, members of our Board (and the author of this letter) met with senior NSW Government Environment and Planning representatives to have our voice heard on major environmental and biodiversity issues affecting NSW.

We are highly concerned and distressed about the proposal to redevelop sporting facilities at Fred Caterson Bushland Reserve at Castle Hill.

Our reasons against the development are:

1. The proposed development will have adverse impacts on threatened ecological communities

The Fred Caterson Reserve Masterplan (Moir Landscape Architecture dated 10.12.20) states there are five vegetation communities proposed to be impacted at Fred Caterson. Three of these communities, stated as: 'Sandstone Transition Forest', 'Shale Transition Forest' and 'Sydney Turpentine Ironbark Forest' comprise two threatened ecological communities, namely Sydney Turpentine Ironbark Forest and Shale-Sandstone Transition Forest, listed under both the NSW *Biodiversity Conservation Act 2016* and the Commonwealth *Environment Protection and Conservation Act 1999*, and categorised as **critically endangered under both laws.**

The stated vegetation losses for these five communities, in the masterplan, tally to approximately 52,900 m^2 or 5.29 hectares of native vegetation.

2. The proposed development will have adverse impacts on two threatened flora species

Fred Caterson Reserve is a site for many records of the listed threatened flora species, under the *NSW Biodiversity Conservation Act 2016*. These include *Epacris purpurascens* var. *purpurascens* and *Acacia pubescens*, with other threatened species occurring nearby. It is likely *Epacris purpurascens* occurs close to tracks and bushland edges, close to the current sporting fields.

3. The proposed development is contrary to the responsibility and requirement of the Hills Shire to protect biodiversity

The Hills Shire legislates to protect biodiversity under its Local Environmental Plan 2019 and applies the NSW Biodiversity Conservation Act, as required by State law on all development affecting biodiversity in the Shire. It is of great concern to us, that a Council proposal is to have such detrimental impacts given the requirements of these laws.

The Hills Shire has a Bushland Conservation Committee, which aims to: *protect, connect and improve the integrity and diversity of the natural environment in the Shire through advice to Council.*

The proposed impacts to vegetation from this proposed development is a very poor example for the community in Australian flora and fauna conservation, especially when Council considers the unique bushland-biodiversity of the Hills Shire and the community volunteers who participate in programs, such as Bushcare, to protect and nurture it.

4. The proposed development is contrary to Commonwealth Biodiversity Goals

The Commonwealth Government has committed to increase the proportion of our nation managed for biodiversity protection to no less than 30% of all land and seas by 2030. This project opposes this goal.
One of the overriding principles of *Australia's Biodiversity Conservation Strategy 2010-2030* (page 18) states:

> *Knowing that our knowledge is limited, we should apply the precautionary principle while employing adaptive management approaches using new science and practical experience. The precautionary principle is that lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there are threats of serious or irreversible environmental damage.*

https://www.planning.vic.gov.au/__data/assets/pdf_file/0021/213717/Background-Documents-Commonwealth-Biodiversity-Conservation-Strategy-2010.pdf

The precautionary principle should be applied to the impacts and potential threats of the proposal, such as habitat loss, vegetation clearing, soil degradation and adding to the impacts of climate change by removing vegetation.

5. The impacts to native vegetation cannot be sufficiently offset or mitigated

It is unclear how The Hills Shire Council would offset the proposed vegetation losses even close to adequately. We do not accept biodiversity offsetting as an acceptable mitigation measure, as it usually results in protecting bushland that was already protected in practice.

In addition, proposing bushland regeneration works as part of the redevelopment is also not an acceptable mitigation measure. Bushland regeneration could be undertaken and coordinated by Council in any event, for the sole purpose of protecting local bushland.

6. The proposed development has ongoing impacts on remaining native vegetation

We are extremely concerned about ongoing impacts to Fred Caterson Reserve from this proposed development. Increased traffic, visitation and associated human activity are likely to further degrade the natural values through edge effects, rubbish introduction, soil compaction and erosion, and noise pollution.

We ask you to preserve the 5 hectares of native vegetation threatened by this proposed development. We ask you to seek more suitable sites with less biodiversity and environmental value, for sporting facilities. The loss of over 5 hectares of vegetation (arguably 7 soccer fields) in Sydney's urban environment is simply too great a quantity and a terrible example for Council to set for the community, given our world biodiversity crisis.

Yours sincerely,

Dan Clarke (BSc - Hons)

Conservation Officer, on behalf of the Board of Australian Plants Society – NSW.

