CALEYI

Australian Plants SOCIETY NSW

NORTHERN BEACHES GROUP

austplants.com.au/northern-beaches

May 2024

Australian Plants Society Northern Beaches
northernbeaches@austplants.com.au

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.

APS Northern Beaches Group Meeting
Thursday May 2, 2024 at Stony Range Regional Botanic Garden, Dee Why.

7.15 pm Lesser Plant Family Stylidiaceae**: David**

7.30 pm Presentation: Julie Leal "Bees - native & exotic bees kept for honey production"

Supper - Russell & Georgine

APS NSW Quarterly Saturday May 11, 2024 at Cherrybrook. Details page 6.

2024 ANPSA BIENNIAL CONFERENCE 'GARDENS FOR LIFE', VICTORIA
30 September - 4 October 2024 Full updated details including fees for tours page 6.

Many thanks for the wonderful contributions to Caleyi this month go to Jennifer McLean, Beth Gower and Pamela Dawes

Please email stories, photos (as attachments please) etc for Caleyi to march@ozemail.com.au

APS NORTHERN BEACHES VISIT MACQUARIE UNIVERSITY ARBORETUM

Jennifer McLean

It was a warm, early autumn day when we met, fifteen altogether, APS members and visitors, at the Bush Tucker Garden, the first section of the Macquarie University Arboretum. Sam Newton, the Co-ordinator of the Arboretum from its inception in 2010 until 2020, had offered to guide and inform about the history of the Arboretum. Her qualifications are in botany, landscape design and research into ecological-sustainability.


Welcome. pic: Beth Gower.

The university was inaugurated in 1964 and is situated on 126 hectares, which had once been flower and market gardens. A small area of remnant natural bushland which includes some of the nationally rare forest ecosystem known as Sydney Turpentine-Ironbark Forest remains on the site. Sydney Sandstone Gully Forest, Coastal Shale Sandstone Forest, and Sydney Sandstone Ridgetop Woodland are also represented.

In the 1965 original landscape plan by architect Walter Abraham a selection of mostly native drought tolerant trees was chosen. These include one hundred and twenty *Corymbia citriodora* and an avenue of London Plane Trees much to the chagrin of the native plant purists who would like to see these removed.

The Arboretum is the only one in Sydney on a University Campus and was officially launched in 2010 with the planting of four *Eucalyptus piperita* and a *Syncarpia glomulifera.* New areas of landscaping have been established over time keeping the practice of using hardy tree species able to withstand harsh dry conditions. The planting is divided into sections offering


Sam explains. pic: BG.

opportunities for learning in various subjects such as science, botany and bush tucker. It all comes together as a pleasant garden in which to wander and enjoy at leisure.

The Bush Tucker section was constructed in 2011 on the site that had once been a carpark and therefore soil had to be imported and mounds constructed. It has a southerly aspect and is shaded on the northern side by a large building and the west by a tall water-cooling tower. Despite its limitations, the object was achieved and many plants with fruits or other edible parts have thrived. Of trees, we saw Black Bean, Lemon Myrtle, Blue Berry Ash and a Macadamia, evidence of its fruiting in a solitary follicle (nut) still hanging on the tree. As well there, were fruit on the Finger Lime, *Syzygium* and Sandpaper Fig. There was a scrambling native Raspberry and a profusion of native Ginger. *Dianella cerulea* and Warigal Greens were also successful.


Ficus hillii planted in the 1970s. pic: BG.


Question time. pic: Anne Gray.

In the Biology Garden further on, there are several examples of exotic Cycads, also *Cupressus semperivens* from the Mediterranean area and *Cupressus arizonica* from Northern America. Two Angophoras, *hispida and bakeri* are thriving. Some very tall trees are *Eucalyptus elata, Podorcarpus elatus* and *Allocasuarina littoralis*. Shrubs included *Dodonea sp., Eremophylla nivea, Atriplex nummularia, Hybiscus tetraphylla, Prosanthera sp.*, and more.

