

CALEYI



NORTHERN BEACHES GROUP

austplants.com.au/northern-beaches

September 2022

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

President	Dr Conny Harris 0432 643 295
Vice-President	Russell Beardmore 0404 023 223
Secretary	Pamela Dawes 0419 036 800
Minutes Secretary	Eleanor Eakins 9451 1883
Treasurer	Lindy Monson 9953 7498
Regional Delegate	Harry Loots 9953 7498
Librarian	Jennifer McLean 9970 6528
Membership Officer	Jan Carnes 0416 101 327
Talk Co-ordinator	Russell Beardmore 0404 023 223
Walk Co-ordinator	Anne Gray 0466 309 181
Catering Officer	Georgine Jakobi 9981 7471
Newsletter Editor	Jane March 0407 220 380

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 September 1, 2022 APS Northern Beaches meeting at Stony Range Regional Botanic Garden, Dee Why.

7.15 pm Lesser plant family *Violaceae* - Jennifer
7.30 pm Presentation - Hannah McPherson '1.4 million plant specimens make their way to Mount Annan' details p.4.
Supper - Eleanor & Russell

APS Northern Beaches September walk to be discussed at the next meeting.

Wednesday September 21 ANPSA Northern Beaches tour.

2022 Stony Range Spring Festival Sunday October 9. see p.7.

APS NSW November Annual Gathering, Southern Highlands, NSW. Saturday 12 - Sunday 13 November 2022. see p. 6.

Many thanks to Julia Tomkinson, David Drage, Penny Hunstead, Russell Beardmore, Georgine Jakobi and Beth Gower for their contributions to this edition.
Jane March march@ozemail.com.au 0407 220 380.

AUGUST WALK AT THE BLUFF

Julia Tomkinson & David Drage

We were fortunate to have a fine, dry day for our walk on August 20th when 11 members turned up to explore the Bluff Track. This is a short track that runs through a Hawkesbury Sandstone, ridge-top, plant community from the entrance to Garigal National Park at the end of Grattan Crescent to the Bluff, where there is a great view of Bantry Bay from the look-out.

Penny Hunstead, our walk organiser, did the walk a few days earlier and provided a list of plants we could expect to see. In addition, before we started out we talked about the written contribution on Hawkesbury Sandstone flora by Dan Clarke in the Autumn 2022 edition of "Australian Plants", Vol. 31, No. 250. Dan reminded us that many ridge-tops and plateaus have been taken over for roads, housing and industrial development, resulting in destruction and disruption of bushland corridors. We are pleased to have this area on our doorstep preserved in Garigal National Park.

Hakea sericea. Pic David Drage



At the start of the track was a tall *Hakea sericea* in full flower. We walked through pleasant open woodland where many plants were in flower along the sides of the track as well as further into the bush. The most notable were two stems of bluish-mauve sun orchids, *Thelymitra* sp, with their lowest buds just starting to open. As we couldn't see inside the flowers to detect spots (or not), we couldn't identify the species, but it may have been *ixioides*. As we walked further along, there were numerous *Boronia ledifolia* shrubs still in full flower, and one *Boronia pinnata* in bud.



Thelymitra sp. Pic Russell Beardmore



Boronia pinnata in bud. Pic Jane March



There were large stands of *Pomaderris mediora* and *Phebalium squamulosum* ssp *argenteum* in flower, plus many eucalypts throughout the woodland, some very tall and straight, as well as *Anglophora hispida*, *Banksia serrulata* and *B spinulosa*.



Other plants in flower that we encountered were *Grevillea speciosa* and *G. buxifolia*; several pea flowers: *Bossiaea heterophylla* & *B. scolopendria*, *Pultenaea linophylla* & *P. polifolia*, & *Dillwynia retorta*;



The walk ended at the lookout, a popular spot with walkers including our group. We rounded off the excursion with a pleasant lunch at Bubala Café at the Allambie Heights small shopping centre.



Conospermum longifolia; *Leucopogon microphyllus*; *Epacris microphylla*; *Woolisia pungens*; *Acacia ulicifolia*, *A. longifolia* & *A. myrtifolia*; *Patersonia glabrata* & *P. sericea*; *Hibbertia cistiflora* & *H. linearis*; *Dampiera stricta*; *Dianella prunina*; *Hybanthus vernonii*; *Zieria laevigata*; *Lasiopetalum ferrugineum*; and some very tiny specimens of *Actinotus minor*. A few examples of *Actinotus helianthi* were just coming into bud.