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For self-proclaimed ‘gum nuts’ this is eucalyptus heaven . . .

Robin Powell SMH 11 November 2022

There is one place in Australia where you can see 980 of the 1013 known eucalypt species.

There are 1013 known species of eucalypt. Dean Nicolle has planted 980 of them at the Currency Creek Arboretum, which sits between the wine-growing regions of Mclaren Vale and Langhorne Creek in South Australia. Nicolle, a eucalypt botanist, arborist and ecologist, and his partner Annett Boerner, who is a geoecologist and scientific publications specialist, maintain the arboretum themselves and open it to the public a couple of times a year.

Eucalyptus caesia, known as the ‘Silver Princess’, at Currency Creek Arboretum. Photo: Robin Powell

There were about 50 of us gathered at a recent open day: some self-confessed gum nuts if their t-shirts were to be believed; others looking for advice on planting large properties or small gardens. The rest of us were there to learn a bit more about the trees that dominate our landscape – from the alps to the arid interior, dry river beds to sweaty tropics.

All the plants in the Currency Creek Arboretum are grown from seeds collected in the wild. Nicolle collects from just one tree per species, and usually plants out four individuals from the seed that germinates. This gives the most accurate picture of natural variation, as all the trees of the planted species share the same mother.

The trees are planted in rows; this isn’t a garden, but more like a zoo, where you get to marvel at highlights from widely disparate geographical zones. For researchers, this is an incredible resource, and Currency Creek Arboretum has already generated 140 scientific papers. For visitors, it’s an awe-inspiring journey through eucalypt habits.

Here's the world's smallest eucalypt, the varnished gum, *E. vernicosa*, which makes a round, spreading shrub to about a metre tall, and comes from the cold, wet west coast of Tasmania, and takes its name from its shiny leaves. While known as a pot plant in Europe, it's not commercially available here. Yet.

Eucalyptus diversofolia, known as the 'Coastal Mallee'. Photo: Robin Powell.

Up the hill is the stunning lobe-fruited mallee, *E. pressiana*, from Western Australia, which forms a multi-stemmed shrub to a couple of metres with clusters of yellow flowers and very handsome fruits. Nicolle reckons it has the potential to be grown more widely, including in Sydney's well-drained areas.

And why grow crepe myrtle, he says, when you could grow *E. diversifolia*, the coastal mallee. Lipstick red buds open to creamy flowers; birds and insects go nuts.

If there is a trend here it is Nicolle's promotion of the mallee species of eucalypts as plants that deserve more time in our gardens. These grow from a lignotuber, which means that they can be cut right back to the ground to shoot again to either refresh the plant, or to cut it back to size.

While it's fun dreaming up new gardens featuring little-known mallee gums, the real joy of Currency Creek Arboretum is the astonishing diversity of the gum. There are trees with flowers that are raucous or discreet; trunks that are smooth and green like polished jade or covered with russety flakes like an overcooked pastry; leaves thin as needles or large and leathery as boots; and seed pods shaped like helmets, medieval weapons or warty witches fingers.

And this is the only place in the world you can see all this in one spot!

