APS Australasian Plant Society

PENTACHONDRA

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Anigozanthos manglesii

AUSTRALASIAN PLANT SOCIETY

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

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APS NEWS

From the Chairman

This last winter has certainly been a strange one. I am aware of a number of gardens in the south east where plants that survived the freezing winter of 2010–2011, and the 'beast from the east', have been decimated by the hugely variable weather that we have experienced recently. The World Garden at Lullingstone Castle in Kent has been badly hit and the Hebe Trial at RHS Wisley almost completely wiped out (although strangely, plants in the Hebe Trial at Harlow Carr Garden up in the North East have fared much better).

Sadly, I did my back in the day before a week of very cold weather in December and was unable to fleece my tree ferns (*Dicksonia*) or *Lophomyrtus* collection until the day after the cold spell ended! The dicksonias have now, in early April, lost all their leaves but hopefully will recover. The *Lophomyrtus* are looking quite good except where the leaves were touching the fleece.

My *Grevillea rosemarinifolia* 'Jenkinsii' is looking fairly sad but 'Canberra Gem' is untouched and has been flowering non-stop since January. *Melaleuca cuticularis* and M. *linariifolia* both look pretty well finished although *M. squamosa* just has a bit of terminal leaf damage. I have also heard from one APS member who has lost all of his grevilleas.

We were considering making the theme of our joint APS/Hebe Society display at the RHS Hampton Court Festival as 'Australasian Plants for a changing climate' but after this winter I shall have to think very carefully about the information we provide on our poster display!

On the subject of posters for the display we shall also be providing information on National Plant Collections that partly or totally include plants of Australasian origin. It was interesting to note that of the 20 plus collections that meet this criteria a significant majority are of New Zealand origin. Most of the images for the poster have been very kindly provided to me by Tony Haytor of the Hebe Society so my completed poster is likely to show plants of New Zealand origin plus a few plants from my own garden. Surely there must be more genera of Australian origin that would deserve National Collection status?

Please let us know how your Australasian plants have fared over this last winter. We really do need to start building up a picture of what are the most suitable Australasian plants to meet these challenging times.

Gary Firth

Events

RHS Hampton Court Palace Garden Festival Tuesday July 4th to Sunday July 9th

Not to be missed! We hope lots of members will come to Hampton Court to support the APS and the Hebe Society who are putting on a joint display of Australian and New Zealand plants in the Floral Marquee. Other exhibitors (among literally hundreds) include nurseries Plantbase and Eleplants Nursery, both run by APS members, not to forget Plant Heritage who run the National Plant Collections® scheme.

Tickets are available from the RHS; visit **www.rhs.org.uk/shows-events/rhs-hampton-court-palace-garden-festival**. Please note that on Tuesday 4th and Wednesday 5th the festival is open to RHS members only.

Please contact Gary Firth at **meetings@anzplantsoc.org.uk** for further details about APS participation in this event.

RHS Garden Hyde Hall Wednesday 20th September

This free event provides an ideal opportunity to see the Australia and New Zealand Garden which was established around some *Eucalyptus* trees planted by the original owners, and aims to showcase plants native to Australasia. Many of the plants have interesting textures and attractive foliage and this visit should provide lots of ideas about how to use them in our own gardens. Things to look out for include cloud-pruned hedges of *Corokia* and *Grevillea* and the unusual *Muehlenbeckia* hedge. Southern hemisphere plants can also be found growing elsewhere, including in the Dry Garden. For more information about Hyde Hall visit **www.rhs.org.uk/gardens/hyde-hall/garden-highlights/**.

This event has been organised by Steve Harding of the Hebe Society and kindly extended by him to APS members. Entrance is free, and we will meet at 10.30 by the Hyde Hall garden entrance. Please contact Steve (**hebeeexpert@gmail.com**) if you intend coming.

Member's garden and Alexandra Park, Hastings, Saturday 30th September

Judy Clark's small garden in Hastings will be open from 10.30. It is packed with around 300 southern hemisphere plants, the majority of which are Australian, including a Plant Heritage National Collection of correas, known in the UK as Australian fuchsias. Correas can bloom from August to May and hopefully a number will have started flowering by late September.

Do bring plants to swap, and please be aware that steps have to be navigated to enter the garden.

We will have lunch in Alexandra Park - bring a picnic or try out one of the two cafes in the Park. (Alexandra Park is a 25-30 minute walk or a 5 minute drive from Judy's house.)

In the afternoon Dr Owen Johnson, renowned tree expert and recipient of the RHS Veitch Memorial Medal, will show us round Alexandra Park, starting at about 2.30 pm. The tour will focus on southern hemisphere species but will not neglect other interesting trees. Alexandra Park is regarded as perhaps having the best range of unusual trees in any public park, and amongst them are 11 champion trees.

Contact Judy at **editor@anzplantsoc.org.uk** for further details and to let her know that you are coming so that she can prepare sufficient morning tea!

Note This event is accessible by both car and public transport. From Hastings station (trains from Ashford, Brighton, Victoria, and Charing Cross) the garden is approximately a 25 minute walk (including a steep hill), or there is a bus which runs approximately every hour and takes 5 minutes followed by a 5 minute walk.

Have you paid your subscription?

If you have not yet paid your 2023 subscription you will find a final reminder to do so enclosed with this newsletter. Please ignore it if you have paid very recently as you may have done so after the editor received the membership list.

Great Dixter Autumn Plant Fair October

The Great Dixter Autumn Plant fair is regarded by plant connoisseurs as one of the best plant fairs in the country with many specialist nurseries attending. The APS took part in 2022 (when it was held on the weekend of 8th - 9th October) and we had a great time! At the time of going to press details about the 2023 fair were not available, so watch your emails from the APS to find out more.

Planning future events

Could you, with help from the committee, host or organise an APS meeting? If you have any ideas for events for 2023 (no it's not too late!) or 2024 Gary and Maria will be very pleased to hear from you at **meetings@anzplantsoc.org.uk**.

APS Photography competition

Winners 2022

The APS Photography Competition was revived for 2022 and we received about 20 entries. The winners were chosen by members present at the 2023 AGM who voted for their favourite in each category. Many congratulations to the winners, who were:

Category 1: Individual plant growing in the northern hemisphere **Sean Boast** (*Banksia occidentalis* - see back cover)

Category 2: Group of Australasian plants in a garden or landscape **Steve Harding** (below)

Category 3: Diagnostic macro of an Australasian plant **Colin Kitchener** (*Anigozanthos manglesii* - see front cover)

Category 4: Northern hemisphere plant collector/ gardener **Gary Firth** (see next page)



Abbotsbury Gardens by Steve Harding



Robbie Blackhall-Miles and Tom Hart Dyke meet Rachel de Thame at Hampton Court in 2018 by Gary Firth

As you can see from the winning images the standard was very high. Voting was extremely close, especially in categories 1 and 3 which received the largest number of entries.

Entries were displayed without identification of either photographer or subject. This meant not only were pictures judged on their merits alone, but also allowed for a fun quiz to identify plants shown in categories 1 and 3. This was won by Jeremy Spon whose knowledge proved superior on the day. (Google searches were not allowed!)

All winners received a Celia Rosser Banksia print.

Photography competition 2023

The APS photography competition is on again this year, but please note that the categories have changed slightly. This reflects the numbers and nature of the entries received for the 2022 competition.

Photographs will be displayed anonymously at the 2024 AGM and attendees will be able vote for their favourite image in each category. The competition is free to enter and there are prizes for each category. Members do not need to be present at the AGM to compete.

Categories

1. Individual plant of Australasian origin (whole plant not required) growing in the northern hemisphere.

2. Individual plant of Australasian origin (whole plant not required) growing in the southern hemisphere (in a garden or in the wild).

3. Group of Australasian plants in a garden or landscape (anywhere in the world).

Rules

Only photographs taken by current APS members and not used elsewhere will be accepted.

Entries are limited to two per member per category.

Significant photoshopping of images is discouraged.

Photographs can be submitted as digital copies or prints, preferably A4 size and no larger.

There is a deadline but you don't have to wait for it to enter. Send digital entries, as jpeg files, to **editor@anzplantsoc.org**, to arrive no later than two weeks prior to the 2024 AGM (February 2024, date to be announced). Digital entries will be printed (A4) and brought to the AGM.

Prints (no larger than A4) should be sent to Judy Clark, 36 Collier Road, Hastings, East Sussex TN34 3JR, to arrive no later than the day before the AGM, or brought to the AGM by the photographer.

Please note that while copyright of images will remain with the photographer the APS claims the right to exhibit the entries, and to use them to further its aims generally and to promote the APS and its photography competition. This includes publishing photos in APS publications, on the website, or on social media. All published photographs will be credited. The APS also claims the right to edit or use images in combination with others.

Do we have your current email address?

If the APS does not have your current email address you run the risk of missing out on up to date information about events and important news. When emails were sent out about the AGM several addresses were not recognized, which meant that those people will not have received the information. To check that the APS has your current email address please contact **Jeremy Spon** at **membership@anzplantsoc.org**.

Seed list news

The 2023 seed list and an order form are enclosed with this newsletter. Please be patient after sending in your order as it takes some time to complete each order and we only have one seed manager, the indispensable Janet Miller. Note too that we are currently unable to send seeds directly to European Union. If you reside in Europe please contact Janet before ordering.

