CALGAROO

October 2021

***Eucalyptus parramattensis* - Calgaroo**

Newsletter of the Parramatta and Hills District Group

Australian Plants Society NSW Ltd

*Our Program

Saturday 23 October 2021 2 pm Bushwalk O'Hara's Creek Cranstons Road Dural. Leader Jennifer Farrer

Saturday 27 November 2021 2 pm Christmas Breakup at Gumnut Hall. Speaker Malcolm Johnston "Cattai Creek from the source to the Hawkesbury"

**Every event is subject to possible COVID restrictions. Jennifer will advise us by email if they apply.*

****

Group News

Jennifer Farrer

Propagation

As we are still in lockdown, we have not been able to visit the nursery. Hopefully, members have been trying out their skills at home.

Approach from Conservation Volunteers Australia to assist with My Wild Western Sydney Neighbour Project

Conservation Volunteers Australia (CVA) is currently facilitating a project working with local schools in Western Sydney to connect youth and their school community to local habitats

through a focus on the Sugar Glider, and the importance of remnant Cumberland Plain Woodland. The schools involved in the project are Kings Langley Public School, Rooty Hill High School and Beresford Road Public School.

The Sugar Glider project is a trial process based on experience with youth voice, ecological literacy, environmental education and connecting people to nature in urban areas. Western Sydney Airport has agreed to support the trial until the end of 2021.

The CVA team is working with student groups, providing background information on the Cumberland Plain Woodlands habitat and sugar gliders, running interactive online sessions for the students, their families and the school communities to connect them with nature and to create habitat for endemic species. Students have been encouraged to come up with their own ideas and solutions. Possible activities may include building nest boxes, tree plantings, and developing community education materials. These activities will be adjusted in response to the COVID restrictions.

CVA has reached out to us, to see if we would be interested in providing any kind of support for this project. They are particularly interested in any advice or sharing of expertise and online resources in planting and propagating Cumberland Plain Woodland species.

So far we have sent them a copy of our publication *Indigenous Plants of the Parramatta and Hills District including the Cumberland Plain and extending to the Hawkesbury River: A List of Plants for Gardens of the Area. (*This document is now on our website and can be downloaded*.)* We have also discussed possible propagation workshops for students and provision of suitable material for propagation.

What happens next depends on what the students decide to do and also the COVID restrictions. We are pleased to be given the opportunity to participate in a project with local young people.

NSW Region Strategy Workshops
We have been invited to two workshops organized by NSW Region.
The first one was held last Saturday, 25 September as part of a project APS NSW is working with MBA students from UTS. The students selected APS to work with. The overarching question being addressed by the team is 'How do we ensure the future sustainability of APS NSW?' This includes clarifying a distinctive vision for the future as well as assisting us in designing the member journey. The students have divided the work into three sections:

1. Why does APS NSW exist?
2. How can we improve member retention?
3. How can we attract more members?

Last Saturday's workshop 'Why do we exist' was a brainstorming session on Zoom. Joan Hayes and Jennifer Farrer attended and found it a very stimulating session. It will be interesting to read the final report.

The second workshop “Improving membership data and processes” is due to be held on 5 October. Ian Cox will be attending.

Bushwalk 23 October

In our calendar, we have scheduled a bushwalk at the end of Cranston's Road, Middle Dural on this date at 2 pm. This walk will be in typical Hawkesbury sandstone country. We planned it for this date because at this time of the year the *Angophora hispida, Philotheca buxifolila* and *Kunzea capitata* are usually in flower.

At this stage, we do not know what restrictions will be in place on that date. We will let you know how and if the walk will go ahead. Here's hoping.

Angophora hispida

September Members' Meeting

Our scheduled visit to the Wright's garden could not go ahead. Instead, we had a meeting on Zoom on Friday evening. Alan presented photos of the garden which was the next best thing. Other members sent photos of what they had been up to in this period of enforced isolation. If you couldn't make it to the meeting the two presentations will be on our website under Group News.

Many thanks to everyone who contributed. It was a good session.

