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GSG New South Wales Chapter

We gather at 9:30 am for shared morning tea and a meeting at 10:00am, BYO lunch. Note the earlier time of 9.00 am for the July meeting.

Leader: Peter Olde, p 0432 110 463 | e peter.olde@exemail.com.au

For details about the NSW chapter please contact Peter, contact via email is preferred.

Saturday, 24 June

VENUE: Peter Olde's home, 140 Russell Lane, Oakdale (10am)

TOPIC: Phillip Vaughan will address the meeting and bring plants for sale. Only GSG members attending the meeting will have access to the plant sale on Saturday. He will be selling plants on Sunday 25 June to other enthusiasts. Local groups and the main body of APS will be advised of their ability to attend the Sunday sale.

Saturday, 29 July

VENUE: At the Australian Botanic Garden Mt Annan. Meet at **9am** in the Acacia Theatre in the PlantBank building. Park in the P2 car park on Cunningham Drive adjacent to the PlantBank building or in the main car park from where it is a short walk.

Saturday, 26 August

VENUE: The home of John & Jeannette Elton, 99 Edward Wollstonecraft Lane, Coolangatta NSW

TOPIC: Selection of scion material suitable for different species.

See next page for more meetings later in the year....

GSG Victorian Chapter

*Leader: Neil Marriott, 693 Panrock Reservoir Rd, Stawell, Vic. 3380 p 0458 177 989
neil@whitegumsaustralia.com.*

GSG South Australian Chapter

*Leader: Alf Stephens, 21 Hillsdale Ave, Coromandel Valley SA
p 0418 404 408 | e alfstephens@adam.com.au*

GSG West Australian Chapter

*Leader: John Ewing, 2a Enid Rd, Kalamunda WA
p 0408 628 781 | e jrewing45@gmail.com*

GSG SE Queensland Chapter

We gather at 9:30am for shared morning tea and a meeting at 10:00am. We usually have a BYO lunch about midday. Visitors are always welcome. For more info or to check venues etc please contact: Ross Reddick on 0405 510 459 or Denis Cox on (07) 5546 8590 as changes can occur.

Sunday, 25 June

VENUE: Home of Alan Lee, Tamborine Village

TOPIC: Interstock grafting

Sunday, 27 August

VENUE: Home of Alistair Barros, Pullenvale

TOPIC: Fertilizers for various soil types

A FEW WORDS FROM PETER

Peter Olde, NSW

I have received notice from Western Australia that another new species has been discovered. The species is related to *Grevillea acropogon*. Genetic testing has confirmed its status but the formal description has not yet been finalised. The discovery of new species continues apace and currently runs around one per annum in Western Australia. However, we should not ignore the other states and I can confidently assert that there are plenty more to be recognised in the east as well as in South Australia and the Northern Territory. I maintain an up to date list of the recognised species and record the changes as they are made. Currently there are 399 *Grevillea* species, a number that includes several species re-ranked from subspecies to species. I am confident that in the next few years the number will exceed 500.

I was very pleased to accept an invitation to the GSG meeting in Queensland a few weeks ago and was escorted by Helen Howard who unselfishly agreed to drive me around. We visited Nielsen’s Nursery, and the home nursery of Allan Lee in Brisbane as well as the home of Jim and the late Fran Standing at Mt. Clunie where there is a

thriving collection of many species. The following day was spent on the Lowood Rail Trail and at the nursery/home of Pete Bevan where I met several more enthusiasts including Peter’s daughter and son.

Anyone can walk along the Trail which starts in the township of Lowood and extends several km from there. A range of well-grown and colourful natives awaits the visitor and I urge all of you to prioritise a trip there one day. Spring is best.

In New South Wales we have arranged an exciting programme for the remainder of this year. Hopefully the programme will attract more people than turned up at the last meeting. I really find it difficult to maintain enthusiasm when members only selectively support the programme. Chris Cheetham went to much trouble to put it together and also arranged a very interesting short field trip afterwards. We examined one population of *G. juniperina* that does not seem at all typical. More on that later. We also visited Scheyville NP and walked along a track where several species of *Grevillea* were found, including a subprostrate form of *G. speciosa*.