Most of the new species added to the seed list are native to New Zealand; the remainder are donations. This is because it remains difficult to obtain seed from Australian suppliers due to phytosanitary requirements and the administration and expense of meeting them.

These problems make members' donations of seed all the more valuable. Both seed collected from your Australasian plants and any leftover seed you have hanging around will be very welcome.

Label collected seed with the name of the plant you collected it from. Don't worry if you don't know the (full) scientific name. A common name is fine and some people like surprises! See the box for some tips about

collecting seed from various Australasian plants.

With donated seed, don't worry about whether it might be too old, though it would be useful to know how old. Some species (for example many pea family members) produce seed that remains viable for many years.

Send donations to APS seed manager Janet Miller; her address can be found inside the back cover. Seed donors get an extra packet of seeds from the seedlist for each species donated.

Writing for Pentachondra

As ever, many thanks to all members who have contributed to this issue. Perhaps you might be one of those who writes something for the next issue?

It would be really interesting to know how your plants fared during the tough winter of 2022-23, as there's nothing like first- hand experience for adding to our knowledge of the limits we face growing Australasian plants in the northern hemisphere. In particular, were there any surprises? Did your plants live up to your expectations about what would survive? Did you protect any of them? It would be very helpful if you could also include some details about what the weather was like in your garden. How cold did it get? How long did the cold last?

That said, articles on other topics will be very welcome; the only is stipulation is that your article has to have some connection with Australasian plants and their close relatives. ('Australasia' includes Australia, New Zealand and neighbouring islands.) Length is not important, and if you don't fancy writing photographs on their own are fine but please include captions. If you are not confident about writing then the editor can help you put together an article using your material. If you have any questions please don't hesitate to contact Judy at **enquiries@anzplantsoc.org.uk**

The deadline for the next issue is 31st October 2023. Please send contributions as word documents or similar (not as a PDF) and please do not compress photographs.

Treasurer's report

I hope that the copy of the accounts for 2022 which are included with this edition of Pentachondra give a full picture of the Society's finances, which are in good shape, but if members have any questions they can get in touch at **membership@anzplantsoc.org.uk**.

Jeremy Spon

Phemie Rose

We are sad to announce the death of longstanding APS member Phemie Rose. Phemie was an enthusiastic grower of Australian plants and a regular contributor to Pentachondra. She wrote various articles about what she grew successfully in the moist and mild climate of her garden in west Cork (Ireland), including her favourite restios (not only from Australia and New Zealand but also South Africa) and some very tender tree ferns (*Cyathea* species). Later she wrote about her successes and failures with Australian plants after she and her husband moved to very different Tarragona, where it was hot, windy and dry. Fortunately Phemie enjoyed experimenting! And she always enjoyed growing from seed, something she continued to do after moving to an apartment where her gardening was confined to pots on the terrace.

Tips for collecting seed

Good knowledge of when to collect seed is gained with experience, but everyone has to start somewhere. Look to see whether there are brown or black seeds in the fruits. Usually this is when the fruit (a generic term for the part of the plant containing the seeds) appears to be ripe, but with some species even green fruits have ripe seed in them. With some plant groups seed can be ripe and ready for collection quite soon after flowering. With others seed should be collected from older fruits.

Some plants expel their seeds immediately they are mature but if the fruit is picked before this happens the seeds may well be immature and not viable. So their fruits must either be inspected regularly to remove seeds when they are ready to drop, or the fruits enclosed in some way to trap the seeds as they fall. As it can be difficult to judge when the fruits of such plants are ready to eject their seeds tying a collecting bag around the fruits to catch the seeds is probably the safest option. The muslin bags sold in Sainsburys (and possibly other supermarkets?) as reusable bags for fruit and vegetable purchases are ideal for this, as are legs cut off old tights. *Pelargonium*, *Grevillea* and *Correa* species are examples of plant groups with seeds that can be collected in this way.

With the pea family (for example *Acacia*, *Hardenbergia*, *Senna* and *Sophora*) it can be more obvious that seeds are reaching maturity - the pods change colour and become brittle. Seeds are often mature enough to collect at this stage, but if unsure use the bag method.

With daisies (Asteraceae) there is no seedpod as such; the seeds are gathered together in a dense head containing many seeds. They often have small 'parachutes' or similar appendages attached, (think dandelion,) and are often quite small. The seeds have to be collected after the centre has loosened but before they are ready to blow away. It is probably easiest to cut off the flower head, put it in an envelope or paper bag, and send the whole thing, rather than extract the seeds. Collecting seed of Australian daisies such as *Ammobium alatum* and *Rhodanthe*, *Brachyscome* and *Xerochrysum* species is particularly useful as these seeds tend to lose viability quite quickly - in other words purchased seeds don't keep well.

Members of the Myrtaceae family including *Leptospermum*, *Kunzea*, *Melaleuca* and *Callistemon* form small woody fruits, technically known as capsules, which can be seen arranged along the stems and branches. They do not open immediately and seeds can be retained in the fruits for years. Collect fruits at least a year old, place in the sun in an envelope or other container and the capsules should open and shed copious amounts of tiny seeds.

If you have any queries or want more information don't hesitate to email **enquiries@anzplantsoc.org.uk**.

NEWS FROM MEMBERS

News from Cornwall

Paul Felton

Since 2019 when I wrote about my garden (issue 63, page 9) my Australian plants have been doing extremely well and seem to have taken the past winter in their stride. My *Eucalyptus leucoxylon* 'Rosea' (a selection of subsp. *megalocarpa*) is in full flower at the moment. This is the third year it has flowered with more flowers appearing each year, The Norfolk Island pine (*Araucaria heterophylla*) is still romping away, now about 3m tall, and the grevilleas seem to flower most of the time, I am pleased with how the banksias have fared; all have some nuts or cones on them. I suppose I am lucky living near the coast in Cornwall with a mild micro climate.



Paul Felton

***Eucalyptus leucoxylon* in Paul Felton's garden**

Correa update

Michael Sullivan

I started hybridising correas and growing the resulting seedlings in 2019, recording my progress in a number of articles for Pentachondra (see issues 64, 65 and 67).

Last summer provided me with an abundance of exciting new hybrids. The seeds from *Correa* 'Pink Mist' gave me the best variation and colour with *Correa reflexa* var. *nummularifolia* giving mainly similar but distinct flowers, long tubes and short bells and intermediates. It was clear that there were many worth propagating and these were set aside. To keep all was not possible and any that were not as good as those already available were donated to anyone that wanted a garden plant free. I then set about preparing a new propagation unit ready for this year's cuttings due to the fact that the most recent cuttings did not root easily. I also prepared for grafting a notoriously difficult to root *Correa* and this year was going to be a year of trying hard to build up stock. I was stimulated beyond words with the progress so far and the anticipation of what was to come.

BUT the last winter changed that, several weeks of heavy rain followed by a long spell of below minus 10 degrees Celsius meant that almost every correa perished. I had correa beds that have survived the last ten years without a single loss totally disappear. Every correa in the greenhouse perished, just one plant survived in a pot outside and one in my garden has just enough growth to prove it will carry on. Just one cutting survived, which is a grand total of three plants from around eighty. I am not sure why there were so many lost. It was the first year I have lost more than just the odd one or two, The 'beast from the east' was not an issue, I have moved to Cambridge from drier Essex but doubt if that was a reason. It is a huge disappointment but it has not dented plans start again. The first step is to get new plants and collect seed again.

How did hebes do?

Steve Harding

It comes as no surprise that my National Collections of *Veronica* (*Hebe*) suffered during the cold spell before Christmas. It was a case of the usual suspects succumbing to -8°C for two days and a week of sub zero temperatures after.

Hebe speciosa usually gets damaged below -6°C, but during 'the beast from the east' we had overnight lows of -12°C and the plants bounced back. They missed a flowering season whilst they made lots of growth. I simply treated them as an herbaceous perennial, cut them down and they regrew. Not this time though.

All five of my *H. elliptica* cultivars have gone. They hail from New Zealand (North Island), the Falkland Islands and the southern tip of Chile. Perhaps the maritime conditions there protect them from severe cold. *Hebe carnea* and 'Watson's Pink', 'Cranleighensis' and 'Highdownensis' also all died, despite being in sheltered locations. These cultivars all have *Hebe carnea* in their make-up and are fussy at the best of times. 'Blue Gem' and 'Addenda Marie' have gone as well, and they had previously survived colder snaps.

On the other hand *H.* 'Wiri Charm', bred by Jack Hobbs for the Auckland climate, only has superficial damage, as does *Hebe diosmifolia* which is tender for a small leaved plant. The old

French cultivar *H.* 'La Seduisante' has gone in a very protected corner but another group of the same plant have survived in the open!

H. dieffenbachii is 3m tall in a mixed border and completely fine. However two plants in 80 litre pots, in peat compost and sheltered against a 3m high south facing brick wall, died. As did the 3m x 3m specimen planted in my own garden, next to a 4m *Pittosporum* 'Irene Paterson' which is unscathed. My National Collections are planted in my workplace and most of the losses in my own garden (in Kent) were of pot grown plants, apart from some of the plants named above but planted in clay soil overlaying chalk. However my corokia, *Callistemon citrinus* and *C.* 'Splendens' in pots along with various pittosporums have survived unharmed.