Thanks to members Russell, Beth and Georgine for their excellent photos. Julia Tomkinson and David Drage.

Australian Bush Tucker

This is **Penny Hunstead's** brief report of her wonderful presentation at the August meeting

For tens of thousands of years, the aboriginal inhabitants of this land we call Australia, ate a wide variety of healthy and delicious food that was indigenous to this continent.

The early European and English settlers and explorers were introduced to indigenous foods by aboriginal people. When they ran short of Western food they ate species that appeared to resemble those with which they were familiar, such as native spinach *Tetragonia tetragonoides*, various figs, *Ficus spp.*, tea substitutes, *Leptospermum sp.* and *Dononaea sp.*, *Macadamia spp.* *Microcitrus spp.* and *Rubus spp.* to name a few.

The history of early settlers' documented opinion of bush tucker plants includes those of **Watkins Tench**, who wrote in 1793, "The list of esculent (edible) vegetables and wild fruit is too contemptible to deserve notice" and **Charles Rowcroft**, in 1843, "The country furnishes nothing of itself: no animals, no fruits, no roots. Now, I thought that before I came here, there must be plenty of fruit in a warm climate, but, bless your heart, you may look a long time in the woods for anything to eat, I can tell you".

Early experimentation has not been well acknowledged by general historians. However, driven by curiosity or necessity, or both, early colonists sampled and experimented with a wide range of animals and plants which formed part of the normal diet of the indigenous people.

The original food of the indigenous peoples of Australia is commonly called Australian bush tucker. My presentation covered only the plants and fungi that were eaten by the indigenous peoples and those plants which were gradually incorporated into the diet of the non-indigenous people of Australia and those used in ornamental gardens.



The topics covered, included the history of adoption of these plants, for their fruits, seeds, roots and leaves, etc and the consequences of the rejection of them, by stranded early explorers, to their detriment. The nutritious qualities of the above plant parts were listed and compared to equivalent values of commonly eaten Western fruits and vegetables.



Other items in my talk were: lists of restaurants focussing on Australian bush food; recipe books devoted to dishes containing bush tucker foods; bush tucker tours; bush tucker textbooks; bush tucker plants' availability in Sydney nurseries and suggestions on which bush tucker plants to grow in Sydney gardens.

Nurseries selling Bush Tucker Species

- Daley's Nursery– 42 species of bush tucker fruit including 11 varieties of Finger Lime. Visit and order online
- Plants Plus Cumberland Forest Garden Centre. Visit
- Harvest Seeds and Native plants. Visit
- Sydney Wildflower Nursery. Also has many Bush Foods gardens workshops, every month of the year.
- Flower Power Nurseries. Visit
- Bunnings garden section. Visit
- Australian Plants online. Order

Bush Tucker Recipe Books

- Bush Food – Aboriginal Food and Herbal Medicine, by Jennifer Isaacs
- The Bushfood Handbook, by VicCherikoff
- Bush Tucker Guide, by Samantha Martin
- Coo-EE Cuisine, by Dale Chapman
- Australia's Creative Native Cuisine, by AndrewFielke
- Warndu Mai Good Food, by Damien Coulthard
- Australian Bush Superfoods, by A & T Quinn
- Bush Tukka Guide, by Samantha Martin
- Cooking with The Oldest Foods on Earth, by John Newton
- Wild Food in Australia, by A.B. & J.W. Cribb

Bush Tucker Tours

- Aboriginal Bush Tucker Tours, Sydney's Royal Botanic Gardens
- Swan Valley Bush Tucker and Beyond Trail, Western Australia
- The Bangalow Tour, Byron Bay
- Bundyi Cultural Tour, Wagga Wagga
- Country Foods Trails, Orange
- Unkya Cultural Eco Tours, Scotts Head
- Nura Gunyu, Ulladulla
- And many more!

