APS Australasian Plant Society

PENTACHONDRA

Journal of the Australasian Plant Society

NUMBER 65 DECEMBER 2020



***Banksia praemorsa* with unusual fasciation**

AUSTRALASIAN PLANT SOCIETY

Promoting the cultivation and conservation of Australasian plants, and their closest relatives, in northern hemisphere gardens

Number 65

December 2020

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APS NEWS

AGM 2020

At the 2019 AGM we discussed holding the 2020 AGM at a venue other than Lullingstone Castle because it is not an easy place to travel to if you don't live in the south east of England. Little did we know that Covid-19 was coming, or the restrictions that it would bring with it.

No face to face meetings for us - the 2020 AGM was held on Zoom. This indeed allowed members who don't live in the south east of England to attend, including four members from Europe, and the turnout - 38 including committee members - was probably the highest ever for an APS AGM. It was great to see you all.

At past AGMs Tom Hart Dyke, our President, has taken everyone on an extended tour of the World Garden at Lullingstone. This year a virtual opened the meeting. Business was then swiftly and efficiently conducted, leaving the second hour for the 2020 APS lecture, an absorbing and illuminating talk by Robbie Blackhall-Miles entitled 'Taonga i Te Ika-a-Māui: a hunt for treasure in the mountains of North Island, New Zealand'.

One of the advantages of Zoom is that events can be recorded, so for those who couldn't attend the AGM Tom's virtual tour and Robbie's talk will be made available on the APS website. The minutes will be published in the May 2021 issue of Pentachondra and also made available on the website.

Photography competition

Blake Chaplin was the winner of the 2020 APS photography competition. His winning image (see page 23), as voted for by members, shows the Western Australian mallee *Eucalyptus caesia* blooming in his east London garden on May 4th 2020. It was grown from seed sown in 2017. Blake's prize is a print of a Celia Rosser banksia drawing.

The competition will be held again in 2021. The rules are simple.The photo should be of a native Australasian plant or plants being grown in the northern hemisphere in a pot or in the ground; either is fine. Each member can submit one photo. The deadline for submission is yet to be decided but there's nothing to stop you snapping now, to capture Australasians blooming in winter.

Events 2021

We had some great events planned for 2021 but in the end the pandemic put paid to all of them. Even when the first lockdown eased there were still restrictions on gatherings and social distancing remained necessary. At the time of writing it remains very uncertain how 2021 might pan out. Even with a vaccine becoming available it may be a while before larger groups can meet up safely.

However, there's nothing like optimism. Hopefully by May or June the pandemic will be sufficiently under control that we can safely visit the gardens we planned to go to in 2020: Sue Norburn's garden near Horsham in West Sussex and Abbotsbury Subtropical Gardens in Dorset. We have also signed up to take a stand at the RHS Specialist Plant Society Show at Wisley which (if held) is likely to be in June, and to attend the Great Dixter Autumn Plant Fair which is usually held in early October. As soon as we have a better idea of what we might be able to organise we will let members know by email, so please keep an eye on your inbox.

If anyone wishes to organise or host an event in 2021, or even 2022, Gary and Maria would be very pleased to hear from you. They can be contacted at meetings@anzplantsoc.org.uk.

Subscriptions are due!

Subscriptions are due on **1st January 2021**. A renewal form is enclosed with this issue for those who who do not automatically renew their membership. Annual subscriptions are £15 for members resident in the UK and £18 for members resident elsewhere.

If you pay by standing order or PayPal, or you have already paid for 2020, you do not need to do anything, **unless** any of your details have changed. If so, please contact Jeremy directly.

Vale

We are sad to have to announce the death of long-standing APS member Edward Latham. A great supporter of the Society, Edward even paid for the membership of several of his friends by way of Christmas presents. The Treasurer in particular will miss his regular phone calls enthusiastically discussing the progress of the APS, further enlivened by stories of his time at school in Canterbury many years ago.

Pentachondra on the APS website: help wanted

Many back issues of Pentachondra are now available in the members' area of the website. It would be great if the remaining ones could be added. There are 19 issues that are not yet digitised. Each one needs to be scanned, page by page, and saved as a pdf. Could you help? Even if you can only scan one or two issues that would be really useful. To volunteer please email enquiries@anzplantsoc.org.uk.

For sale

Eucaflip

This full colour photoguide is designed to enable the easy identification of all 29 eucalypt species native to Tasmania. It was recommended by the late John Purse as the best guide for identifying eucalypts in the UK, as the species most commonly grown here are from Tasmania. It illustrates the key diagnostic features - fruit, buds, bark and leaves - with life-size photographs. It is laminated and light enough to carry. When fully open it measures 92 by 48 cm but it folds up to 23 by 12 cm.

Australian Plants – A Guide to their Cultivation in Europe

We have two copies left of this excellent book by Thomas Ross and Jeff Irons, one of the founders of the APS. It has detailed information about selected Australian species that can be successfully cultivated in Europe along with a list of the characteristics and cultivation requirements of another 500 plants.

Contact enquiries@anzplantsoc.org.uk to purchase Eucaflip for £7.50 plus postage, or Ross and Irons for £10 plus postage.

Seedlist news

In 2020 the rules for importing seed from outside the EU changed, such that seed orders now require a document known as a phytosanitary certificate. This meant that we were not able to obtain some of the species that we had hoped to add to the seedlist The committee are working on this issue and we that we will be able to offer lots of new species on the 2021 list, as well as restocking old favourites.

Fortunately we were able to add to the 2020 list through contributions from members and the Society would like to thank Jan-Willem Vos, George Smith, Tim Smith and Judy Clark for their donations. It would be great if more members could contribute seed to the list. Collecting seed is not difficult and donors are entitled to an extra packet from the seedlist for each species donated. An article on the subject is planned for the May 2021 issue of Pentachondra.

We hope that the 2021 seedlist will be ready by early spring. As soon as it is finalised it will be posted on the website so members who want to get an early start won't need to wait until the printed list is available with Pentachondra in May. Ordering early also helps the Society's seed manager Janet Miller to spread her workload. If orders come all at once it inevitably means that there will be delays in sending them out.

Get your name in print: write for Pentachondra

As always, many thanks to all those who have taken the time to contribute to this issue. It is brilliant to see some new names along with regular contributors and it would be great to see more new names in the next issue.

Essentially, the only thing required of pieces for Pentachondra is that they have some connection with Australasian plants and their close relatives. If you are short on inspiration try flipping through a back copy or two to see the topics others have written about: particular species or genera; plants they have cultivated; their own gardens; places they have visited; books they have read; and so on. Length is not important, and if you don't fancy writing an article photographs on their own are fine, but please provide a caption.

Website photos

If you've looked at the 'What's Growing' page on the APS website you'll see it features photos of Australasian plants that APS members are growing in their gardens. Do you have some great photos of what you are growing? Why not send them to Ben at webmaster@anzplantsoc.org.uk to post on the website?

Articles based on members' experiences of growing Australasian species are how we increase our joint knowledge of the details of their cultivation in the northern hemisphere. In the first article in this issue Greg Plenty tells a tale about a *Cordyline* he grew many years ago from seed from the APS seedlist. For the next issue Greg has offered to collate members' stories about plants they have grown from APS seed. Do you have a tale to tell? If so please send it direct to Greg at at gregplenty@gmail.com..

The deadline for the next issue is **31st March 2021**. Please send contributions as word documents or similar (not as pdfs) and please do not compress photographs. If you have any questions about contributing please don't hesitate to contact Judy via at enquiries@anzplantsoc.org.uk.

TALES FROM THE SEEDLIST

Greg Plenty

I have belonged to the APS for a very long time. I'm not sure which year I joined but my wife, Laura, and I hosted a couple of society meetings at our

place near Leeds in the mid 1990s. When I was in my comparative youth I was a mad keen seed sower, with a large garden to fill. In particular, there were hakeas, callistemons and eucalyptus everywhere, always from APS seed and often of known collection provenance. I regularly met the late Jeff Irons, an incredibly generous man who was truly the font of all knowledge with regard to Oz plants, especially hardy ones. Tiny cuttings and seedlings of rare species often came from him to me and others. Our challenge was to keep them alive!

Most of the plants that actually germinated from APS seed grew well and generally even survived the terrible December of 2010 when we had -15^{o}C for several days in West Yorkshire. Eucalyptus often grew too well and had to be cut down to appease the neighbours.

Then in 2012 we moved to Ferring on the West Sussex coast to a much smaller garden in a much milder spot than West Yorkshire. All I was able to bring with me antipodean plant wise were a massive *Dicksonia antarctica* that took three of us to lift, plus two tiny pots of cordylines, labelled on the packets as '*australis*' and '*kaspar*', that had been grown from the 2011, or was it the 2012, APS seedlist.

Arriving on the south coast along with hundreds of other little and not so little plants, they sat outside in the cold until a greenhouse was constructed in January 2013. In the summer of 2013 these little fellas were planted out, three '*australis*' in a north facing spot at the end of our new garden whilst the '*kaspar*' went against an east facing fence in the shelter of the tree fern we had brought with us.

But then what happened? We are just 500m from the sea but at the bottom of a lane next to open farmland, so in a frost hollow. The '*australis*' began to grow but noticeably they had much wider leaves than expected, with a bit of a corrugated look about them. More importantly, their centres were damaged by any proper frost. They did not look much like the *Cordyline australis* growing in gardens round here by the hundreds, nor was their frost tolerance typical.

So they kept going, one splitting at the base into two, more like *banksii*, which they are plainly not, looking at the leaves (photo page 7). Over the last three years they have gone like a rocket, reaching about 5m and looking very subtropical. One actually flowered this year. I must collect seed for next year's list. I hope the picture taken of them beside the summer house illustrates this (see page 7). The largest plant has produced an epicormic shoot on its trunk. Wikipedia tells us this may be a response to growing point damage.

These mystery '*Cordyline australis*' seeds from the APS list have produced three wonderful plants that would grace any garden in a fairly mild place. I would bet these are hybrids with the broader leaved and less hardy *C. obtecta* (now the accepted name for *C. kaspar*).

Have you got tales to tell of plants resulting from the APS seed list?

Year seed obtained and sown? Successes? Failures? Growing conditions? Just a brief word will suffice, along with a picture or two so as to help keep Pentachondra the super journal it is. A first article collating your findings in words and pictures will appear in the spring, hopefully.

Send short items on plants you have germinated from the APS seed list, with photos, to me directly at gregplenty@gmail.com by 31st March 2021. Anything will do. And anybody else who germinated cordylines from the list around 2012, I would love to hear from you to compare notes!

I'll write about the so-called *Cordyline . kaspar* another time….