My theory is that the unusually mild autumn combined with two weeks steady rain before the freeze hit us resulted in new growth above and below the ground. This meant that as the ground froze solid, the roots died first and were unable to feed the plant. This would explain the bark splitting on all of the mature plants at ground level. This also demonstrates the importance of taking cuttings as a back up. I was supposed to be potting on stock to sell but will have some replacement planting to do first.

(Editor's note: *Hebe* is now a synonym of *Veronica* but as this genus is so well known under its former name we will continue to use this.)

Please do not forget to tell us if your postal address changes - we do not want you to miss out on an edition of Pentachondra!

APS MEMBERS CAN TAKE PART IN CONSERVATION

Liz Edwards, Plant Heritage

The Plant Guardian© scheme run by Plant Heritage offers the opportunity to participate in cultivated plant conservation, helping to support the Plant Heritage Threatened Plant Programme and Plant Exchange. The APS membership of Plant Heritage gives you, as an APS member, the chance to record eligible plants onto the scheme, provided you reside in the British Isles or Ireland (this includes the Isle of Man, Guernsey and Jersey). Plant Guardian plants can be grown by anyone who has space to grow a plant, be it outdoors or indoors; in a garden, greenhouse or allotment, in a container or on a windowsill.

Plant Heritage Plant Guardians do vital work to help preserve and record cultivated plants. Where a plant has very limited, or no commercial availability, it's essential that we keep them growing in gardens to support their survival. To prevent these plants being lost to horticulture it is important to record these rare plants at a known location. For conservation purposes, we also encourage rare plants to be duplicated at a few known locations as an insurance against loss. That's why we have a record of plants in guardianship and why we encourage our Plant Guardians to share their plants, which can be done through our annual Plant Exchange.

Eligibility (of your plant) for the scheme is assessed using the Plant Heritage Threatened Plant Programme data and ongoing research. As a starting point we

Registering as a Plant Guardian via the APS

We encourage all APS members to consider registering any of their Australasian plants that they think may qualify for the Plant Guardian Scheme. Please contact me at **chairman@anzplantsoc.org.uk** giving me your postcode, the name of your plant plus if possible the original source and date of acquisition and a photograph if possible. You may enter as many plants as you wish. Any other information that you wish to provide such as size, growing conditions etc can also be recorded but is not essential. If you are not sure if your plant qualifies please contact me anyway and the APS, together with Plant Heritage can check this out for you.

There is no obligation if your plant is accepted into the scheme other than to confirm annually that it is still in your procession. However, if you wish to propagate any of your plants to share with APS members or the Plant Heritage annual Plant Exchange this is a great way to ensure the continued survival of your rare plant. If sufficient members take part in this scheme it could be of considerable benefit in recording the conservation status of these rare plants across the country. If it is particularly successful the APS also has the option of enrolling in the Plant Heritage 'Persephone for Subscibers' database which would enable us to build up a much more extensive database of all Australasian plants in the UK and elsewhere.

Gary Firth

would encourage you to check the RHS find a plant website (**www.rhs.org.uk/plants/search-results**) for current recorded suppliers of your plant. If there are fewer than two suppliers, we recommend submitting your plant for registration. When assessing eligibility we access a range of databases, including our own research and historical records.

You can register as a Plant Guardian via the APS or directly with Plant Heritage.

Plant Guardians online

The plants held by Plant Guardians are a vital part of the work Plant Heritage does to save garden plants. These are now being added to the newly launched searchable list on the Plant Heritage website (**www.plantheritage.org.uk /conservation/plant-guardians/**). This collaborative and innovative project* aims to bring more information about rare or unusual garden plants into the public domain. If you have more details on any of these listed plants, we'd love to hear from you. We are continually adding to this searchable list as we receive full data, permissions, and images. Plus we undertake further research where we can, and add this in too.

*This project has been made possible using our online horticultural database, Persephone, and the support of The National Lottery Heritage Fund's "Digital Skills for Heritage" initiative.

Persephone Plant Recording for collections and gardens

The Plant Heritage Persephone Plant Recording system is now open to anyone wishing to record their garden plants. Features include being able to record plants in situ, to check plant names, being able to map your plants and to share with friends too. You can find out more at **www.plantheritage.org.uk/national-plant-collections/persephone/**. If interested please do get in touch at **persephone@plantheritage.org.uk**.

Registering as an APS Plant Guardian directly via Plant Heritage

Register online at www.plantheritage.org.uk/conservation/plant-guardians

Registrations can be completed using the APS society email chairman@anzplantsoc.org.uk

Registrations must also include:

Postcode (to confirm UK membership - not ever published)

Plant name

Source and date information. It is useful for us to be able to record when and where you received your plant from, if known. We also really do appreciate receiving images, this enables us to publish these to our live Plant Guardian listing on our website.

Once registered we will assess whether your plant is rare in cultivation before adding it to the list of plants in guardianship. Then once it is 'approved' we will list the name or the details on our website (LINK). Anyone searching for your plant will then be able to find out more. We can then put people interested in the plant in touch with you (only if you give permission) so perhaps they can grow it themselves. Only by sharing plant information and knowledge can we add to the scope of our conservation activities and keep these plants safe for future generations.

The APS will be able to track registrations, helping conservation within the APS. Members of the APS can also view these registrations and all the plants within the scheme. The shared access also allows for the opportunity to add further information such as notes on habitat or growing conditions, as well as the ability to upload images of your plant/s. Please note no individual ownership details will be recorded by Plant Heritage unless you wish to sign up as a Plant Heritage member and record your plants as an individual.

A PROLONGED AND DAMAGING WINTER

Jeff Layman

It will come as no surprise that this past winter has been exceptional in its extremes. Here, in south central England, barely 6km from the Solent, many plants have been lost. This area is normally considered favourable in terms of climate, but at least twice in the past winter months Bournemouth was the coldest place in the UK. I bought a small weather station in November 2019, which records temperature and other climate parameters. For reasons of convenience, it is sited just above the south-facing garage door, at the western end of this bungalow. This means that it does not get the worst of the weather or lowest temperatures. Indeed, a free-standing thermometer at least 10m from the bungalow with little protection other than a hedge consistently recorded at least a degree colder than the weather station. One other point is that February was extremely dry; I recorded only 8mm of rain, and the first 6 days of March were also

completely dry. So, with the cold and dryness, leaf desiccation was not unexpected, particularly with strong winds.

The table below shows the temperatures experienced this winter as recorded by the weather station. Perhaps the most telling is the number of hours below zero, although it should be remembered that most of the garden would have suffered somewhat lower temperatures for a longer time. Compared to the three previous winters, this winter we suffered a total period below zero which was more than three times the total of the previous three winters combined! And in none of those was so low a minimum temperature reached as in this winter.

So far, the following plants outside appear to be dead above ground (leaves all brown or dry; no green beneath bark on scraping):

Callistemon (*viminalis*?)

Callistemon 'Little John' (also known as *C. viminalis* 'Little John')

Callistemon 'Injune'

Callistemon citrinus

Clianthus puniceus

Dryandra stuposa (in a pot)

Eucalyptus tetraptera (in a pot)

Grevillea lanigera 'Mt Tamboritha'

Grevillea × *sempervirens*

Leptospermum scoparium 'Red Damask'

Leptospermum scoparium 'Jubilee pink'(?)

Olearia phlogopappa 'Comber's Blue'

One *Banksia* sp.

Two *Correa* sp.

Four hebes (*Veronica* sp.)

One New Zealand clematis

The damage to the callistemons was extensive. Both *C. viminalis* looked as though the bark had been pushed outwards, and ripped away from the inner part of the branches. I have never seen frost damage like it. The



Jeff Layman

Callistemon debarked

Month	Hours below 0°C	Hours -4 to -5°C	Hours -5 to -6°C	Hours below -6°C
December	220	44	32	12
January	156	20	36	8
February	84	12	0	0
Total*	460	76	68	20

*There were a further 24 hours below 0°C in March

Grevillea lanigera ‘Mt Tamboritha’ was completely blackened; it looked more like it had been in a fire than killed by cold.

Several others are showing signs of greater or lesser damage, and it will only be obvious whether they are alive or not when, and if, they come into spring growth. These include *Melaleuca gibbosa*, *Lophomyrtus* × *ralphii*, *Coprosma repens* 'Tequila Sunrise', and *Eucalyptus crenulata*. *Corymbia ficifolia* in a pot survived with many damaged and desiccated leaves next to the *Dryandra stuposa*. In fact it might only have one lower shoot (nearest to the lignotuber) still alive. *Callistemon* ‘Perth Pink’ had more than half its branches killed. It is sited in a place with very little protection so may not be alive.

The damage to an *Atherosperma moschatum* was very strange, apparently being due to cladoptosis (a process by which trees shed branches of their own accord, either naturally or in response to stress). The majority of its branches were found on the ground underneath it. They appeared quite normal, being in full leaf, and with either buds or opened flowers. However, on examination the end of the branch where it joined to the main trunk was completely calloused over. On the trunk there was a calloused indentation where the branch had been. Somewhat perversely, the top of the tree (it is about 3m high) exhibited no shedding at all over its final 25cm, and most of the lower branches below 100cm also seemed untouched I can’t remember seeing any other plant with similar damage. Some plants, such as *Araucaria araucana*, are known to shed their lower branches when those branches have reached the end of their life, but frost causing branch loss seems very unusual. There is a fairly extensive coverage of cladoptosis at **https://arboriculture.wordpress.com/2016/01/02/branch-shedding-cladoptosis-trees/**, but it does not mention cladoptosis with respect to frost damage. It is possible that the plant is still alive, but only at the lower few tens of centimetres or so.