PITCHER PLANTS USE RAINDROP IMPACTS TO FLING INSECTS INTO THEIR TRAP

Raindrops trigger a predatory diving board that cannonballs insects into a pool of digestive fluids

newscientist.com August 3, 2022 Jason P. Dinh



A leafy catapult helps pitcher plants (*Nepenthes gracilis*) capture insects GFC Collection/Alamy

The slender pitcher plant of South-East Asia has a leafy lid that acts like a springboard, launching prey into a deep cavity filled with digestive juices. Now, scientists have figured out how this macabre machinery works.

Carnivorous pitcher plants have specialised leaves shaped like elongated sacks that hold digestive fluid. The vessels are baited with nectar to lure unsuspecting insects and lined on the inside with slippery wax that sends the critters tumbling towards death.

Typically, insects just slip in, unable to cling to the waxy inner lining. But the slender pitcher plant (*Nepenthes gracilis*) plays a more active role. It baits ant troops to the underside of the leafy lid covering the pitcher. Then, when raindrops pluck the lid, it triggers fast twitches that catapult prey into the gastric pool below – a bit like a lethal version of the children’s trampoline game Crack The Egg.

To find the elastic components behind the trap, Anne-Kristin Lenz at the University of Bristol in the UK and her colleagues used high-powered x-rays to see inside the plants as they recoiled during rainfall.

Initially, the researchers expected to find the “spring” in the neck. However, they discovered that pitchers deformed well into their hollow bodies. “The most interesting thing was to get proven wrong,” says Lenz.

When rain strikes the lid, it flexes down, channelling energy through the narrow neck connecting it to the pitcher and compressing a springy region several centimetres down the body of the pitcher. Then, the plant releases stored elastic energy and the lid springs upwards. The jerking motion whiplashes bugs into the trap.

The plant’s geometry constrains lid movement on the upswing so that it doesn’t lift far beyond its resting position. “It’s much easier to push down than up,” says co-author Ulrike Bauer, also at the University of Bristol.

That dampens the diving board’s oscillations by halting it on the way up and quickly resets the trap to catch the next round of raindrops. “This is the only known carnivorous plant that uses a really fast, completely externally powered movement,” says Bauer. “It’s remarkable that such a thing has evolved,” says Simon Poppinga at the Technical University of Darmstadt in Germany who was not involved with the study.

The discovery of the botanical catapult’s mechanics could lend itself to technology, Poppinga says, inspiring the design of devices like switches, locks or rain energy harvesters.

1.4 MILLION PLANT SPECIMENS MAKE THEIR WAY TO MOUNT ANNAN

At the **APS Northern Beaches** meeting on **Thursday September 1, 2022**, **Hannah McPherson** will present a report on the mammoth task involved with the relocation of the Royal Botanic Gardens herbarium collection.

Hannah writes:-

‘Moving our fantastic herbarium collection from the **Royal Botanic Gardens** in Sydney to its new home at the **Australian Botanic Garden, Mount Annan** has been no mean feat! There have been highs and lows but we are nearly there.

The new building is vast, shiny and new and has a dedicated space for just about everything we do. As we have a tour some of the features of the new herbarium we will also have a look at some of our treasures.’



Hannah has more than 25 years’ experience in botany, a BSc in environmental science and a PhD in Botany. She has worked as a curator at the John T. Waterhouse Herbarium (UNSW), the Natural History Museum in London, UK, Herbarium Hamburgense in Germany and for twelve years at the National Herbarium of NSW. She has a background in archives and paper conservation and has worked with many historically significant herbarium, library and archive collections in Australia and overseas.

Hannah worked for 10 years in the Evolutionary Ecology team (now ReCER), her research focussing on exploring and developing new DNA sequencing approaches and conducting research combining disciplines to investigate species and population dynamics on a landscape scale. For the past two years Hannah has worked as Collections Manager at the National Herbarium of NSW and has been overseeing the relocation of the herbarium collections to their new home at Mount Annan.

We are very fortunate to be able to follow this talk with a visit to the new herbarium at Mount Anna in October. Please put **Wednesday October 12, 2022** in your diary.



Huon pine in Tasmania. Shutterstock

SOUTHERN CONIFERS: MEET THIS VAST GROUP OF ANCIENT TREES WITH MYSTERIES STILL UNSOLVED

theconversations.com August 10, 2022 Gregory Moore, School of Ecosystem and Forest Sciences, The University of Melbourne.

