CALGAROO

November 2022

***Eucalyptus parramattensis* - Calgaroo**

Newsletter of the Parramatta and Hills District Group

Australian Plants Society NSW Ltd

Our last meeting of 2022

Saturday 26 November 2 pm: Members' meeting and Christmas afternoon tea.
At Gumnut Hall, Cherrybrook.
Speaker – Kevin Mills: 'Ferns of the southern Sydney Basin'.

Don't miss this meeting - we'll have an outstanding speaker, as well as an outstanding afternoon tea!

Dr Kevin Mills is a botanist and ecologist, and has lived in the Illawarra for over 40 years. He has studied the region's rainforests for many years and is currently working on various projects in the region, including studies of all offshore islands on the South Coast, and various rare plant surveys. His most recent work is a review and field study of the ferns of the south coast, which he is about to publish as a book on the ferns of the south coast. He has authored or co-authored several books on plants including *Native Trees of Central Illawarra, Rainforests of the Illawarra District*, and *Native Trees of the NSW South Coast*.

Kevin is continuing his rainforest studies of the Illawarra and of Norfolk Island, where he is a regular visitor, and on which he has also written extensively. He is involved in the rehabilitation of habitat on the Five Islands Nature Reserve off Port Kembla, and the regeneration of rainforest at the Minnamurra Rainforest Centre in Budderoo National Park. He is a long-time member of the South Coast Regional Advisory Committee for the NSW National Parks and Wildlife Service, and is currently it's chair.

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Further report on ANPSA Conference at Kiama

Tony Maxwell

Apart from the pre- and post-tours, the conference consisted of three days of presentations and workshops at The Pavilion in Kiama (Monday, Tuesday, Thursday) and two days of excursions (Wednesday, Friday). A number of us from Parra Hills attended Monday and/or Tuesday – Jennifer Farrer, Ricki and Jim Nash, Chris Cheetham and myself. I fully concur with Ricki's excellent report on the Monday and Tuesday that was in the last Calgaroo.

I'm happy to stand corrected, but I may have been the only Parra Hills member attending on the Thursday. This is a short report on the Thursday proceedings – and what a day it was! First up was Costa Georgiadis from Gardening Australia talking on 'What the future holds for Australian Native Plants'. Suffice to say this was the best presentation I have ever heard from anybody on any subject. Freewheeling, spontaneous, engaging, on topic, and lots of other nice adjectives. The presentations were filmed, so if this is available, we must get a copy.

Heather had recruited six local young people with interests in native plants. They were students from Wollongong Uni, Kiama High, Kiama Primary and Jamberoo Primary. They engaged in a panel discussion about their activities – facilitated by Costa. It went very well – maybe there is hope for the future.

The next address was by Prof David Lindenmayer from the Australian National Uni. The title was 'Fire, forests, plantations and biodiversity'. Prof Lindenmayer is a world expert in forest ecology and conservation biology. One interesting revelation was that partially-logged forests always burn more fiercely than unlogged forests. We have the best researchers on these matters here in Australia – when will we start listening to them?

Last before lunch was Prof Michelle Leishman from Macquarie Uni. Prof Leishman has talked to our Group on two occasions. Her Kiama talk was titled 'Building resilience – from species to landscapes'. Prof Leishman described a new tool developed by her team – Which Plant Where? This is a climate-ready species selection tool for all sorts of environments.

The Pavilion was abuzz during the lunch break with conversations all over the place.
After lunch, APS Victoria outlined their plans for the next conference in two years' time.
The final session involved all the APS Leaders. It was a panel discussion titled 'Honoring the Past and Embracing the Future' – facilitated by Rhonda Daniels from Sutherland Group. Rhonda is the incoming Secretary of ANPSA and John Aitken is the incoming President.

Altogether a most memorable day – at the end all the morning speakers were still present and engaging in enthusiastic conversation with attendees. Heather and her conference team should be congratulated on a magnificent effort.

Growing Native Plants in Containers

Greg Lamont - Research Horticulturist

People with little or no garden can still enjoy a wide variety of Australian native plants by growing them in pots, tubs and other containers. Even in large gardens, containers can create interest, particularly around outdoor living areas. Hundreds of Australian native plants are suitable for growing in containers.

As containers allow you to modify the root environment, some species which often prove to be difficult or unreliable in the garden can be grown successfully.