Indigenous plants bring culture, beauty, and beneficial insects into our parks and gardens

Luis Mata*
School of Ecosystem and Forest Sciences, The University of Melbourne.

"[Indigenous plants] *tell stories about the cultural belonging of Indigenous peoples and allow a portal into the rich cultural and ecological knowledges held by Indigenous peoples*."
Zena Cumpston in 'Indigenous Plant Use' (Cumpston 2020).

Look closely at nature

I have a rather unusual request. If you can and have a minute to spare, would you have a detailed look at the four images in the figure below?

Spoiler alert, all but one of the species portraited are locally indigenous to the Melbourne Metropolitan Area, and the four pictures were taken there within the last year.

Top left: A sweat bee (genus Lasioglossum) on a wattle (genus Acacia) at the George Street Reserve, Sandringham, City of Bayside, Victoria. Top right: The African carderbee (*Pseudoanthidium repetitum*) on the Cut-leaved Daisy (*Brachyscome multifida*) at Sheils Reserve, West Brunswick, City of Moreland, Victoria. Bottom left: A carrot wasp (genus Gasteruption) on the Twiggy Daisy-bush (*Olearia ramulosa*) at Greenlink Box Hill Indigenous Nursery, Box Hill North, City of Whitehorse, Victoria. Bottom right: A pony ant (genus Rhytidoponera) on a tea tree (genus Leptospermum) at Long Hollow Heathland, Beaumaris, City of Bayside, Victoria.

Have you had a chance to look at the pictures already? Would you mind sharing which themes drew your attention the most while you are observing the images?
Did they bring about ideas of the unique traits of Australian plant species?
Or about the dichotomy between indigenous vs non-indigenous species?
Or were your thoughts drawn to think about pollination?
Were you thinking about complex ecological interactions?
Or was your focus pulled to the colours, composition, or other aesthetic elements in the images?
In the context of Australia, perhaps the images elicited a sense of Indigenous culture?

Nowadays, when I look at these images, the latter aspect is the one that I feel most strongly. But this was not always the case. Thanks to recent professional interactions with Jade Kennedy, Maddison Miller, Zena Cumpston and other Indigenous scholars with whom I have had the pleasure and luck to work with, I have come to recognise and appreciate that all Australian indigenous species – in the context of a given community associated with a given territory – have cultural Indigenous significance.

I treasure this knowledge, as now every time I appreciate an Australian indigenous plant, it reminds me that I am also appreciating a vital aspect of the one or more Indigenous communities to which that given plant is associated with. We might not have the fortune to

interact with the Traditional Owners of the lands and waters where we live and work in our day-to-day lives, but it is great to realise that an integral part of their culture is reflected back to us each time we have a look at locally indigenous plants (or any other locally indigenous species for that matter).

If this idea sparks your interest, I invite you to have a look at Zena Cumpston's 'Indigenous Plant Use' booklet (Cumpston 2020) and an article entitled 'Bringing nature back into cities' (Mata et al. 2020). The latter is an opinion piece I developed in close collaboration with Jade Kennedy, Maddison Miller, Zena Cumpston, and other colleagues from the Clean Air and Urban Landscapes Hub. The 'Australian pan-Aboriginal world views' section is of particular interest and draws extensively on Zena's and Jade's perspectives and knowledges.

Another thing I tend to do as I encounter an insect – whether in real life or photographically – is wonder if the species is locally indigenous or is introduced, exotic, alien, invasive, or otherwise non-indigenous to the area where I am seeing it (or where the picture was taken). In the Australian context, this is of course a pre-requisite to establish the bonds with Indigenous culture that I have just highlighted.

Were you able to single out the African carderbee as the sole non-indigenous species to Melbourne amongst those portrayed in the figure above? And did you noticed that she was interacting with a native Cut-leaved Daisy? In Melbourne, Australia! I am fascinated by this type of plant-insect interaction where a non-indigenous insect species adapts to benefit from resources provided by indigenous plant species. More generally, I am intrigued by the idea that some insect species can use resources from many, if not all, the plant species they encounter, while others are quite specialised in the interactions they establish.

