



Australian Plants Society

South East NSW Group

Newsletter 179

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Corymbia maculata Spotted Gum and
Macrozamia communis Burrawang

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Dear Members,

Dear Members,

Welcome to the new year. This one brings with it another wet summer and an abundance of plant growth in our region. The year also begins with a feeling of uncertainty, but I know that this group will find the positive and continue on as best we can. One change that the committee has made is to try and schedule more of our meetings in an outdoor setting.

This will not be the case for our first meetings as it is our annual general meeting.

All committee positions will be declared vacant at the AGM, so if you were thinking of joining the committee please complete the nomination form included with this newsletter.

The committee meets about four times a year and is involved with planning the monthly activities and making decisions that may affect the group. We currently have a President but no vice president, a secretary, a treasurer, a membership officer, a newsletter editor and a publicity officer. We also have two others that are general members only.

We would certainly welcome anyone who would like to join us on the committee .

The new year has also meant that changes have been made to the Covid - 19 regulations.

After much consideration the committee has decided to continue with the arrangements that were made last year. This decision will be reviewed regularly as circumstances change. As an organization it is up to us to decide how far we go. As our next meeting will be at the ERBG we will be able to and expected to sign in as we arrive. We will also need to wear a mask indoors and space accordingly while we conduct the meeting and view the talk. We should be able to sit outside for social activities. We are expecting that anyone who is not feeling well does not attend any meetings and we are asking for you to be double vaccinated and be able to show your certificate.

For those of you involved in the **Proteaceae Project** I will be assessing what plants we have available and we will commence working bees soon, perhaps when the weather settles a little. The plants have all been growing and doing well.

Please see below for the details of the AGM. We are fortunate to have a dedicated, local speaker from the Environment Team at the Council to talk about their ongoing, never ending work in the shire after the fires. I look forward to seeing you there.

Stay safe and well.

Di

Next Meeting

**Saturday 5th February 2022,
arrive 10 a.m for social morning tea**

**Annual General Meeting,
followed by a presentation by Paul Martin,
on the findings of the bushfire recovery in our region**

**The meeting will be held at
Eurobodalla Regional Botanic Gardens**

AGM starts at 10.30 a.m.

Paul Martin is the Invasive Species Supervisor and Senior Biosecurity Officer at Eurobodalla Shire Council.

Paul has a background in threatened species management, weed management and catchment management. His role at Council involves managing E.S.C's obligations as the Local Control Authority under the NSW Biosecurity Act 2015.

This wide-ranging role includes property inspections to detect new incursions of serious weeds, managing high threat weeds across our reserves and road network, liaising, and working with the community, other agencies, and private companies to ensure weeds of all description are being appropriately managed. Additionally, he is responsible for both vertebrate and invertebrate pest management, coordinating Council's rabbit control program, and works closely with NPWS to protect threatened shorebirds from fox predation on Council land. Paul is also the elected NSW Weeds Officers Association representative to the State Weeds Committee which among other remits, assists with policy and strategy for weed control across NSW.

He will discuss bush fire recovery findings to date and touch on how we can use the data to better inform our weed control scheduling.



On the issue of fire recovery, Joan Lynch (via Mary Harrison) sent this picture of *Calomeria amaranthoides* (syn. *Humea elegans*) a large biennial herb in the daisy family which has again become prominent in the local bushland. The leaves of this plant are very large, up to 25cm long and about 8cm wide, covered with glandular hairs. Individual flowers are pinkish, on pendent branches up to 60cm long. Plants grow on river flats and rainforest margins in scattered populations. **Biennial plants** take 2 years to complete their life cycle. The first year produces leafy growth, in the second, plants flower, and then the plant dies. Once the bush regeneration is complete, we might not see this species until another weather event allows sufficient light into the forest to allow seeds to germinate.

Last Meeting



As an indication of our need to get out and about again, 26 members ventured to Narooma to visit the garden of Mary Jane O'Brien. That was the largest attendance at a December meeting for many years. Of course the promise of fine weather was honoured, adding to the enjoyment of the day.

Mary-Jane addressed the group over morning tea, detailing the establishment of the garden over the past 6 years. Having owned the south facing block for many years prior to building, a small camping area was established first, where working 'holidays' were enjoyed as preliminary ground works were undertaken.