Moving through the different areas we came to an enormous *Acacia elata*, planted especially for its shade and *A. podalyrifolia* not so big but fast growing with silvery grey foliage. A huge American Tulip Tree (*Liriodendron tulipifera*) could not be ignored.

On leaving the Biology garden and heading towards the Central Courtyard, our attention was drawn to an inviting picnic area and a grove of Eucalypts. These had been grown from a collection of seedlings left over from various studies and are now tall trees, *E. grandis, E.deanii, E. moluccana and E. citriodora.* Beyond these grows a large *Ficus hillii* planted in the 1970s.


Watercourse. pic: BG.

Finally, we came to the central courtyard where a large new accommodation and amenity building looks over a spectacular view of grassland that falls to a large and picturesque lake complete with fountain, which is fed by a small creek, natural in appearance but all man made. This watercourse continues to Mars Creek and finally the Lane Cove River. On the other side of the creek the lawns then rise steeply enclosing an open-air amphitheatre and at the top of the rise sits a large sculpture.

We stood here for some time taking in the amazing view of the open space, the undulating terrain and the tree lined creek, the mirror surface of the pond, then we made our way to the Central Courtyard Building's cafes and dining area for our lunch. Anne thanked Sam for her wonderful guided tour and we sat down to eat and chat.

MAJOR CHANGES TO LEPTOSPERMEAE

iNaturalist.org April 19, 2024 Peter Wilson and Margaret Heslewood

Last year, a new paper was published with significant changes for the tribe *Leptospermeae* at the generic level: Revised taxonomy of the tribe *Leptospermeae (Myrtaceae)* based on morphological and DNA data by Peter Wilson and Margaret Heslewood. Paper is available here: https://tinyurl.com/3nmpzw95

Pre-paper, and current iNat before the changes I'm about to implement, *Leptospermum* was a large, fairly broadly circumscribed genus. Post-paper, it is now somewhat split up, with the resurrection of one genus and the erection of three new genera, into which 40+ *Leptospermum* species have been transferred. All of these changes have now been accepted by POWO, as well as most of Australia's state herbaria (APC is a bit slow to uptake the new names, but it will happen soon), so I am now implementing all of these changes on iNat. The changes are as summarised below, with the current *Leptospermum* species on iNat indicated on left, and the new combination on right:

Genus resurrected: *Leptospermopsis*, 8 species
Leptospermum erubescens --> Leptospermopsis erubescens
Leptospermum fastigiatum --> Leptospermopsis fastigiata
Leptospermum incanum --> Leptospermopsis incana
Leptospermum maxwellii --> Leptospermopsis maxwellii
Leptospermum nitens --> Leptospermopsis nitens
Leptospermum oligandrum --> Leptospermopsis oligandra
Leptospermum roei & Leptospermum inelegans > Leptospermopsis roei
Leptospermum sericeum --> Leptospermopsis sericea

New genus: *Aggreflorum, 10 species*
Leptospermum anfractum --> Aggreflorum anfractum
Leptospermum benwellii --> Aggreflorum benwellii
Leptospermum brachyandrum --> Aggreflorum brachyandrum
Leptospermum whitei --> Aggreflorum ellipticum
Leptospermum madidum --> Aggreflorum longifolium (with subsp. longifolium and sativum)
Leptospermum luehmannii --> Aggreflorum luehmannii
Leptospermum pallidum --> Aggreflorum pallidum
Leptospermum parviflorum [not in iNat] --> Aggreflorum parviflorum
Leptospermum purpurascens --> Aggreflorum purpurascens
Leptospermum speciosum --> Aggreflorum speciosum

New genus*: Apectospermum, 4 species*
Leptospermum exsertum --> Apectospermum exsertum
Leptospermum macgillivrayi --> Apectospermum macgillivrayi
Leptospermum spinescens --> Apectospermum spinescens
Leptospermum subtenue --> Apectospermum subtenue