Take, for example, blue-banded bees – one of my favourite Australian insects – which in Greater Melbourne are represented by two species: *Amegilla asserta* and *Amegilla chlorocyanea*. Both species, and in general all blue-banded bees across Australia, are very charismatic and strikingly beautiful (see figure below). I saw my first blue-banded bee only about 5 years ago – literally the one seen in the left panel. It was visiting a patch of Black-anther Flax-lily. My thinking at the time was that blue-banded bees were flax-lily specialists and would not interact with the flowers of other plant species.

Left: A blue-banded bee (*Amegilla asserta*) flying towards a patch of Black-anther Flax-lily (Dianella revoluta) at Royal Park, Parkville, City of Melbourne. Right: A blue-banded bee (*A. chlorocyanea*) on Austral Stork's-bill (*Pelargonium australe*) at Westgate Park, Port Melbourne.

It turns out that blue-banded bees are indeed very selective in the species they visit, and are attracted to only a few other indigenous plants. As I understand, in the Melbourne Metropolitan Area, *A. asserta* and *A. chlorocyanea* are only attracted to flax-lilies (genus Dianella), Hop Goodenia (*Goodenia ovata*), Showy Isotome (*Isotoma axillaris*), Small Crowea (*Crowea exalata*), Bulbine Lily (*Bulbine bulbosa*), and bluebells (genus Wahlenbergia). If you live in Melbourne, these plants can help you attract blue-banded bees to your garden and, most importantly, support them by providing floral resources throughout the year.

Blue-banded bees, as well as many of our indigenous bees and butterflies across Australia, are also attracted to the flowers of non-indigenous plant species. In Melbourne, I have observed them on Australian native plants that are not indigenous to Victoria. These include species of emu-bush (genus Eremophila) and rice-flower (Genus Pimelea). I have also observed them or seen photographs of them on plants that are non-indigenous to Australia, including Purple-top Verbena (*Verbena bonariensis*), Chinese Plumbago (*Ceratostigma willmottianum*), Spider Plant (*Chlorophytum comosum*), tomato (*Solanum lycopersicum*), and several species of sage (genus Salvia). We do not fully understand if the novel resources provided by non-indigenous plants to indigenous insects are beneficial or if, on the contrary, they may cause risks that we are not currently aware of (Valentine et al. 2020).

The Little Things that Run the City

The ecological interactions established between blue-banded bees and Flax-lilies, Hop Goodenia, Showy Isotome, Small Crowea, Bulbine Lily, and bluebells, highlight the exciting possibility of using indigenous plant species to bring indigenous nature back into our cities and towns (Mata et al. 2020). But what about ants, leafcutter and masked bees, ladybugs, hoverflies, assassin and damsel bugs, and parasitoid wasps, amongst many other beneficial insect groups? Can they be attracted to our parks and gardens with indigenous plants?

My colleagues and I first explored this question in 'The Little Things that Run the City' (Mata et al. 2016), a research project we did in the City of Melbourne across 15 public parks. In the study, we recorded the interactions between over 550 insect species – 97% were indigenous to Melbourne – and over 130 plant species (a mix of species indigenous to Melbourne, indigenous to Australia but not to Victoria, and non-indigenous to Australia), including forbs, lilioids, graminoids (both lawn and tussock species), shrubs, and trees.

The plant group associated with the largest number of insect species were neither lawns (no surprises here) nor trees (quite unexpected). As it happened, it was indigenous graminoids, a group represented by five species of tussock grasses. The champion amongst these was Common Tussock-grass (*Poa labillardierei*), on which we documented over 100 indigenous insect species. On the other side of the spectrum, lawns were associated with less than 10 insect species. We hope our findings – which we recently reported in an article entitled 'Indigenous plants promote insect biodiversity in urban greenspaces' (Mata et al. 2021) – will encourage architects, engineers, developers, planners, designers, and other built-environment professionals, to incorporate into their practice indigenous plant palettes that foster a larger presence of indigenous insects in our parks and gardens.