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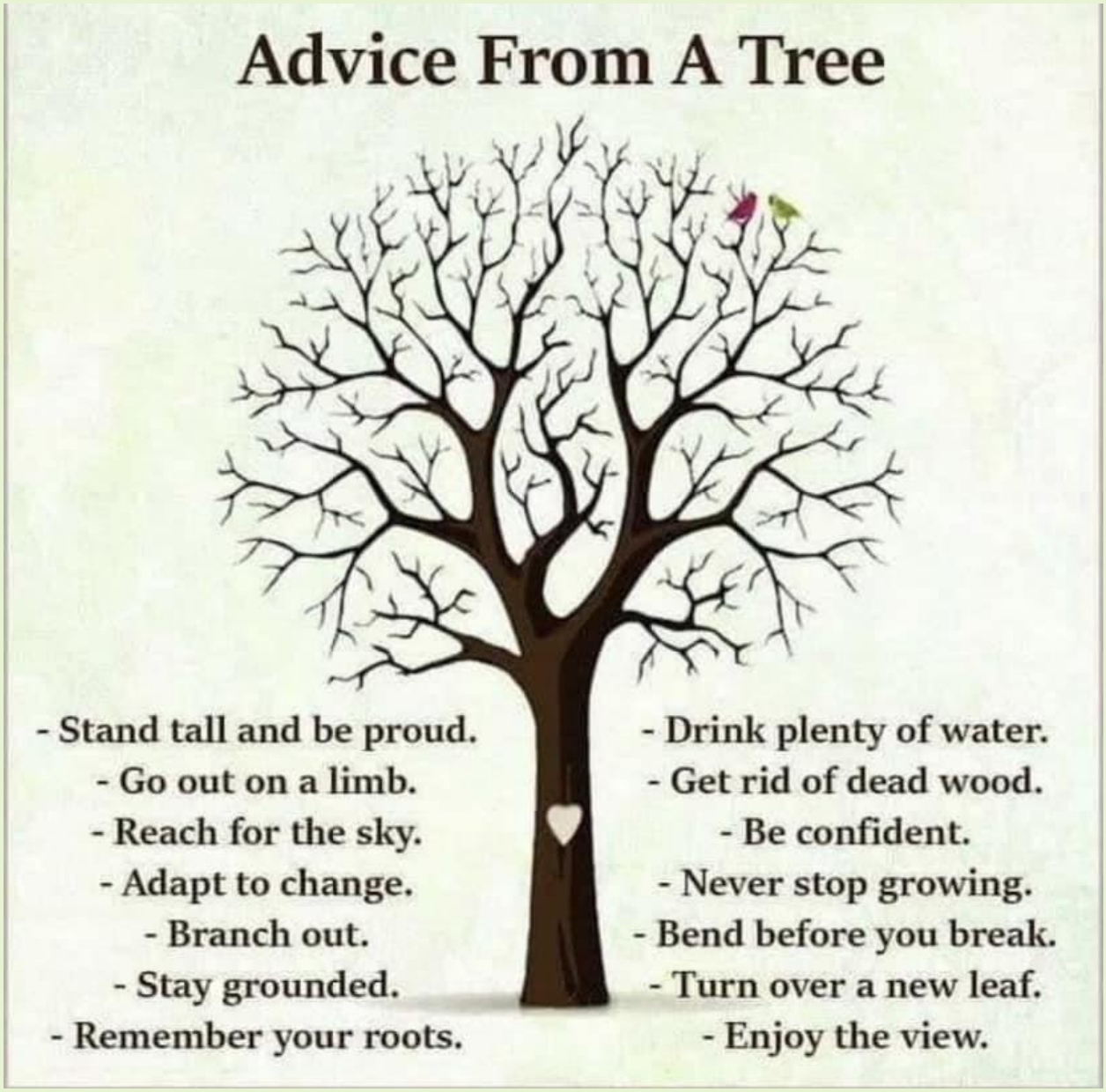

Mother Earth

I belong to this land, it runs through my veins, it's the earth in my bones, it's the dry dusty plains,
It's the whispering wind, as she blows through the sand, it's the sparkling salt water, that trickles through my hands,
It's the feeling I get, when I return to my place, it's deep down inside me, it's my Mother Earth space,
I belong to this Country, I've walked in her dust, I have weathered her storms, I have learned from her past,
It is respect for my Mother, it meanders through my mind, it clings to my spirit, to my soul it does bind,
It's that feeling I get, when I walk in this place, it's deep down inside me, it's my Mother Earth space.

Nola Gregory, Gija/Bard woman and poet, Western Australia.

Melaleuca decora canopy, Croom Reserve, Shellharbour, October 2022.

The phenomenon of 'crown shyness'

Kevin Mills

No, it has nothing to do with balding men. In a mature forest, it is often observed that the crowns of the trees do not touch - there are gaps between the branches of each tree.

There are several ideas about this. The touching of the branches during windy conditions may physically destroy the adjoining tree's small branches. The tree itself may avoid growing into another tree, minimizing the transfer of leaf-eating insects and their larvae, as well as diseases.

Separation may also avoid competition for light, which would happen if the trees' branches intertwined. Despite various avenues of research, there is no agreement about the cause of this phenomenon.

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Trees

Harry Loots

Do trees have souls? They certainly outlive humans by thousands of years. A Patagonian cypress in Chile is said to be 5,484 years old. Individual trees have a personality. No one tree is the same as another.

Many people believe in a tree's spiritual significance. In India, villagers worship under the sacred banyan tree. A Druid priest held ceremonies in a sacred grove of oaks in Europe in the pre-Roman era. From medieval times, village councillors met under the spreading lime tree. The Persian Zoroastrians cultivated 5,000-year-old Cypress trees. The Buddha meditated under the Bodhi tree and Buddhists have preserved its lineage. In Japan, the over 3,000-year-old Takeo Camphor Tree is worshipped with a Shinto shrine.

9 December 2022

Could NSW soils have enough dirt on Phytophthora dieback to help protect biodiversity?