When you think of “conifers”, tall, conical shaped trees often found in public parks or front yards may spring to mind. But these impressive trees are far more fascinating than you may have realised, as they represent just one piece of an unsolved botanical puzzle.

These popular garden trees are from the northern hemisphere. But we also have conifers in the southern hemisphere, called “southern conifers”, found largely in Australia, South America, New Zealand and New Caledonia.

A little detective work reveals that southern conifers evolved in Gondwana, and long ago separated from coniferous relatives in the northern hemisphere. They appeared around 200 million years ago, before the first flowering plants evolved, sharing land with the dinosaurs. One example is the Wollemi pine, which was famously saved in a secret firefighting operation during the 2019-2020 bushfires.

Unlike the introduced conifer garden trees, southern conifers are neither as well-known nor as popular with Australians as they should be. So let me help you get to know them a little better.

Famous ‘living fossils’

Northern conifers are mostly evergreen, woody trees with needle-like leaves, while southern conifers tend to have broad leaves like flowering trees.

Trees in the genus *Araucaria*, including the monkey puzzle, bunya bunya, hoop pine and Norfolk Island pine, are southern conifers. As are most members of the Podocarp family (Huon pine, celery top pine and plum pine) and 22 species of *Agathis* (including the majestic Queensland and New Zealand Kauri trees).

Southern conifers often possess cones, such as the *Araucaria* and *Agathis* species. Sometimes, these cones are very large and heavy that can cause serious injury if they fall from high in the tree onto an unsuspecting passerby.

Some southern conifers can be over 30 metres high. Others, such as the Kauri and Huon pine, are renowned for their longevity. They can live for centuries or, for the Huon pine, perhaps over an astonishing ten millennia.

While all species of southern conifers are of ancient origin, the Wollemi pine is famous for its status as a “living fossil”. Of course, this is a contradiction in terms – a fossil is any evidence of past life.

But in this context, the term refers to organisms that appeared in the fossil record long ago, were then thought to be extinct, before a living version was discovered. We are curious as to how they successfully hid for so long and may imagine a link with a distant, different past.

So, the question botanists have yet to answer is: how distant are the north and south relatives?

When flowering plants evolved

Many southern conifers show little resemblance to the “true conifers” of the northern hemisphere, such as pine, cedar, spruce and juniper.

All conifers are gymnosperms, which means they have naked seeds and cones. They evolved from an ancient group of seed ferns, before the fragmentation of the super continent Pangaea. These seed ferns were a diverse group. As Pangaea divided into Gondwana in the south and Laurasia in the north, the seed ferns began to diversify, giving rise to northern and southern seed ferns.

Botanists have long known that northern conifers and other gymnosperms evolved from these northern seed ferns. But what of the southern seed ferns? They remained a bit of a mystery until the 1970s. One group of southern seed ferns constituted what’s now called the *Glossopteris* flora, which was of Gondwanan origin. From this diverse group of *Glossopterids*, flowering plants in all their variety evolved.

This solved one of the great riddles of botany – the origin of the flowering plants which had puzzled scientists, particularly in the northern hemisphere until the early 1980s. It’s likely southern conifers also evolved from these southern seed ferns. Some may have arisen from other members of the *Glossopteris* group, too, or perhaps their relatives.

If this was the case, then the southern conifers would be more closely related to flowering plants than to the true conifers of the north.

When the trees were in fashion

After millions of years of evolution, southern conifers became fashionable with gardeners in the 1800s. Their novelty and striking form captured the interest of the educated and wealthy landowners of Europe and they were planted as status symbols on estates and in public gardens.

In Australia they were planted in large private gardens and in many public parks from the mid 1800s to World War 1, after which their popularity waned.



Wollemi pines have become a popular tree for gardens worldwide, but are nearly extinct in the wild. AAP Image/Botanic Gardens Trust, Jaime Plaza

You can see many of these fine trees growing still in large gardens and public parks across Australia, such as botanic gardens in most Australian states, as well as in smaller public parks and gardens of older suburbs and inland towns. Their striking, almost geometrical, form catches the eye.