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HOVEA ELLIPTICA

Tim and Gill Burr

This article is a sequel to our previous one on *Hovea elliptica* in Pentachondra No. 60 (May 2018 pp 10-12), recounting our modest success in getting just one of these plants to germinate from seed brought back from Australia, and then growing it on in our glasshouse to the point of flowering.

Having got that far, we thought it worth seeing whether the plant would set seed. We used a small artist's paint brush to fertilise some of the flowers, pushing it in between the white pollinator-guide on the mauve standard petal, and the darker wing petals below. We were rewarded with a few seeds (five from memory), but having only germinated one from a whole seed packet brought back from Western Australia, we didn't take the prospect of germination too seriously. We just stuck them in pots and hoped for the best, and were duly disappointed when nothing happened.

By 2019 the plant was bigger and produced a lot more flowers, some of which we fertilised, while insects visiting the glasshouse might have done more. Seeds come just two to a pod, which can split and disperse without warning. So close attention is needed to catch them when the seeds are ripe, but before they drop to the earth below, where they are hard to find in a tangle of plant stems. In the end we collected 25 seeds, so it seemed worth making a proper effort to get them to germinate. We immediately put them in a tiny self-sealing plastic bag, and left them in a drawer until spring this year.

In late March we used surgical scissors to nick the outer seed coats, then took about 100 ml of near-boiling water from our kettle tap, and dosed it with a few drops of Colgin Liquid Smoke (see Pentachondra Issue 55: 29-34, though ours was Hickory rather than Mesquite flavour). All 25 nicked seeds were dropped straight into this hot water, and left in a sealed jar overnight. By the next day 23 of the 25 had swollen, and we planted all 25 in a tray of root-trainer pots, filled with our silty/sandy Arun River terrace soil. The date was March 29th. A week later we

APS member Martin Batchelor of Eleplants nursery is looking to extend their range of Australasian species and would like to hear from any members who can supply him with plant species or cultivars they feel are worth wider recognition in UK horticulture. Plants would go on to be produced commercially. All transactions would be between Eleplants and the provider of the plants, and the APS would not have any responsibility for any transaction. Martin can be contacted by email at eleplantsnursery@talk21.com. For more information go to www.eleplants.co.uk/

watered them again with a similar solution of Colgin Liquid Smoke.

The first seedling appeared on April 15th and by April 23rd we had 10***.** The remaining seeds were left in their pots for many weeks afterwards, but no more germinated. We were however well satisfied with what was a quite respectable 40 per cent germination rate. We had been able to follow the seeds all the way from fertilisation through harvest, storage, treatment and planting. And our one plant from the original seed brought back from Australia had been shown to be fully capable of self-fertilisation and the production of viable seed.

The seedlings were moved into 140 mm diameter pots, 160 mm deep, to give drainage and encourage root development. They were kept indoors on window-sills through the summer, the better to simulate the overhead shade they could expect in the jarrah-marri forest of south-western Australia, and also to remind us to keep them watered! It is easy to forget that annual rainfall may be up a metre in this part of Australia, and they seem to be quite thirsty plants.

They have established well and grown on, though one has now failed for no apparent reason, possibly under-watering. None of them will last indefinitely in pots, however – their parent plant is three metres high. We have already planted out the largest (700 mm tall) in the greenhouse soil (photo opposite), in space vacated by a large alyogyne which, after six years, was increasingly morbid while creating too much shade. We don't have room for more, so as a further experiment we may try out the remaining eight hoveas in woodland we own on the coastal plain near Chichester. The mild climate there might see at least some of them through the winter.

Meanwhile, we have a further 25 seeds, again harvested from the parent plant in the summer of this year. We don't know whether we'll be able to resist the temptation to try again!

Note:

Seedlings appeared in the following sequence: 15/4, 1st; 17/4, 2nd; 18/4, 3rd & 4th; 19/4, 5th, 6th & 7th; 20/4, 8th, 21/4, 9th; 23/4, 10th.



BANKSIAS IN FRANCE: A visit to Tim Darrington's National Collection

Ben Ram

In August, Robbie and I took the opportunity to visit Tim Darrington's collection of *Banksia* in Vienne, France. We have a National Collection of South East Australian *Banksia* in North Wales, so were very interested to see how Tim's French National Collection (including Western Australian species) differed to ours both in its broader range of species and in subsequent cultivation requirements. Needless to say, we were amazed at the sheer range of plants Tim grows and found it interesting that some challenges are shared, while others are quite different.

The day of our visit was sultry and promised thunder and much needed rain, the ground dry from a prolonged summer drought. Summer humidity is typically much lower here then we get, but when the thunderstorms come rolling in it can increase substantially. Indeed, it is summer rain that stops us





Grown from APS seed by Greg Plenty: not *Cordyline australis*



Hovea elliptica* flowering in Gill and Tim Burr's glasshouse in March 2020, along with *Melaleuca decussata

From Tim Darrington's National Collection of Banksia, Vienne, France

above: ***Banksia media*** below**: Drvandra fraseri**





from growing many Western Australian plants. Heat, however, is something that Tim has to contend with more frequently than us, with temperatures well above 30°C not uncommon. It is the combination of heat and humidity that can be difficult to deal with for these plants. The Western Australian species, in particular, come from a Mediterranean climate with cool wet winters and warm dry summers; rarely experiencing high humidity in the summer months. During warm humid periods, Western Australian banksias can suddenly die, so while the rain was welcome, the heat was not.

Many of Tim's banksias are in pots so that they can be protected from frost in his ingeniously built greenhouses over winter. In summer, pots are moved out of the greenhouses and sunk in the ground to stop the roots from cooking. Pots receive drip irrigation from rainwater, collected from the roof of the house. Some species, such as *Banksia marginata*, are hardy enough to have been planted in the ground permanently and are growing well.

Additional to his *Banksia* collection, Tim is building upon his *Dryandra* collection. Due to the disputed merging of *Banksia* and *Dryandra*, the Conservatoire des Collections Végétales Spécialisées (CCVS, the French equivalent of Plant Heritage) suggested that he extend his collection to include *Dryandra* (see photos opposite). This has widened Tim's remit to over 170 species. Given there are no species of *Dryandra* in south eastern Australia, they do not form part of our national collection, although we do grow a couple of species in pots out of interest.

The range of low growing dryandras that Tim has were particularly noteworthy. They suit pot culture exceptionally well, looking smart and in proportion to the pots they were growing in. Many were flowering and quite a few had set seed. Interestingly, the *Dryandra praemorsa* that Tim gave us a few years ago has this year produced seeds.

Amongst the *Banksia* that were distributed across the garden, although plants such as *Banksia media* were flowering spectacularly (see photo opposite), it was the variety of leaf form and growth habit that really stood out; short-creeping, tall-spindly, lax-sprawling and stocky-upright. The plants presented a strong image of the diversity that has formed in the genus since its origins in the late Cretaceous. Some have broad and deeply toothed leaves, some have smooth waxy leaves and others have fine narrow ones. When you turn those leaves over a whole new range of variety presents itself in the intricate networks of veins, stomatal pits, indumentum and colouring. It was so good to see all this diversity in just one genus sat side by side. We even saw a plant of *Banksia praemorsa* with an unusual fasciation where multiple flowers spikes form at the same place (see front cover). This can happen due to microscopic damage to the bud early in its development.

I would thoroughly recommend any members of the society who find themselves in France to visit Tim's wonderful collection. If you wish to contact Tim, please get in touch with the APS committee and we will make the connection. In our opinion it is always worth visiting other collections. You always leave having learnt something new. And thank you to Tim and his wife, Agnès, for their exceptional hospitality, humour and the figs!

PROGRESS WITH BREEDING CORREAS

Michael Sullivan

I wrote an article in the May 2020 edition of Pentachondra (issue 64) about my attempts to raise correas from seed. At the time it was written germination was still in progress. This short article is an update on the progress experienced since then. I am still gaining experience with *Correa* and am very much in the need to know a lot more group!

After seeing a few varieties I had the urge to obtain as many as I could. I soon collected most of what was available. I am grateful Judy Clark who provided cutting material of some that I was not able to buy, and lucky that most rooted. But after trying and failing to obtain some of the new varieties available in Australia I decided to raise my own on a whim, and with a determination not to be thwarted. It was in retrospect a premature decision to hybridise before actually having knowledge of the genus, but it has without doubt speeded that learning curve.

After germination it was quickly apparent that the roots grow down very fast. Therefore all the seedlings were pricked out very early into 100mm long tom pots. Never let the roots go round in circles at the bottom; at all times encourage the tap root to extend downward. My seedlings soon reached the bottom of their pots and had to go into 3 litre pots within a few weeks. The majority would be potted up to 300mm pots if an imminent house move was not happening.

The compost is 50% John Innes no3 soil based and 50% ericaceous peat based with perlite.The seedlings are not given additional feed. I was surprised at how fast the plants developed. They soon grew to 300mm high and in order to have plant easier to move I decided to remove the growing point. This stimulated the side shoots and the lower ones have had to have the growing points removed as well.This is making them into compact bushy shrubs with stems averaging 280mm.

I have around 45 seedlings and now they have had eight months growing it is possible to see the variation in leaf and stem. No two are alike so I'm sure one or two will be good varieties . At this stage you can fantasise about the potential flower yet to make an appearance, you look at the seed parent and note how different it is and try to guess the pollen parent. Some are not in anyway able to be given a potential mum or dad, they are all different.

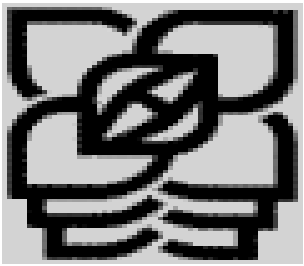
I collected seed mainly from *Correa reflexa* var. *nummulariifolia* and *C. pulchella* 'Pink Mist'. I did not emasculate the flowers and hand pollinate them and so I became slightly disillusioned after reading an article from leading *Correa* breeder Peter Ollerenshaw that self pollination could result in identical seedlings. However this does not seem be the case as all are different.

One vigorous seedling is remarkably like *C. backhouseana* var.*orbicularis*, a plant I have in the garden but from which I had not taken seed. The rusty hair on the stem and the underside of the leaf is an identification feature of that variety and is evident in this seedling. Although none have flowered yet they have all given me a daily lift in spirit.

By potting on before the root circles the bottom of the pot and giving them every reason to grow they are mainly as

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good small shrubs that I hope will flower next year, although three years is the norm from seed. If my plants survive the move further north I hope to show you all the first seedlings in flower. I need to get a new greenhouse soon as I arrive, and it seems like there is a 30 week wait to get one!

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MY AUSTRALIAN PLANT YEAR

Alison Foster

2020 began with a six week working trip to Australia. Together with my partner I stayed in a south-eastern suburb of Melbourne called Glen Waverley. In between remote working sessions I was able to explore the many excellent native plant gardens and nurseries as well as an exhibition recognising the 250th anniversary of Banks & Solander arriving on the east coast of Australia. Due to the coronavirus pandemic, the exhibition subsequently moved online*.