Containers impose obvious restrictions on the root system of plants, especially if the pot is small - less than 10 litres. In the garden, roots can exploit a large volume of soil to obtain moisture and nutrients. In containers, though, there is a limited volume of soil providing nutrients and moisture, and drainage and aeration are reduced compared with the same soil in the garden.

Potting soil containing components such as peat moss, pine bark, composted sawdust, perlite, vermiculite and coarse river sand provides a suitable root environment for natives. Most native plants grow very well in soil-less mixes based on these components. Use mushroom compost sparingly because it may contain very high levels of salts.

If you intend to grow plants in a container for more than a year, avoid using readily compostable material in the potting mix. The use of materials like leaf mould and mushroom compost leads to compaction and reduced volume and aeration of the potting mix. Such materials are of greatest benefit when used as surface mulch.

Watering is an important factor in successful pot gardening. In summer, watering will be necessary daily, but in winter once or twice each week should do. At each watering, thoroughly soak the potting mix. Wait until the surface of one to two cm of soil is dry before re-watering. Don’t leave pots standing in water, as this will drown the roots.

Plants in containers require more frequent fertilising than plants in the ground. However, it is undesirable to force plants by excessive fertilising because they will soon outgrow the container. Moderate but healthy growth is the objective. Resin-coated controlled-release fertilisers are ideal for container growing, since fertiliser is constantly released in small quantities. For an 8-9 month-release fertiliser, the rate is approximately three grams (half-teaspoon) of fertiliser per litre of potting mix, applied in Spring. Blood and bone or pelleted fowl manure are also acceptable fertilisers. During periods of active growth, plants will benefit from water-soluble fertilisers. If you are using a proprietary brand of potting mix there should be no need to add lime, since the manufacturer would have adjusted the pH in the range of 5.5 to 6.0 (acid).

Selection of the container is important from both an aesthetic and practical viewpoint. Containers can be made of polythene, terracotta, ceramic, timber and even logs and stumps. Terracotta pots have long been used in the home garden, and are undergoing a wave of popularity. Australian plants look pleasing in the earthy colours available. They are more expensive than polythene pots and are breakable. Because of the porous nature of terracotta, potting media may dry out rapidly, although this has a beneficial cooling effect

during summer, and salts can accumulate in the pot wall. Glazed terracotta pots do not suffer the same problems.

There is a wide range of native plants suitable for growing in hanging baskets. The cheapest basket is a wire frame lined with paper-bark or synthetic lining. Plastic and terracotta hanging baskets are also available. Hanging baskets tend to be very susceptible to drying out when placed in an open sunny position. Because of the limited volume of some hanging baskets, it is undesirable to grow vigorous species in them because they quickly become pot-bound.

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Cultivars

Kevin Mills

A cultivar (cultivated variety) is a plant that has been bred to show desired characteristics, which are reproduced in each new generation by a method such as grafting, tissue culture or carefully controlled seed production. PlantNet defines a cultivar as: ‘a cultivated variety, a variety developed in cultivation. An assemblage of cultivated individuals distinguished by any characters significant for the purposes of agriculture, forestry or horticulture, and which, when reproduced retains its distinguishing features’. Such characteristics are usually produced by cross-breeding or chance events in nature; these can range from unusually small leaves, flower colours, or misshapen plant parts. Shown below are two fern cultivars, one of which is common along the south coast.

Left. Japanese Holly Fern *Cyrtomium falcatum 'Rochfordii'* is a cultivar with irregularly and sharply toothed pinnae margins. This species is naturalised along the coast between Sydney and Batemans Bay.
Right. This cultivar of Birds Nest Fern *Asplenium australasicum* has crinkled fronds, in contrast to the normal flat fronds.

According to the Australian Cultivar Registration Authority, the word was coined by L. H. Bailey in 1923. Cultivar naming is governed by the International Code of Nomenclature for Cultivated Plants (ICNCP), the current version of which was published in 2016. This is a separate system to that used for wild plants, namely the International Code of Botanical Nomenclature (ICNB). The Authority states: ‘by cultivated plants is meant plants raised in cultivation which differ sufficiently from their wild ancestors or, if taken into cultivation

from the wild, are worthy enough of distinction from wild populations for horticultural purposes to merit special names'.