In addition to the above, there are other plants from the southern hemisphere which were completely dead above ground, such as *Melianthus major* and *Aristea ecklonii*. Both are now showing signs of new growth from below ground. A number of Mediterranean-climate plants such as *Genista maderensis* were also killed, despite the “protection” of a south-facing wall. Several plants from Chile were also markedly damaged, such as *Rhaphithamnus spinosus*, *Vestia foetida*, and *Crinodendron hookerianum*.

Many of these plants had been growing for six to eight years without any major problem throughout the previous winters; perhaps some minor leaf browning may have occurred on occasion. Some of them were of considerable size, being 3m or more high, and 1 - 1.5m in width.

Other ostensibly similar plants survived with no or little damage. These include three grevilleas, two callistemons, *Lomatia myricoides*, several pittosporums (although *Pittosporum tenuifolium* 'Tom Thumb' showed some damage), and even *Azara microphylla*, which was planted only last spring. Two plants of *Hoheria sexstylosa* ‘Stardust’ had marked damage to the leaves on the upper branches. One has been in about eight years, and is about 6m high. It has never before shown any frost damage. *Embothrium coccineum* shed more of its leaves than usual (although an evergreen, it

has always lost some leaves in winter), but many new leaf buds are breaking into growth along its branches. There are also many flower buds forming, so it can be considered pretty hardy.

The greenhouse fared better. It has a fan-heater at one end with a separate thermostat, set to keep the temperature just above zero, and this has been fairly successful since it was set up over 10 years ago. No insulation had previously been used, but this year, with the increase in electricity charges, I decided to cover the inside with 10mm bubble polythene. This was done, most fortuitously, in early December shortly before the very cold weather appeared. Even so, on several occasions the temperature behind the heater fell to -3°C. Until mid March I thought there had been no damage, but then I noticed a *Westringia fruticosa* (synonym *W. rosmariniformis*) behind the heater had died. This plant was around 20 years old; it looked like there was either a self-seed or possibly a shoot from a root under it. If the latter, it is still alive. Nearby, and also behind the heater, some leaves of *Knightia excelsa* were also damaged. Those receiving some warmer air were undamaged. Well into the heated part of the greenhouse a *Eucalyptus preissiana* was affected most strangely. This plant was grown from seed about 8 years ago, and is around a metre high and 1.5 across. It has flowered well for several years., and half of it is in flower now. The other half is dead! But the distribution of flowering and dead branches seems random; some close to the insulation are in flower, while others are dead. Some well away from the glass near the centre are in flower, while others in a similar position are dry and dead. At present, those three plants seem to be the only ones affected.

This has left me with a conundrum. For many years I have been 'pushing the envelope', trying more and more plants outside than might be expected to survive based on their assumed hardiness level, perhaps on the assumption that we are experiencing global warming and cold winters are a thing of the past. This year much of it has crashed down most unexpectedly! The problem is that with so many plants, provenance is of great importance where hardiness is concerned. If they have been raised from seed in a colder climate than that usually expected in habitat, they might well be hardier than the parent plant. In any case, the received wisdom of plant hardiness is one of the many old chestnuts of garden lore. It can be difficult to distinguish fact from fiction, and plants can make it difficult anyway. I grow *Passiflora caerulea* in three different places. The one which suffered most damage and seems dead (although they do have long underground runners which can appear metres from the main stem) is the most sheltered, between our bungalow and our neighbour's. The next, with moderate damage, is on the north-facing wall. The final one, showing almost no damage, is almost at the northern end of the back garden on a west-facing fence, almost 25m from the bungalow!

I think I might take a step back and make a careful decision as to what plants I put in to replace the dead ones. Over the past few years I've been planting US zones 7, 8, and even 9 plants (perhaps RHS zones H3 and H2a), but I will avoid the more tender plants in future.

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NEW ZEALAND PLANTS

Peter Kohn

When we first started to plan our garden at Kerrachar on the west coast of Sutherland we were lucky enough to meet the then Head Gardener at Inverewe, the late Clive Murray. He sent us a lovely letter filled with advice and particularly encouraged us to try to grow plants from the Southern Hemisphere. This advice was the start of a special interest in South African plants but we also began growing plants from New Zealand, being particularly impressed by *Myosotidium hortensia*, which grew to perfection in the walled garden at Inverewe This is not a plant from mainland New Zealand, of course, being an endemic of the Chatham Islands. It was our interest in New Zealand plants which was the trigger for joining the Australasian Plant Society though I have come to appreciate that the main interest of the society is in Australian plants and the New Zealanders get far fewer mentions.

At Kerrachar, our New Zealand Bed (see next page) was one of our favourite parts of the gardens. We planted in a narrow bed close to the north end of our croft house where *Myosotidium* thrived though never quite matching the Inverewe plants. The rest of the planting focussed on *Aciphylla* and *Celmisia*, genera that seem to be hardly grown anymore. We suspect there are two reasons. The fact that our climate at Kerrachar suited them suggests that they prefer a cool climate, and they are difficult to propagate from seed. Both genera are mountain plants.



Peter Kohn

Myosotidium hortensia



Peter Kohn

The New Zealand Bed

Celmisias are often known as mountain daisies. All have flowers very similar to British daisies but they have a range of interesting leaf shapes and colours, a number having silvery leaves, and all of them were evergreen for us. The World Flora (**www.worldfloraonline.org/**) lists nearly a hundred species and numerous hybrids but our 2020 Plant Finder lists only eleven plus a couple of hybrids and several are only available from a single nursery. For us, the only species we find easy to propagate is *Celmisia bellidiodes* which spreads rapidly to form a mat that can readily be divided.

Aciphyllas (often called speargrasses) are even harder to source. The World Flora lists more than fifty species but only five are in the Plant Finder and many of our favourites are no longer available. They have needle like leaves with more or less viciously sharp tips and leaf colours ranging from golden through bronze to glaucous green. Again they have the enormous virtue of being evergreen and the New Zealand Bed was a wonderful display in the depths of winter when most of our perennial dominated garden looked bare and uninteresting with so many plants dormant for the winter. Aciphyllas often have very large inflorescences which can last for a very long time but, personally, I enjoy the foliage more than the flowers.

I suspect that the difficulty in obtaining these plants is the difficulty of propagation I already mentioned. Although we spend a major proportion of our lives growing plants from seed, and generally have very good success with seed from Jelitto, we only managed to raise a couple of plants from the six species of *Aciphylla* we sowed in 2020 and we had no success with *Celmisia* species. We shared the seed with a friend who runs a large nursery in Scotland but he had little more success than us. Our current Jelitto catalogue lists eight species of *Aciphylla* and six of *Celmisia* but many of these are apparently not sold by any nurseries so either there is no demand or everyone finds them difficult.

We also managed to grow a couple of *Anisotome* species. Like aciphyllas, these are *Umbelliferae* (synonym *Apiaceae*) but look much more like typical umbellifers. It is much harder to believe that aciphyllas are also related to carrots. When I checked the World Flora, I discovered that the name *Aciphylla* is used as the specific epithet (second part of species name) in a whole range of genera. It means 'needle leaved' from the Latin 'acicula' meaning needle and, of course, 'phyllum' meaning leaf.

One stimulus for writing this piece was pricking out *Ranunculus insignis* (alpine buttercup) seedlings. This is a very showy species with large shiny golden flowers which flowered successfully in the nursery last summer. As with other Ranunculaceae, we sowed the seed that was set immediately and its rapid germination meant the seedlings were ready for separating in January. A few days previously we also became aware of a New Zealand plant flowering, we think for the first time, in the Pavilions in Sheffield Botanical Gardens. This is



Peter Kohn

Ranunculus insignis

the climber *Tecomanthe speciosa* (see next page,) another plant rarely grown in the UK and a great example of the value of conservation. Our plant is a descendant of the single surviving wild plant whose native habitat is Three Kings Island to the north of the North Island of New Zealand. The flowers are funnel shaped and produced in clusters. In the wild, flowering is very rare. Although it can withstand -2°C, this is a plant that needs a (large) greenhouse with a certain amount of heat.

As well as *R. insignis* we have also attempted to raise plants of *R. lyallii*, so far without success in Sheffield, but we did flower it successfully at Kerrachar. *R. lyallii* has the largest flowers of any buttercup, is endemic to southerly parts of New Zealand



Peter Kohn

***Tecomanthe speciosa* at Sheffield Botanic Garden**

and Stewart Island and, unusually, has white flowers. White flowers are extremely common throughout the New Zealand Flora which has been speculated to be the result of moths being major pollinators in that country. This is another species that is probably easier to grow in the cooler parts of the UK.

New Zealand plants have a lot to offer. I hope others in the Society share my interest in them.

TWO AUSTRALIAN DENDROBIUMS

Gary Firth

Dendrobium kingianum and the natural hybrid *Dendrobium* × *delicatum* are two of the most frequently grown of the Australian Dendrobium orchids in the UK.

Dendrobium kingianum is a highly variable species in the wild, where it is often referred to as the 'pink rock orchid' for its habit of growing on



Gary Firth

Dendrobium kingianum

rocky outcrops throughout its habitat from northern NSW to Queensland. It grows as canes which vary from about 10 to 20 cm in height and carry from two to seven apical leaves. Short spikes arise in the spring from the leaf axils carrying from a few to fifteen fragrant flowers from 1 to 2 cm in size. They vary in colour from white through pink to almost purple. The pink form is most often seen in cultivation in the UK.