Once the house was complete, gardens were established within a framework of natural bush, mainly from the need to ensure property met stringent fire regulations.

Some constraints of the steep block included shallow soil, mainly clay and crumbling shale, regular southerly winds channelled up the adjacent valley, and hungry wallabies which, having found a source of succulent foliage, were relentless in their foraging.

The garden may be described as a "wild" native garden. Besides the eclectic collection of Australian plants, there is also a growing range of local species, plus an established herb garden, veggie plot and a mainly exotic orchard fenced to keep out fauna. Some bush tucker plants are also included.

Following formal (informal) introduction, our large group was invited to join Mary Jane on a tour of the gardens. With a variety of tracks, members were soon scattered as they found a new direction to explore, with just a few sticking with our host for the journey. Needless to say, some were very late back for lunch.



With a backdrop of *Corymbia maculata*, (Spotted Gum) the grassy bank contains a range of herbs which have colonised naturally

Local plants dominate this drainage line behind the house. Prominent is *Chrysocephalum apiculatum*, the low growing yellow flowered perennial. Many species of grass are included, with the low growing *Poa meionectes* a popular choice. Our grass expert Paul struggled with naming some species, and was tasked with collecting specimens to identify

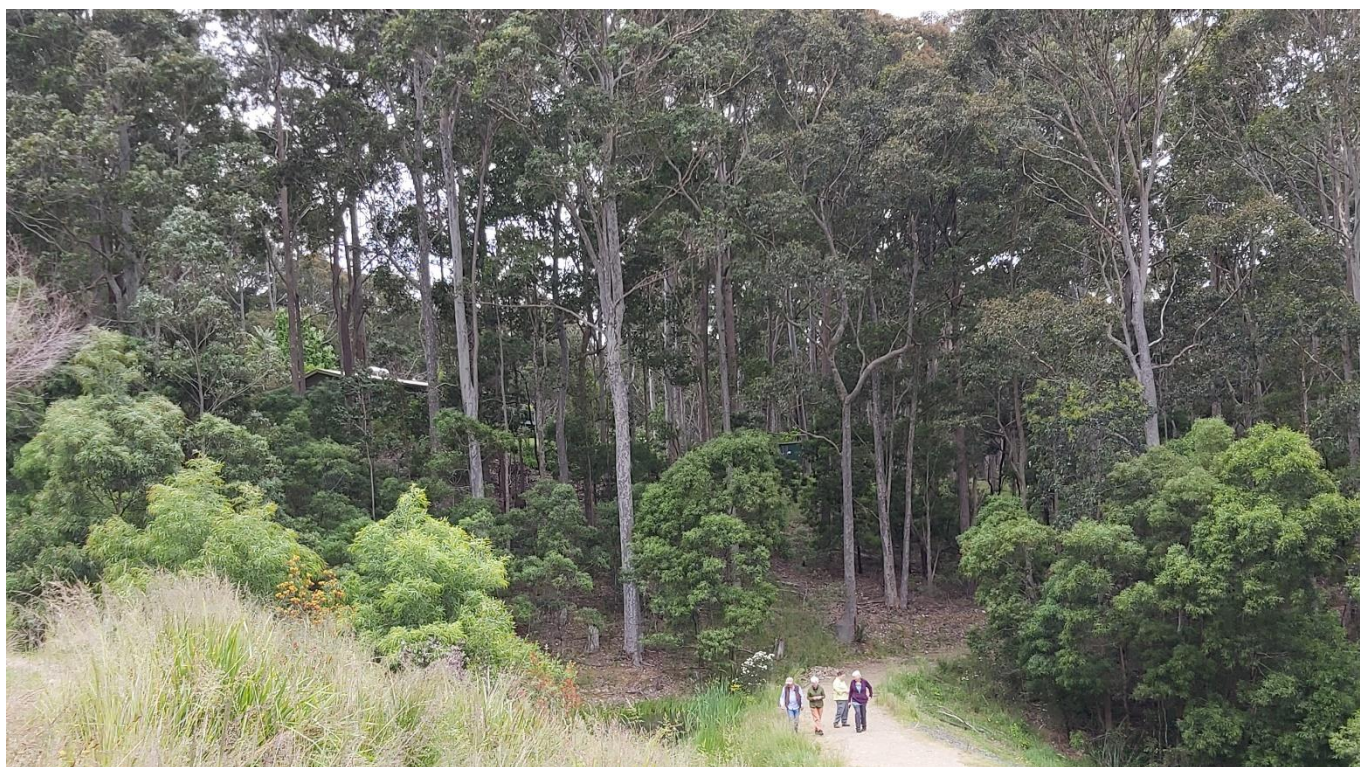


Viola hederacea*, Monga Magic, a selected form from the Mongarlowe River area, where it grows with *Telopea mongaensis