Upon returning home to Leamington Spa I was keen to get even more Australian natives growing in my own back garden. One upside of the lockdown that commenced before I'd been home for very long was that it enabled me to spend even more time on

this than in previous years! I'd like to share the two species I'm most proud of having grown this year.

Swainsona formosa – Sturt's desert pea

From speaking to colleagues who have previously tried to grow this species in botanical collections, I was aware that this was going to be a challenge, but it was one I was prepared to tackle! The experiment began. on March 15th.

Seeds, obtained from Australian Wildflower Seeds (wildseedaustralia.com.au/) were soaked in warm water along with some seed starter granules obtained from the same company (as the packet instructions indicated). After soaking for 24 plus hours, the seeds started to show signs of radicle emergence. Some of the germinating seeds were then sown singly into 9cm square pots and others into smaller 4cm round pots with 2 to 4 seeds per pot. The growing media used was an approximately 1:1 mixture of John Innes No2 and peat-free multi-purpose with some perlite added in to assist with drainage. The pots were initially placed in a heated propagator indoors. Within a month I had moved all seedlings to my unheated greenhouse.

The photos opposite show their subsequent progress. By May 7th the seedlings in both pots were growing well with the single seedlings being considerably sturdier!

In mid-May, surprised that all my seedlings were still alive, I decided I needed to be brave and transplant the seedlings growing in the smaller pots into larger terracotta pots where I hoped they would grow to maturity and flower. Much of the available online literature about growing this plant suggested that this would not be successful as the roots of this species are sensitive to disturbance. As carefully as possible the seedlings were transplanted into a range of larger terracotta pots – either one or two seedlings per pot depending on the size.

By May 28th, the seedlings growing in the 9cm pots were showing pinnate leaves. The seedlings that had been transplanted were still alive, indeed thriving on June 4th.

The first flower buds started to appear in early July and by mid-July were looking quite distinct, although not yet showing any red petal colouration. One of the plants had even produced more than one bud! The corolla began to emerge from the opening calyx within another week, and before another week had passed the inflorescence (photo back cover) was there in all its amazing glory!

The growing medium was allowed to dry out between watering and the plants were fed weekly, initially with a general seaweed fertiliser and later as the flower buds started to form with a high potassium fertiliser. Effort was made to keep humidity low in the greenhouse and to maximise the sunlight making it through to the growing desert peas. I suspect that these plants would not have grown and flowered nearly as well if the spring and early summer were not as warm and sunny as they were,

As I write this (in mid-October) the plants are still alive in my greenhouse, although admittedly not looking quite at their best. I understand that this plant is normally grown as an annual but may also be a short-lived perennial. I will continue my experiment and see if I can get them through the winter – most likely bringing them inside to a cool but sunny porch.

From seedlings to buds: Alison Foster's *Swainsonia formosa*





above and right: **May 8**
below left: **May 28**
below right: **June 4**







above and right: **mid July**







above and right
***Anigzanthus humilis*, grown by Alison Foster**



below and left
Mona Abboud's New Zealand plant combinations



Anigozanthos humilis – Catspaw
The seeds of this species were sown on the same day as those of the Sturt's desert pea. They were sown into standard seed compost and placed into the same heated propagator. The seedlings were pricked out when they were large enough to handle and potted into peat-free multi-purpose compost. In late April they were moved to my unheated greenhouse where they have remained there all summer, growing into plants with several clumps of small strappy leaves (see photo, left**)**.

They didn't get nearly the same amount of attention and close observation that the Sturt's desert pea did, but they were watered as needed and fed weekly through the summer. So imagine my surprise at the beginning of October when I looked a little more closely at one of the plants when re-arranging pots in my greenhouse and I found (see photo, left**)** a fully formed flowering shoot!

Note:
It can be found at:
www.maroondah.vic.gov.au/Explore/Whats-on-in-Maroondah/Events-calendar/Event-Public/Australian-plants-revealed-65000-years-of-traditional-knowledge-and-250-years-of-science-online

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A STRIKING NEW ZEALAND NATIVE PLANT COMBINATION IN NORTH LONDON

Mona Abboud

Just as a very large willow tree was being felled at the bottom of my garden, thereby clearing a nice space ready for a new planting project, Jeremy Spon's short article *A Striking Native Plant Combination in New Zealand* was published in the December 2017 issue of Pentachondra (Number 59, pages 36- 8). Jeremy had been contacted by Barry Atkinson who had been fascinated by a plant combination of *Chionochloa flavicans* and *Libertia grandiflora* at Perfume Point, Napier on North Island, New Zealand.

I became equally inspired by this plant combination, and decided to try it out in my newly created space. I was already a fan of *Libertia peregrinans*. As its name indicates, it tends to spread through its rhizomes, and one ends up with a nice mass of them to be used throughout the garden. It has stiff sword shaped leaves shaded with a yellow-orange tinge which intensifies in winter, and lights up a gloomy day, as do other varieties such as *L. ixioides* 'Goldfinger' and *L. ixioides* 'Taupo Sunset', which also became part of the planting scheme. Like Barry, I also felt that the soft and airy *Chionochloa* or red tussock grass, would complement the *Libertia* beautifully.

Another great favourite, *Uncinia rubra*, or red hook sedge, with its bold red-bronze leaves, would add a touch of vibrant colour to the mix. These three species act as framework and contrast to the more architectural small leaved New Zealand shrubs, namely a newly acquired *Corokia* x *virgata* 'Envy' which displays a more open habit than all the other *Corokia* species and cultivars, an *Olearia phlogopappa* , a *Phylocladus trichomanoides* with a *Phormium tenax* 'Variegatum' completing the design. These were planted at the back of the space and thus seen through the soft and hazy texture of the *Chionochloa* (photos opposite) and giving the whole picture

an impressionist feel. Because the whole effect is very subtle, it doesn't really register on photographs; they don't do it justice and it needs to be seen in situ.

Apart from merging very well in this winning combination, all three genera - *Libertia*, *Chionochloa* and *Uncinia* - work very well individually as specimen plants or en masse. In my own garden I have used some of them as accent plants, or to set off other plants.

As well as the plants mentioned in this article my garden is host to another 25 New Zealand genera and many more species and cultivars growing happily in north London, including a Plant Heritage National Collection of *Corokia*, olearias, coprosmas and 13 different varieties of *Pseudopanax*, to name but a few. If you are interested in seeing them, please come and visit my garden: www.monasgarden.co.uk.

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CHÂTEAU PÉROUSE

Jan-Willem Vos

For the past fifteen years, an ambitious botanical project has been taking shape in an old wine estate on the northern edge of the Petite Camarge, just north of Saint-Gilles in the Gard in southern France. It already hosts four CCVS-labeled collections (Conservatoire des Collections Végétales Spécialisés, the French eqivalent of PlantHheritage), but its originality is mainly due to the landscape treatment of this vast project, intended to provide the maximum of microbiota favorable to the acclimatization of plants from all Mediterranean climate regions of the planet. A sort of open-air biodome.

The park is located on the Plateau des Costières. It's the first landform meeting the southerly winds arriving from the Mediterranean and it marks the border of the Camargue. Emerging on the horizon are in the north the foothills of the Cevennes, in the east the Alpilles, in the west Pic Saint Loup and in the south a view overlooking the Camargue and Petite Camargue. These protected sites are known worldwide for their strategic positions on the route of migratory birds. The climate and the landscapes are a delicious blend of Provence and Languedoc, Cévennes and the seaside.

400 years ago, the lands belonged to the duchy of Uzès and were exploited with sheep, vineyard plots, derelict land and natural forests for hunting. The French Revolution of 1789 led to the expropriation and dispersion of the lands and properties. The lands were parcelled and a domain emerged. In 1807 Napoleon, to facilitate a tax collection, imposed surveys of the properties. Our research at the Gard Departmental Public Records led us to discover the first name of the domain, 'La ferme du pont de Nîsmes', and we found that all the land and houses were owned by the Pérouse family. The old registry is identical to the 2004 registry.

In the early part of the 19th century a beautiful house of 750m² was built in the middle of pines, oaks, laurels and clearings. Like most domains in the area they grew vine because the plant does not need water. The vineyard from the Roman era was one of the oldest in Europe. Unfortunately, the *Phylloxera* (pest of the vine) appeared in the department in 1863, as well as the *Oídium* (a fungus), eradicating dramatically the wine plantations. It took 50 years for the region to recover from this epidemic.

In the early 1960s, to prevent such an economic collapse again (a critical problem of monoculture), the authorities and people of good will decided that it was necessary to move towards agricultural diversification. Technological progress was considerable and gave the opportunity to finally make this area accessible to a diversified agriculture.

Philippe Lamour, living on a farm in the Gard since 1942, inspired a qualitative approach by the study of substrates, new varieties of vines, oenological research and modernization. In October 1944 he was asked to establish a Departmental Agricultural Committee in accordance with the Order of October 1944 by the Minister of Agriculture, François Tanguy-Prigent. In 1955 the state created the National Company for the Development of the Lower Rhone Region Languedoc (BRL) for the realization of this ambitious program, of which the Minister was President until 1974. The engineers created a complete hydraulic system that allowed the use of the Rhone water. This salutary water enabled a radical transformation of this vast plateau without natural irrigation, into an eldorado suitable for planting orchards of apricot, peach and apple. Besides that, the vines returned, and the clay soil gives the wine a typical character which allowed its classification of AOC in 1986.

Before becoming a botanical garden the property belonged to apricot farmers for fifty years. The new owner who is passionate about history, botany and architecture immediately saw the potential of the place.

The botanical park is located near the village of Saint-Gilles, built near the site of a Greek trading post. This village owes its origin and its development to the Christians' devotion to the tomb of Saint Gilles, who was buried there in 721. The abbey church has been part of a UNESCO World Heritage Site since 1998, and Saint Gilles is one of the most important stages of the St. James' Way.

On the outskirts of the Château are already magnificent cedars more than a hundred years old, as well as other remarkable subjects planted in groups which was common in the 19th century. The enhancement of the site is based on the endemic species of the region and is extended by the creation of large vegetated areas correlating to parts of the world where the so-designated Mediterranean climate allows a multitude of plants to flourish. On its 154 acres the park deploys an original plant palette which allows visitors to move from the south of France to other countries with a comparable Mediterranean climate, such as Australia, South Africa, Chile and California.

A 178 acre real estate project has been designed (picture page 22) to integrate some sixty 'bastides', in architectural reference to the original residence that housed the Pérouse family. These country houses will be nestled in clearings, without any fence or separation other than plant. A five star hotel is also planned with, with a parking lot buried in the natural slope of the land in order to minimize any visibility. Finally a pitch & putt golf course will be designed in harmony with nature.