GSG NSW Meetings for the rest of 2023

Saturday, 30 September 2023

VENUE: Boongala Gardens, the home of Malcolm & Jenny Johnston, 76 Pitt Town Rd Kenthurst
TOPIC: TBA, plus garden tour.

28/29 October 2023

VENUE: Richard Tomkin at Oakdale
TOPIC: TBA

Saturday, 25 November 2023

VENUE: Christmas meeting at the home of Tony Sexton, 26 Crana Road, Brownlow Hill (Camden)
TOPIC: TBA



Illawarra Grevillea Park

NEXT OPEN DAYS – AUTUMN 2023

July 1,2, 8, 9

Opening hrs are 10am – 4pm

Location

The Park is located at the rear of Bulli Showground, Princess Highway, Bulli.

Admission

\$7 adults, children with adults are free

email Illawarragrevilleapark@gmail.com or visit Illawarragrevilleapark.com.au

SE QLD STUDY GROUP MEETING, SUNDAY 30 APRIL 2023

R. Reddick, Qld

Location: 10 Patrick Street, Lowood Pete's Hobby Nursery & home of Peter & Carol Bevan

Denis welcomed all 27 members & visitors, and noted 12 apologies, as per attendance book. He thanked Peter & Carol for hosting and moved a vote of thanks for Peter's hosting the BBQ last evening. He also welcomed Peter Olde, who had flown from Sydney for the 'working bee' held on Saturday on the planting on the Brisbane Valley Rail Trail, & to our April meeting.

The working bee involved identifying and labelling Grevilleas on the 'town section' of the trail; ie the approx. 1km section of native planting, originated by Peter Bevan, to beautify the trail and for which there is growing support from his Local Government and appreciation from the many trail users; care needed to avoid collisions with cyclists using the trail.

General Business

- We are indebted to Helen Howard who performed the 'taxiing' of Peter Olde, pick-up at the airport, drive to Mt Clunie for the Mt Clunie gardens, then to Lowood for the working bee & meeting, then returning Peter to family in Brisbane.
- Also thanks to Jim Standing – accommodation at Mt Clunie, Peter Bevan – accommodation at Lowood, & Chris Reddick for meals at Mt Clunie.
- Mt Coot-tha Botanic Gardens: Any thoughts on how to improve the 'Grevillea Garden'? Ross to formulate a letter to Brian Cooney, curator of Grevillea gardens, for a delegation of our members to meet with him to discuss options for improving the display of 'Species' Grevilleas.

After the meeting, people dispersed in all directions to see and photograph their favourite part of the garden.

Discussion topic: Pruning- Tip pruning vs heavy pruning.

Plants respond differently to fires, pruning, weather, geology, etc. Some produce epicormic growth (shooting in bark along trunk or branch); such as by fire; some rely on a lignotuber as a protection against destruction of the plant stem, such as by fire.

Foliage – how much? Depends on time of year; heavy pruning to be done in warmer months, and not in drought; knee-capping suits some varieties-e.g. *G. 'Moonlight'*, *G. 'Peaches & Cream'* are OK, but check for soil moisture; generally, water well after pruning, especially *G. majestic*.

Use fertiliser, e.g. Bush Tucker, Katek, etc, after a prune. Light tip pruning means, back to active branches, to 1/3 of last year's growth; *G. flexuosa* 'goes nuts' after this type of prune and *G. fililoba* does well. Hedge trimming suits *G. stenomera*, *G. speciosa* & *G. 'Ellendale'*.

The Rail Trail Garden and nursery tour followed.

This photo, taken on the Rail Trail, appeared in the local Lowood newspaper with an article by West Morton Landcare.