Wildlife gardening

Speaking of gardens, I would like to dedicate some words to wildlife gardening. While I have been unknowingly doing 'wildlife gardening' for many years now, I have had the good fortune to be introduced to wildlife gardening research through my colleague Laura Mumaw. Last year, we joined forces to write an opinion article in which we reviewed the

wellbeing benefits of wildlife gardening, and outlined how positive ecological outcomes may be reached by providing new, and improving existing, habitat for biodiversity in gardens (Mumaw and Mata 2021).
In the piece, we argue that wildlife gardening is an integrated ethic and practice to simultaneously care for one's human and ecological community. As part of a follow-up component of this collaboration (funded by Gardens for Wildlife Victoria), we have documented over 800 interactions between over 30 native mid-storey plant species (forbs, climbers, shrubs, and groundcovers) and over 40 insect pollinators and other flower-visiting insects (from bees, butterflies, and hoverflies to ants, wasps, and beetles). The plants we selected for surveying were representative of those offered to Melbournian gardeners by indigenous nurseries affiliated with the Gardens for Wildlife Victoria network.

We will be making our findings available via the Gardens for Wildlife Victoria website soon. The information provided will include a summary of the indigenous plant species that were associated with the largest number of indigenous pollinator and flower-visiting insects, but also a detailed account of the interactions established between each plant and insect species. Whether you consider yourself to be a traditional or a wildlife gardener, we hope you may find this knowledge useful, and that it will assist you in making informed decisions about which indigenous species you could plant to support local indigenous insect pollinators and other flower-visiting insects in your garden.

Acknowledgements
The author acknowledges the Traditional Custodians of the land and waterways on which the projects described in this article took place, the Wurundjeri and Bunurong people of the Kulin Nations. I pay my respects to their Elders, past, present, and emerging, and honour their deep spiritual, cultural, and customary connections to the land on which I work and live. I would like to extend my heartfelt thanks to Zena Cumpston, Maddison Miller, and Jade Kennedy for sharing with me their passion and knowledge of Australian Indigenous culture and for helping me recognise and appreciate the cultural significance of all Australian indigenous plant species. I would also like to sincerely thank Laura Mumaw for inviting me to be part of her wildlife gardening journey and to Tina Bell for kindly inviting me to write this article. Special thanks to Ken Walker, Steve Sinclair, and members of the iNaturalist community for providing identifications to some of the plant and insect species that illustrate this article.

*About the author: Dr Luis Mata is an ecologist and entomologist with a keen interest in complex systems, urban environments, community science, and science communication. He is passionate about nature photography, science fiction, gardening, bushwalking, and sailing. Luis' research is conducted at the School of Ecosystem and Forest Sciences, University of Melbourne. He can be contacted by email at lmata@unimelb.edu.au

This article first appeared in 'Research Matters', newsletter of the Australian Flora Foundation, July 2021.

Getting on to Gamma

After alpha and beta, the Greek alphabet goes not to C, but gamma. Angie Michaelis continues to explore how understanding Ancient Greek can help with botany …

English has gone soft. **Gemma**, for example, is not just a girl's name – rather charmingly, in Greek, it means 'bud'. The Greeks used a hard 'g' sound (occasionally 'ng') for the letter

gamma. But that is no longer a good pronunciation guide: **geography**, for example (from *geo*, 'earth', and *graphein* 'to write') uses both soft and hard sounds.

Strip more or less familiar words to find interesting meanings. Take *gymnos*, Greek for 'naked': **gymnastics** refers to exercising or training naked, a **gymnosperm** has a naked seed. Conifers, cycads (and incidentally gingkos) are gymnosperms, their seeds unprotected by a fruit or ovary. ***Gymnostachys*** ('naked spike') and ***Gymnanthera*** ('naked anther') are also among our Australian plants.

Don't confuse *gymn-* with *gyn-*. *Gyne* importantly means 'woman' (think **gynaecology**). The word **gynoecium**, for example, was 'the woman's part of the house' and has been adopted in botany for the ovule-bearing part of the flower, where the seeds develop.

And don't confuse *gyn-* with *gen-!* Words beginning this way often also suggest reproduction and derive from Ancient Greek words like *genea,* meaning 'descent'. **Genesis**, **gene**, and **homogenous** ('same descent') are Greek – the Latin **genus** (plural **genera**) also refers to a group sharing some genetic material.

