

CALEYI



NORTHERN BEACHES GROUP

austplants.com.au/northern-beaches

June 2021

Australian Plants Society Northern Beaches
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CALENDAR

Thursday June 3, 2021 APS Northern Beaches Meeting at Stony Range Regional Botanic Garden, Dee Why.

7.15 pm Lesser plant family Laminaceae. Jennifer McLean

7.30 pm Presentation by geologist John Martyn 'Rocks & Trees of the Northern Beaches'.

Supper. Only tea & coffee. Please bring your cup.

Saturday June 19 APS Northern Beaches Group visit **Harvest Seeds Nursery**. Anne will email details.

Sunday September 12, 2021 Stony Range 60th Anniversary Spring Festival.



Who can this charming young lady be? See page 3.

Many thanks to contributors - Anne Gray, Russell Beardmore, Georgine Jakobi and David Drage.

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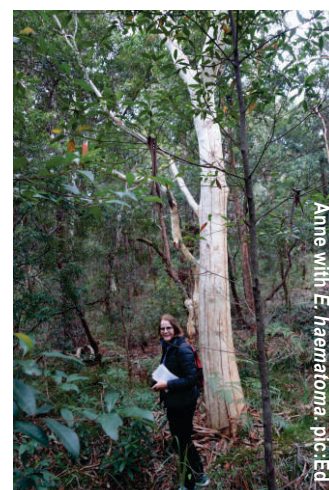
APS NSW QUARTERLY KURNELL.

Anne Gray

Together with Jane March, I attended the APS NSW Quarterly Gathering in Kurnell on Saturday 15 May. We arrived about 9.30 at the Visitor Centre at Kamay Botany Bay National Park. We were split up into 4 groups for the 900m. Banks/Solander loop walk.



We were very fortunate to be led by the very knowledgeable John Arney from the Sutherland Group. He had prepared a list of plants to be found on the walk, of which 25 were collected by Banks and Solander in 1770. John had labelled many of the plants along the way. He had many nuggets of information to impart.



Dodonaea triquetra (Common Hopbush) was used by the aborigines who chewed the leaves to cure toothache as it has a numbing effect.

We saw several arboreal termite nests which also had birds' nests within their structure which are commonly used by forest kingfishers but also by rainbow lorikeets.



termite trail pic:Ed



Termite nest pic:Ed



Nasutitermes pic:Ed



Eucalyptus robusta pic:Ed



Fungus pic:Ed



S. glycyphylla berries pic:Ed

We were also encouraged to taste the berries of *Smilax glycyphylla* (Sweet Sapparilla). It tasted like bitter liquorice!

The walk took us about 2 hours to complete.

In the afternoon we were joined by Harry and Lindy. The first talk was by Dan Clarke who gave us a description of the book "Banks" by Grantlee Kieza (2020) which is definitely one for our Library.

John Arney then talked about about the plants collected by Banks and Solander with accompanying photos. There have been several walks organised by the Sutherland Group which have found 78 species of the 132 species described by Banks and Solander. Not bad, as most of Botany Bay is now covered by suburbs.

At the end of the day a delicious tea was provided by the Sutherland Group. We thank the group for a very interesting, informative and enjoyable day.

AFTER THE FIRE

David Drage



Slow start pic: Russell Bernhardt pic:RB

The presentation for our May meeting was given by our President, Conny, and our Vice-president, Russell. What a combination of talent bringing together Conny's bush regeneration skills and Russell's photographic abilities!

Conny started off by describing the weed situation in some areas of North Head before last October's devastating fire. There were Pampas grass, *Paspalum* and other weeds which she and her group of bush regenerators were already working on. They had to stop for a while after the fire as access was denied for safety reasons, but they are back into it now.

Russell has been very bold in getting images of the recovering bush over the last month or two. The following selection includes some general views showing the extent of the damage.

The amount of natural regeneration is still quite small so it will be some time before North Head returns to its old self. There is still limited access to the burned area for safety reasons and some of the boardwalk was destroyed in the blaze.



Alkophora hispida pic:RB



Eucalyptus camfieldii pic:RB



Crocea saligna pic:RB



Banksia aemula pic:RB



Lasiopetalum rufum pic:RB



Myrtus laetifolia pic:RB

MEMBER PROFILE Georgine Jakobi



I grew up in Gunzburg, a small town in Bavaria. My grandparents had a large allotment. It was full of vegetables, berries and lots of flowers.

When my husband Horst and I moved to Australia in the 60s we did some bushwalking. Our first home in Lidcombe had a large silky oak in the backyard and we planted a couple of eucalypt trees.

Later we moved to Bondi. There was no garden but we continued our bushwalks especially in the Snowy Mountains during the summer and sometimes in winter when there was a lack of snow.

My professional work in the city, including administration at the District Criminal Court, had nothing to do with plants.