***Senecio linearifolia* is often thought of as a weedy species, but with regular pruning and watering, is a long-flowering herbaceous perennial.**

Some of the unusual plants grown include *Austromyrtus tenuifolia*, a small woody shrub about 1m high from the Sydney area, which has small succulent purplish fruits. (I note that currawongs are currently enjoying a bountiful fruiting, doing their best to keep the bowerbirds at bay.) Some other plants which few members grow include *Persoonia isophylla*, another Sydney plant. In the Lamiaceae Family *Teucrium corymbosum*, known as Forest Germander, a grey foliated shrub with well displayed white flowers, also grows to 1m, and is well suited to mixed border planting. Few grow *Lobelia purpurascens* (syn *Pratia purpurascens*) which has the common name White Root. In garden beds with loose soil it becomes a real weed, almost indestructible, but as we saw here, in a dry garden, it makes an attractive ground cover.



Mary Jane discusses grasses with Paul, accompanied by Di and Mary who judiciously kept their own counsel on the topic

Following a relaxed and lengthy lunchbreak, during which many world problems were solved, Di thanked our host, and the members chose to either continue with exploring the garden, or head towards home, after what was a delightful day of both catching up, discovering new plants or re-acquainting with others we once grew. Thanks Mary Jane for the opportunity to enjoy your garden, and appreciate the dedication required to develop and maintain a lovely piece of Narooma bushland.



On the way home, I stopped off at a site in Mogo where my first collection of *Grevillea mucronulata* was found. I wanted to see how this small population had survived the fires. Sadly only 3 plants were seen, and they were in poor condition, surprising since conditions since the fires have been fairly benign.

Growing in this forest environment is tough at the best of times, with shallow, hungry quartz soil overlaying a tough yellow clay. Although the trees seem to have little problem establishing solid structure, the shrubby layer is generally sparse, with a few peas such as *Daviesia ulicifolia* and *Pultenaea scabra*, a couple of wattle species and tufted grasses. It is probably not a spot one would choose to stop in the hope of discovering floral treasures.

However I was delighted to find a healthy population of the pink Hyacinth Orchid, *Dipodium roseum* happily displaying flowers on long leafless stalks. These orchids are saprophytic, relying on a mycorrhizal fungi association to sustain growth, living on dead and decaying material below the soil surface.

Within the population was a single white flowered plant, with no pink tinges or dots.

These orchids are pollinated by native bees and wasps exclusively, so I wonder if this white flower will be successful in attracting any pollinators.

White flowers, although not common, are sometimes found among populations of other plants, such as Grevilleas and Croweas, and many Myrtaceae, so I guess I shouldn't be surprised by this find.

Committee News

It is with great sadness that we record the death of Trevor Kennedy, husband of Christina. We were advised just prior to the last meeting, and those attending signed a condolence card which was forwarded to Christina on behalf of all members.

Although still grieving, Christina has responded with generosity, thanking members for their comforting messages. She wishes to maintain her ties with this group, and has offered that we should continue to visit Horse Island at some time into the future.

Murramarang Bioblitz

The committee has received notice from Annie Lane, who organised the Guerilla Bay surveys last year, that there are further surveys planned this year, under the title of the **Big Bushfire Blitz**. We have been offered an opportunity to once again participate in the Murramarang surveys during March. Below is the press release.

Citizen scientists needed to help record impact of fires on biodiversity in BioBlitzes

UNSW scientists are behind a citizen science event which will document the bushfire recovery of plants, animals and fungi across three bushfire affected regions in New South Wales.

The Big Bushfire BioBlitz starting on February 25 is a series of weekend-long events which will generate new evidence on the impacts of large-scale fire on biodiversity.