Let's get down to genus names. Do you know the common name for **geranium** is 'cranesbill'?
It is a direct translation from Greek, where *geranos* means 'crane'. Its close relative, the **pelargonium**, is known as the 'storksbill' – and *pelargos* is Greek for 'stork'. The 'bill' does not refer to the shape of the flowers but of the seeds.

I love being surprised in the bush by the delicate twining habit and flowers of ***Glycine clandestina***. Its name is sweet too, literally, like **glucose** (different spelling, same root *glykios*): some of the species have sweet roots and leaves. (***Glycine max*** is also edible, if not Australian – it's the soy bean of Asia.)

Glycine clandestine. Photo Friends of Lane Cove National Park

Last month I promised to explain the pea flower ***Gastrolobium***. Greek for 'stomach' is *gaster* (hence **gastric**) and *lobos* can mean a pod as well as a lobe. The pods are swollen like a distended belly. Easy! Except its close relative, the ***Gompholobium***, has similar pods – and *gomphos* means a 'peg, or 'bolt'. Go figure ...

Gompholobium sp. Photo Anne Cochrane, Seed Notes for Western Australia

Finally, a really useful word, often used in a prefix: **glaucous**, from Ancient Greek *glaukos.* If you know species like *Callitris glaucophylla*, *Macrozamia glaucophylla* or *Carpobrotus glaucescens*, you will know they have grey foliage (*phylla* is Greek for leaves). To the Greeks, Glaukos was a sea god, 'glimmering' like the sea - silver, shiny, green or bluish-grey. Essays have been written on just what Homer meant when he used the word. But in botany today **glaucous** means blue-grey. It has lost its shine – it also refers to the dull waxy leaf coating as in many juvenile eucalypts. And yes, **eucalyptus** derives from Greek – just wait for the letter *epsilon* …

Relocation of *Platycerium superbum*

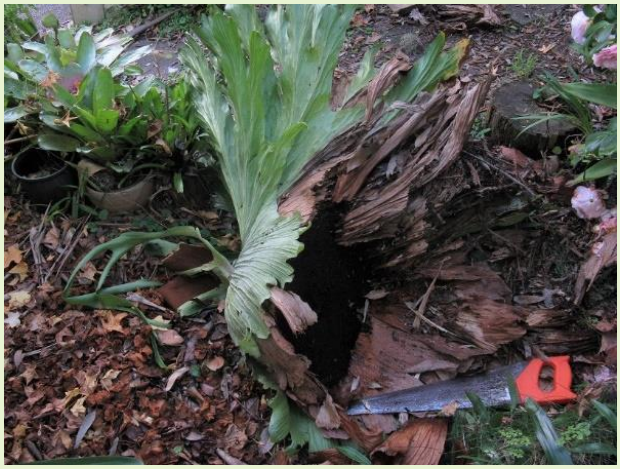
George Hardy

About 35 years ago I purchased a small plantlet (12 cm) of *Platycerium superbum* at Coles Variety store in Burwood NSW. I attached it to a 1.5 m tall tree stump where it grew and grew without receiving much care, apart from us keeping an eye on it.

Some years later we moved to our current address, and we sawed off the tree stump and took it together with the now substantial *P. superbum* to our new address. Here I attached it to another tree stump via a large screw into the new stump. And the plant kept growing to an impressive size.

From March to June, 2021, we had 624 mm rainfall in our area, which was too much for the screw. It dislodged and dumped the fern without damaging it. I estimate that at that time it weighed 40 to 50 kg and was 1.5 m wide and 90 cm high.