GSG members on the Rail Trail

*G. 'Orange Wow'* on the Rail Trail*G. pteridifolia* low form

NSW STUDY GROUP MEETING, SATURDAY 6 MAY 2023

C. Guthrie, NSW

Location: Hawkesbury Community Nursery, 10 Mulgrave Road, Mulgrave

The meeting opened at 10.30 am attended by 12 members. The minutes of the meeting held 26 March 2023 were approved and accepted unanimously. Peter and Christine will now attend St George Bank to finalise formalities to enable the new account to be established, after minutes of meeting on 6 May have been distributed

President's Report

There was discussion about dates and venues for future meetings for 2023.

Possible venues for 2024:

- Peter to contact Tony Sexton about hosting a meeting at his home in Camden.
- Michael Sproule at Maroota - yes but to be checked first
- Hunter Region Botanic Gardens yes, subject to final approval from Kevin
- Neil Marriott (visit) at Oakdale
- Tricketts at Little Forest
- Ian Cox at Kenthurst
- Burrendong Arboretum

We need to introduce a subject for each meeting, although some are self-evident. General horticultural subjects include pruning, grafting, fertilising, mulch, plant management, landscaping, cuttings and seed, basic creation of garden, planting protocols, pest spraying, weed management, animal management (rabbits, goat, kangaroo/deer etc) regimes, suitable plants for purpose (small for courtyards, screen plants, hedging plants etc),

new publications, garden hybrids - new introductions, how to do your own, bird attraction vs insect pollination. The following local species could be a topic worthy of study: *G. arenaria*, *G. buxifolia*, *G. juniperina*, *G. oleoides*, *G. mucronulata*, *G. parviflora*, *G. speciosa*.

Peter attended a weekend's activities with the SE Qld chapter of the GSG 29-30 April. It was at Pete's Hobby Nursery in Lowood. Peter reported that he saw lots of very interesting grevilleas and he helped identify plants on the Lowood rail trail where there was a working bee.

Report by Chris Cheetham on Hawkesbury Community Nursery

Hawkesbury Community Nursery is open to the public on Wednesdays from 9am to 1pm or by appointment and on the 1st Saturday of the month from 9am to midday. The nursery is run by the council and community nursery volunteers grow the plants. Over 150 native plant species are available for purchase. Plants are supplied for projects all over the greater Sydney area. The plants are all native to the Hawkesbury area, ranging from trees, shrubs and groundcovers to grasses, sedges and climbers. The emphasis is on local provenance.

Chris is a long term volunteer, collecting and experimenting with propagation of many unusual and rare local species, including different forms of grevilleas such as *Grevillea arenaria*, *G. mucronulata*, *G. sericea* and *G. buxifolia*. GSG members were able to purchase a range of plants including many of those propagated by Chris.

Following a brief lunch, Chris led a field trip to four locations looking at different populations of unusual local grevillea species.

POSSIBLE DISCUSSION TOPICS FOR FUTURE NSW MEETINGS

P. Olde & J. Elton, NSW

We've been looking at grafting for a while but have mainly dealt with the mechanics of grafting. But there is so much more eg how to select the best scion material or how to select the right bit for an interstock. How important is matching both sides of the graft when using an interstock? How long is the interstock? Do you leave leaves on? Do you need buds- if so, how many? Is it best to do mummy grafts when using an interstock? Re selecting scions- what is the ideal? Are there any tricks if the material is less than ideal – misting, mummy, being more careful to make an exact match? What material is unlikely to take?

What views are there on when grafts take best – for some it's always before Christmas for everything except *G. 'Elegance'* and *G. johnsonii*- not sure why? These things may sound simple but can still be puzzling, so others may be in the same boat.

Members should be seeking more compatible rootstocks. We need a relational database with every species/subspecies listed and in succeeding fields references to grafting experiences. Anyone want to take it on?