New genus: Gaudium, 22 species
Leptospermum blakelyi --> Gaudium blakelyi
Leptospermum brevipes --> Gaudium brevipes
Leptospermum confertum --> Gaudium confertum
Leptospermum coriaceum --> Gaudium coriaceum
Leptospermum deanei --> Gaudium deanei
Leptospermum divaricatum --> Gaudium divaricatum
Leptospermum glaucescens --> Gaudium glaucescens
Leptospermum jingera --> Gaudium jingera
Leptospermum laevigatum --> Gaudium laevigatum
Leptospermum lamellatum --> Gaudium lamellatum
Leptospermum microcarpum --> Gaudium microcarpum
Leptospermum multicaule --> Gaudium multicaule
Leptospermum myrsinoides --> Gaudium myrsinoides
Leptospermum namadgiense --> Gaudium namadgiense
Leptospermum neglectum --> Gaudium neglectum
Leptospermum parvifolium --> Gaudium parvifolium
Leptospermum polyanthum --> Gaudium polyanthum
Leptospermum semibaccatum --> Gaudium semibaccatum
Leptospermum sericatum --> Gaudium sericatum
Leptospermum subglabratum --> Gaudium subglabratum
Leptospermum trinervium --> Gaudium trinervium
Leptospermum venustum --> Gaudium venustum

Leptospermum rotundifolium, pic Alan Fairley

I have already added all 45 of these new taxa to iNat, and will do one-to-one swaps for each.

Some important comments:

1. Although most *Leptospermum sensu latu* are endemic to Australia, there are a few species native to other countries (New Zealand and a number of countries spanning southeast Asia from Myanmar down to PNG). Almost all of these species are retained in Leptospermum. The only one transferred to a new genus is parviflorum, which is now in Aggreflorum; it is distributed across both northern Australia and into New Guinea.

2. There are a small handful of Australian species that are now widely naturalised in a number of countries/regions (South Africa, NZ, Hawaii, California, Madeira, Azores, St Helena, etc). The two major cases here are *Leptospermum scoparium* and *laevigatum*. *scoparium* is retained in *Leptospermum,* but *laevigatum* is now in *Gaudium.*

3. Perhaps the most important comment here for people to note. There are six regions where, under the new taxonomy, at least two of the now five genera co-occur, including both native and non-native taxa.

These regions are:
Australia - New Zealand - South Africa - Hawaii - Kenya - California.
For all six, both Leptospermum and Gaudium are expected to occur; for Australia this is all native species, NZ a mix of native and non-native, and the others due to the presence of both *Leptospermum scoparium* and *Gaudium laevigatum* as naturalised species

For these six places, any observation currently IDed only as genus *Leptospermum* will be rolled back to tribe *Leptospermeae*, as per this taxon swap I have drafted:
https://www.inaturalist.org/taxon_changes/142569.

These observations will then have to be revisited to see whether they need to be IDed as *Leptospermum (scoparium) or Gaudium* (laevigatum) [or another, newly naturalised species, or something cultivated that hasn't been marked as such]. For regions where only one genus is expected to occur, eg the Azores, Madeira, UK, any observations currently IDed to genus *Leptospermum* will not be changed.

APS NORTHERN BEACHES APRIL MEETING

Jennifer described the Stackhousiaceae plant family. There was a rush of googling to check local species. Pic: Ed.

TALK BY JAMES INDSTO.

Pamela Dawes

Our most recent talk was by James Indsto titled 'Pollination of Diuris maculata (Orchidaceae) by male Trichocolletes' and has been written up in The Australian Journal of Botany.

My understanding is that these are orchids which mimic pea flowers in shape, have a wavelength output in the UV range (550nm) ie usually yellow, so that the bees pollinate them, even though the orchids are not as large or bright as the flowers they mimic.

The male bees visit more flowers in order to find a female, whereas the female bees need to collect and store as much pollen as possible, so they visit mostly the legumes which contain the pollen they need to feed their babies till they are adult.

Orchids like a bit of moisture so they tend to grow in a small depression. These orchids often grow near pea flowers but fruit-set is highest when separated from the pea flowers, so they are not competing. Pollen removal is highest when they are growing near pea flowers.