The plants that will be installed in the botanical garden all come from areas with a Mediterranean type climate, which is mainly characterized by a hot

and dry summer as well as a mild and humid winter. However, many microclimates exist within these areas, and plants are very sensitive to them. To better understand these needs, we rely on visits to the regions concerned and on bibliographic research which provides valuable information. We recreate all these microclimates in test gardens and then observe the reaction of the plants.

To facilitate the acclimatization of plants, several types of actions are possible.

First of all, a suitable landscape should be created through for example the use of rocks, earth formations and the creation of artificial rivers. Then, you must compose compatible plant associations, in particular by installing undergrowth plants under trees. In addition, as the soils vary according to the biotopes of origin, it is necessary to compose substrates which imitates them as well as possible. Similarly, the irrigation should be adapted in quantity, (frequency and intensity), and quality (pH control). Sometimes more specific ways like misting, will be used to recreate the high humidity that is suitable for certain plants. These atmospheres and micro-climates are tested using temperature, humidity, wind speed and solar radiation. Plant health is assessed by monitoring, human observation and by measuring their chlorophyll content using a chlorophyll meter (SPAD502+ Konica Minolta) without damaging the leaves. In addition, the amount of water used for irrigation will be measured in order to adjust it as accurate as possible.

The layout designs are very meticulous and we are using our own software (picture page 22). The color of the circles helps to recognize the distribution of taxa, themselves designated by a number from the database. Attached to each number is all the necessary information to place each taxon in the drawing, including its size at the time of planting and also after 5, 10, 20 and 50 years. If we change the database content, the drawing will automatically change. The final goal is to provide a ‘natural’ landscape while mastering its development.

To obtain plants we work with specialized nurseries and seed suppliers, but despite this we remain vigilant about the veracity of the identification. On receipt of the plants, the taxa all get a label that they will keep as long as they stay in the nursery. At the first bloom of a taxa we take pictures and we check the accuracy of the identification. These photos are then integrated into the database and provide confirmation of the identity.

In the gardens the taxa are geo-localized with a geometrical system (Total-Station Hilti, centimeter accuracy). So, we manage to merge the real and the virtual. With the help of a smartphone or a tablet connected to the website, the visitor will be able to walk around to access the designs of the garden, zoom in and then click to obtain the document attached to each taxon. This information is much more complete than on a conventional label and is available in three languages. It can be found on the online database of the Château Pérouse website or by clicking on the plants in the Google Map.

Good acclimatization begins from sowing. Once the seeds have been obtained from specialists from all over the world, part is entrusted to specialized nurseries such as the Arven,

Issa, Railhet and Le Monde des Fougères. These ensure germination in their greenhouses. Still the big majority of the seed is sown by us in our greenhouses (photo page 22) or in our growing chamber (1.500 taxa per year from 2018 onwards). We adapt the growing medium to the soil composition of the landscape in order to create a continuum for the plants when planted. As soon as the plants are resistant enough, they pass into acclimation greenhouses where they grow further, being planted in test gardens. Some of the most sensitive plants are cultivated on the terrace in order to keep a close eye on them and to respond immediately to their needs. Situated behind the Château, the nursery has been installed since 2005. Some plants are not transplantable and are therefore maintained in containers until they are planted permanently. For this we grow eucalypts, proteas, restios and many acacias in Airpots® which helps the development of a mass of healthy fibrous roots.

The southern part of the park retains its ancient atmosphere with century-old trees such as parasol pines and Aleppo pines, cypress and Cedars from the Atlas, Lebanon and Himalayas (*Cedrus atlantica*, *C. libani* and *C. deodara*). The laurels which were growing at the foot of the big trees were replaced with camellias. These superb shrubs are also installed along the river and in the park surrounding the castle (photo page 21). The park is animated by the meanders of a river, created from 2007 onwards, with respect for the natural elevation of the land. 130 meters long, it finds its source at the foot of the Himalayan cedars. The creation of a river with no stagnant water (thus avoiding the proliferation of mosquitoes) has been a main asset for the colonization of the riverbanks by amphibians and insects: the rocks provides a protective habitat for them. All of this contributes to the deployment of maximum biodiversity in the area.

From 2009 onwards we created four test gardens forming the visitable part of the botanical gardens today.

The first one was dedicated to the discovery of all the plants we could maintain in the garden. We got a lot of information about the possibilities for some as well as the knowhow we needed to acquire in order to organize better circumstances for many others. One of the major elements was a good soil mixture since on site we have red clay. We tried to add a lot of sand and small pebbles but to no avail. From the two thousand taxa tested only 287 remain in this garden today. A lot of the surviving plants have been transplanted over the years since it was planted densely in order to test the most plants possible.

The second test garden has been developed for Australian plants (photo page 21). In this garden we have tested new substrates with a very good drainage. The benefits have been apparent straight away. The soils resemble much more the Australian soils and even the frost hardiness has improved vastly since there is no waterlogging. This garden is setup as an nursery as well so we can transplant by using a bulldozer. This may sound strange but the substrates of this garden consist for a big part of sand so we take several cubic meters of substrate and place the plants in new holes made in advance.

The third test garden has been developed for low chaparral/ garrigue type biomes of the four continents. In this garden we used a different substrate with 60% of pouzzolane.

After 2 years the results are equally as good as the first garden with the possibility of a better coherence of the soil while replanting. We are testing here more and more plant communities.

Parts of the river garden have been turned into a South African grassland as well as tests for understory plants from South African forests. Here we see the substrate and plant communities research coming together with the work we are doing on geophytes and succulents. In the next years we will be improving this part until we have a landscape with grasses and flowers the whole year round.

We will need another four years of cultivation and creation of 25 acres of test gardens before we are able to start planting the first phase of the definitive botanical gardens. The next test gardens will have as their objective to create all the microclimates for the project. This garden will be part of the botanical garden and will stay as a test garden and nursery. The advantage of having microclimates of known quality helps to assess the best acclimation for each taxon whilst also assessing the invasiveness of each taxon.

For more information about the test gardens (including the CCVS collections (Conservatoire des Collections Végétales Spécialisés)) as well as about the history of and future plans for Château Pérouse, visit our website at www.chateau-perouse.com. There you will find also our extensive database of more than 18.000 taxa which is available in three languages: French, Dutch and English. The database is used by our own botanists and provides general information of our library. The database provides links to an html-page per taxon including the germination information, the history of our experience with the taxon and, little by little, other information and photos.



HAKEA WAS MY FIRST LOVE (Part 2)

Martin Kreuger

Being close to another lockdown in Germany I realize once more how grateful I am to own a garden and be able to follow most of my intents without a big disruption. I hope many of you are in the same situation and first of all I wish everyone good health and a clear mind! Raising plants from seeds is one of these intents which gives me great pleasure and I wouldn't want to think about me not being able to do this anymore.

At the moment, being on holiday on one of the naturally most beautiful islands of Germany, called 'Hiddensee' in the Baltic sea, where no cars are allowed, I think about the last year of my adventures with my newly discovered love for Australasian plants. I even see reminders of the Australian flora in plants which naturally grow here on the island, like the beautiful, tiny, and in Germany endangered, *Helichrysum arenarium*.

In the May 2020 edition of Pentachondra (issue 64) I was privileged to write about my experience with sowing seeds of *Banksia*, *Hakea*, *Telopea*, *Eucalyptus* seeds and others. And I must say it went on very promisingly, as the photos on page 24 show.

Concerning *Banksia* (of which I tried *B. occidentalis*, *B. canei* and *B. marginata*) all of them germinated very well after putting them in a little pot on soaked vermiculite into the fridge. They



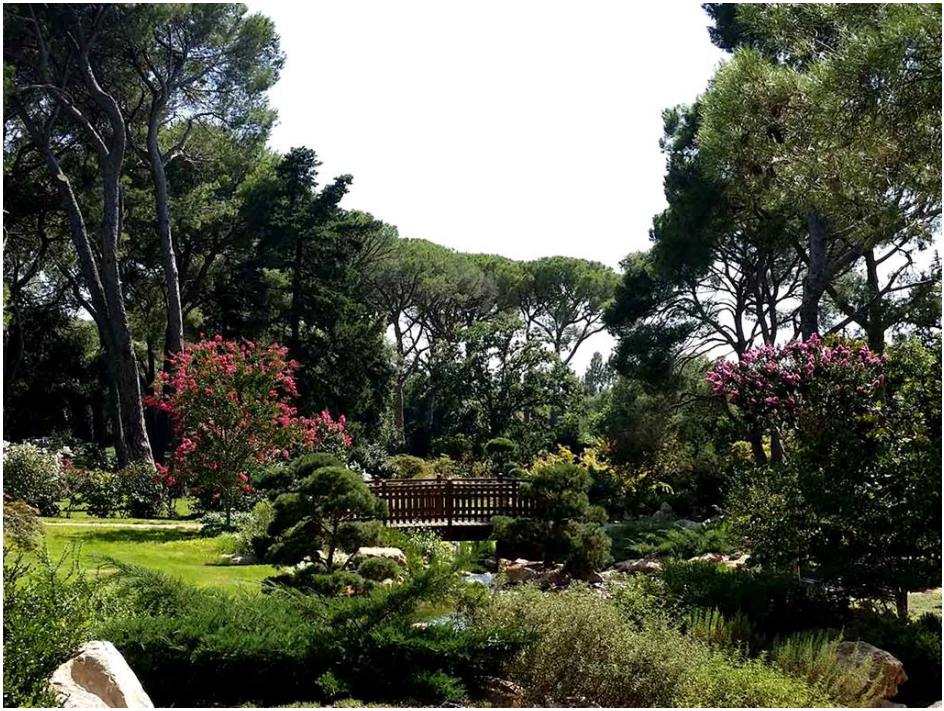


Château Pérouse

above
the Australian test garden

right
one of the greenhouses



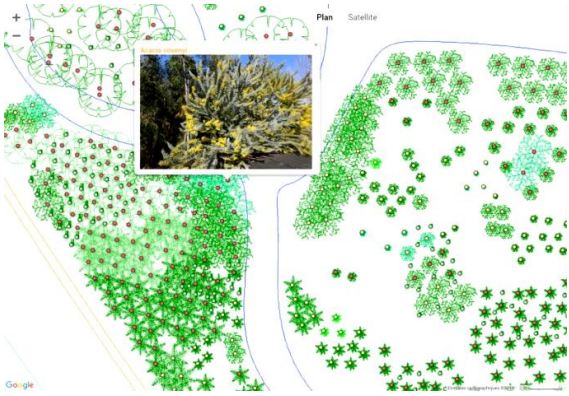


Château Pérouse

above: **the southern part of the park**

below left: **example of digital layout**

below right: **plan for the future**







APS Photography Competition 2020 Blake Chaplin's winning photo of *Eucalyptus caesia* in his East London garden



Acacia ureniae

A new species of acacia that superficially resembles some forms of *Acacia longifolia* and *A. melanoxylon*.