GREVILLEA JUNIPERINA

P. Olde, NSW

Following the recent study group meeting at the Hawkesbury Community Nursery, a short field trip was undertaken to Scheyville NP and other selected spots identified by Chris Cheetham. On the verge outside the National Park, we encountered a hybrid (probably *G. mucronulata* x *G. juniperina*) that we looked at carefully. Not very attractive unfortunately. We then undertook a relatively long walk into Scheyville NP where we saw a beautiful population of *G. juniperina* and further along a single plant of a low, low, low-growing form of *G. speciosa* (not in flower). We also encountered scattered plants of *G. mucronulata*. At a site near Vineyard, we also examined a very different form of *G. juniperina*. This form has been identified by the NSW herbarium (not me) as *G. juniperina* subsp. *trinervis*. It differs from *G. juniperina* in its leaf characters and in its red flowers. This population is endangered by proposed road works.



G. juniperina flower and fruit at Bandon Rd, Vineyard



G. juniperina habit at Bandon Rd, Vineyard

I had a look at the Flora of Australia treatment of *G. juniperina*. I am sorry to say I cannot agree with it and suggest that many of the taxa treated should be species, and in some cases, more narrowly delimited, especially ssp. *sulphurea*. The red-flowered population at Vineyard also does not look like subsp. *juniperina* which is alleged to occupy the whole of the Sydney region. No other subspecies or species is presumed to be present. Chris Cheetham, who discovered this population, has written:

“I have just had an idea of how to preserve that *Grevillea* I showed you on Saturday. What I will do is more or less the same as my method of preserving the gene pool of *Grevillea arenaria*.

Step one will be to collect propagating material from all accessible plants and number them in the process as well as record their original location on the site.

Step two will be to strike this cutting material and grow it in the nursery.

From these I will select the best representatives of each number and use them as stock plants from which I can produce more plants. These will then be planted in gardens and revegetation sites and be available for future conservation, research and distribution to those who may be interested in acquiring this species.”

GREVILLEA ROSMARINIFOLIA AT HARTLEY, NSW

Recently, Merle Thompson requested a photo of *G. rosmarinifolia* which was taken when the study group found a couple of plants of the type at Hartley. The photo was for an article Merle was writing for her village magazine. She is on the editorial committee and generally has an item in each issue.

Peter's response:

I am attaching a photo of the plant of *G. rosmarinifolia* rediscovered after almost 200 years at Hartley. Actually, we found two plants. Subsequent to this discovery a small population was discovered at Hyde Park Reserve, Hartley, beside the Lette river. In more recent times several populations have been rediscovered. A large population was located by Chris Cheetham beside the Great Western Highway. A small one was discovered by both Chris and me north of the highway on public and private land.



Grevillea rosmarinifolia

POSSIBLE NEW LOCATION FOR GREVILLEA ERYNGIODES

Fred Hort, WA

In March 2023 Jean and I recorded what we think is a new location of *G. eryngioides* at Charles Gardner NR, South Tammin: -31.7821 117.4836. It's obviously not flowering but with old fruit. We counted 10 plants, on compact grey sand. Here the Tamma scrub had been rolled and burned in stages about 2-3 years ago. With the dense Allocasuarina thickets tamed somewhat, the environment now has allowed some amazing heath to flourish.



Grevillea eryngioides

SUTHERLAND SHIRE GREVILLEAS

P. Olde, NSW

There are c. 110 recognised *Grevillea* species in NSW, assuming we recognise all subspecies as narrowly distinct species. The latest two recognised were described only last year: *Grevillea milleriana* and *G. gilmourii*, the former residing relatively close by at Maddens Plains. There is at least one NSW *Grevillea* species that is extinct: *G. divaricata*. This red-flowered species was collected by Allan Cunningham in April and June 1823 on his journey to and back from the Liverpool Plains. Of the 400 known species

of *Grevillea* (heading towards 500), Sutherland Shire can lay claim to only 9, two of them endemic: *G. diffusa* ssp. *diffusa* and *G. diffusa* ssp. *constablei*. The species that occur here are *G. buxifolia* ssp. *buxifolia*, *G. diffusa* (2, maybe 3), *G. longifolia*, *G. mucronulata*, *G. oleoides*, *G. patulifolia*, *G. sericea* ssp. *sericea* and *G. sphacelata*. It is possible also that *G. patulifolia* from the Heathcote NP actually represents a distinct new species but that is a matter for further investigation.

