

CALEYI



NORTHERN BEACHES GROUP
austplants.com.au/northern-beaches

July 2022

Australian Plants Society Northern Beaches
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APS Northern Beaches Group acknowledges the Traditional Owners of the land on which our activities take place. We pay our respects to Elders past, present and emerging, and recognise the continuing connection to lands, waters and communities.

CALENDAR

Thursday July 7, 2022 APS Northern Beaches meeting at Stony Range Regional Botanic Garden.

7.15 pm Lesser plant family Malvaceae - David

7.30 pm Presentation 'Show & Tell'. This ever popular session features your own plant specimens, pictures and stories.

8.30 pm Committee Meeting.

Supper - Harry & Lindy.

Saturday July 16 APS Northern Beaches walk 10.30 am The Challenger Walk, West Head. Penny will email details later.

NB. 2022 Stony Range Spring Festival Sunday October 9.

Many thanks to Penny Hunstead, Russell Beardmore, Conny Harris, Harry Loots and Edwin Wilson for their great contributions to this edition.

If you have any photographs or words for Caley please send to me Jane March march@ozemail.com.au 0407 220 380.

TURIMETTA HEADLAND WALK- SATURDAY, 18TH JUNE, 2022

Penny Hunstead



Predicted to be rainy, so we were lucky to have a fine sunny day for our walk. We were a small group, Jan, Jane, Jennifer, Penny and Russell, meeting at the northern side of Turimetta Headland.

There are four distinct areas along the walk:-

1. The climb up from the northern entrance to the crest of the hill
2. The small forest at the crest of the hill
3. The LHS seaside walk, downhill with a short level path
4. The uphill walk, from the southern entrance to the crest of the hill

At the entrance of the reserve there is a coastal lookout, with magnificent views north of beaches and headlands, up to the Central Coast. At this lookout, there are memorials to young people who, tragically, ended their lives here.

Although overcast conditions are best for outdoor photography, we were glad to see the beautiful coastal views in brilliant sunshine.

The species viewed, as we ascended the steps included lush growth of



grasses, *Themeda triandra* and *Microlaena stipoides*, shrubs; *Breynia oblongifolia*, *Melaleuca hypericifolia*, *Leptospermum laevigatum*, *Westringia fruticosa* and *Acacia longifolia* var. *sophorae*. There was an unusually dense growth of the vines *Parsonia straminea*, *Passiflora herbertiana*, *Stephania japonica* and *Marsdenia flavescens*. Trees included *Allocasuarina littoralis* and *Banksia integrifolia*.



Turimetta Headland Reserve. Of course, identification is limited to the trackside species and those trees and shrubs that can be identified from afar. Most of the species seen, in the heathland will be flowering in July and August, but we were happy with the flowers that we were able to see. We also noticed a number of Elliott traps, throughout the Reserve.

At the top of the hill, there is a forest of *Allocasuarina littoralis*. It was interesting to note that the ground beneath the trees is covered with a dense growth of *Microlaena stipoides*. This is unusual, considering the allelopathic nature of fallen *Allocasuarina* branchlets.

Taking the LHS steps down the southern slope of the walk, it was depressing to see how many weeds there are, notably *Lantana camara*, *Protoasparagus aethiopicus*, *Ehrharta erecta* and *Ochna serrulata*. It is surprising that the bush regenerators, named in the park, have not reduced this weed population. There are views, East and West, over dense heathland, dominated by *Allocasuarina distyla*, *Gahnia sieberiana*, *Lepidosperma* sp., with *Banksia integrifolia*, dwarfed and windpruned.

The species, in flower, in this area were, *Westringia fruticosa*, *Hakea gibbosa*, *Notelaea longifolia*, *Myoporum boninense*, *Viola hederacea*, *Banksia integrifolia* and *Parsonia straminea*.



Back at the top of the hill, there are bench seats and a small stone wall to sit on and have a rest. We did so and then went off to nearby Oceans Restaurant for a tasty lunch.