After the fall

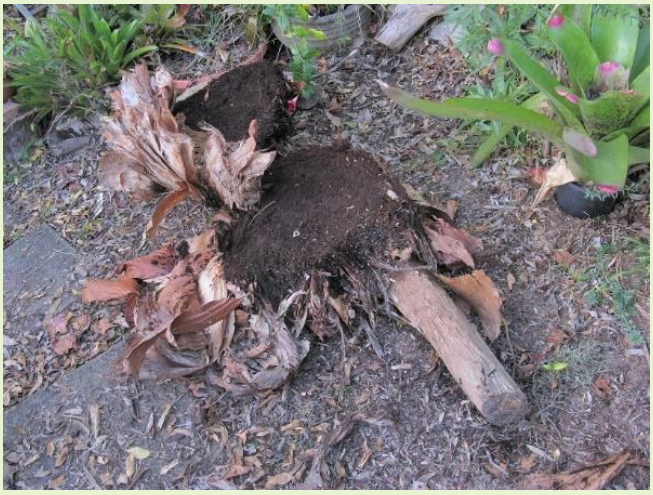


Cut to size

After turning it to prevent damage, I consulted the handbook again. Here it said that it would be possible to extend the life of a *P. superbum* for a long time by cutting back the root mass, taking care not to injure the bud.

I carefully sawed the plant away from the original host. It was still very heavy. I cut another two slices up to a distance of 25 cm away from the front. The slices consisted of root mass which resembled peatmoss, and were heavy with absorbed moisture. I then attached it to a board and hung the assembly with the help of my son on the brick wall of our garage, where the eves also give some protection. The shield fronds are still sticking out into the open and are able to collect water and debris.

It is now August, and after eight weeks in its new location the plant seems healthy. I look forward to new growth which will confirm that the prune has been successful.



Detached roots

As good as new!

This article first appeared in the Fern Study Group Newsletter No 149 September 2021.

Quotes

"After the fire burns the dense bush, the ground is exposed, and small plants thrive.
Dobroyd Head received a backburn two years ago.
There were new discoveries on today's walk.
While girls babbled, runners huffed, lovers interrogated and single women smiled, I was engaged in an examination of the minutiae."

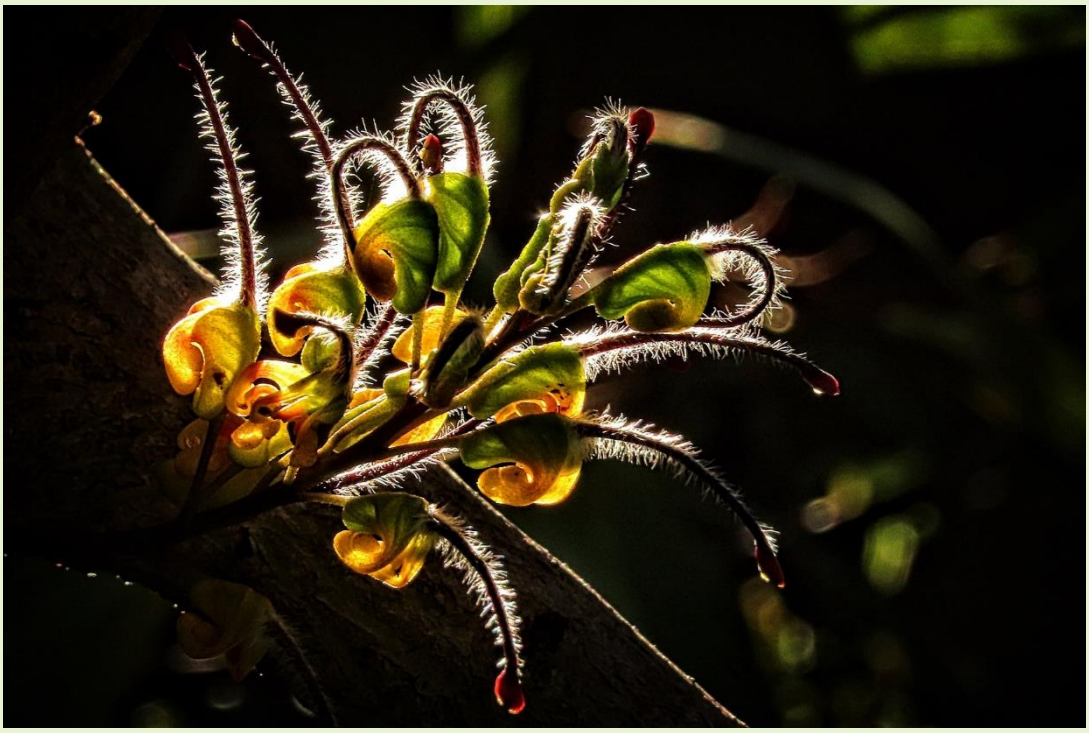
- Harry Loots

****

"And go out whenever and wherever and for as long as you can into nature. This is the most restoring, enlivening, even at times electrifying, thing I know to do."