Southern conifers are known for their resilience, are rarely affected by pests or disease and, despite their large size, cause few problems with paths, roads, buildings and other urban infrastructure. Probably because they were given plenty of space to grow when first planted. We still have much to learn

It takes time to solve some of these botanical puzzles. Evolution is a sophisticated process that has led to very complex relationships between plant groups.

In future we may well recognise that southern conifers are not really conifers at all. Perhaps, the links between the two groups go so far back in time, the relationship is too distant for both southern and true conifers to be called conifers at all.

In any case, these mysterious trees have persisted through vast periods of time and changing environments – they have much to teach us about plant responses to climate change.

APS NSW GET TOGETHER IN THE SOUTHERN HIGHLANDS

APS NSW November Annual Gathering, Southern Highlands, NSW
Saturday 12 November - Sunday 13 November 2022



Venue: Exeter Village Hall, 10 Exeter Rd, Exeter NSW 2579

The Southern Highlands Group of APS NSW is hosting this year's weekend get-together at Exeter, Sutton Forest and Moss Vale on Saturday 12 and at Bowral on Sunday, 13 November.

The Southern Highlands Group has organised a variety of exciting activities for the weekend, including a plants sale on the Sunday.

This weekend offers a wonderful chance to see and enjoy a beautiful part of NSW and catch up with friends you may not have seen for a while. These weekends are extremely popular and it is essential that you register for the event.

Price of the get-together including morning tea, lunch and the get together sessions along with dinner and talk at Moss vale RSL on the Saturday night is \$90. If you only wish to attend the morning tea, lunch and get together sessions, the price is \$45. You can book and pay for both through the registration.

Guests are welcome to attend.

Program:

Please note that you will be given the addresses of the gardens we will be visiting when you arrive at the Exeter Hall.

Saturday, 12 November 2022

9.30am - Registration and morning tea provided by Exeter CWA

10am - Acknowledgement of Country welcome to participants. Bill Mullard and Heather Miles.

Speaker: Dan Clarke, APS NSW Conservation Officer and environmentalist - The Vegetation of the Wingecarribee Area.

Dan is a botanical consultant who operates DM Clarke Botanical Consulting Services which provides flora survey services, consultancy advice, and vegetation management and bushland regeneration services. Dan has worked as a botanist in the environmental consultancy industry since February 2011. He is currently the Conservation Officer for APS NSW. Dan has undertaken extensive vegetation surveys of the Wingecarribee area for the NSW National Parks and Wildlife Service. He is an experienced speaker and will inspire you with his investigations of the vegetation of the Wingecarribee area.

12 noon - lunch provided by Exeter CWA.

1.00 - 3.30pm - visit to two large but very different gardens. The group will be divided into two, with each half visiting the following gardens at different times.

Tanya Excel's 2.26ha property, at Moss Vale. A garden conversion.

Martin's rural property, at Sutton Forest. Extensive native and exotic plantings, large dam.

6.30pm for 7.00pm - Dinner, private room Moss Vale RSL Club, Cnr Hume Hwy & Bessemer St, Mittagong NSW 2575. Cost \$45.

A talk by Jane Lemann, member APS NSW Southern Highland Group and co-ordinator of Mt Gibraltar bush care.

Sunday, 13 November 2022

9.30 - 11.30am - escorted walks at Mt. Gibraltar. Choice of easy or more difficult.

12 - 1.00pm - Lunch, individual responsibility, with plenty of choice venues in Bowral.

1-3 pm: Kris Gow's and Sarah Cains' gardens in Bowral plus plant sale. Both are small gardens so staggered visits are required. The gardens are located on opposite sides of the same block so walking or driving between each is optional.

Registration

Get together registration – \$45.00

Includes weekend activities, morning tea and lunch on Saturday. (Saturday evening dinner not included.)

Get together registration plus dinner and talk on Saturday night – \$90.00

Includes Saturday morning tea, Saturday lunch, get together sessions and Saturday two-course dinner

To register go to <https://austplants.com.au/event-4877519/Registration>

If you have any questions please contact John Aitken at <http://office@austplants.com.au>



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.

**61st
year**



Sunday 9 October

9 am - 3 pm

Stony Range Regional Botanic Garden

SALE OF NATIVE PLANTS

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



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.**

**Stony Range Regional Botanic Garden
810 Pittwater Rd, Dee Why stonysrange@gmail.com**