Some of Martin Kreuger's seedlings: clockwise from above:

Acacia siculiformis

Telopea* seedling from *T. oreades* x *speciosissima* x *truncata

***Banksia marginata* in a gravel bed**

Grevillea* seedling from open pollinated *G. lavandulacea* x *rosmarinifolia

A happy *Banksia canei*







all germinated in the fridge after approximately 2-4 weeks, although *B. canei* seemed to be the more erratic in its behaviour; some of them only germinated after two months. After transplanting them into a mixture of our sandy garden soil, some pine bark (from our own pine tree in the garden) and perlite, *B. marginata* grew like there was no tomorrow. *B. occidentalis* was also fast, but lost leaves I guess due to excessive summer heat. *B. occidentalis*, which I thought of as the most promising for, maybe, culture outside in the garden, behaved not very happily. Some plants slowly lost all their leaves in the midst of summer but two seedlings grew quite normally. Those that lost their leaves started to grow again with the first days of autumn or died. I found this behaviour very peculiar , especially as the conditions they grew in (soil, light, moisture etc) were similar.

I transplanted one *B. marginata* seedling into a gravel bed which consists only of pure granite gravel. It is still green but hasn't shown any sign of growth since spring. I guess the conditions there are the hardest in the garden - the hottest place, no real soil, very good drainage and drought all over summer – so I am rather puzzled it is still there!

My beloved *Hakea* also responded to my nurturing and the different seeds (*H. macrocarpa*, *H. decurrens*, *H. epiglottis* and *H. salicifolia*) all germinated. Unfortunately a storm blew my tags away, so as the first three all look the same to me in the youngster phase I will eventually have to wait for them to flower to know which is which. *H. salicifolia* has proven to be extraordinarily vigorous, although I am not yet sure about where exactly its beauty lies … to me it definitely has something of a young willow tree, but a somehow ill-looking one.

Leptospermum rupestre did not at all seem to be a difficult to raise plant. I have already transplanted some of them into the garden where they show good growth and look very healthy. I experienced that most Myrtaceae I tried (*Eucalyptus, Callistemon* and *Melaleuca*) are not very picky concerning their propagation via seeds.

I was most happy about some seeds I got from a *Telopea oreades* x *speciosissima* x *truncata* plant that I bought in France. They germinated very well, too, but I wonder what they will turn out to be. Can anyone help? Unfortunately I had no success at all with *T. truncata* seeds – whether they were sown with or without stratification, gibberellic acid, love and attention or smoke water. I would appreciate some advice on that!

One of my greatest presents for my birthday was receiving the seed package from the APS. I am very keen on all the plants I ordered. I haven't sown all of them yet, but with those which were sown already I wasn't very successful until today. The most straightforward was *Acacia siculiformis*. All the seeds germinated after treating them with hot water after only approximately 7 days.

Open pollinated *Grevillea lavandulacea* x *rosmarinifolia* appeared on November 3rd. Treatment before sowing was soaking in self-made smoke-water made out of burned leaves and the like from the garden.

Acacia pataczekii, *Grevillea ramossissima*, *Agastachys odorata*, *Bellendena montana*, *Telopea truncata* (again), *Allocasuarina monilifera* and *Lomatia polymorpha* didn't show any

sign of wanting to live. I got one *Grevillea rhyolitica* seedling (one out of two seeds from a plant in my garden) but with my ever growing happiness about its germination it grew brown and browner and finally damped off.

I still have five *Persoonia gunnii* seeds in the fridge on vermiculite – has anyone ever tried to germinate them? I nicked one of them until I saw the white of the endosperm. The other ones were nicked with a little bit of sandpaper. But there has been no sign of life from any of them. Now as winter is approaching I will continue with the rest of my APS seeds, which are mostly Myrtaceae like *Kunzea*, *Baeckea* and *Melaleuca* as well as *Eucalyptus* seeds which were given to me by a very kind member of the APS.

The Australasian kindergarten***** that I own now poses a new problem, but I guess one that is not unfamiliar to many of you. When getting bigger, where will all these plants find their place?

If someone knows the answers to any of my questions above, I would be happy to receive them at:
kruegeramartin@googlemail.com

Editor's note:

Literally, children's garden. When I was a child in Melbourne the first year of school was called kindergarten.



A YELLOW WARATAH?

Bruce Schroder

This article was first published in Kunzea, the newsletter of the Australian Plants Society Maroondah, in two parts in June and July 2020. It is reprinted here by kind permission of Bruce Schroder.

For our October 2020 meeting the committee was trying to get Brian Fitzpatrick to present to us on waratahs and their hybrids. Brian originally worked for Proteaflora and was involved in the development of the 'Shady Lady' series of waratah hybrids. Independently, Brian later developed the Wild Brumby series of waratah hybrids including 'Digger', 'Mallee Boy', 'Sugar Plum', 'Dreaming', 'Snow Maiden' and 'Georgie Girl'.

Unfortunately, we have been unable to secure our speaker so I thought it would be worthwhile including some interesting history on the subject in our newsletter. Much of this article is attributable to the late Marcus Harvey, a renowned plantsman from Tasmania and proprietor of Hillview Rare Plants.

Waratahs are red – everyone knows that! Apart from the acacias, the New South Wales waratah, *Telopea speciosissima*, is probably Australia's most iconic flower. It is the floral emblem of NSW and much sought and sold as a cut flower in early spring. It can be a little demanding when grown in the home garden but given the right conditions and regular attention, can be an extremely rewarding garden subject. But there are other waratahs, in fact there are four more species, all red flowering, occurring in the eastern states of Australia including from NSW *Telopea mongaensis* and *Telopea aspera*, from Victoria *Telopea oreades*, and from Tasmania *Telopea truncata*.

Now I did say all waratahs were red and I'm sure you've already picked up on that mistake – yes, there is a naturally occurring rare white form of the NSW waratah with the cultivar name of 'Wirrimbirra White'. White flower forms of otherwise coloured flowers are not that uncommon in the

plant world, being a simple genetic mutation where the pigment that gives the flower its colour is simply absent, leaving the flower white. There is also a rare white form of *Telopea oreades* discovered many years ago from far East Gippsland, given the cultivar name of 'Errinundra White', although all indications are that this is now lost to cultivation. But a yellow waratah? Let me (well Marcus Harvey, actually) tell you about Essie Huxley.

Essie Huxley never wanted the limelight. In fact, she steadfastly hid from it in her youth in the 1920s and 30s at her home south west of Hobart. But all that changed with a few simple plants given as a fatherly gift to a daughter. With that the botanical world came to her. It brought her a life different to what she might have expected and most importantly it brought her joy and friendships that endured.

Essie's father was a bushman. He worked on farms and in the forest, snared, trapped and kept beehives. Even on his days off, he'd take to the mountains nearby and ramble all day long, perhaps to shed the taint of working life and for a time, be free. From one such trip he returned with a handful of waratah seedlings in his pack and when handing over to Essie, said, that if she looked after them he was sure they'd bring her luck.

The Tasmanian waratah, *Telopea truncata*, with its rather spidery flowers (photos page 31), is considered the poor relation to its more showy mainlander relations, but it is much loved for its own quiet elegance and fragile, delicate beauty. It lives in high country, in areas of higher rainfall, usually on sandstones, and flowers in very late spring through early summer. Its flowers are uniformly scarlet to darkish red.

They were commonplace on higher ground in the area so Essie was puzzled by his portent, but she indulged him and said nothing. Dads say that sort of thing. These seedlings were duly planted around the family holding and as they grew she noticed one of them colored differently. Weak maybe? A runt? Diseased? It almost met its end before it began! But Essie, as in life, gave everyone the benefit of the doubt.

"*The big ones flowered first, rude vigor showing through. Their flowers a ruby hue, and huge too, like the head dress on a cockatoo. The next couple of years it was a procession of red, and the little runt kept on holding back. Then unannounced, a bud began to form, and it looked like nothing that had gone before. It was pale and sickly, not the usual darkening crown. It opened a cool creamy green, then turned, a bright yellow chrome!*"

Yellow waratahs (photos page 31) were the stuff of legends and the subject of campfire yarns and academic debate. There'd always been stories, someone knew someone who saw one near the Overland track, but like the Tassie Tiger, the real thing always stayed just out of reach, hovering like a mirage, that is until this one made a show.

After a bit of local interest, everything went back to pretty much the way it was, but Essie's interest was piqued. She could no longer ask her father where he found it, and why he thought it special enough to bring home, for he had died before the waratah had flowered. But she figured that he had seen a yellow one on that ramble and gathered some of the small seedlings from around its skirts.

So it began as a quest, a search for the father's lost waratah, to solve the puzzle he had left her. For the next few years, each early summer, she'd search the broken ridges and the damp gullies along the Wellington Range looking for that flash of colour among the reds.

At first she tramped the bush tracks and kept to well-worn paths but as her pace quickened, she left these well behind and plunged headlong into the unknown. She slid backside down the rumbly screes, climbed hand over hand through boobialla and ran the mossy banks and while she found no trace of that waratah, she drank in all she saw and all she heard.

She delighted in the fat, squat beads of climbing blueberry (*Billardiera longiflora*) threading through the understory and saw the skeins of ice-white snowy gentian (*Gentiana* sp.) high up upon the plateau's outer rim. As summer quickened, the flames of honey richeas (*Richea scoparia*) blaze right across the moors and there's an upwards rush of Christmas bells (*Blandfordia punicea*) that bring Christmas to the fore. She heard the raucous 'gotto gos' of the big black currawongs as they stripped red rubies (*Cyathodes* sp.) from the mountain sides, and the slow 'whoop whoop' of cockatoos alighting in the scrub, and the crunch of their great beaks as they pulled at it for grubs. She stood and watched the moonstone bark of snow gums, slowly kissed by light, as the sun rose meekly on a hoar frost overnight. And this and

Dr Winifred Curtis (1905-2005)

Winifred Mary Curtis, an only child, was born in London. Her parents, unusually for the early 20th century, believed that girls should be given the same educational opportunities as boys. She was educated at University College London where she gained a BSc (Hons) in botany, chemistry and physics in 1928, followed by a MSc (1939) and a PhD. In 1968 UCL awarded her a DSc.