Penny Hunstead

THE POET'S TREE, EAST WARDELL (Ballina Shire Council)

Echo December 24, 2021 David Lowe

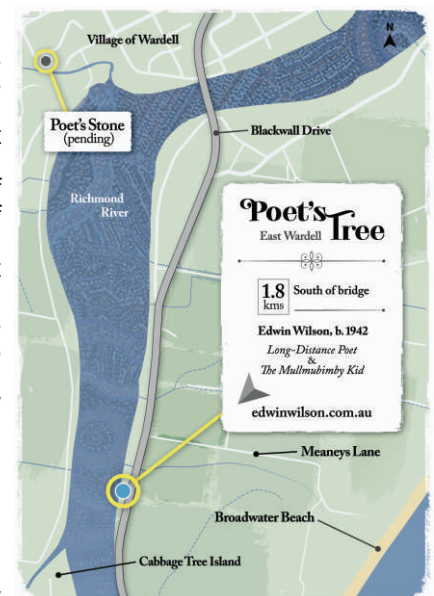
One of outgoing Councillor Sharon Parry's last actions at Ballina Shire Council was to recommend that council support a new sign to draw attention to a little-known part of East Wardell's history, the Poet's Tree.

There is a viewing platform, half-way down the slope, with a great view of the beautiful coastline, southwards. The cliff face, seen from this lookout, shows very distinctive banding of rocks in the Garie Formation of the Upper Narrabeen Group of sedimentary rocks. Fossils of the Triassic plant, *Dicroidium* sp. can be found in these Turimetta rocks.



The proposed bronze plaque reads: 'Edwin ('Peter') Wilson, Poet & Painter, b.1942, lived for his first five years in an adjacent fibro cottage, built (1941) on the site of the pioneer 'log cabin' (of vertical split slabs of cabbage palm stems), home of his great grandparents (illiterate Danish absconder Charles Wilson (anglicised), and his Gaelic-speaking Famine Orphan wife Mary Rirdan/Riordan).'

Edwin had planted this Lord Howe Island banyan tree (1968) near where the original wharf had been, when the river was the only road.



The walk back up from the southern entrance, is a series of steps with easy gradient. Many of the same heath species as seen on the downward steps, are seen on this walk. Others, seen flowering, include *Dianella revoluta*, *Philothea buxifolia*, *Acacia suaveolens*, *Wikstroemia indica* (in fruit) and in bud, *Acacia longifolia* var. *sophorae* and *Pomaderris mediora*.

The species named in this report fall far short of the seventy two plus species named in a flora list (Northern Beaches Council plant list) for the

THE LOBELIACEAE FAMILY

At the June meeting Conny Harris introduced us to the “lesser’ plant family Lobeliaceae.

* **Hypsela** *H. sessiliflora* - extinct

* **Isoltoma**

L. fluviatilis
(Aquatic)

slender prostrate herb with rooting stems in marshy places on the flood plain of the Neapean + once rec. Narrabeen Lakes. Flowers sky blue to almost white.

L. axillaris small spreading herb. Rocky situations. Georges River, Blue Mountains. Large sky blue flowers.



Isoltoma axillaris. Pic JM

* **Lobelia**

Cosmopolitan genus

L. alata coastal & estuarine. Pale blue flowers.

L. dentata to 40cm high.

Lower leaves ovate. Electric blue flowers.

L. gibbosa to 60 cm high

Lower leaves linear.

L. gracilis trailing procumbent plant.

Deep blue flowers singly on stem (Friends of Lane Cove website)



Lobelia dentata. Flickr

* **Pratia**

Por ***L. purpurescens***

Ovate serrated leaves, purple underside.

Flowers white (+ pink) Frenchs Forest Hospital site.



Pratia purpurescens. Pic Friends of Lane Cove.

THE SECRETS HELD IN THE BOTANICAL NAMES OF YOUR FAVOURITE PLANTS

SMH June 9, 2022 Robin Powell

Friends are forever recommending podcasts to me, which I never find time to listen to. On your walk, they say. But to press play on a podcast I would have to give up my internal conversation with the plants I pass.