The BioBlitzes will take place in the Gondwana Rainforests of Washpool National Park, the Blue Mountains World Heritage Area, **and Murramarang National Park on the south coast.**

Thomas Mesaglio, iNaturalist curator and PhD candidate at the UNSW Evolution & Ecology Research Centre, said that the BioBlitzes will give people the opportunity to contribute meaningful biodiversity data that help inform our understanding of how the environment recovers after large scale bushfires, and in turn contribute to research and conservation.

“A ‘BioBlitz’ is a focused effort to record as many species as possible in a defined location within a limited period of time,” Mr Mesaglio said.

“Citizen science events such as BioBlitzes provide an invaluable opportunity to maximise the amount of data collection, intensely focusing on particular areas, as well allowing people of all skill levels to be

involved. Participants get to interact with and learn from experts, and also offer their own local expertise and insights to the experts, so it's a fantastic two-way transfer of knowledge. These events are also great for motivating participants to become long-term contributors to citizen science platforms such as iNaturalist."

Experts will lead biodiversity events over the course of the weekends, including world-leading expertise from one of the partnering scientific organisations, the Australian Museum.

[Casey Kirchhoff](#), PhD candidate at the UNSW Centre for Ecosystem Science, founded the [Environment Recovery Project](#) on the iNaturalist website after the devastating Southern Highlands' Morton bushfire destroyed her Wingello home in January 2020.

"Citizen scientists have been really motivated since the 2019-2020 bushfires," Mrs Kirchhoff said. "We've already had over 17,500 observations of bushfire recovery submitted to the [Environment Recovery Project](#). We've been delayed by COVID-19, but it's great to finally have the opportunity to engage more directly with some of the bushfire impacted communities through citizen science at the BioBlitzes. The more observations we can collect, the more we will know about the impact of the fires on our environment."

While not everyone will be able to make it to an in-person BioBlitz, everyone who can access a bushfire-impacted area right across Australia is encouraged to participate. "The [Big Bushfire BioBlitz iNaturalist project](#) will be open to every citizen scientist keen to 'bioblitz' their own area, no matter if they're in Western Australia or Kangaroo Island," Mrs Kirchhoff said.

The iNaturalist community has more than 88 million biodiversity records and links to Australia's leading open access biodiversity data platform the [Atlas of Living Australia](#), where everybody from scientists and policy makers to the general public can access a wealth of biodiversity information.

The BioBlitzes are supported through the Australian Government's Regional Bushfire Recovery Fund and UNSW's Centre for Ecosystem Science, in partnership with the Atlas of Living Australia, Minderoo's Fire and Flood Resilience Initiative, the Australian Citizen Science Association.

BioBlitz 3: Murramarang National Park, Friday 11 March - Sunday 13 March 2022

The committee is considering how this group can be involved, either by moving our March meeting back a week to coincide with the weekend surveys, or asking members to volunteer to assist. We could organise walks within the National Park that weekend and record our findings on iNaturalist as we did for the Guerilla Bay weekend. Please give this some consideration, and we will discuss at our next meeting.

Note that participants will need to register if they wish to participate in events organised by the Environment Recovery Project. Participants will also need to be double vaccinated.



The committee has received advance notice of an upcoming F.J.C. Rogers Seminar. These special weekends focus on a particular section of Australian flora. Some will remember the Goodeniaceae weekend with fondness. Here is another opportunity to mingle with enthusiastic growers of Australian plants

Fabulous Peas 2022

FJC Rogers Biennial Seminar 15th-16th October 2022

Discover the extraordinary world of Australian pea plants.

Saturday York on Lilydale, Mount Evelyn

Speakers with expertise in identifying, growing and propagating peas. Learn about current research into propagation and growing-on techniques. Evening dinner and an entertaining speaker.

Plant sales of common and unusual pea species. Book sales. Displays. Raffle.

Sunday Coach tours to public and private native gardens which include a wide variety of pea species. Art exhibition and sale featuring pea plants from 8th – 16th October at Karwarra Australian Botanic Garden. **Plant sales.**

Expressions of interest: fabulouspeas2022@gmail.com

<https://apsvic.org.au/fjc-rogers-seminar-2022/>

Hosted by: Australian Plants Society Maroondah Inc.