Plants that can be considered cultivars include:

- deliberate hybrids,
- accidental hybrids in cultivation,
- selection from existing cultivated stock,
- selection from variants within a wild population and maintained as a recognisable entity solely by continued propagation.

The abbreviation cv. is used to denote a cultivar, or the cultivar name is placed in single quotation marks, but not both; for example, *Cyrtomium falcatum 'Rochfordii'* as shown above.

Do not confuse variety and cultivar, as they are very different. PlantNet states the following definition: 'variety: a taxonomic category below that of species (and subspecies if both used); differentiates variable populations.'

It is perhaps worth mentioning here the definition of a hybrid: the offspring of genetically different parents; in botany it is usually applied where the parents are of different species.

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Thanks to Ricki, this is a handout from a grafting demonstration at the ANPSA Conference at Kiama:-

Grafting using the cutting graft technique

Phil Trickett and Catriona Bate

Advantages of this method over traditional method of grafting onto rooted stock plants:

- The time and effort growing stock seedlings is unnecessary, allowing for cheap and easy experimentation which is likely to encourage greater participation in grafting.
- Growers can choose a rootstock from their own garden, from a plant which is proven to be vigorous and hardy in their conditions.
- Given practice, cutting grafts are easier and quicker than the traditional method.

Steps for successful cutting grafts:

1. Assemble tools: Stanley knife, Stanley knife blade, flower snips (**Figure 1**).

2. Scion (species being grafted): Take a cutting of your chosen scion. Select firm, semi-hard scion material and trim to around 5-8 cm in length. New tip growth should be avoided as this will tend to wilt quickly resulting in the graft failing.

3. Stock: Take a cutting of your chosen stock. This cutting should be chosen to match the diameter of the scion material and should be around 8-10 cm in length. Remove all leaves from the stock cutting apart from one leaf at the very tip of the cutting (**Figure 2**). All other leaves can be removed – be careful not to strip the bark when removing leaves. Keeping the top leaf is vital to prevent any 'dieback' around the graft union.

4. Use the blade of a Stanley knife to make a 1 cm slit down the middle of the stock cutting (**Figure 3**). NOTE: correct technique is vital to avoid cutting yourself – hold the blade in your left hand and the stock cutting in your right hand, then move the cutting to the blade, wiggle the cutting slowly onto the blade until the 1 cm cut through the middle of the cutting

has been completed. The left hand holding the blade does not move. You will only cut yourself if you push the blade into the cutting and it slips!

5. Use a Stanley knife (only the blade is used to make the slit, whereas this step uses the knife itself) to cut a wedge in the bottom of the scion stem of around 1 cm so that this can be inserted into the stock cutting.

6. Insert the wedge-cut scion into the cut at the top of the stock cutting (**Figure 4**). Then tape the graft union using Parafilm (the piece of tape should be about 5 cm long and 1 cm wide – cut tape into pieces of this size) so that the graft union is totally covered and is waterproof (**Figure 5**). The tape should be stretched as it is wrapped so that it the taping is tight and the tape adheres to itself.

7. Treat the resulting cutting graft as you do a cutting, i.e. knick the bottom of the stock, insert into Clonex Purple Gel for 5 seconds then place into cutting mix.

8. Roots should appear on the stock within 2 months in the warmer months (may take longer in the cooler months).

9. Once the cutting graft is potted up the graft should have taken and the plant can be grown as for a normal cutting.

Figure 1: Stanley knife, blade, flower snips

Figure 2: Leave one leaf at the tip of the stock cutting

Figure 3: Make a 1 cm slit down the middle of the stock cutting. The hand holding the blade does not move

Figure 4: Insert the wedge-cut scion into the cut at the top of the stock cutting

Figure 5: Tape the graft union so that it is totally covered and waterproof

Choose the right species as your stock
Stock plant species used in cutting grafts must satisfy three criteria:

- The species must be tough and long-lived in your garden conditions
- Cuttings from this species must strike roots readily and consistently
- The species must be compatible with the species being grafted onto this stock species

Recommended stock species

- Isopogon – 'Coaldale Cracker', anethifolius, anemonifolius
- Eremophila – Myoporum species
- Prostanthera – lanceolata, phylicifolia, linearis
- Hakea – salicifolia
- Grevillea – 'Carrington Cross'
- Banksia – integrifolia (difficult!!) – don't use hormone on Banksia cuttings