Garden at Beacon Hill pic: Georgine Jakobi

Our interest in gardening with native plants really started when we moved to Beacon Hill in the 90s. We completely rearranged the garden - getting rid of the grass and planting natives. Our house was right next to the bush and I even planted the area outside our fence.



Admiring the vintage garden. Pic: Horst Jakobi

This is when I became a member of the APS Northern Beaches Group.



I also belonged to the North Shore Group and attended the weekly 'Walks and Talks' programme at the Ku-ring-gai Wildflower Gardens. A friend and I looked after the flower display stand once a month. By doing that I learned a lot about native plants. In addition I did a plant ID course with Joan Webb over 6 weeks in 2003.



Georgine checks out Drosera binata. Pic: GJ

Currently we live in Cromer. We don't have a garden, just some pot plants, and we've added some extra natives to the bush by our terrace including *Lambertia formosa*. We get many of the larger birds. In fact one evening there were two dozen yellow tailed black cockatoos flying over.



Myricaria germanica is a rare and endangered species hit hard by climate change, but little research is undertaken to help save it. Martino Adamo

NOBODY CARES ABOUT UGLY FLOWERS. SCIENTISTS PAY MORE ATTENTION TO PRETTY PLANTS

The Conversation May 11, 2021 Kingsley Dixon, John Curtin Distinguished Professor, Curtin University

We all love gardens with beautiful flowers and leafy plants, choosing colourful species to plant in and around our homes. Plant scientists, however, may have fallen for the same trick in what they choose to research.

Our research, published today in Nature Plants, found there's a clear bias among scientists toward visually striking plants. This means they're more likely chosen for scientific study and conservation efforts, regardless of their ecological or evolutionary significance.

To our surprise, colour played a major role skewing researcher bias. White, red and pink flowers were more likely to feature in research literature than those with dull, or green and brown flowers. Blue plants — the rarest colour in nature — received most research attention.

But does this bias matter? Plants worldwide are facing mass extinction due to environmental threats such as climate change. Now, more than ever, the human-induced tide of extinction means scientists need to be more fair-handed in ensuring all species have a fighting chance at survival.

Hidden plants in carpets of wildflowers

I was part of an international team that sifted through 280 research papers from 1975 to 2020, and analysed 113 plant species found in the southwestern Alps in Europe.

The Alps is a global biodiversity hotspot and the subject of almost 200 years of intensive plant science. But climate change is now creating hotter conditions, threatening many of its rarest species.



Edelweiss is a charismatic plant of the Alps that heralds spring. Shutterstock

Carpeted in snow for much of the year, the brief yet explosive flowering of Europe's alpine flora following the thaw is a joy to behold. Who was not bewitched when Julie Andrews danced in an alpine meadow in its full spring wildflower livery in The Sound of Music? Or when she sang "edelweiss", one of the charismatic plants of the Alps that heralds spring?

Hidden in these carpets of bright blue gentians and Delphiniums, vibrant daisies and orchids, are tiny or dull plants. This includes small sedges (Carex species), lady's mantle (Alchemilla species) or the snake lily (Fritillaria) with its sanguine drooping flowers on thin stems.

Many of these "uncharismatic plants" are also rare or important ecological species, yet garner little attention from scientists and the public.

The plants scientists prefer

The study asked if scientists were impartial to good-looking plants. We tested whether there was a relationship between research focus on plant species and characteristics, such as the colour, shape and prominence of species.

Along with a bias towards colourful flowers, we found accessible and conspicuous flowers were among those most studied (outside of plants required for human food or medicine).



Bold and beautiful flowers in alpine meadows win scientific attention. Martino Adamo

This includes tall, prominent delphiniums and larkspurs, both well-known garden delights with well-displayed, vibrant flowers that often verge on fluorescent. Stem height also contributed to how readily a plant was researched, as it determines a plant's ability to stand out among others. This includes tall bellflowers (Campanula species) and orchids.

But interestingly, a plant's rarity didn't significantly influence research attention. Charismatic orchids, for example, figured prominently despite rarer, less obvious species growing nearby, such as tiny sedges (Cyperaceae) and grass species.

The consequences of plant favouritism

This bias may steer conservation efforts away from plants that, while less visually pleasing, are more important to the health of the overall ecosystem or in need of urgent conservation.

In this time of urgent conservation, controlling our bias in plant science is critical. While the world list of threatened species (the IUCN RED List) should be the basis for guiding global plant conservation, the practice is often far from science-based.

We often don't know how important a species is until it's thoroughly researched, and losing an unnoticed species could mean the loss of a



Mat rushes are home for rare native sun moths. Shutterstock

keystone plant.

In Australia, for example, milkweeds (*Asclepiadaceae*) are an important food source for butterflies and caterpillars, while grassy mat rushes (dull-flowered *Lomandra* species) are now known to be the home for rare native sun moths. From habitats to food, these plants provide foundational ecological services, yet many milkweed and mat rush species are rare, and largely neglected in conservation research.