Gary Firth

Dendrobium x delicatum

Dendrobium × *delicatum* is a naturally occurring hybrid of *D. kingianum* and *D. tarberi*. It is also found in NSW and Queensland, growing on rocks, cliff faces and escarpments. The 30 – 40cm high hard canes carry short spikes of between 10 and 25 small off white scented flowers.

These tough orchids are tolerant of a wide range of temperatures, but are best grown at a minimum of 10°C in the winter although they will tolerate much lower temperatures if kept very dry. They are normally grown in pots of orchid bark although I prefer chopped New Zealand sphagnum moss. They should be watered with dilute orchid fertiliser (or normal liquid plant food at one eighth of normal strength). They should be allowed to nearly dry out before watering again and every third watering should be with pure rain water, allowing excess water to run out of the bottom of the pot in order to avoid salt build up. Watering should be stopped completely at the end of the growing season and not recommenced until after the spring flowering.



Gary Firth

Dendrobium 'Ellen'



Gary Firth

Dendrobium 'Colonial Surprise' x 'Kathryn Banks'

Both orchids are quite prone to producing tiny new growths (keikis) in place of flower spikes if the compost is kept at all moist or fertilised during the winter rest and this in part might explain why they are such relatively widespread orchids amongst growers in the UK.

Numerous named line-bred cultivars and crosses of *D. kingianum* with other native *Dendrobium* species have been produced, particularly in Australia. These tend to have much larger flowers in a range of whites, pinks and purples, often with intricate markings on the petals and sepals. 'Ellen' is a very old Australian bred orchid first flowered in 1928. It is a primary hybrid cross of *D. kingianum* × *D. tetragonum*, by Wilhelm Schmidt of New South Wales. The grex was subsequently registered with the RHS in 1928. Another example with stunning flowers is *Dendrobium* 'Colonial Surprise' x 'Kathryn Banks'.

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A PLUCKY SHE-OAK

Paul Spracklin

Visitors to County Park Nursery in Hornchurch around the turn of the century may possibly recall the bizarre sight of a 3m tall *Casuarina cunninghamiana* apparently and implausibly teetering out of a 3 litre pot. It had some years earlier grown through the drainage holes and was nestling far too close to the side of a polytunnel where Graham Hutchins had set it out. Certainly, it made enough of an impression upon me to come home with one and plant it in my garden. This would have been 1996 or 1997.

I live in southeast Essex, the driest part of England, and with several other established trees in the immediately vicinity my little she-oak took many years to get going in the dry position I had chosen for it. But get going it did, now racing along at maybe 60-80cm a year to reach its current height of around 8m with no supplementary irrigation.

Its life has been full of trials and tribulations. When just around 1.5m high someone (not me!) trod on it,



Paul Spracklin

***Casuarina cunninghamiana* with trunk bent at right angles!**



Paul Spracklin

Casuarina cunninghamiana

snapping the stem through by about 2/3rds and bending it to a right angle. I straightened the stem, staked it upright and, with nothing more appropriate to hand, wrapped the break in gaffer tape. Surprisingly this worked and now you would never know there had been such significant damage.

Then a storm in October 2013 brought another calamity in the shape of a 12m chunk of a neighbouring ash tree that was blown out and landed squarely on top of the she-oak, once again bending the trunk to right angles. After a morning's work with my pruning saw the trunk was released and simply sprang back upright again, this time with no break, but once again a precautionary stake was deployed 'just in case'.

Further tests of robustness have been supplied by the vagaries of the Essex climate and, over the years, it has been subjected to several periods of extended drought, lengthy freezes with

a low of -8ºC, heatwaves, none of which seem to have caused the tree any trouble. The genus is dioecious: mine is a boy and for about a fortnight in autumn everything within a 5m radius is covered is a dusty film of pollen in much the same fashion as seen with a male yew tree.

I absolutely adore it. Although a fairly tall plant now it has a graceful airiness and doesn't dominate its companions. I like that it looks like a conifer of some kind but is completely different. I like that it seems perfectly in step with my climate. I grow a lot of plants from arid regions so I especially like how perfectly my casuarina fits in aesthetically. She-oaks are much planted as ornamental trees in hot dry regions so it is one more subliminal step towards the deception that my English garden is somewhere hot and sunny.

PHOSPHORUS NEEDS OF AUSTRALIAN PLANTS

Graeme Nicholls

This article was first published in the March 2023 edition of Growing Australian, the quarterly newsletter of the Australian Plants Society Victoria. It is reprinted here by kind permission of Graeme Nicholls.

The conventional wisdom is that Australian plants all need low phosphorus fertilisers. Manufacturers of these products generally market them as 'suitable for natives'. But is this really true? Are all genera and species in the same boat? Certainly it is true of most Proteaceae species such as grevilleas, hakeas and the like which have developed special proteoid root systems which are very efficient at extracting needed phosphorus from low nutrient soils. But what about other plants?

The February 1997 issue of SGAP Journal, the newsletter of the South Australian Region of the Society for Growing Australian Plants, published an article written by Kevin Handreck, who was at that time a leading soil scientist with CSIRO in Adelaide. In it he detailed the results of an extensive research project investigating the phosphorus sensitivity of a considerable number of Australian plants. With the assistance of some SGAP members, about 800 plants were grown from seed in small tubes under strictly controlled conditions. Eucalypts were not included in the trial because most of them are quite tolerant of phosphorus. Superphosphate was added at specific rates to assess how the young plants coped with it. The growth and quality of the resultant plants was carefully recorded, including plant deaths.

They were assigned scores from 1 to 7 according to their growth, the appearance of toxicity symptoms and the general pattern of response to phosphorus. A score of 1 meant that the plants were healthy at all levels of phosphorus addition, with the greatest growth at the highest rate of phosphorus addition. Those with a score of 7 were those that only grew well without any added phosphorus.

The results are most interesting. The majority of the species tested showed substantial tolerance to extra phosphorus, and 82% did not show any of the typical symptoms of phosphorus toxicity. That's a lot of species. The article gives extensive lists of how the hundreds of those tested responded to the added phosphorus. Surprisingly a few banksias and hakeas proved to be very tolerant of phosphorus. Most acacias and melaleucas scored 1 to 3, but it cannot be assumed that all

species within a given genus will respond the same way. For example, *Acacia aphylla*, *A. boormanii* and *A. cultriformis* were very intolerant of phosphorus, while *Banksia menziesii*, *B. petiolaris* and *B. speciosa* were very tolerant, and *Grevillea robusta* had a top score of 1. (The complete list and Kevin's original article can be viewed at **anpsa.org.au/APOL8/dec97-4.html**.)

This research was conducted about 25 years ago, so may not necessarily be confirmed by later investigations. In 2014 Dr Patrick Finnegan, University of Western Australia, studied how Australian plants take up phosphorus from the low nutrient Australian soils. He used radioactive isotopes of phosphorus to trace the uptake of phosphorus within the plant, revealing where it is stored in the plant and how it moves. He found that plants which are tolerant to phosphate fertiliser tend to keep it in their roots, but phosphate-sensitive species transport it to the leaves where it accumulates and can poison the plant. He also found indications that phosphorus uptake may be a factor in dieback caused by *Phytophthora cinnamomi*.

Many Australian plants are used to growing in soils with an abundant supply of iron. When phosphorus is applied to these plants, it binds with iron, creating an insoluble phosphate. The supply of available iron to the plant is thereby depleted, and the result is iron deficiency, leading to poor growth, chlorosis, leaf drop and susceptibility to fungi.

Do you have further insights into the phosphorus needs of Australian plants? Please contact me at **gahnia27@gmail.com** to contribute to this discussion.

GREVILLEA 'BARKLY'S DAUGHTER'

Peter Olde

This article was first published in the Australian Native Plants Society (Australia) (ANPSA) Grevillea Study Group Newsletter no. 124 (February 2023, pages 5-7) Many thanks to Peter Olde for permission to republish it.

If you were to go to a specialist native nursery or even a general nursery you might be persuaded to buy a plant labelled *Grevillea barklyana*. The robust screening plant with sawtooth leaves that you bought has many desirable features. It is easily propagated, is hardy and long-lived, and has bird-attracting flowers. You might even be persuaded to use it as a grafting rootstock for certain species of toothbrush Grevillea. However, for all its good points and the accompanying nursery label asserting it's identity as *Grevillea barklyana*, it is most likely a misidentified hybrid.

Grevillea barklyana is a Victoria species. Ferdinand von Mueller (1860–61: 14) first mentioned his discovery of *Grevillea barklyana* in his annual report to the Victorian Parliament. 'On my return to Melbourne I visited the Upper Tarwan, availing myself of a track formed by Mr. Devine's prospecting party; the tall *Grevillea Barklyana* (sic) was discovered on this last occasion.' Sir Henry Barkly, Toorak, then the Governor of Victoria, was noted (Mueller 1860- 61: 3) in the same report as one of numerous donors to the Melbourne Botanic Gardens. It is somewhat surprising, given regular publication of new species in his Fragmenta Phytographiae Australie, that Mueller neither described nor again mentioned this species until 1871, by which time Bentham (1870:





Peter Olde

Grevillea 'Barkly's Daughter'

436–7) had published a description in Flora Australiensis based on Mueller's collection, a duplicate of which he had selflessly remitted to Bentham sometime in 1870. Mueller (1871: 133) simply referred to it, (and in Latin), as a 'shrub attaining a height of 12 feet'.