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This *Xylomelum pyriforme* (Woody Pear) in flower was photographed by Jennifer when leading a walk along the Porters Road Fire Trail on 7th October

Many thanks to Joan, Jennifer and Ricki for these great photos of our 50Th Anniversary celebrations:

Linda Pine, Harry Loots, Brian Roach, Merle Thompson

Merle with Lesley Waite

Narelle Smith and Daniel McDonald

Judy Dykes, Wendy Goonan, Tony Maxwell

Our lovely cake

and raffle prizes

The Meet and Greet Team Joan Hayes and Ben Turco

Jenny and James Indsto

Narelle Smith, Daniel Mc Donald, Lesley Waite, Heather Miles, Alan Wright, Mark Ferrington

Judy Dykes and Wendy Goonan

Harry Loots and Ron Gornall

Brian made us laugh!

Brian with his mug

One of our table decorations

Our two cakes

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The Invasive Species Council celebrates 20 years

Summarised from the *Feral Herald*

This May, we celebrated our 20th year. Sparked by Tim Low's book Feral Future, the Invasive Species Council is now Australia's leading organisation dedicated to tackling the biggest threat to the country's natural world.

In those 20 years, we have become notorious for punching above our weight. The full list of our achievements over these past two decades is too long to run through in full, but includes some major wins for our native species and ecosystems.

In 2017, we secured the world's most ambitious invasive ant eradication program – $411 million in a 10-year commitment to eradicate red fire ants from South East Queensland. Last year, our Reclaim Kosci campaign successfully campaigned against the protection of feral horses in Kosciuszko National Park and secured a NSW Government commitment to actively manage their population from 14,000 to 3,000 by 2026.

Had the Invasive Species Council not existed for the last 20 years, it's worrying to think how much worse the invasive species bill would have been for our native wildlife. But there's still so much left to do. The CSIRO recently ranked invasive species as the number one threat to Australia's environment.

The next decade will revolve around one keyword: biosecurity. Through initiatives like the Decade of Biosecurity, we'll help strengthen the nation's biosecurity system in the face of increasing pressures, including climate change and the changing scale and complexity of global trade and travel.

In May, we co-hosted Australia's second-ever Biosecurity Symposium, when over 400 government, industry, scientific and community representatives came together under the one roof for three days to influence the direction of Australia's future biosecurity. We developed new ideas, built new partnerships and engaged in challenging discussions about how to best tackle the unprecedented pressure on Australia's biosecurity system.

With the support of our Decade of Biosecurity Project 2030 Ambassador, Costa Georgiadis, we are just at the beginning of this exciting journey.

We'll also be ramping up our campaigning on the invasive species already established in Australia. Introduced predators like cats, feral hard-hooved herbivores like deer and horses and invasive insects like yellow crazy ants will be big focus areas. Later in the year we're looking at taking on new areas, including weeds and marine invaders, improving Indigenous engagement and amplifying citizen science to keep our native wildlife safe from invasive species threats.

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Heather Miles visited recently to photograph plants in my garden.

Heather has kindly agreed to share the Dropbox link, where you will see some of her fantastic photos. Have a look during November though, as they may be deleted afterwards.

Heather has also made a video, which you can view here.

Eremophila muelleriana, photo by Heather Miles

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Let's show a bit of love for the Lillipilly

This humble plant forms the world's largest genus of trees – and should be an Australian icon

Darren Crayn - Professor and Director, Australian Tropical Herbarium, James Cook University
Stuart Worboys - Laboratory and Technical Support Officer, Australian Tropical Herbarium, James Cook University
The Conversation September 30, 2022

You're probably familiar with the sight of a Lillipilly bush. This hardy Australian staple – a glossy evergreen bearing powder-puff flowers and clusters of bright berries – features in many a garden hedge. But you may not know this humble native has spread across the globe in waves of emigration, adaptation and evolution. Almost 1,200 species of Lillipilly are now found in rainforests across the tropics and subtropics of Africa, Asia and the Pacific.

Our research helped reconstruct the evolutionary history of Lillipillies in unprecedented detail. We show how Lillipillies evolved in Australia and now form the largest genus of trees in the world. Lillipillies are one of Australia's great gifts to the natural world. But the story of these homegrown heroes may be taking a grim turn.