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There are also a few species in adjacent shires or LGAs.



G. patulifolia at Heathcote

The increase in recognition of subspecies as species results from a fundamental change in taxonomic approach favouring the Phylogenetic Species Concept philosophy (PSC) above the Biological Species Concept philosophy (BSC) under which the genus *Grevillea* was revised by the late Don McGillivray (1935-2012). Under that approach many recognised taxa were seen as subspecies, forms or races because of their close morphological approach to each other. Species were recognised by their failure to interbreed when growing together. The problem comes from genetic investigation which shows widespread genetic introgression between supposedly reproductively isolated species, even though sometimes there is little detectable morphological change. Further, failure to interbreed alone cannot be proved scientifically because most species do not grow together. Thus, although BSC philosophy is cited, the actual recognition of separate species relies on morphological difference. In the case of *Grevillea*, over 100 subspecies have been recognised that are fully but narrowly distinct from the nomotypical species. Other problems include the fact that some species also propagate themselves asexually (i.e. by root-sucker). They do not interbreed because they cannot. The major problem though is that the BSC philosophy does not address the problem of species as evolutionary units, that they have a genealogy with living, extinct and ancestral relatives. Under the BSC, species are.

On the other hand, the PSC sees species as units of evolution and sees population-based consistent difference as evidence of species formation. Small differences mean something if they have spread into a population. Species are thus defined as an irreducible group whose members are descended from a common ancestor and who all possess a combination of certain defining, or derived, traits. A phylogenetic species is a population having a shared and unique evolutionary history. Nevertheless, we still usually circumscribe it the same way, using

morphological discontinuity. What then is the difference between a subspecies and a narrowly distinct species? Well most *Grevillea* subspecies are good phylogenetic species. They are less restrictive than the 'biological' species, in that breeding between members of different species is not a defining dictum. Also, it permits successive species to be defined even if they have evolved in an unbroken line of descent, with continuity of sexual fertility. However, because slight differences can be found among virtually any group of organisms, the concept tends to encourage division of species into ever-smaller groups.

Today we have the tools to reconstruct evolutionary history. We can separate a plant's genes from its morphology. DNA from a species can be extracted and processed such that it can be sequenced genetically and the results processed to reconstruct an evolutionary tree or dendrogram, with living species at the tips and the interconnecting branches representing ancestral history. This fantastic development can yield some surprising but always interesting stories about evolutionary history and relationships. Not only that we can add other information to the tree e.g pollen from Proteaceae of known age, and we construct a chronogram or time-line across the tree. We can thus date the evolutionary history of a species, trace its lineage back to when it evolved.

Grevillea species in Sutherland Shire

***Grevillea buxifolia*.** This species is fairly widespread around Sydney and, in its narrowest morphological sense, reaches its southern limit in the Royal National Park. I have not seen it further south but it may be there. It occurs further to the west in the Wedderburn area around O'Hare's Creek in Dharawal National Park. It is or was common in Royal National Park, and the Menai-Illawong area and along Heathcote Rd. The little appendage that sits on the style-end was quite small on the Menai specimens. Of course, it is widespread further to the north of Sydney and extends up to the Gosford area. It is a robust species. Some of its major defining features include its thickened style-end, an extensive beard of glandular hair on the ventral surface of the style just below the pollen-presenter, its elongate style (15–)16–25 mm long, and its box-like leaves with an open two-state indumentum on the undersurface. The species is pollinated naturally by carpet bees but the introduced honey bee is a major contributor to successful pollination today.

Other populations worthy of comment are

1. a small population (5–10 plants only) with longer, oblong leaves and more compressed style-end around Pigeon House. This will probably be recognised as a separate rare species.