The next appearance of this 'species' came when flowering specimens of '*G. barklyana*' collected by J.H. Maiden at Jervis Bay, New South Wales in July 1892 were displayed at the November meeting of the Linnean Society of New South Wales. Maiden showed them as 'new' for New South Wales, 'hitherto recorded only from Gippsland' (Maiden 1892: 404). However, according to correspondence cited by Olde (2005), Maiden was indeed well aware that the plant he collected was a new species and urged Mueller, with whom he corresponded on the matter, to name it after the recently deceased patron of science Sir William Macleay, MP. However, the proposed taxonomic treatment lapsed after Mueller died in 1896 and Maiden did not progress the matter. Willis (1972) continued to recognise the Jervis Bay plants as a form of *G. barklyana*. Formal taxonomic recognition only eventuated when McGillivray (1986: 2) named it as *G. barklyana* subsp. *macleayana* McGill. In the diagnosis, he distinguished it from subsp. *barklyana* by its persistent floral [common] bracts, and its subvillous ovary. Subsequently, Olde (2022) showed that *G. macleayana*, properly considered, only had simple leaves and added this to the several points of difference. Populations with divided leaves in New South Wales could be separately recognised (*G. gilmourii* and *G. milleriana*) and they could be readily separated from *G. barklyana*. Consequently *G. barklyana* no longer has subspecies and embraces only the Victorian populations from which it was originally described.

The earliest reference to *Grevillea barklyana* in horticultural catalogues is a Boddy's Eastern Park Nursery list dated 1960–61. On P.25 they list for sale *G. Barklyana* 'Large-leaf Grevillea' and it must be presumed that this was the true species. The hybrid, for which I here suggest the name 'Barkly's Daughter', has largely replaced the species in catalogues from c. 1990. Norwood catalogue list from 1981 suggests a label for the true species was still in demand, though no reference specimen is available. What then the origin of *G. barklyana* hybrid which has persisted in horticulture to the present. Where did it come from and who introduced it. Unfortunately, I have not been able to trace its source.

Here are some of the differences which together distinguish the species from the hybrid.

G. barklyana

1 simple leaves often present

2 leaf lobes per leaf 2–7(–11)

3 widest leaves 2.5–12 cm

4 leaf undersurface tomentose

G. ‘Barkly’s Daughter

1 simple leaves absent

2 leaf lobes per leaf (10–)16–23

3 widest leaves 2.5–6.5 cm

4 leaf undersurface silky-tomentose



Andre Messina, Victorian Conservation Seedbank

***Grevillea barklyana* leaf**



Composite ALA Image, created by Richard Hartland, Creative Commons License

***Grevillea barklyana* habit, foliage and flowers**

G. 'Barkly's Daughter' is very similar to *G*. 'Poorinda Anticipation' and *G*. 'Hunter Scarlet'. *G*. 'Poorinda Anticipation' has flowers with pink styles. *G*. 'Hunter Scarlet', a new cultivar from Hunter Region Botanic Garden with similar red flowers has leaves with a velutinous (like velvet) undersurface.

Thanks to John Knight, Neil Marriott, David Shiells for consultations.

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Peter Olde

***Grevillea* 'Hunter Scarlet'**

NOT *GREVILLEA* BARKLYANA

Judy Clark

A few years ago Tim Darrington gave me a plant that he knew as *Grevillea barklyana*. I was delighted, not least because the gully grevillea, as *G. barklyana* is known, is a critically endangered species confined to a small area in west Gippsland in my home state of Victoria. I planted it out in 2016. It thrived but failed to cope with some very cold weather (aka the 'notorious beast from the east') in early 2018 and gave up on life soon after.

Fortunately I had managed to propagate it, just the one plant, which I duly planted out in 2020. I did a bit more research on its preferred environment; *G. barklyana* is an understory plant of wet eucalypt forest, where it grows on the sheltered slopes of gullies in well drained gravelly clay-loam soil. Hoping to imitate conditions it would encounter in the wild I chose a shady spot with overhead protection from some surrounding shrubs. Clay-loam soil is what I garden on (originally more clay than loam) so I added grit to the planting hole to improve the drainage.

This second plant also grew away well. The following winter was its first outside so during cold weather I protected it with a large plastic bell cloche. Come 2021 it continued to grow vigorously and I took care to water it during dry periods. The following winter (2021-2022) was relatively mild and defence against cold proved unnecessary. I did keep an eye on it though, ready to fling some fleece over it (by then it was too big for a bell cloche) if below zero temperatures or easterly gales were forecast. The winter just gone was much tougher, with a couple of prolonged periods of cold even here in Hastings. During those periods it was enveloped in fleece propped up with bamboo canes, allowing air to circulate. Even so a few of the growing tips were damaged, though nothing serious, and you can imagine how pleased I was to discover a developing inflorescence.

I am a member of the ANPSA Grevillea Study Group (GSG) and I look forward to getting their newsletters which are always full of interest. And what did I find in the February 2023 issue but Peter Olde's article, *Grevillea* 'Barkly's Daughter'. One look at the images of the leaves was enough for me to realise that my plant might not be true *G. barklyana* after all. Closer examination, looking particularly at the characters Peter identifies, proved enough to persuade me that it isn't.

In his article Peter mentions two other hybrids that are very similar to *G.* 'Barkly's Daughter'. My specimen is definitely not *G.* 'Hunter Scarlet' as its styles are not the right colour. However *G.* 'Poorinda Anticipation' is described as having pink styles, and colour descriptions can be quite subjective.

Fortunately *G.* 'Poorinda Anticipation' is registered with ACRA (Australian Cultivar Registration Authority) so I was able to consult the description provided by its breeder, Leo Hodge. Its leaves appear to be more deeply dissected than those of 'Barkly's Daughter' and most helpfully their lobes are described as each being 'tipped with a pungent point'. That is, the lobes don't just end in a point, they end in a sharp piercing point, and that's not the case with my specimen.

I'm not surprised at this result. If true *G. barklyana* hasn't been on sale in Australia for about 30 years then it's unlikely to have been available in the northern hemisphere (unless plants were grown from seed). Interestingly Jeff Irons (one of the founders of the APS) wrote a piece in GSG newsletter 68 which included a list of grevilleas supposedly on sale in the UK at the time according to the 2003-04 edition of the RHS Plant Finder. He remarked that he had purchased a plant labelled *G. barklyana* which turned out to be a hybrid. Maybe it was 'Barkly's Daughter' but it's impossible to know.

Although I am a touch disappointed that my plant has turned out to be *G.* 'Barkly's Daughter' rather than true *G. barklyana*, this by no means detracts from its attractiveness. Its 'toothbrush' type inflorescences (with flowers borne on one side of the stem) that are a pleasing shade of pink; its attractive reddish brown new growth; and its exotic sawtooth mature foliage to my mind make it a very desirable plant. A year ago, while visiting Tregrehen Garden near St Austell in Cornwall (**www.tregrehangarden.uk/**) I saw in the Gondwanaland section a splendid specimen in full flower, buzzing with nectar-searching bumblebees. As far as I can tell from the photos I took at the time (see previous page) this plant probably isn't the true species either.

Judy Clark

It remains possible that someone's garden or greenhouse is hosting a true *G. barklyana*, especially if it's a seed grown specimen. I would be really interested to hear (at **editor@anzplantsoc.org.uk**) from any members who are growing either the hybrid, or the true G. barklyana.





Judy Clark

***Grevillea* hybrid, possibly 'Barkly's Daughter', at Tregrehan Garden in Cornwall**

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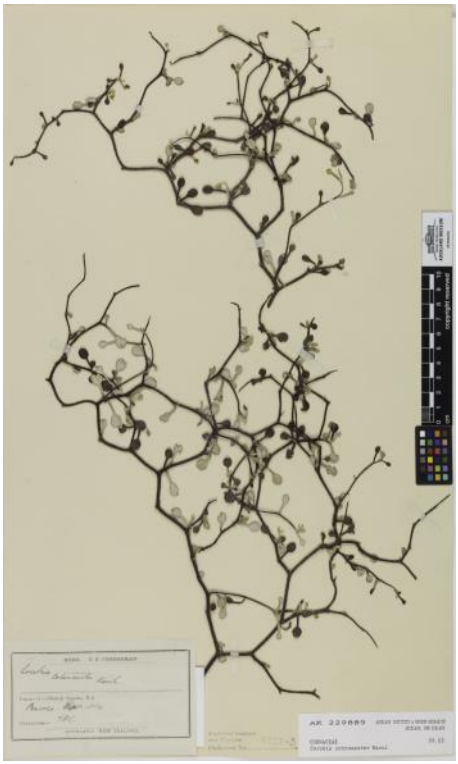
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HOW THE ICE AGES SPURRED THE EVOLUTION OF NEW ZEALAND'S WEIRD AND WIRY NATIVE PLANTS

Chris Lusk

This article was first published in The Conversation of August 28, 2022 (**the conversation.com**) and is reprinted here under Creative Commons licence. Chris Lusk is Associate Professor of Ecology at the University of Waikato, North Island, New Zealand.