Likewise, we can count on one hand the number of scientists who work on creepy fungal-like organisms called “slime molds”, compared to the platoons of scientists who work on the most glamorous of plants: the orchids.

Yet, slime molds, with their extraordinary ability to live without cell walls and to float their nuclei in a pulsating jelly of cytoplasm, could hold keys to all sorts of remarkable scientific discoveries.



Slime molds could hold the key to many scientific discoveries, but the organisms are understudied. Shutterstock

We need to love our boring plants

Our study shows the need to take aesthetic biases more explicitly into consideration in science and in the choice of species studied, for the best conservation and ecological outcomes.

While our study didn't venture into Australia, the principle holds true: we should be more vigilant in all parts of the conservation process, from the science to listing species for protection under the law. (Attractiveness bias may affect public interest here, too.)

So next time you go for a bushwalk, think about the plants you may have trodden on because they weren't worth a second glance. They may be important to native insects, improve soil health or be critical for a healthy bushland.

FOREST THE SIZE OF FRANCE REGROWN WORLDWIDE OVER 20 YEARS, STUDY FINDS

The Guardian May 12, 2021 Oliver Milman.



The world is still experiencing an overall loss of forests 'at a terrifying rate', the researchers warned. Photograph: Staff/Reuters

An area of forest the size of France has regrown around the world over the past 20 years, showing that regeneration in some places is paying off, a new analysis has found.

Nearly 59m hectares of forests have regrown since 2000, the research found, providing the potential to soak up and store 5.9 gigatonnes of carbon dioxide – more than the annual emissions of the entire US.

The two-year study, conducted via satellite imaging data and on-ground surveys across dozens of countries, identified areas of regrowth in the Atlantic forest in Brazil, where an area the size of the Netherlands has rebounded since 2000 due to conservation efforts and altered industry practices.

Another regrowth area is found in the boreal forests of Mongolia, where 1.2m hectares of forest have regenerated in two decades due to the work of conservationists and the Mongolian government. Forests also made a comeback in parts of central Africa and Canada.

However, the world is still experiencing an overall loss of forests “at a terrifying rate”, the researchers warned, with deforestation occurring much faster than restoration schemes. Over a similar period outlined in the regrowth study, which was led by WWF as part of the Trillion Trees project, 386m hectares of tree cover were lost worldwide, around seven times the area of regenerated forest.

Previous studies have estimated that an area of forest as large as the UK is being lost each year, largely for timber or to make way for agriculture, such deforestation posing huge threats to wildlife and efforts to contain the climate crisis.

Deforestation spiked sharply last year, with losses concentrated in the vital rainforests in tropical areas. Trees are being felled and burned at a rapid rate in the Amazon, with more than 430,000 acres already lost in 2021. Jair Bolsonaro, Brazil's president, has come under increasing international pressure over such deforestation.

“The science is clear – if we are to avoid dangerous climate change and turn around the loss of nature, we must both halt deforestation and restore natural forests,” said William Baldwin-Cantello, director of nature-based solutions at WWF. “We've known for a long time that natural forest regeneration is often cheaper, richer in carbon and better for biodiversity than actively planted forests, and this research tells us where and why regeneration is happening, and how we can recreate those conditions elsewhere.

“But we can't take this regeneration for granted – deforestation still claims millions of hectares every year, vastly more than is regenerated.”

THE 50 BEAUTIFUL AUSTRALIAN PLANTS AT GREATEST RISK OF EXTINCTION — AND HOW TO SAVE THEM

The Conversation May 13, 2021 Jennifer Silcock, University of Queensland, Jaana Dielenberg, Charles Darwin University, Roderick John Fensham, University of Queensland, Teghan Collingwood, University of Queensland.



Caley's grevillea (*Grevillea caleyi*) occurs in Sydney. It needs fire to germinate but burns are hard to carry out near urban areas. Tony Auld.

As far as odds go, things don't look promising for the slender-nerved acacia (*Acacia leptoneura*), a spiky plant with classic yellow-ball wattle flowers. With most of its habitat in Western Australia's wheat belt cleared for agriculture, it was considered extinct for more than 160 years.

Now, just two plants are known in the world, and they're not even in the same place. This species is among many Australian plants that have come perilously close to extinction.

To help prevent the loss of any native plant species, we've assembled a massive evidence base for more than 750 plants listed as critically endangered or endangered. Of these, we've identified the 50 at greatest risk of extinction.

The good news is for most of these imperilled plants, we already have the knowledge and techniques needed to conserve them. We've devised an action plan that's relatively easy to implement, but requires long-term funding and commitment.

What's driving the loss?