Admittedly this conversation consists mostly of me naming them: *Wisteria sinensis*, *Pennisetum rubrum*, *Camellia sasanqua*, *Loropetalum chinense*, *Leptospermum brachyandrum*, an excellent one that. I repeat it, *Leptospermum brachyandrum*, just for the fun of all those syllables, all those consonants. It feels like my mouth is dancing.



Learning the proper names of plants is a short step to a much more interesting neighbourhood walk, headphones not required. credit:istock

I realise this walking meditation mantra is an odd habit. But I do wish more gardeners would embrace the joy of botanical names. Binomial classification, which is the naming of plants that puts the genus in which the plant belongs as its first name, and its individual species as its second, is not just a party in your mouth, but actual information.

For a start the botanical name allows for a correct identification. If you talk of your hen and chicks and you don't keep poultry do you mean a succulent from the *Sempervivum*, *Echeveria* or *Sedum* families, all of which include plants that use this same common name?

Trust me, the Greek and Latin words make it simple. Plants with the same first, or genus, name will share some characteristics, aiding your garden success. The second, specific epithet, tells you something about that individual species.

The species name may have been chosen to refer to the plant's colour, form, growing habits, leaf shape, fruit, texture or similarity to something else entirely, or it may refer to an individual, usually a man, who either named the plant or named it after a patron or friend.

Gardening

Garden in need of a glow-up? These design experts can help

Some of it is obvious. 'Grandiflora' means big flowers, as in *Magnolia grandiflora*. 'Longifolia' means long leaves, as in *Acacia longifolia*, the most common wattle of our coast. 'Jasminoides' means it looks or smells like jasmine, as in *Trachelospermum jasminoides* (Chinese jasmine) or the native *Pandorea jasminoides*. 'Fragrantissimus' means it smells good, as in *Lonicera fragrantissima* (honeysuckle) and 'foetidus' means it stinks, as in *Iris foetidissima*, which has unpleasant-smelling foliage.

So you can expect the native ginger, *Alpinia caerulea*, to have blue berries because 'coeruleus' means blue. 'Scandens' means climbing so you know how *Hibbertia scandens* is not going to form a neat mound. If you want leaves with a blue-green tinge to them look for some form of 'glaucescens' in the name, such as *Echeveria glauca*, which is a pale blue-grey-leaved succulent, or *Cordyline glauca*, the back of whose leaves are more of a navy blue-green, or *Festuca glauca*, the blue fescue which forms a mound of fine steel-blue leaves.

Hooked yet? Start by learning the proper names of the plants you grow and love, and find out what the names tell you that you didn't already know. From there it's but a short step to a much more interesting neighbourhood walk – headphones not required.

Trevor Wilson: *Ajuga* in Australia: a horn of plenty.

Harry Loots

On a freezing Thursday night Trevor Wilson, a research scientist at the Royal Botanic Gardens was kind enough to leave the warmth of his family at Connells Point on the Georges River to come to Dee Why. But we soon learnt that it was his dedication to botany that had propelled him to travel the distance. The Northern Beaches Group was privileged to receive a talk that described how botanists determine what is a plant species and how the principles of evolution are relevant to this determination.



Trevor is a Canadian who has been studying the mint family, the Lamiaceae for the past few years. To illustrate the cosmopolitan nature of various mint genera he showed two plants. *Clerodendrum tomentosum* (Downy Chance Tree), is native to tropical and rainforest areas along the Australian east coast and also grows in the Northern Territory and New Guinea. The genus *Clerodendrum* is native to tropical Africa and Asia. The genus *Teucrium* is common in Australia however its centre of diversity is the Mediterranean region. There are about 23 *Teucrium* (Germander) Australian species that grow best in salty areas in Queensland. Trevor has already completed the genetic sequencing of Germander. *Teucrium junceum* with its small red berries and very thin stems grows north of the Hunter River. *Teucrium fruticans* is grown in Australia as a hedge plant. These examples show that mint plants are very adaptive and can be easily migrate from one part of the world to another.