- Julia Baird

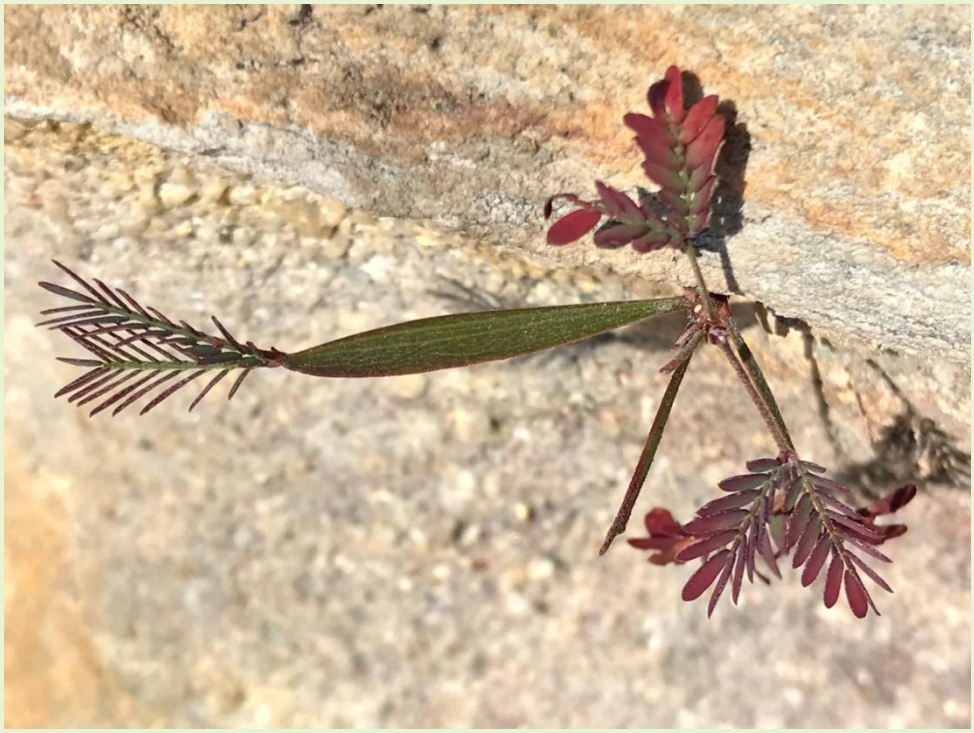
Photo Gallery



The exquisite colouring and shape of *Grevillea mucronulata*.

Photo Bill De Belin.

Andrew found this unusual-looking plant growing from a rock crevice near Medlow Bath. I couldn't identify it so I sent it to Jill Dark, an expert on Blue Mountains flora.



Here's Jill's reply: *Andrew's plant is a juvenile Acacia, probably either obtusifolia or longifolia. I think obtusifolia is more likely. You can see how the bi-pinnate foliage is produced first, then the phyllodes start to form.*

Photo Andrew Cox.

Isopogon anemonifolius, growing on the cliffs overlooking the Grose Valley. Photo Andrew Cox.

Anigozanthos manglesii, the floral emblem of Western Australia.

Announcing the choice in November 1960, the then Premier of Western Australia, David Brand, said: 'The Kangaroo Paw is so outstanding that it was the logical choice. It has grace and beauty, striking colour, and distinctive outline'.
It certainly has!

Photo Bill De Belin.

Share your stories . . .

What have you been doing in the garden? Or elsewhere?

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

Australian Plants SOCIETY NSW

Parramatta and Hills District Group

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

Editor - Ian Cox: itcox@bigpond.com

Join us on Facebook: here

Our website: here