In 1939 her parents decided to emigrate to somewhere warmer, choosing Tasmania because Winifred had the best prospects of getting a job there, at the University of Tasmania. She did exactly that and Britain's loss of a promising young botanist proved to be very much Tasmania's gain. As Dick Burns writes, "*For several generations of Tasmanians, Dr Curtis symbolised Tasmanian botany.*"

Her most significant contributions to botany concern the Tasmanian flora. Besides the *The Endemic Flora of Tasmania* she is known for her definitive work on Tasmania's conifers and flowering plants, the *Student's Flora of Tasmania*. Started in 1943, it was published in 5 parts between 1956 and 1994, with her colleague Dr Dennis Morris involved from the 1970s and co-authoring the final volumes. It remains one of the main references for the Tasmanian flora but is gradually being superseded by the *Flora of Tasmania online* (https://flora.tmag.tas.gov.au/).

Several plants have been named in her honour: the threatened heath *Epacris curtisiae*; *Richea* X *curtisiae*, a natural hybrid between *R. scoparia* and *R. pandanifolia*; *Winifredia sola*, a restio; *Viola hederacea* subsp. *curtisae*; a rush, *Juncus curtisiae*; a sedge, *Lepidosperma curtisiae*; and *Epilobium curtisiae*, a willowherb. All but the last two are Tasmanian endemics.

Compiled by Judy Clark. Source: Burns, D. (2012). *Pathfinders in Tasmanian Botany*. Devonport: Tasmanian Arboretum Inc, pp 90-95..

more she saw, until she knew the bush as her own, and she was one with it and it had helped to make her grow.

One day, a woman arrived, unannounced, and introduced herself as Dr. Curtis from the university in town. She explained that she was producing a work on Tasmanian endemic flora and that the word had got to her of Essie's plant. She asked if she might perhaps describe it so it could be included in the latest volume, which was already set to go to print. The woman was indeed Dr. Winifred Curtis and she had teamed up with the acclaimed Australian artist Margaret Stones, who was then working from Kew Gardens, to undertake this ambitious project, known as *The Endemic Flora of Tasmania* (published 1967-1978). It was conceived and sponsored by Lord Talbot de Malahide, an Irish peer and hereditary baron.

Lord Talbot was an avid collector and gardener who cultivated many Tasmanian plants on his estate in Ireland. Margaret Stones was based at Kew and used fresh flowering and fruiting material. Some of this material came from Talbot's own estate but much of it was flown in from Tasmania. As the stream of air-freighted specimens continued, Stones created 254 drawings to illustrate the six volume work. Sadly Lord Talbot died when only four of the volumes were completed and the work was seen to its completion by his sister, the Hon. Rose Talbot. *The Endemic Flora of Tasmania* proved to be a great success and increased interest in and knowledge of Tasmania's endemic plants all around the world.

Essie's waratah was one of those that made the 50 hour flight from Hobart's Llanherne airport to Wisley; its delicately crimped, spidery flowers probably wrapped in a veil of life supporting sphagnum moss. As an aside, this could never happen today given the alarming "fandango" of biosecurity rules, regulations that have sprouted up ad infinitum in a world largely run by lawyers and bureaucrats. (Marcus Harvey's words, not mine!)

It was one of those crazy, wonderful moments in botanical research when all the pieces fell into place. A rare legendary colour form turns up out of nowhere in a rural backyard, no need for epic treks or years of chasing, just in time to be included as a star, next to its ordinary brethren, in a volume that was virtually on the press. I can't imagine what Margaret Stones must have felt when she unveiled that flower for the very first time.

Essie had not counted on visitors, but came they did, from right across the world they beat a path to her door, academics, researchers, nurserymen, the curious and the shysters. Some came in person, others via letters dropped through the slot in the front door. Some of them bore gifts, others promises and a few, bizarre propositions that belonged back in the day of freak shows and midgets.

Sir Harold Hillier, one of the giants of modern day horticulture and owner of the most important nurseries in the United Kingdom, made the journey down to her little stony block on Camp Hill, south west of Hobart. Over the ensuing years they exchanged seeds and plant material and while Essie's garden was greatly enhanced by this, adding a slew of rock-hugging, flower-studded daphnes, rare pieris and rhododendrons, Hilliers never did list a single yellow waratah at their nursery catalogues!

Like many of her generation Essie was a royalist and an inveterate "royal

watcher" so you can imagine her absolute delight when she was told that her waratah was to be used in part of Tasmania's official wedding present to HRH Crown Princess Mary of Denmark. Its image was used to decorate one of a series of six fine porcelain plates, collectively called Flora Tasmanica. This came to fruition through an artistic collaboration between Lauren Black who painted the images (and who Essie knew from past visits to her garden) and the master ceramicist, Les Blakebrough, who created the plates. They were presented to Mary when she opened their joint exhibition in the Plimsoll Gallery at the University of Tasmania. Essie was officially invited, she curtsied before the Princess, got to have a few words and to take home one of the special plates with her waratah on it, as a memento of this very special occasion.

Not bad for a girl who started out wanting to hide away from the world but it wasn't going to be. Fate had other plans and beat a path to her door. Long before all this, Essie had named her little place at Camp Hill in Lower Longley, 'Telopea', the taxonomic name for the waratah, meaning 'to be noticed from afar'.

Essie Huxley's yellow waratah remained an unchallenged celebrity for more than forty years. It's true the original one planted at the old family cottage had died but several of its offspring accompanied Essie to her new home across the road[1]. You could pick the seedlings by the lighter colour of their leaves. A few were distributed amongst friends and some to those who asked, but not everyone, Essie never was one to be put upon. Heavens knows what happened to most of them, more than likely gone to God.

Waratahs are touchy souls at the best of times, and the yellows have proven difficult; all have a propensity to drop dead when planted in the average garden. Like many natives, *Telopea truncata* has a root association with a specific mycorrhizal fungus, which ensures successful establishment and growth, and is very susceptible to fungal root diseases. As with many mycorrhizal plants, they are also phosphorus intolerant which means that most garden fertilisers, or even being planted in gardens that have been fertilized in the past, are poison to it. Gardeners "in the know"' use bush soil taken from around wild growing waratah plants in the planting hole to provide the essential mycorrhizae. Essie, as was her wont to be that little different, swore by the rubbly scree found in the flood defence "battlements" of bull ant and jack jumper nests. This not only had deleterious consequences for the residents, but quite often for the collector as well!

During the 1990s Hydro Tasmania workers discovered a group of about 50 yellow waratahs near Queenstown on the west coast and these joined Essie's as the only known plants of this colour. These have all been described as forma *lutea* but have no taxonomic status. They were described by taxonomists as being in every way the same as the red ones and only mere colour variants. What they forgot to add was that this colour variant is as rare as dragon's teeth!

The 'West Coasters' (photo page 32) have been successfully brought into commercial production by John Gibson of Plants of Tasmania Nursery. These have proven to come almost 90% yellow from seed which is to be

yellow *Telopea truncata*
right; centre left,
in the wild

red *Telopea truncata*,
right **close up**
below left **in the wild**
below right,
'Essie's Gift'













Telopea truncata **West Coast Yellow**

Telopea **'Shady Lady Yellow'**





Telopea **'Wirrimbirra White'**

reasonably expected given they originate from a self supporting wild population. The same nursery also lists a multi-coloured plant that was found in the northeast of the state sold under the name of 'St Mary's Sunrise'. Its flowers are a delicious confection of cream and pale pink but it has proven difficult to propagate in large numbers.

Some people saw different possibilities. The idea, indeed the opportunity, of introducing yellow into a very limited palette of flower colour created a flurry of interest riding on the back of a recent (1987) publication *The Waratah*, by Paul Nixon. This book was the first to explore the waratah's commercial possibilities especially when associated with hybridization. There had recently been a white flowered form discovered and named 'Wirrimbirra White' (photo page 32), and some other shades of pink, but Essie's waratah now opened up exciting new vistas.

First amongst those who were to make contact with Essie was Graeme Downe from the Dandenongs in Victoria and she found in him a kindred spirit. While they shared the same passion for waratahs, they discovered that this extended to other cool climate shrubs, including rhododendrons, pieris, etc. Their friendship continued over the ensuing twenty years. In that time Graeme made numerous visits to Essie at 'Telopea' in Lower Longley and she supplied him with pollen from her yellow. He also mentioned that Essie had two other yellow waratahs, one found near Maydeena and another from the nearby Wellington Range but there has been no way of confirming this.

Breeding any plant, particularly from "unimproved" phenotypes, is hard work and the results are often hit or miss. Growing shrubs extends the difficulty because of the additional length of time to flowering. All of the action starts in the second generation (or F2) because it's at this stage recessive genes' potential are "unleashed" and breeders will see, for the first time, new colour possibilities.

By "digging" in the F2 generation, Graeme did unearth some treasures, which have now been brought into commercial production. Three of these are particularly beautiful, two of them sharing the yellowish tones of Essie's yellow, viz 'Golden Globe' (now known as 'Shady Lady Yellow' (photo page 32)) and 'Champagne', while the other 'Bridal Gown' (now known as 'Shady Lady White') has thrown to the sparkling white of its other parent.

As luck would have it, Brian Fitzpatrick was working for Protea Australis (now Proteaflora) in the late 1980s, a specialist protea and waratah nursery, when Protea Australis was given the role to propagate and release the recently found 'Wirrimbirra White' waratah. Paul Nixon had a role in its development and it was through him that Brian got to know of Essie.

His interest in breeding had been triggered by new colour possibilities and it was further piqued when he saw a documentary on the history of the rose. "*I thought it was such an opportunity, and I seemed in the perfect position to breed arguably one of the most magnificent flowers in the world, and most likely one of the few primary flowers still untamed*", he told me in a chance conversation when Essie had sent me to pick him up from the airport back in those early days.

Brian had written to Essie about is his work with 'Wirrimbirra White' and asked if he could use some of her yellow's pollen. They hit it off from the

start and at first, she sent cuttings and seed in the mail, then the pièce de resistance, freshly cut flower stems of her yellow arrived, packed with consummate care. In recent correspondence Brian reminisced, "*I remember my children seeing the flowers for the first time and I myself too wowed at how luminous they were, as if they harnessed their light from the night skies*". As the Tasmanian season was later, Brian had to freeze the pollen in test tubes for nine months until the following Sydney spring, when he would select some suitable *Telopea speciosissima* seed parents.

Over the years Brian also visited Essie several times during flowering period so he could pollinate the yellow, as well as other unusual forms she'd picked up along the way. He tells me it was always four seasons in one day, as it can be at that time of the year "down south", sleet, snow, brilliant sunshine and misty rain. "*I'd be busy like a honeyeater moving from flower to flower covering each in bridal veil and she'd be out splitting wood for the fire or quietly going about her garden, fiddling with this or that. I'd think to myself what a wonderful day, "The Gods Must be Crazy." Meeting Essie was both a beautiful and most memorable part of my life and a huge contribution to the breeding*".