In his post-doctorate studies at the Sydney Botanic Gardens Trevor has examined the propensity for *Ajuga* in Australia to exhibit the adaptive and cosmopolitan nature of the mint genera tribe. *Ajuga* is an erect herb, with opposite leaves and purple flowers with long spreading lower lip and small upper lip. It is a genus of about 45 species found in many parts of the world.

Botanists have known about *Ajuga* since Australia's colonisation. In 1810 the Scottish botanist Robert Brown first found *Ajuga australis* (Austral bugle) near Wilton, south west of Sydney. In 1846 while Major Thomas Mitchell was climbing the 776 metre Mount Faraday volcanic peak in

Central Queensland near Tambo they found *Ajuga australis* on the mountain as well as on the sandy flats. It could be described as a weedy plant. *Ajuga reptans* (Carpet Bugle) is listed in the Invasive Plant Atlas of the United States and it has been declared a naturalised plant from elsewhere in Tasmania.

Trevor received a federal grant as part of the Genomics for Australian Plants to review the taxonomy of the *Ajuga australis* species. Plant taxonomists have long suspected that Austral Bugle is a species complex, and is not just one species, but a number of species lumped together. Trevor has been examining the morphology (looks) and molecular data (genetics) to decide whether to keep *Ajuga australis* lumped, or to split it into a number of species. There had been four different *Ajuga* in Australia but then it was decided to call them all *Ajuga australis*. Trevor showed us *Ajuga australis* from Queensland, Tasmania, South Australia, and different parts of NSW. Depending upon their location they had different leaf forms and growth habits, being either squat or tall.

DNA analysis was used to sort out the conundrum of this puzzle. The DArT (Diversity Arrays Technology) sequence of 70 populations with greater than 550 individuals was studied. DArT is a programming language for acquiring a genome profile that reduces the complexity of the genomic DNA. There were over 40,000 informative markers to sort through. Plants from South Australia, southern Victoria and Tasmania shared the same genetic code. Queensland plants had their own DNA. The greatest complexity occurs in NSW with many different types on the Central Western Plains particularly around Tamworth. It was discovered that *Ajuga australis* hybridises very easily. This hybridisation causes its own complexity when analysing genetic code. There is genetic diversity among *Ajuga australis* as different groups maintain their form if growing in the same area. There is also a gene flow among the various forms from different areas. The hybridisation has produced too many plants in between distinct species type.



A computer-generated series of radiating lines from a central point showed the genetic codes of *Ajuga* plants from different areas. There were four distinct convergences of lines that represented four different areas however there were many lines in between. The genetic difference between plants from different areas was not great. There seems to be a gene flow among the various forms from different areas with some genetic sharing between different forms found in different environments. It is difficult to understand how evolution has occurred among these plants. The genetic distribution does not give a clear indication. There are too many plants that are in between distinct species type.

This lack of genetic distinctiveness among the Australian *Ajuga* is quite different to other native Australian genera such as those in the Proteaceae family and Eucalyptaeae tribe. These Australian plants have distinct species within a genera because they have diversified in different parts of Australia over millions of years. This genetic diversity can be identified in the distinct species of Western Australian species compared to Eastern Australian species.

An explanation for the lack of distinct *Ajuga australis* diversity could be that the plant has recently arrived to Australia. People may have brought *Ajuga* seeds from South East Asia or New Guinea to Australia in the last 50,000 years. *Ajuga australis* is just in the infancy of its diversification and with present day hybrids may eventually form four distinct species.