Phytophthora cinnamomi is listed as a key threatening process to our natural biodiversity across Australia.

A soil-borne pathogen that spreads through plant roots in warm, moist conditions, *Phytophthora cinnamomi* can cause extreme damage to plant species, with often fatal results.

***Phytophthora cinnamomi* growing out from an infected root of a Wollemi pine.**
Credit: Edward Liew Royal Botanic Garden

Once Phytophthora invades natural vegetation, it's there to stay. Eradication is effectively impossible and hundreds of Australian plant species are at risk of extinction as a result. Threatened native animals can be affected, as the loss of native vegetation means a reduction in food sources and habitat.

The only available measures to protect sensitive vegetation and threatened plant species in the natural environment are hygiene (such as minimising the movement of soil by making sure people who have been to infected sites clean their boots and clothing) or spraying with a chemical called phosphite, which doesn't kill Phytophthora but gives some plants temporary protection – similar to sunblock for humans.

But a more effective solution may be on the way . . .

While conducting a survey of soils in eastern New South Wales for the presence of the destructive plant pathogen *Phytophthora cinnamomi* in 2018, recently retired Saving our Species Senior Threatened Species Officer Dr Keith McDougall noticed that highly sensitive plant species persisted on some sites where Phytophthora was expected to occur. This indicated that the soils at these sites may potentially be suppressing the pathogen.

The idea that some soils suppress disease is not new. Research in the 1970s was able to demonstrate this capability, and avocado growers have been modifying their soils for decades to reduce disease risk.

Funded by the Saving our Species program, preliminary research is underway at the Royal Botanic Garden Sydney, led by Dr Edward Liew, to investigate the reproduction and survival of Phytophthora in soils. Seven of the 10 soils being tested are thought to be suppressive. Laboratory and greenhouse experiments involve artificially introducing Phytophthora into the soil and monitoring its survival and movement over time.

The outcomes of this work will hopefully lead to further research into whether the suppressive properties of soils can be transferred to at-risk sites to remove or reduce the risk of damage from Phytophthora. This exclusive and ground-breaking work has huge potential to lead to better protection of threatened plant and animal species.

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On the Edge: Species at Risk

Ricki Nash

I just wanted to draw your attention to the exhibition "**On the Edge: Species at Risk** " which opens on the 18th March and runs until the 2nd April at the Lion Gate Lodge, Royal Botanic Garden Sydney 10 am – 4 pm. Entry is free.

"Over 80 different species and several at-risk habitats are featured, which includes endangered plants, birds, mammals, frogs, fish, reptiles and insects". The species are depicted by using all types of material. Some have been created by image manipulation, others like the Mountain Pygmy possum made from alpine moss and fungi, and one of a Gang Gang Cockatoo was made from images of burnt leaves. The botanical artwork of Jane Guthleben and Julianne Ross Allcorn also features, plus a lot of other artists using printmaking, ceramics, woodwork and textiles.

Whilst the Exhibition is running there are also other activities occurring such as a 90-minute walking tour to see rare and endangered plants and a panel discussion in which leading scientists discuss Australia's threatened species and the work being done to save them. Panellists include Chief Scientist and Director Brett Summerell, Prof Maria Byrne, aquatic species expert and Dr Elspeth McClennan from the Koala Genome Society. If you are creative you might like to consider attending a workshop with Jane Guthleben on how to record detailed field notes and then use these to compose a painting of endangered flora.

For full details go here.

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What do people want to see in urban plantings?

Ali Babington, a PhD student at Murdoch University, is investigating social and environmental aspects of urban greening. Before embarking on a PhD, she completed a Master of Urban Horticulture at the University of Melbourne. She is passionate about Western Australian plants and how they can be used in urban areas for conservation, to create a sense of place, and to engage the public.

Ali investigated public preferences for various plant and planting features associated with woody meadows in Perth, Western Australia. An online survey asked respondents (n = 1088) to rate and rank a series of computer-generated images of a roadside urban woody meadow that systematically changed planting arrangement and plant features. Preliminary analysis indicates 88.8% of respondents preferred images with full vegetation (with an understorey, mid, and canopy layer) and flowers. In comparison, 86.7% of respondents indicated a low preference for lawn.

Manipulated images created by Ali and used in a survey to determine preferences for different Woody Meadow types in an urban setting. Top left: 'a' represents least preferred, bottom right: 'f' represents most preferred.