From these early beginnings Brian has gone on to independently build the 'Wild Brumby' range of Waratahs. One of his luckiest breaks came via a cadmium red seedling he raised from Essie's original yellow. He crossed this with another carrying a complex mix of pink, red and 'Wirrimbirra White' genes and it yielded one pod of eight precious seeds. So he sowed, waited and hoped. "*Believe it or not that one pod gave me five colours; pink, salmon, cream, white, red. Three of those are in the Wild Brumby range: Digger, Georgie Girl and Snow Maiden - how special is that!*"

These beautiful telopeas have been available for quite a number of years now, released as a series called 'A Waratah Affair' which sums up perfectly Brian and Essie's working relationship and the marriage of the rare Tasmanian yellow waratah *Telopea truncata* with the best of the NSW species, *Telopea speciosissima*. Most aptly, the first in this series was called 'Essie's Gift' (photo page 31).

Note:

1. As part of my research for this article, I have been in contact with Ken Gillanders, former proprietor of Woodbank Nursery in Longley, Tasmania who propagated and sold Essie's yellow waratah over 40 years ago. I even bought a couple from Ken by mail order back then. He advises the original plant he gathered his cutting material from is still growing strongly in Essie's old garden.



KANGAROO APPLES

Judy Clark

The scientific name for Kangaroo apples is *Solanum*, a genus in the family Solanaceae. Even if you don't know the botanical names you will know plants in this family. It is commonly known as the nightshade family and besides *Solanum* includes among its many genera *Schizanthus*, *Physalis*, *Nicotiana*, *Nicandra*, *Fabiana*, *Iochroma*, *Petunia*, *Cestrum*, *Atropa* and *Datura*.

At around 1400 species *Solanum* is much the largest genus in the Solanaceae. Well-known species

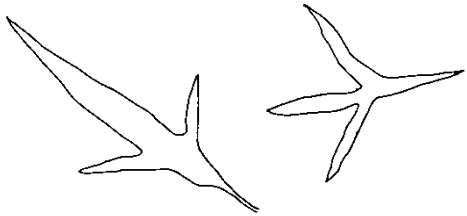
include the familiar vegetables potato (*S. tuberosum*), tomato (*S. lycopersicum*) and aubergine (*S. melongena*); the garden ornamentals potato tree (*S. crispum*) and potato vine (S. *laxum*); and the UK wildflowers woody nightshade (*S. dulcamara*) and black nightshade (*S. nigrum*). South America is home to the most *Solanum* species but there are centres of diversity elsewhere in the Americas as well as in the West Indies, Madagascar, Africa and Australia.

In Australia 94 *Solanum* are recognised as native, 87 of which are endemic. Kangaroo apple is the name common to a number of species; the ones I focus on here are *S. aviculare*, *S. laciniatum*, *S. linearifolium* and S. *vescum*. It might be expected that their aboriginal names would be known as these plant were utilised for food and medicine (a matter to which I will return) but I have only managed to find me-a-kee (Bunganditj) and mookitch (Gunditjmara) for *S. laciniatum* (in South Australia) and gunyang for *S. vescum.*

S. aviculare and *S. laciniatum* are also found in New Zealand, where there are 4 native species. Kangaroo apple is also given as one of their common names, despite the lack of kangaroos in New Zealand. Bullibulli is given as another common name, but I'm not familiar with what New Zealanders actually call them. The most commonly cited Maori name is poroporo.

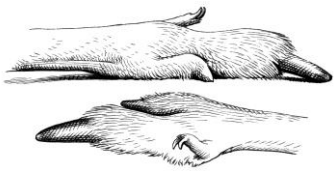
Kangaroo apple is a bit of an odd name when you think about it. It wasn't the common name used at the time for the first one introduced to Britain, *S. laciniatum* in 1772. Collected in New Zealand by Joseph Banks, it goes by the name cut-leav'd nightshade in its 1796 entry in the Botanical magazine.

Presumably the name kangaroo apple came later, with European settlers. Kangaroos are herbivores and I suppose they might eat kangaroo apples but Low suggests not; he states firmly that the name has nothing to do with kangaroos. Nonetheless I did come across a suggestion that the kangaroo connection comes from the resemblance of the leaves to kangaroo's paw. Kangaroo apples can have lance-like leaves and variously lobed leaves, so, maybe. The; sketches below show examples of lobed leaves - be aware they vary a lot.



S. aviculare *S. laciniatum*

Kangaroo hind feet



But even if this suggestion were to explain 'kangaroo', why apple? To me the fruits do not look particularly like apples, even the rounder ones of *S. linearifolium* (see photo page 38) and *S. vescum*. And, at least when ripe, they do not feel like apples; the ripe fruits are squishy. They could just as easily have been described as cherries or tomatoes or plums. Indeed, bush tomato is a name given to a couple of species

found in central and northern Australia, *S. centrale* (also known as desert raisin) and *S. chippendalei*. Neither, I believe, do kangaroo apples taste like apples, a point to which I will return.

I grow *S. laciniatum* and *S. linearifolium* but I have never grown the other two. *S. aviculare* has been, and may well still be, grown as an ornamental in Britain. It is listed in the RHS Plant Finder (though currently with no suppliers) and also described in the 2008 edition of the RHS *A-Z Encyclopaedia of Garden Plants* (as is *S. laciniatum*). S. *vescum* doesn't make it into either of these publications, but along with *S. aviculare* it is listed on the Château Pérouse database (see pages 16-20). I wonder if any APS members are growing, or have grown, *S. aviculare* or *S. vescum* in Britain?

My first *S. laciniatum* was a present from North Wales in 2014. A year later I got my first *S. linearifolium*, from Special Plants Nursery in Wiltshire. Both these plants have since died, but I have kept both going in my garden by propagating them from seed.

Both species produce copious fruits and the seeds are easy to extract. Fresh seed germinates easily, and in my experience when planted in early autumn the first seedlings emerge in 3 to 4 weeks, with sporadic germination continuing for some time. I've also sown them in the spring, with similar results. According to Elliot and Jones smoke water may promote their germination (and that of *S. aviculare* and S. *vescum*). I have never tried this but exposure to smoke makes sense; these are pioneer species, colonising disturbed ground and often appearing after bushfires.

Despite their relatively short lives (around 4-7 years for *S. laciniatum* and 6-10 years for *S. linearifolium*) both species are well worth growing. I have not found them particularly picky about soil (though Elliot and Jones state that they like it a bit acid); they can flower in their first year; and they grow fast and reach maturity quickly. I love their ruffly purplish flowers and once mature they flower profusely for months. I have never grown either in a container but I see no reason why not.

Thus far both species have proved hardy in my garden but how well they might survive winter in other parts of the UK is another question. The climate is relatively mild where I live on the Sussex coast and it's a while since we had any prolonged cold weather. So neither plant has been subjected to really testing conditions, except perhaps for the bitterly cold winds of the 2018 'beast from the east' from which *S. linearifolium* emerged in better shape than *S. laciniatum.*

The RHS rates *S. laciniatum* as H2 - tolerant of low temperatures but not surviving being frozen (1 to 5 ^{o}C). I suspect that it could be a bit hardier than this, more like H3 (hardy in coastal and relatively mild parts of the UK (-5 to 1 ^{o}C), as long as it is planted in reasonably well-drained soil in a sheltered semi-shaded spot. This would emulate its native habitat - it is a forest species. Special Plants describe *S. linearifolium* as 'borderline hardy' but in my experience its hardiness is probably similar to that of *S. laciniatum*, as long as it is given similar conditions - it too hails from forests. Plants from, seeds of higher altitude provenance could even be a bit hardier.

If asked to choose, *S. linearifolium* as the somewhat more elegant plant just edges it over *S. laciniatum* for me, but truth be told as garden plants the difference between the two species is











Solanum laciniatum top, **flower and fruiting plant** centre right, **seedling**

Solanum linearifolium centre left, **flower** left **flowering plant** (with *Goodia lotifolia* in the background)







Leaves, fruits and seeds of *Solanum linearifolium* and *Solanum laciniatum* (in each photo on the left and right respectively)

not great, as the photos opposite show. It can actually be difficult to tell them apart, and from *S. aviculare*, because, as the table on page 40 indicates, the habit, leaves and flowers of the three species are quite similar..The mature leaves of *S. linearifolium* are lance like while mature *S. laciniatum* has both lobed and simple leaves. However leaves can be misleading, especially on young plants. If uncertain, probably the most straightforward way to confirm which is which is to examine ripe fruits and seeds (see photos opposite**).**

For years I had been under the impression that the fruits are supposed edible, possibly because of the apple in the name. But I never tried one. Not only do I find them unappealing but the caution that has tended to come with age also puts me off. And there is reason to be cautious.

The chemistry is complicated but put simply (and, I hope, accurately enough) *Solanum* species contain poisonous chemicals known as alkaloids and glycoalkaloids. These substances can occur anywhere, including in leaves, stems, fruits and roots, but whether eating them makes you sick - symptoms can include nausea, fever, sweating and abdominal pain - depends on the concentration and the specific chemical. For example solanine (a glycoalkaloid derived from the alkaloid solanidine) is present in small amounts in potato tubers, but if the tuber is exposed to sunlight a lot more is produced. Hence all those warnings about not eating green potatoes.

Toxic chemicals found in solanums also have a wide range of medicinal properties. For example. before the arrival of synthetic production both *S. aviculare* and *S. laciniatum* were cultivated for the alkaloid solasodine in their leaves and fruits. It was utilised for manufacturing cortisone and other steroid drugs.

Both Australian indigenous and Maori peoples used kangaroo apples for food and medicine and had (presumably) learned how to minimize any toxic effects. The fruits of *S. aviculare* and/ or *S. laciniatum* were reportedly used by early colonists in the Wellington area of New Zealand for making jam, and today the fruits of some species are marketed as bush tucker. The unripe fruits are regarded as toxic; guidance (almost) always comes with the warning that **unripe fruits should never be eaten**. That doesn't mean that ripe fruits are totally safe; according to Low, for example, consuming a large quantity of ripe *S. aviculare* fruit is likely to make the consumer sick.

Speciality Produce describe the taste of ripe kangaroo apples as juicy and sweet, but a bit of internet research produced a lot of less positive judgements. For example, the Natural Medicinal Herbs website describes the taste of raw *S. laciniatum* as sickly sweet and often bitter. Low too uses the description '*sickly-sweet*', to describe the taste of the fruits of all four species discussed here. True, in 1796 the Botanical magazine did commend the taste of *S. laciniatum*: "*The berries when ripe are the size of a small plum, and of a yellowish green hue; their pulp is sweet, in some small degree resembling that of a fig,*". But this verdict came with a sting in the tail: "*whether it be so innocent we do not take on us to assert.*" The writer clearly knew his nightshades.