A plant on the move

Lillipillies began their international adventures about 17 million years ago. At that time, the Australian continent (which together with New Guinea is known as the Sahul Shelf) was

colliding with Southeast Asia (known as the Sunda Shelf) following its breakup with Antarctica. This breakup was the final dramatic act of the fragmentation of Gondwana.

The collision provided an opportunity for biotic exchange between the northern and southern hemispheres. Many plants and animals moved south to the Sahul Shelf and prospered in the new lands. Lillipillies are one of the few lineages that moved in the other direction. Along with our songbirds, Lillipillies stand as a rare example of an Australian group that set out from these shores and achieved major evolutionary success abroad.

Lillipillies are a magnet for pollinators. Shutterstock

Lillipillies light up our lives when they flower and fruit. Their showy white, cream or red flowers are followed by succulent red or purple berries. They're a magnet for pollinators, helping fill our gardens with the songs of insects and birds.

The Riberry, *Syzygium luehmannii*, is one of the most commonly grown and stunning garden species. It produces heavy crops of delicious fruit rich in antioxidants and prized by chefs. Many species in the genus are used as food and medicine by Indigenous people, and potent antibacterials have been identified in the leaves of some species. Cloves, a favourite spice of home bakers, are the dried flower buds of an Indonesian Lillipilly – the aptly named *Syzygium aromaticum*.

About 75 species of Lillipilly are native to all Australian states and territories except South Australia and Tasmania. The greatest concentration of species is in the Wet Tropics World Heritage Area of northeast Queensland. About 50 species are found there, half of which occur nowhere else on Earth. And almost 1,200 species of Lillipilly are now found in rainforests across the tropics and subtropics of Africa, Asia and the Pacific, including Australia. As is common in the tropics, species new to science are regularly discovered and named. For example, almost 30 new species of Lillipilly have been named from New Guinea in the last two years – and many more are likely awaiting scientific discovery.

But how did Lillipillies achieve such international success? Our research team decided to find out.

Peering into the past

The research, led by colleagues in Singapore, involved analysing the genomes of hundreds of living species of Lillipillies. Similarities and differences in the structure of genomes can reveal how closely related the species are. Using that knowledge, we can build up a picture of their genealogy - the "family tree" that connects ancestral species and their descendants. These techniques also allow us to estimate the amount of genetic change that has occurred along the branches of the genealogy. And, if we're lucky enough to have an accurately dated

fossil of an ancestral species – as we do for Lillipillies – we can calculate the rate of genetic change even more accurately.

All this allowed us to peer deeply into the past and reveal the events that set the Lillipillies on their global journey.

We already knew Lillipillies evolved in Australia and emigrated into the rainforests of Africa, Asia and the Pacific. Our research showed this dispersion occurred in at least a dozen distinct waves. Each emigrant lineage diversified rapidly and successfully in its new environment. This resulted in the nearly 1,200 Lillipilly species found worldwide today – more than any other tree genus. In contrast, their relatives the eucalypts have largely remained only a local success story.

A sad twist?
Lillipillies may be one of Australia's most successful botanical exports, but their future, like that of many rainforest plants globally, is threatened by habitat degradation and climate change. The Magenta Cherry (*Syzygium paniculatum*), for example, is endangered by coastal development in New South Wales. And the Brotherly Love Lillipilly (*Syzygium fratris*), found only on Queensland's highest mountain, is highly vulnerable to climate change.

But a devastating disease – myrtle rust - may be the most potent threat of all. It's caused by an introduced fungal pathogen and kills new foliage, flowers and fruits of plants in the family Myrtaceae, to which Lillipillies belong. Myrtle rust arrived in Australia in 2010 and spread rapidly in the wind and via human activity. Already, it threatens some plant species with extinction. Lillipilly species have been damaged by this serious disease, though none are under immediate extinction threat yet.

Lillipillies are an Australian origin story. They're a major contributor to rainforest biodiversity and important to Indigenous cultures. And they've endeared themselves to generations of gardeners and cooks. Given all this, Lillipillies deserve to be recognised – and protected – as Aussie icons.

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The future influence of our Society

Lawrie Smith AM - leader of the Garden Design Study Group

Since the founding of our Society 65 years ago, our members have, in so many ways, made it their business to constantly inform the community about the importance of preservation, conservation, and of using native plants in the landscape and in garden design.