Below is the abstract from the Journal which was written by James and his collegues.

In a previous study, the Australian terrestrial orchid *Diuris maculate sensu lato* from a site near Melbourne, was suggested to be a floral mimic of several legume species. The widespread distribution of this orchid species, suggests that there may be a number of different model and pollinator species throughout this range and that additional studies are needed to characterise it's pollination adequately.

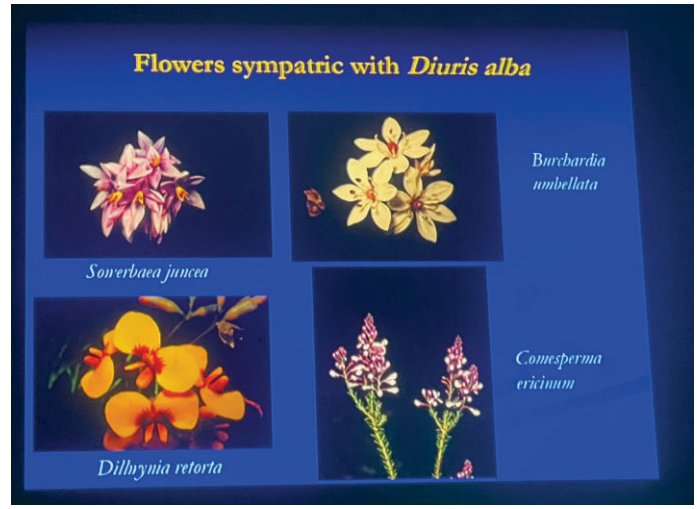
In the most recent study, the pollination of D. maculatain the Sydney region , mainly at Scheyville National Park was compared with the results previously obtained in Victoria.

In Scheyville NP *Trichocolletes venustus* was the only native bee found in significant numbers, and the flowers visited were almost exclusively the legumes *Hardenbergia violacea* and *Daviesia ulicifolia ssp ulicifolia*. 50% of captured male bees found to be carrying pollinaria. Female bees, which appeared 10-14 days after the males were not observed visiting the orchid or carrying orchid pollinaria.

The study confirmed that the *D maculata* flowers lack nectar and noted that the pea-like flowers possess a UV false nectar guide comparable to the true UV nectar guide of the legume flowers. Colormetric analysis showed the color separation between *Daviesia ulicifolia ssp ulicifila* and the orchid is small enough to be likely to produce foraging errors, consistent with mimicry.

It was concluded that guild mimicry of a diversity of 'egg and bacon' legumes best explains the pollination od *D. maculate s.l.* rather than precise mimicry of any one pea species.

The novel finding of comparable UV patterns in Diuris species and putative pea models applies to most species in the genus and that the rare *D aequali*s shows remarkable similarity in color, shape and Uv patterns to the sympatic legume *Gompholobium huegelii* and is likely to be a mimic of this species



OUR TALL, WET FORESTS WERE NOT OPEN AND PARK-LIKE WHEN COLONISTS ARRIVED – AND WE SHOULDN'T BE BURNING THEM

The Conversation: April 24, 2024. David Lindenmayer , Professor, Fenner School of Environment and Society, Australian National University. Chris Taylor , Research Fellow, Fenner School of Environment and Society, Australian National University. Elle Bowd , Research Fellow, Fenner School of Environment & Society, Australian National University. Philip Zylstra , Research Associate, University of New South Wales, and Adjunct Associate Professor, Curtin University.

Some reports and popular books, such as Bill Gammage's Biggest Estate on Earth, have argued that extensive areas of Australia's forests were kept open through frequent burning by First Nations people. Advocates for widespread thinning and burning of these forests have relied on this belief. They argue fire is needed to return these forests to their "pre-invasion" state.

A key question then is: what does the evidence say about what tall, wet forests actually looked like 250 years ago? The answer matters because it influences how these forests are managed. It's also needed to guide efforts to restore them to their natural state.