Add a potentially nasty taste to the prospect of feeling sick and I am even less persuaded to try a kangaroo apple

Summary of main characteristics of four species of kangaroo apple

Scientific name	*S. aviculare*.	*S. laciniatum*	*S. linearifolium*	S. *vescum*
Selected common names	Rainforest kangaroo apple Bullibulli Poroporo	Large kangaroo apple Me-a-kee Mookitch Bullibulli Poroporo	Mountain kangaroo apple	Green kangaroo apple Gunyang
Distribution	Qld, NSW, Vic. Tas. New Zealand New Guinea	SA, NSW, Vic., Tas. New Zealand	NSW, ACT, Vic.	Qld, NSW, ACT, Vic., Tas.
Habit	erect shrub or small tree to 4m	erect shrub to 3m, stems often purplish	erect shrub or small tree to 4m	erect or spreading shrub to 2m
Prickles	absent	absent	absent	absent
Leaves	lobed and entire	lobed and entire variable in size and shape	lower and juvenile leaves lobed later and entire leaves simple	lobed and entire variable in size and shape base decurrent
Calyx	5–6 mm long lobes triangular, 1.5–3 mm long	4–6 mm long lobes triangular, 2–3 mm long,	3–5 mm long lobes triangular, 1–2 mm long	3–5 mm long lobes triangular, 2–3 mm long
Flower	25-40 mm diam. blue-violet	30–50 mm diam. deep purplish-blue lobes notched	25–45 mm diam. purple-violet	35–40 mm diam. violet
Inflorescence	up to 10 flowers	up to 10 flowers	up to 10 flowers	many flowers
Ripe fruit	egg-shaped to oval 10–15 mm diam. orange-red to scarlet	egg-shaped to oval 15–20 mm diam. yellow to orange-yellow	round to egg-shaped 15–20 mm diam. yellow with purple markings	round to egg-shaped 20–25 mm diam. green to greenish-ivory
Seed	light brown or red-brown 1–1.5 mm long	reddish-brown 2–2.5 mm long,	yellowish to light grey 2–2.5 mm long	grey-brown 2 –3 mm long

Compiled using Vicflora: Flora of Victoria online, Electronic Flora of South Australia, and Solanaceae Source

any time soon, not even a very ripe one. But I will be keeping an eye out for these attractive plants growing within gardens, and outside of them. In recent years *S. laciniatum* plants have regularly, if not frequently, been found growing on disturbed habitats in southern and central England, probably because of milder winters due to climate change. The photo on page 37 is of just such a plant, a *S. laciniatum* seedling from fruits that dropped over a garden wall not far from where I live.

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TWO NEW *ACACIA* SPECIES

Bill Aitcheson

This article was first published in the ANPSA Acacia Study group newsletter number 148. An edited version is published here by kind permission of Bill Aitcheson.

Acacia ureniae

Acacia ureniae is a recently described new species of acacia from the Cobungra area in the Victorian alps of East Gippsland. It is named in honour of one of the members of the Acacia Study Group, Anne U'Ren. It is a shrub or small tree to about 5m high with simple spike like inflorescences, and it superficially resembles some forms of *Acacia longifolia* or *A. melanoxylon* (**see** photo page 23).

It is known from the vicinity of the Cobungra River from near its headwater below Mt Higginbotham to Cobungra settlement, with an isolated occurrence in the Dargo River catchment. From a conservation point of view, it is considered to lie within the IUCN threat category of endangered. However, its conservation status is speculative because of the difficulty of access to much of the Cobungra River (as a consequence of which survey effort through its known range is not high).

The species was noted by Anne U'Ren on her property, Sinza, which comprises about 40ha of mature sub-alpine woodland, at an altitude from about 930 to 1000m. Neville Walsh (Royal Botanic Gardens Victoria) visited the property in January 2019, and found that the plants at that stage were in early bud. A subsequent visit to the property by Neville in October 2019 allowed collection of flowering specimens and an assessment of its local abundance – an estimated 80 plants were found on Anne's property at that time.

Unfortunately, the catastrophic bushfires of summer 2019-20 impacted Sinza, and on revisiting the property in February 2020, Neville found only four plants out of the 80 still alive. It is not yet known if the other nearby populations were burnt in the same fires. It is assumed that a new cohort of plants will grow from soil-stored seed, although this will depend on favourable conditions for seedling development. The species has been named in honour of Anne U'Ren, in recognition of her commitment to conservation which has ensured that the property supporting the type population of the species is preserved into the future (a permanent, legally binding conservation covenant has been applied to the property title).

Anne was asked if she would write a few notes in relation to her experience from first observing the 'different' wattle on her property, to the present time. She wrote:

"*When I found 'my' wattle I gave it an incorrect name and when Neville visited in January last year he said it was 'different' and so began the journey to naming it. Before the Herbarium folk visited in October last year I went down to the river every week to see if it would be flowering when the Herbarium people visited, and it was in full flower and those five 'experts' were like children around a lolly drop. It was really a wonderful sight and never to be forgotten. It is very steep and rough down to the Cobungra and I also crossed it to find nearly fifty plants on the other side. After lunch the Herbarium folk went up stream above the gorge which is too difficult for me and they found another forty odd trees there. I was so excited when Neville's article finally appeared in Muelleria. Sadly the fire of the 4th of January left only four trees upstream of the gorge. I used to go down to the river regularly as it is so wonderful with its beautiful plants and the water rushing by - I find it very uplifting.*"

Acacia lachnocarpa

This recently described species was previously informally named as *Acacia* sp. Mt Holland. It is a dense rounded shrub 70-100 cm high with sharply pungent phyllodes and single, globular flower heads. Seed pods are densely woolly-hairy with a mixture of white hairs and red resin hairs.

The epithet is from the Greek 'lachno' meaning woolly and 'carpa' meaning

fruit, in reference to the densely woolly pods. The common name Woolly-fruited Wattle has been applied to it. It is not only the seed pods that are woolly; so are the branchlets and the flower stalks.

At this stage *A. lachnocarpa* is only known with certainty from the vicinity of Mount Holland, which is about 120 km south of Southern Cross, Western Australia. It has been listed as Priority One under Conservation Codes for Western Australian Flora. It is noted that Mount Holland is an area that is highly prospective for mining.

Interestingly there are another 75 informally named taxa in WA that require further taxonomic research.

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BITS AND PIECES

compiled by Judy Clark

Hebe become Veronica

Gary Firth drew my attention to some plant name changes proposed by the RHS in the latest issue of *The Plant Review* (December 2020). Many *Hebe* species started life in the genus *Veronica* but around a hundred years ago botanists starteded thinking that because hebes had a different chromosome number, and were woody shrubs, from the southern hemisphere, and they should be put in a genus of their own. Today recent molecular evidence suggests that *Hebe*, and several related genera including *Parahebe* and *Chionohebe*, should be returned to *Veronica*.

In doing so the RHS is catching up with the southern hemisphere taxonomy. In New Zealand *Veronica* has been accepted for some time, with *Hebe* as a synonym - for example *Veronica stricta* is the accepted name and *Hebe stricta* is the synonym. *Veronica perfoliata* has been the accepted name for the Australian wildflower digger's speedwell for many years; prior to that I knew it as *Derwentia perfoliata*, not *Parahebe perfoliata* as it was then called in the UK.

The Hebe Society has decided to stick with *Hebe* and many gardeners will too, at least as a common name. Searches may get redirected to *Veronica*, but the name hebe is sure to stick around for a while yet.

Endangered Proteaceae

Robbie Blackhall-Miles has a terrific piece on his Fossil Plants website (www.fossilplants.co.uk/iucn-red-list-update-kings-queens-plant-world-threat/) about the recent IUCN Red List update on the Proteaceae. The IUCN's comprehensive assessment has found that at least 637 of the 1464 known species in the family - that's about 45% - are vulnerable, endangered, or critically endangered.

'Critically endangered' means that a species is in a really parlous state - the only worse categories are 'Extinct' and 'Extinct in the wild'. Australian species in this category include include 23 grevilleas, 10 banksias and 2 hakeas. To give some idea of what this means, it is estimated that there are only 47 mature individual's of the critically

endangered Foote's grevillea (*Grevillea calliantha*) left in the wild, and the population is continuing to decline. Astonishingly none of the areas where it grows are formally protected. To take another example, only 200 mature plants of Wee Jasper (*G. iaspicula*) are estimated to remain in the wild, a population that is severely fragmented and presumed to be decreasing.

'Endangered' species are ones that are getting on slightly better but still run a very high risk of extinction in the wild. In this category are 38 grevilleas, 27 banksias and 19 hakeas, including *Banksia caleyi* which I planted in my garden last spring. And many more Australian Proteaceae are considered 'Vulnerable', needing human intervention to be sure they do survive.

Australia's threatened plant index

Australia has about 1800 threatened species; that is species which in the wild are considered by Australian authorities to be critically endangered, endangered, vulnerable or conservation dependent. But while animals and birds get the bulk of the publicity most of the species under threat in Australia are plants: 1342 or 77% of the total.

The threatened plant index is part of a larger research project, the Threatened Species Index for Australia (tsx.org.au/), which aims boost understanding of population trends across Australia's threatened species. It combines plant monitoring data from all over Australia, supplied not only by professionals but also by citizen scientists and community groups.

The 2020 threatened plant index contains 112 species, about two-thirds of which are critically endangered or endangered and at risk of extinction if left unmanaged. It shows that plants on the index have declined by about 70% overall over the past few decades. This trend applies pretty much to all major plant groups: trees, shrubs, herbs and orchids. The only good bit of news is that managed populations declined a bit less than unmanaged ones.

Although new data are added to the index each year, many species are missing because they aren't being monitored. Also, the bulk of the data comes from just four states, with South Australia contributing almost half. But as more species are added the index will become more and more useful as a tool for understanding how Australia's threatened plants are faring.

Illustration acknowledgements

Mona Abboud: page 14, below

Tim and Gill Burr: page 7, below

Blake Chaplin: page 23, above

Judy Clark: page 37 except centre right; page38

Jonathan Esling: page 32, top

Brian Fitzgerald: page 31, below right

Alison Foster, pages 13, 14 above; back cover

Ken Gillanders: page 31, top, centre left and below left

Maria Hitchcock: page31, centre right; page 32 centre and below

Martin Kreuger: page 23 below; page 24

Greg Plenty: page 7, above

Ben Ram: front cover, page 8

Jacqueline Rose: page 37, centre right

Anne U'ren: page 23, below

Jan-Willem Vos, pages 21, 22

Wikimedia Commons: https://commons.wikimedia.org/w/index.php?curid=11220: page 35 (Kangaroo hind feet)

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Sturt's desert pea in all its glory

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