No other group could, or ever has, contributed so freely to the wider community, with so much specialised environmental, botanical, horticultural, and personal knowledge – locally, nationally, and even internationally.

As a Society represented in every state, and particularly through the Study Groups, we must continue to do everything possible to inform, assist, and ground Australians in understanding the significance and use of their own landscape – this is an extremely important task.

Value that work! The awakening and encouraging of public appreciation about our native species are so vitally important, and will become even more important in the future as climate change impacts, and more particularly as our population expands while also becoming increasingly multi-cultural.

This is part of a talk given by Lawrie at the ANPSA conference 2022

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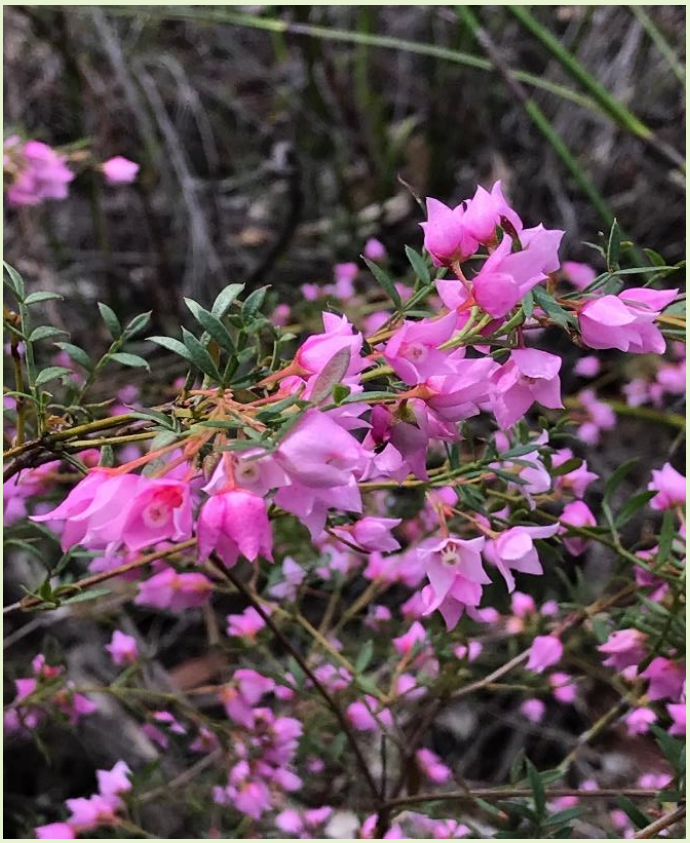
RETURN TO QUARRY ROAD DURAL 22 October 2022

Jennifer Farrer (Photos Lesley and Ian)

Despite forecasts of storms, seven of us met at the end of Quarry Road and walked for two hours in fine weather. We had been told by Jim and Ricki Nash that there were terrestrial orchids to be seen there and we were not disappointed. We saw several patches of *Calochilus robertsonii,* the Purple Beard Orchid.

Quarry Road has been a favourite place for us to walk for many years. It is quite flat and the diversity of plants is truly amazing. The continual rain this year has meant that the flowering season has been longer and later than usual. So on this Saturday afternoon in late October we saw many plants still flowering. For example, there was a lone *Woollsia pungens*, looking a little tired but still flowering after probably six months. Some *Grevillea speciosa* still had flowers as well.

Overall we saw and identified 64 species. Highlights were masses of *Dampiera stricta,* more *Conospermum longifolium* than I have ever seen before and extensive patches of *Boronia pinnata* and *floribunda.*



Boronia floribunda

Conospermum longifolium

The smaller group enabled us to really examine and identify some smaller inconspicuous plants which are often overlooked such as *Micrantheum ericoides, Stackhousia viminea and Gonocarpus teucrioides* .

After much discussion it was decided that this plant was *Poranthera ericifolia:*

Lomandra confertifolia subsp. rubiginosa growing on an ants' nest

Dodonaea triquetra

Lovely *Angophora costata:*

An unusual photo by Bill de Belin taken on the Quarry Road fire trail earlier in October – a *Petrophile pulchella* that's been blown by the wind, leaving a green tinge on the eucalypt's bark.

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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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Parramatta and Hills District Group

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We support awareness and conservation of Australian native plants.