Recent genetic research has shed new light on the long-running debate about the evolutionary origins of some of New Zealand's quirkiest plants. More than one in ten native trees and shrubs have small leaves spaced far apart on wiry interlaced

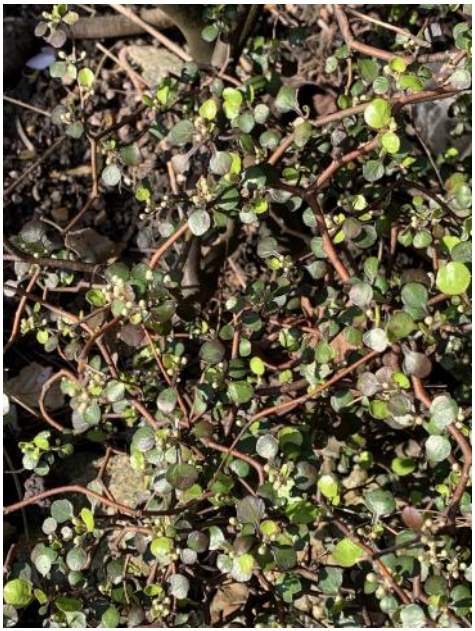


Herbarium sheet, Auckland Museum Wikimedia Commons

***Corokia cotoneaster* (korokio, wire-netting bush) is a widespread divaricate shrub**

branches, often growing in a zigzag pattern. Once the preserve of botanists, some of these plants have recently gained popularity as ornamentals.

Nowhere else on Earth has this "divaricate" growth form arisen independently in so many plant families. It is a spectacular case of convergent evolution in response to environmental pressures. But what environmental pressures? The answer might help us decide how to manage New Zealand ecosystems.



Judy Clark



Judy Clark

Corokia cotoneaster - a divaricate species

Climate or moa?

The 19th-century German botanist Ludwig Diels noted that small-leaved shrubs are typical of dry climates. He thought the divaricate form might have arisen in response to cold, dry conditions during the Ice Ages. In the 1970s, the competing "moa browsing" hypothesis emerged, arguing the divaricate form is a now-anachronistic defence against browsing by the large flightless birds that went extinct shortly after Polynesian settlement.

Experiments have since lent support to the browsing hypothesis. Yet the concentration of divaricate plants in frosty and droughty districts suggests climate is also somehow involved. So does evidence that the small leaves of divaricates are less vulnerable to

Corokia macrocarpa - not divaricate

chilling than large leaves. But climate does not seem to explain the unusual toughness of the branchlets of divaricate plants.

A synthetic hypothesis

Molecular dating shows most divaricate plant species arose within the last five million years. But fossils and genetic evidence show moa have been here much longer than that. This means moa browsing alone does not explain the evolution of divaricate forms in so many plant families. The evidence seems more consistent with a newer synthetic hypothesis that moa browsing had more impact when plants were exposed to a new combination of circumstances: worldwide cooling, the development of frosty, droughty

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Haast's eagle (*Hieraaetus moorei*), the scourge of moa

climates in the lee of the recently uplifted Southern Alps, and fertile new soils derived from glacial outwash.

Frosty and droughty climates posed direct physiological challenges to plants, but they also left them more exposed to browsing by preventing them from growing quickly out of reach of moa. Climatic restrictions on growth thus probably made anti-browsing defences more important for plant survival. Support for this hypothesis comes from a recent experiment, which found climate influenced the impact of deer browsing on competition between divaricate plants and their broad-leaved relatives growing in treefall gaps. Furthermore, the fertile new soils created by outwash from glaciers would have enhanced the nutrient content of plant tissues, probably resulting in increased browsing pressure. Studies of African savannas show that thorns and divaricate-like growth forms are typical of fertile soils with abundant browsing mammals.

Do deer act as moa surrogates?

For several centuries after the extinction of the moa, there were no large browsers in New Zealand, until European settlers introduced deer and other hoofed animals. Although valued as game animals and a food source, deer are also considered pests because of their impact on native vegetation.

Feeding experiments have shown both avian and hoofed herbivores are unenthusiastic about eating divaricate plants if alternatives with large soft leaves are available. The spacing of small leaves far apart along wiry branchlets reduces bite size and makes it difficult for browsers to meet their nutritional needs.

Scientists have studied ancient moa diets by identifying pollen grains in fossilised poo (coprolites). Data interpretation is hampered by our inability to identify pollen to species level in plant groups that include both divaricate and broad-leaved species. But it would seem likely that divaricate plants presented similar nutritional challenges to moa. Analysis of moa coprolites suggests forest understories a millennium ago were more diverse than those we see today, after more than 150 years of browsing by deer. This suggests moa had less impact on vegetation than deer do today.

Factors limiting the impact of moa on vegetation

Unlike deer in contemporary New Zealand, moa faced a deadly predator throughout the entire country: the now-extinct Haast's eagle (see previous page.) Although moa could safely browse under forest canopies, they would have been at risk at watering sites and in open areas. In contrast, although deer face strong hunting pressure in some areas, recreational hunting has little impact in remote and rugged areas like the Kaweka ranges, where uncontrolled populations of sika deer threaten regeneration of even relatively unpalatable trees like mountain beech.

Fast-growing palatable shrubs and small trees like karamū, patē and māhoe probably got their best chance to escape moa browsing when treefalls let in enough light to enable them to grow quickly out of reach, at least in warmer districts where such plants can grow more than a metre in one growing season. Treefall gaps must have offered two other advantages for palatable plants. The remains of fallen trees can hamper access by large herbivores, and canopy openings would have exposed moa to attack by Haast's eagle.

Moa were probably less able to exploit vegetation on steep slopes than deer and goats are today. The impact of moa across New Zealand landscapes would therefore probably have been less pervasive than the current impact of hoofed browsers.

Lastly, moa probably had a more sluggish metabolism than mammalian browsers of comparable size, implying lower energy requirements and hence lower feeding rates. Close living relatives of moa (kiwis and emus) burn less energy than herbivorous mammals of similar body weight or large flighted birds like swans and geese.

The future of deer in New Zealand

Deer could act as imperfect surrogates for moa, but only if subject to effective control throughout the country.

Aerial 1080 drops to control rats, stoats and possums also usually kill deer, though the mortality rate varies widely. That is one way deer populations could be kept to acceptable levels in remote and rugged areas, where recreational hunting pressure is insignificant. Aerial culling by shooting has also shown potential. Commercial hunting cannot be relied on to control deer, because of the vagaries of the market. When the price of venison falls, there is little incentive to hunt deer. Aerial 1080 or aerial culling therefore currently seem the only realistic ways to curb the impact of deer in remote and rugged areas.

Editor's note: 1080 poison is the brand name for the synthetic form of sodium fluoroacetate widely used in New Zealand to control non-native mammalian species.

GROWING STURT'S DESERT PEA

Jennifer Ruttley.

I was very privileged to be able to spend part of my retirement living in Australia on a visa. I was based in Adelaide, South Australia, but during the 13 years that I was there I travelled much of that amazing country – the wild flowers in a good season are a sight to behold - firstly on organised tours (to get some idea of the geography etc. of the country), and then in my car with a tent, and later in a VW campervan! A most fantastic experience and life style.

My first outback sighting of Sturt's Desert Pea (*Swainsona formosa*) in the wild was on the bus from Roxby Downs heading into Port Augusta (South Australia). There were only a few passengers who were generally dozing towards the back, and I was near the front chatting with the driver and soaking up every bit of information he could give me – my accent gave away my origin. Suddenly he pulled the bus over to the side of the road and said to go with him across some scrub and there was a clump of Sturt's Desert Pea in full bloom! Although they look rather like plastic – a strong red with the black boss – they are extremely beautiful and grow horizontally with the flower stems upright. The lack of bus movement woke the others and they came out to see what was going on, possibly not over thrilled.

Although they are South Australia's state floral emblem I later saw them in



Jennifer Rutley

Sturt's Desert Pea seedlings in June 2021

various other states. The most impressive display was along the foreshore in Dampier, in the Pilbara area of northwestern Western Australia where they were growing en masse like a carpet between the edge of the beach and the footpath. There were also always a few blooms near the Araluen Centre in Alice Springs when I was there in late June.

Since returning to the UK (Suffolk) I have set up my garden and then gained a greenhouse at the end of lockdown one. I sowed some seeds the following March (2021) of Sturt's Desert Pea that I'd been given. I started them off in my little uncontrolled electric propagator on the kitchen work top. About 6 germinated - great excitement as those I had tried outside in a pot didn't germinate - but then a few damped off, and I was left with just 2. I knew that they don't like root disturbance but I needed to get them into something deeper, so I carefully moved them into a larger pot and put them in the greenhouse, in multi-purpose compost with added grit. One of those survived and flowered. It had lots of love, and visitors, as most folk round here had never seen them before, let alone heard of them, but it wasn't the traditional red, but a lighter form and without the black boss.



Jennifer Rutley

Fourth cluster of flowers in August 2021

There were a few seeds left in the bottom of the packet and I sowed them last February (2022) - I thought I'd try a little earlier in the year - and they all germinated, using the same method. Once down in the greenhouse and growing, again I carefully potted them on without disturbing their roots (so I didn't thin them out) and about 4 thrived. There wasn't room in the greenhouse for them to trail so I had them propped up on sticks, and watered them with rain water and a weekly weak feed of liquid seaweed (as I did the previous year). Great excitement when the first buds appeared, and especially when they opened to show the beautiful true red and black boss I love! One of the 4 plants (still all growing in that same pot) was of the lighter colour. Again, those beautiful plants were loved and admired by many.