LOWLY MUSHROOMS MAY BE KEY TO ECOSYSTEM SURVIVAL IN A WARMING WORLD

Fungi that decompose plant matter may keep ecosystems healthy, especially after drought

Science.org May 9, 2022. Elizabeth Pennisi



Fungi, such as this bridal veil stinkhorn (*Phallus indusiatus*), that break down plant matter in the soil can help aboveground plants thrive. Alex Hyde/NPL/Minden Pictures

The red, orange, and spotted mushrooms that sprout up after it rains are doing more than adding color to the landscape. The fungi that produce them could be keeping the natural world productive and stable, according to a new study. Indeed, they may be critical to the health of Earth's ecosystems, says Matthias Rillig, a soil ecologist at the Free University Berlin who was not involved with the work.

There are 70,000 known kinds of fungi. These include the yeast we use to bake bread, as well as molds, lichens, mushrooms, toadstools, and puffballs. They also include a wide variety of pathogens, from those that cause athlete's foot in humans to those that inflict billions of dollars of damage on wheat, maize, and other crops.

Many of these fungi live belowground, but researchers have traditionally paid little mind to them. In the past few years, however, ecologists have realized that some—such as soil fungi called mycorrhizae—form vast underground networks that connect trees and supply them with nutrients, enabling a forest to thrive.



Amanita muscaria. pic: Mark Brundretti

Might other soil fungi be playing a similar role aboveground? To find out, Manuel Delgado-Baquerizo, an ecosystem ecologist at the Spanish National Research Council, teamed up with colleagues around the world who had systematically collected and analyzed local soil samples—and the fungi they contained—for different projects. In total, the team analyzed nearly 700 samples from tropical, temperate, and polar climates.

Using DNA, Delgado-Baquerizo's team identified what proportion of soil fungi at each site were pathogens, mycorrhizae, decomposers (such as mold), and fungi that live inside plant roots. The researchers also examined satellite images that showed how much photosynthesis was going on in each area—and thus, how productive the vegetation was—and how much that productivity changed over the past 2 decades. "It is a clever combination of data," Rillig says.

A clear pattern emerged. Across a wide variety of ecosystems, from grasslands to forests to deserts, the more species of decomposers, the more plant productivity stayed the same over time, Delgado-Baquerizo and colleagues report today in *Nature Ecology & Evolution*. Having a wide variety of decomposers and to a lesser extent, root fungi, also helped keep the vegetation growing even in dry spells, the authors found.

This diversity might ensure that no matter how conditions change, some fungi will still be able to supply the plants above them with nutrients. "Their role may be greater than mycorrhizal fungi," says Sarah Sapsford, a fungal disease ecologist at New Zealand's Ministry for Primary Industries who was not involved with the work.

In contrast, having a wide variety of pathogens seemed to compromise the health of the aboveground ecosystem. Plants grew slower and carried out less photosynthesis, productivity that helps fuel the rest of the ecosystem's organisms. Pathogens may weaken plants and make them less able to withstand climate stresses.



Amanita muscaria. pic Amanda Holt

The associations held up in every environment studied, the authors report.

"It is fascinating that, despite all the other variables changing from site to site, these patterns stand out," Rillig says. He cautions, however, that the work doesn't prove fungal diversity causes the stability (or the vulnerability). Other factors, such as the diversity of other types of microbes in the soil, he says, could be important as well.

The findings suggest promoting the diversity might be key to protecting our ecosystems as the climate warms and leads to more droughts, says Marina Semchenko, an ecologist at the University of Tartu who was not involved with the work.

No one really knows how to promote soil fungi diversity, but at the very least, by assessing that diversity "we may be able to pinpoint the ecosystems that may be 'unstable' and less resilient to disturbance," Sapsford says. "It is an exciting time."



STONY RANGE SPRING FESTIVAL

Stony Range Regional Botanic Garden is an oasis of Australian native plants located at Dee Why in the heart of the Northern Beaches.

Sunday 9 October

9 am - 3 pm

Stony Range Regional Botanic Garden



Fun for children
face painting, treasure hunts, native
animals



Fun for all
live music, native bees, guided walks

Sausage sizzle, Coffee Shop, Home made
cakes.



SALE OF NATIVE PLANTS

Take advantage of expert cultivation advice from Stony Range Botanic Garden volunteers & members of Australian Plants Society Northern Beaches Group.

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