In a new scientific paper, we looked carefully at the body of evidence on the natural pre-invasion state of Australian forests, such as those dominated by majestic mountain ash (Eucalyptus regnans), the world's tallest flowering plant. We analysed historical documents, First Nations Peoples' recorded testimonies and the scientific evidence.

Our analysis shows most areas of mainland mountain ash forests were likely to have been dense and wet at the time of British invasion. The large overstorey eucalypt trees were relatively widely spaced, but there was a dense understorey of broad-leaved shrubs, tree ferns and mid-storey trees, including elements of cool temperate rainforest.

Old-growth mountain ash forest in Tarra Bulga National Park on Bratuaulung Country. Chris Taylor

What was the evidence?

We looked at many sources of historical evidence. We read colonial expeditioners' diaries. We reviewed colonial paintings and photographs. We sought out recorded and published testimonies from First Nations People. We compiled evidence from studies such as those that used carbon dating, tree rings and pollen cores.

We also examined the basic ecology of how the forests grow and develop, the plants' level of fire sensitivity and different animals' habitat needs. As an example of the many accounts we found, 19th-century civil servant and mining engineer Robert Brough Smyth wrote about:

[…] heavily timbered ranges lying between Hoddle's Creek and Wilson's Promontory. The higher parts and the flanks of these ranges are covered with dense scrubs, and in the rich alluviums bordering the creeks and rivers the trees are lofty, and the undergrowth luxuriant; indeed in some parts so dense as to be impenetrable without an axe and bill-hook.

Similarly, in 1824, colonial explorers Hamilton Hume and William Hovell described their encounter with mountain ash forests at Mount Disappointment in Victoria:

Here […] they find themselves completely at a stand, without clue or guide as to the direction in which they are to proceed; the brush wood so thick that it was impossible to see before them in any direction ten yards.

The ecological and other scientific evidence suggests mountain ash forests evolved under conditions where high-severity bushfires were rare. As a result, mature forests of eucalypt trees of multiple ages dominated these landscapes. There was no evidence of active and widespread use of recurrent low-severity fire or thinning.

Our key conclusion is that these forests were not open or park-like – as was the case in some other vegetation types in Australia.

Eugene Von Guerard's 1857 painting of dense forest at Ferntree Gully in the Dandenong Ranges. Google Arts & Culture/National Gallery of Victoria

First Nations People knew not all Country needs fire

Importantly, tall wet forests were not wilderness. Rather, they were places of significance for First Nations People. They used these forests seasonally to access important sites and resources and as pathways to visit others in neighbouring Countries.

There is no doubt parts of Australia were subject to recurrent cultural burning for many diverse and important reasons before the British invasion. However, our discussions with Traditional Custodians in the Central Highlands of Victoria, including Elders, indicate cultural burning was not widely practised in most of the mountain ash forests there. Nor were these forests actively thinned.

Many First Nations People advocate the need to consider ecological responses to fire. The right fire (or not) for the right Country is a guiding principle of traditional fire management. In the words of Elder and cultural fire practitioner Victor Steffensen:

Aboriginal fire knowledge is based on Country that needs fire, and also Country that doesn't need fire. Even Country we don't burn is an important part of fire manaement knowledge and must be within the expertise of a fire practitioner.

Repeated burning, and even low-severity fire, is unsuited to the ecology of tall, wet forests. It can lead to their collapse and replacement by entirely different vegetation such as wattle scrub.
Similarly, thinning these forests can make them more fire-prone, not less, by creating a drier forest, and generate huge amounts of carbon emissions.

Thinning and burning will also destroy habitat for a wide range of species. They include critically endangered ones such as 'Leadbeaters possum. Indeed, mountain ash forests are themselves recognised as a critically endangered ecosystem.eration has failed, practices such as planting

Thinned alpine ash forest that was subsequently burned in the 2009 fires near Lake Mountain. Chris Taylor

and reseeding will be important to restore ecological values..

Let forests mature to restore what's been lost

The compelling evidence we compiled all indicates mountain ash forests were dense, wet environments, not open and park-like, at the time of British invasion.