The above is a summary of an article published in *Research Matters*, the newsletter of the Australian Flora Foundation, for January 2023. If you'd like to read the full article, send me an email (itcox@bigpond.com) and I'll forward you a copy of the newsletter.

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Preparing your Garden for the predicted dry weather

Mark Abell

The weather forecasts now have us coming out of the wet La Nina conditions over the last few years and heading into the warmer & drier El Nino weather pattern. This will have lasting effects on our gardens and can lead to plant loss and damage. With a little thought and preparation, it is possible to minimise the problems that can come from this change in weather conditions.

Pruning - removal of above-ground growth, in addition to shaping the plants, can significantly reduce the water needs of the plants. Pruning should be done back to branch junctions to avoid encouraging further branching and so new growth.

Mulching - a layer of coarse mulch (only needs to be 3-4cm thick) can also help to reduce water loss, and by shading the soil it also keeps soil temperatures down and protects the surface roots. Further benefits like keeping weeds down, make this a “no brainer”. Any pruning done earlier can be chipped & converted into mulch to make for a double water-saving benefit.

Plant Groupings - where possible plants with similar water requirements should be grouped together, as well as being better for the plants (i.e. not mixing dry zone plants with rainforest plants), it can help to save water by ensuring that each grouping gets only the water that is needed.

Watering Patterns - rather than frequent shallow watering, you should aim to reduce the frequency of watering (particularly with established plants), but make each watering longer and deeper. This will encourage deeper root growth as the plants seek water from further down.

Improving the Soil - the soil itself can be improved so that it both allows for greater water penetration and water holding capacity. If you have clay-based soil, the addition of Gypsum can help to improve the structure of the soil, and this will allow greater water penetration. The other thing that improves all soil types (clay & sandy) is the addition of organic ma]er. This can both help with the soil structure and the water-holding capacity of the soil.

Soil Wetting Agents - these help to break down the waxy hydrophobic coatings that can form around the soil particles. As such they help with water holding and ensure a more even distribution of water in the soil profile.

Smart Watering Systems - a good watering system (drippers & sprinklers) can help save time (and often water) when trying to keep a garden going when it is dry. Any existing systems should also be given a checkout to ensure proper coverage and that there are no leaks and that it is operating as expected. Some of the new smart timers include flow meters to measure usage and apps that can shut off the watering if rain is predicted. If on clay or loamy soils, then drippers are best in the garden; for sand you may need sprinklers - check for the high-efficiency ones with adjustable coverage arcs.

Shade - areas of the garden that are in the shade for the hotter parts of the day will not dry out as much as areas that are more exposed. This can be taken advantage of when planting to keep the less drought-tolerant plants in these areas.

When to Plant - Generally the best time to plant in our region is in Autumn - Winter. This allows the plants time to establish before the hot dry summer hits, and the cooler temperatures and more reliable autumn rains make watering for establishment easier.

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LIFE IN A SOUTHERN FOREST

biodiversity & ecology in the Australian bush

Describing life in one small patch of dry sclerophyll forest:
the plants, the insects, the birds and other animals . . .
and their myriad interactions.

Life in a Southern Forest is one of the best websites you could find about plants, insects, animals and biodiversity. Check it out!

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A great photo from Harry Loots - mosses in Waterfall Valley, Tasmania.
It could be *Schistostega pennata*, a luminous moss that glows in very dim conditions.

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"**Dirt can be good for us**. Research has even shown that dirt has a microbiome that may double up as an antidepressant, which would explain why gardeners are always happy . . . . . the common, harmless soil bacteria, *Mycobacterium vaccae*, sends chemical messages to your brain which has an effect on your mood and makes you happier."

Medical microbiologist Dr Lisa Cross

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An update on my pool to pond conversion . . .

After about two months, the water is clear. There are nine species of aquatic plants now. Slowly they're expanding, with a little help from me by splitting up some plants and putting them in larger pots.

Different species of dragonflies are buzzing around, some laying eggs in the water on the underside of floating leaves of water plants. The dragonfly nymphs are aquatic when they hatch. There are a lot of black beetles in the water, spending most of their time on the bottom but zooming up to the surface for a breath of air now and again. Water Striders have made their homes here too - they 'walk' on the water.

There's been a small number of frogs, but these come and go, spending most of their time in the leaf litter around the pond.

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Share your stories . . .

What have you been doing?

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

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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.

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Australian Plants SOCIETY NSW

Parramatta and Hills District Group

Secretary: *Jennifer Farrer apsparrahills@gmail.com 0407 456 577*

Editor: *Ian Cox itcox@bigpond.com*

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We support awareness and conservation of Australian native plants.