We've unveiled the waratah's genetic secrets, helping preserve this Australian icon for the future

When the smoke cleared after the Black Summer bushfires of 2019-20, the bush surrounding the Blue Mountains Botanic Garden Mount Tomah was charred. Among the casualties was a NSW waratah, *Telopea speciosissima*, that had recently become the first of its species to have its genome sequenced.

We have published this genome in the journal *Molecular Ecology Resources*.

The waratah is the official floral emblem of New South Wales, and its spectacular red blooms have been adopted as the logos of state government agencies and sporting teams.



Waratahs are a cherished member of Australia's native flora. Stephanie Chen

The genome sequence paves the way for the waratah to serve as a model for understanding how plant populations change over time and adapt to their environments, and particularly how this species bounces back after a bushfire. Genome sequencing has come a long way in a short time. The first human genome, completed in 2003, cost around US\$1 billion and took about 13 years to compile the roughly 3 billion "letters" of our genetic code. Today, sequencing a human genome would cost less than \$1,000 and take just a few days. With rapidly decreasing costs and advancing technology, the genomic era presents the opportunity to decode many plant genomes that we can then use as reference resources. In turn, this will help us understand and conserve Australian fauna for the long term.

What is a genome anyway?

An organism's genome is the complete set of genetic information it needs to develop, grow and survive. Plants, animals and many other living things are made of DNA, which consists of a string of four chemical "bases", known as A, C, G and T.

Sequencing a genome involves determining the order of these bases. When we began our project, we knew from previous research the waratah genome would be quite long, at around a billion bases, that it was likely to be arranged into 11 large parcels called chromosomes, and that each plant would have two copies of the genome in each of its cells.

Cracking the waratah code

Generating the waratah reference genome first involved sampling young leaves from a plant growing naturally in the Blue Mountains. We extracted DNA from the leaves, and used three different sequencing technologies to piece together its genetic code. This approach generated many sequences, hundreds or thousands of bases long, which we then needed to assemble to determine the full genome. Assembling the genome involved a range of different software tools, running on powerful computers. The result was a sequence of slightly less than a billion bases, mostly in 11 large sequences, as expected. The sequences appear to contain around 40,000 genes in total – roughly twice as many as humans have.

Why we sequenced the waratah

Previous sequencing efforts have focused on important crops and on "model organisms" such as *Arabidopsis*, which is widely studied by researchers and was the first plant to have its genome sequenced, back in 2000. But of course, there are many other types of species in the plant tree of life.

The NSW waratah is one of five waratah species in the genus *Telopea*, which grows throughout southeastern Australia, and one of around 1,700 species in the family Proteaceae. This family includes other iconic Australian plants such as banksias, grevilleas and macadamias. Yet despite this, very few Proteaceae genomes have so far been sequenced.

A collaborative effort between the Australian Institute of Botanical Science and UNSW Sydney, the waratah genome project was the first completed as part of the **Genomics for Australian Plants (GAP) Initiative**. A key aim of this initiative is to generate genomes to enable better conservation and understanding of Australia's unique plant diversity.

Hope for the future

For many Australians, Black Summer embodied the threat posed by climate change to our unique natural heritage. But waratahs evolved with fire, and can regenerate with the help of a modified stem called a lignotuber, from which masses of fresh shoots emerge after a bushfire. It offers a potent symbol of our hope for the future.

The waratah plant whose genome we sequenced has resprouted after being burned in the Black Summer fires, and has now been propagated at the Blue Mountains Botanic Garden Mount Tomah and will become part of the garden's living collection. A display inspired by this plant and its genome will also feature in the foyer of the new National Herbarium of NSW when it opens at the Australian Botanic Garden Mount Annan next year.

The waratah's genome sequence will provide a platform for future studies of its evolution and environmental adaptation, ultimately informing breeding efforts and helping us better conserve this iconic species. By sequencing its DNA, we can uncover its evolutionary past and pave the way for its survival long into the future.

Australian Plants Society (APS) NSW South East Group

Nomination for Committee for 2022

I (the Nominator), _____, being a financial member of APS South East Group

Nominate _____

For the Position of: _____

Or Ordinary Committee Member (circle if applicable)

I accept nomination as a Committee Member or for the position specified

Signature of Nominee _____ Dated / / 2022

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