Jennifer Rutley



New seedlings in June 2022 ...and in July 2022



Jennifer Rutley

Joy! Sturt's Desert Pea, the most spectacular form, July 2022

The Australasian Plant Society
Minutes of the Annual General Meeting

– Held at Lullingstone Castle on 18th February 2023

Committee Members Present:

Tom Hart Dyke - President

Gary Firth - Chairman

Judy Clark - Newsletter Editor

Jeremy Spon - Treasurer/Membership Secretary

Maria Firth – Events Coordinator

Jude Lawton - Conservation

Gill Groombridge – Social Media

Plus 7 other members.

1. Apologies for absence.

Apologies had been received from Robbie Blackhall-Miles, Ben Ram, Beth Smith, Peter Kohn, Tim Darrington, Martin Krueger, Jennifer Ruttley, George Smith, Kevin Tooher, David Renouf, David Tigwell, Alex Boyle, Robin Drodge, Peter Taggart, John & Jill Williams, Keith Larkin, Mary Thomas, Michael Sullivan, Lewis Normand, Julie & Jim Taylor, Janet Miller, Jeff Layman, Mark Robinson, Greg & Laura Plenty.

2. Introductions.

Gary Firth welcomed everyone, and asked them to briefly introduce themselves.

3. Minutes of Last Meeting.

These had been published in the May 2022 edition of Pentachondra, and were approved.

4. Matters Arising.

There had only been a few members who had switched away from paying their subscription by Paypal, (over 100 still use this method,) and there was some discussion about whether to increase the membership fee for those who still paid by Paypal. It was agreed that it would be fair to charge these members an extra £2 to cover the Paypal charges (standing orders, bank transfers, and cheques incur no charges.) Jeremy would discuss with Ben what was involved in making this change, and also investigate the possibility of taking payments by credit card on the website.

The book by Jeff Irons and the Eucaflip chart had been advertised on the website.

Little progress had been made on cooperating with other organisations on seed orders; Graham Blunt said that he would like to be involved in joint orders, and suggested Grafton Nurseries might be as well.

5. Election of Officers.

Tom Hart Dyke had said he was willing to continue as President, and the meeting agreed unanimously that he should do so. All existing members of the committee were willing to continue in post, and the meeting agreed to re-elect the committee en bloc

6. Committee Reports.

a) Treasurer's Report (Jeremy Spon)

Jeremy presented the accounts for 2022, which showed that the Society's financial position was still healthy, with income for the year comfortably exceeding expenditure, and the stand at Great Dixter Plant Fair showing a good profit. Membership was stable at 192 with several renewals outstanding but very likely to be made. There was no problem with continuing to print and mail Pentachondra.

b) Newsletter Editor's Report (Judy Clark)

Judy thanked all contributors, but noted that nobody had come forward to take on the job of editor. She said that she enjoys the editing but not the formatting. Judy and Jeremy had looked into getting a firm to take this on together with printing and mailing, but there were potential problems with changing so for the time being they had decided to continue with the current printer. Jeremy had however offered to try doing the formatting for Judy, using open access software called Scribus, so they will jointly produce the next Pentachondra. Jeremy will also set up a template so that it will be easier for someone to take over the whole job in the future.

Judy reminded the meeting that we are still selling copies of the Ross & Irons book, and the Eucaflipchart, more or less at cost to members.

c) Seed List Manager's Report

This was given by Judy on Janet Miller's behalf. 30 orders had been sent out this year; we cannot send seed to members in mainland Europe now because a phytosanitary certificate is needed for seeds sent from the UK. There are only a handful of members outside the UK, but this includes a couple in Ireland, and one in N. Ireland who is also potentially affected by this. Supply of seeds continues to become more difficult; at the moment it is still possible to get seed from suppliers inside the EU without a phytosanitary certificate, and a few people, (including Tim Darrington in France) donate seed; we would like to encourage more to do so. Jelitto Seeds in Germany have quite a few New Zealand seeds in their list, and Judy plans to order from them; we will continue to use Austrahort for Australian seed, and any suggestions for other organisations with which we could share the considerable costs of ordering from them (which include VAT and customs charges) would be very welcome.

The question was raised of how up to date the seed list on the website is. Judy said that it was not updated that often, and she would contact Ben Ram about getting this done more often.

d) Website Manager's Report (Ben Ram)

Gary had been in touch with Ben, but he has been very busy over the last year, and had not had much time to work on the website.

e) Social Media (Gill Groombridge)

Gill said she has set up an Instagram Account and needs things to post there – images of plants etc – which it was hoped members could be encouraged to send her, with some brief accompanying information. Graham Blunt gave permission for Gill to use any images from his website or Twitter account. Gill commented that while Facebook was best for members discussions, Instagram reaches a wider audience and is easier to use. It would also help her if she had an APS email address, and Ben Ram would be asked to set this up.

g) Events (Gary Firth)

Gary said that events from last year have been well documented in Pentachondra. Working with the Hebe Society is going well for both groups. The next scheduled event is a behind the scenes tour at Wisley on 20 March; an email would be sent out with detailed information shortly. Other events planned were:

Saturday 20 May – visit to Jeff Layman's garden.

Hampton Court Flower Show – A joint display by the APS and the Hebe Society. This would be a rectangular format 16 feet by 6 feet. We would need a few more volunteers to help, as 6 people are required for each day the show is open, to allow for breaks; and extra help would also be needed on the break-down weekend.

Wakehurst Place – a visit to be organised by Judy.

A visit to Judy's garden and to Alexandra Park, Hastings.

Great Dixter Plant Fair – we may apply for a stand at the October fair again.

A visit to Hyde Hall in September, organised by the Hebe Society, to which APS members are invited.

Other possible events:

Wisley Specialist Plant Societies Show – we had attended this several times, but would probably not go in 2023 due to the closeness of the date to Hampton Court.

Cornwall – Rare Plants Fair – last Sunday in May; apparently this attracts many knowledgable plant enthusiasts, but it would probably be difficult to find volunteers from the South West to help organise and staff a stand.

h) Conservation (Jude Lawton)

Jude Lawton reported that there had been little progress on the proposal for the APS to hold a Dispersed National Collection of Tasmanian endemics, but that Judy was preparing a list of the relevant plants as a first step.

Members were reminded that the extensive library of books about Australasian plants held at Lullingstone is available for all members to visit by prior arrangement.

7. Venue and Timing of Future AGMs

Gary asked for comments on the timing of the AGM; after some discussion, the consensus was that we should continue holding it in February for now, although this was not the ideal time for everyone. Tom said he was happy to host again if we

stick with February. There was also some discussion about possible alternative venues, particularly as Lullingstone is difficult for members away from the South-East. RHS gardens are a possibility; availability of a meeting room with Zoom capability would enable members to join in remotely, and Gary noted that Hyde Hall has such a room. Wisley also has appropriate facilities, but major roadworks in the vicinity might make access difficult next year. Another possiblity is Birmingham Botanic Garden. The committee would investigate these options and any others that might be suggested.

8. Any Other Business

Gary noted that like many other plant societies, we need to connect with younger people and to try to get more young people to join the committee. We have nearly £15,000 in funds, some of which could be used to encourage young people to get involved in a project, possibly conservation related, perhaps in the form of a bursary for a student. It was agreed that this should be investigated further, and Gary asked for ideas and comments to be sent to him, with a copy to Judy and Jeremy.

Gary said that we would need new posters for the Hampton Court display, and hoped that we would be able to use some of the photographs entered in the photograhic competition. One of the posters is planned to address Australasian plants and climate change.

Gary drew peoples' attention to the two plants he had taken to the meeting – Gin and Tonic plant and Albany Pitcher plant. He asked members to bring along rare or unusual plants for a display table at future AGMs .

Judy described the membership packs sent to all new members, which contain a copy of the most recent Pentachondra, the seed list, a car sticker, a packet of seeds and a Plant Guardian leaflet Judy asked for suggestions for other things to include.

Steve Harding asked for suggestions of gardens where Hebes might be reasonably hardy for future trials; Hyde Hall was a possibility, but Abbotsbury were not interested.

Steve also high-lighted the Wisley Hilltop Talks, given twice a day. These could be given on occasion by APS members, and would be good for advertising what the Society does. However, the comment was made that Wisley was poor at putting up signs/directions to the talks and therefore visitors to Wisley do not find them.

9. Conclusion

Gary thanked everyone for joining the meeting, and for their support, and also thanked Tom for hosting the AGM, and organising the food for lunch. He then declared the meeting closed, and after lunch, and the announcement of the results of the photo competition, Tom led a tour of the World Garden.

Have you moved recently? Or started using a new email address?

The Society has had a couple of cases of Pentachondra going astray. If your postal address changes please don't forget to tell membership secretary Jeremy Spon (contact details inside the back cover.) And also let him know if you have a new email address, so we can keep you up to date with news in between issues of Pentachondra.

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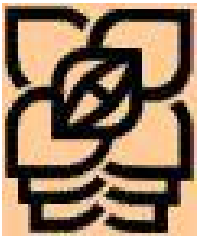
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Banksia occidentalis, winner of Category 1 of the 2022 Photo Competition, by Sean Boast