The use of scientific evidence is essential for managing Australia's natural environments. Based on this evidence, we should not be deliberately burning or thinning these forests, which will have adverse impacts.

Rather, restoration should involve letting these forests mature. We should aim to expand the size of the old-growth forest estate to precolonial levels. Where regeneration has failed, practices such as planting and reseeding will be important to restore ecological values.

APS NSW - QUARTERLY GATHERING AND AGM

APS NSW AGM and Quarterly Gathering Hosted by Parramatta Hills Group, 11 May 2024

When: 10am-4pm, Saturday, 11 May 2024
This gathering will include our AGM between 1-1:30pm

10am - 12noon: Tour of the Community Environment Centre, Currie Avenue, Annangrove NSW 2126

12:00-1:00 Lunch and plant sale. BYO lunch or purchase locally.

1:00-1:30 AGM

1:30-4pm Quarterly gathering, $5 members, $10 non-members.
Presentation by Dan Clarke, Threatened flora of the Cumberland Plain, followed by afternoon tea.

Annual General Meeting - Agenda

The agenda, including the minutes from the previous AGM.
To send your apologies, please email: office@austplants.com.au

Please email any financial questions by Friday 3 May and we will provide responses at the AGM.

Nominations for board positions

We welcome new board members, and non-board members, to assist with running the Society. If you'd like to join the board or wish to nominate someone, please contact President John Desmond to discuss what's involved. The form here needs to be completed and returned by Friday 26 April 2024

30 September - 4 October 2024

VENUE

The Round is a Performing arts and cultural centre in Nunawading, 379 - 399 Whitehorse Rd, Nunawading Victoria 3131. Nunawading is a suburb of Melbourne, 18km east of the CBD.
Website: https://www.theround.com.au/ Phone: (03) 9262 6555.

The Round, a beautiful venue set in extensive parkland was a stand-out, it ticked all the boxes. It was built, a $78 million project undertaken by the City of Whitehorse, over the last few years and opened in October 2023. It wasn't in existence when we were first selecting a venue. It has many versatile spaces eminently suitable for presentations, several airy light-filled spaces for our social gatherings in addition to outdoor spaces for relaxing with heaps of car-parking.

Transport

This venue is equidistant from two well-serviced metropolitan railway stations of Nunawading and Mitcham. Both a 15 minute walk to The Round. There is also an extensive network of buses into the area. It is a few kilometers south of exits from the M3 freeway.

Accommodation

There is a large choice of reasonably priced accommodation available to attendees from many AirBnBs to Hotel/Motels. There is also a selection of Caravan Parks available. All these caravan parks have powered sites and onsite cabins:

Important Dates

After recent meetings with ASN Events we have the ollowing key dates:

• December, 2023 - ANPSA 2024 Biennial Conference Website,
• Mid February 2024 - Early bird registration for the ANPSA 2024 Biennial Conference. The conference itself will cost $650 or $585 early bird registration for the 5 days including 3 days of lectures and 2 days of excursions.

• February 2024 - Bookings open for pre& post Conference Tours.
Tour fees
Pre conference tours 23-28 Sept. Post conference tours 5-10 Oct.
Wimmera Grampians $1,800 (Single person supplement $394)
Great Ocean Road Otways $2,380 (Single supplement $763)
Gippsland Wilsons Promontory $2,060 (Single supplement $525)

• 1 July 2024 - closing of early bird registration for the ANPSA 2024 Biennial Conference. (Bookings will still be taken but at full regular price)

• 31 July 2024 - closing of bookings for pre and post tours.

Conference Tours

The Spring 2023 edition of Australian Plants is the 'ANPSA Conference 2024 Tour Edition'.
We look forward to seeing you there and invite you to register your interest through the website https://apsvic.org.au/anpsa-biennial-conference-2024/

TO REGISTER YOUR INTEREST

Email: anpsaconference@apsvic.org.au
https://apsvic.org.au/anpsa-biennial-conference-2024