There are 1,384 plant species and subspecies listed as threatened at a national level. Twelve Australian plant species are considered probably extinct and a further 21 species possibly extinct, while 206 are officially listed as critically endangered.



Two known plants of slender-nerved acacia (*Acacia leptoneura*) remain, about 1 kilometre apart. Propagation attempts have been unsuccessful and the genetic diversity is probably very low. Joel Collins.

Australian plants were used, managed and celebrated by Australia's First Nations people for at least 60,000 years, but since European colonisation, they've been beset by a range of threats.

Land clearing, the introduction of alien plants, animals, diseases, and interruptions to ecological processes such as fire patterns and flooding have taken a heavy toll on many species. This is particularly the case in the more densely populated eastern and southern parts of the continent.



Ironstone pixie mop (*Petrophile latericola*) occurs on a soil type that's been heavily cleared for agriculture, and is suspected to be susceptible to an introduced root-rot fungus. In 2020 fewer than 200 plants remained, in poor condition. Andrew Crawford.

Things aren't improving. Scientists recently compiled long-term monitoring of more than 100 threatened plant species at 600 sites nationally. And they found populations had declined on average by 72% between 1995 and 2017. This is a very steep rate of decline, much greater than for threatened mammal or bird populations.

Many species listed as threatened aren't receiving targeted conservation action or even baseline monitoring, so an important first step in preventing extinctions was identifying the species at greatest risk. To find the top 50, we looked at the evidence: all available published and unpublished information and expert surveys of over 120 botanists and land managers. They're targeted by our Action Plan for Australia's Imperilled Plants.

Action Plan for Australia's Imperilled Plants.

Thirty of the species in the plan have fewer than 50 mature individual plants remaining.



About 2,000 Morrisby's gums were growing in the early 1990s, but by 2016 fewer than 50 remained. Climate change and damage from insects and animals threaten those left. Protecting trees with fencing has led to new seedlings. Magali Wright.

And 33 are known only from a single location, such as the Grampians pincushion-lily (*Borya mirabilis*), which occurs on one rocky outcrop in Victoria. This means the entire population could be destroyed by a single event, such as a major bushfire.



Less than 15 woods well spyridium (*Spyridium fontis-woodii*) shrubs remain on a single roadside in South Australia. Research into threats and germination requirements urgently needed, + translocation to conservation reserves. Daniel Duval/South Australian Seed Conservation Centre,

So how can we protect them?

Some of the common management actions we've proposed include:

- preventing further loss of species' habitat. This is the most important action required at a national scale
- regularly monitoring populations to better understand how species respond to threats and management actions
- safely trialling appropriate fire management regimes, such as burning in areas where fires have been suppressed
- investing in disease research and management, to combat the threat of phytophthora (root-rot fungus) and myrtle rust, which damages leaves
- propagating and moving species to establish plants at new sites, to boost the size of wild populations, or to increase genetic diversity
- protecting plants from grazing and browsing animals, such as feral goats and rabbits, and sometimes from native animals such as kangaroos.



Once common, the dwarf spider-orchid (*Caladenia pumila*) wasn't seen for over 80 years until two individual plants were found. Despite intensive management, no natural recruitment has occurred. Propagation attempts have successfully produced 100 seedlings and 11 mature plants from seed. This photo shows botanist Marc Freestone hand-pollinating dwarf spider-orchids. Marc Freestone.



Only 21 mature plants of Gillingarra grevillea (*Grevillea sp. Gillingarra*) remain on a disturbed, weedy rail reserve in southwestern WA. Half the population was destroyed in 2011 due to railway maintenance and flooding. Habitat protection and restoration, and translocations to conservation reserves are needed to ensure its survival. Andrew Crawford.

Another common issue is lack of recruitment, meaning there's no young plants coming up to replace the old ones when they die. Sometimes this is because the processes that triggered these plants to flower, release seed or germinate are no longer occurring. This can include things like fire of a particular intensity or the right season.

Unfortunately, for some plants we don't yet know what triggers are required, and further research is essential to establish this.

Now we need the political will

Our plan is for anyone involved in threatened flora management, including federal, state, territory and local government groups, First Nations, environment and community conservation groups, and anyone with one of these plants on their land.



The Border Ranges lined fern (*Antrophyum austroqueenslandicum*) and its habitat are exceedingly rare. It's threatened by drought and climate change, and fewer than 50 plants remain in NSW. If the threat of illegal collection can be controlled, the species would benefit from re-introduction to Queensland's Lamington National Park. Lui Weber.

Plants make Australian landscapes unique — over 90% of our plant species are found nowhere else in the world. They're also the backbone of our ecosystems, creating the rich and varied habitats for our iconic fauna to live in. Plants underpin and enrich our lives every day.

Now we have an effective plan to conserve the Australian plants at the greatest risk of extinction. What's needed is the political will and resourcing to act in time.