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2. a population with shorter pistils (15–16 mm long vs the average around 20–23 mm long) north of the Hawkesbury and extending west to Wiseman's Ferry, Maraylaya etc. The differences from *G. buxifolia* are subtle.
3. a population north of Wiseman's Ferry with oblong-linear leaves.
4. a small-flowered population (pistils 9–12 mm long) near Somersby. Probably a new species.

***Grevillea capitellata*.** Restricted to the far S of the Sydney Basin and northern Illawarra, between Cordeaux Dam, ?Cataract Dam, Bulli and Mt Ousley. Grows in poorly drained depressions, swamp margins, or moist rock pockets in pavement, in sandy soils over sandstone or pebbly ironstone. Differs from *G. diffusa* in its leaves which have a two-state indumentum of underlying \pm appressed hairs with emergent longer often darker hairs giving a subvillous appearance.

***Grevillea diffusa* ssp. *diffusa*.** Widespread along Heathcote Rd and in the Campbelltown area to Picton Rd. It generally has greyish leaves and is a mounded divaricate shrub to c. 50 cm high. Possibly pollinated by small nectar-feeding birds but more probably by bees. *G. diffusa* and relatives have a tight globose inflorescence. It was discovered by Robert Brown on his journey with George Caley in October 1803 along the Cowpastures Rd at around Kemps Creek.

***Grevillea diffusa* ssp. *Constable*.** Restricted to Royal National Park south to Helensburgh and in Heathcote NP where it intergrades with ssp. *diffusa* along the track to Lake Eckersley. It is a generally taller shrub to 2 m and has red or black-red flowers. Pistils range from 6–10 mm long.

***Grevillea* sp. aff. *diffusa*.** Along Bungoona Track, north of Audley, RNP; at Swallow Rock Grays Point and in RNP opposite that waterway there is a plant with longer pistils consistently measuring 13 mm long. The plants do not appear to be hybrids. I think it is a distinct undescribed species. On the other hand, there are hybrids elsewhere (e.g. near Audley ranger's cottage) between *G. sericea* and *G. diffusa* ssp. *constablei*. These need to be differentiated first.

***Grevillea longifolia*.** There are no taxonomic issues with this species which has reduced its range markedly. It once lined the creeks around Burwood and Gladesville. However, it is quite strong in Royal NP and further west around Kings Fall, Appin. The main issue seems to be differentiating it from *G. aspleniifolia* which has an indumentum of curled hairs on the leaf undersurface and purple styles. *G. longifolia* has appressed straight hairs on the leaf undersurface and pink to yellow styles.

***Grevillea mucronulata*.** A species in serious need of revision. Sutherland Shire is towards the northern end of its distribution which extends to the Singleton area and the Rylstone to Denman area. It grows S to Mittagong, with disjunct populations on the S coast at Mossy Point and between Moruya and Eden. It grows in dry sclerophyll forest, in sand to clay soils over sandstone and shale or rarely granite. Very variable in leaf shape and pistil length.

The name was co-published in 1810 by Robert Brown with *G. cinerea* from the Grose River area, *G. acuminata* from the Newcastle area. Bentham subsequently selected the name *G. mucronulata* under which name he subsumed *G. attenuata*, *G. acuminata*, and *G. myrtacea* (a form with pointy ovate leaves from the Blue Mountains). The name *G. cinerea* was maintained by the NSW herbarium into the 1970s alongside *G. mucronulata*.

One of the problems with the name *G. mucronulata* is its priority above *G. podalyriifolia* Knight which was published a year earlier (1809) and has been treated by McGillivray as a name of uncertain application. Personally, I do not agree with this. Robert Brown himself pointed out its conspecificity with *G. mucronulata*. Nobody likes name changes but priority is king.

***Grevillea oleoides*.** There are many forms and at least two different methods of fire response. One is a robust shrub that is killed by fire; the other is root-suckering. The latter occurs in high heaths around Heathcote. There is a white-flowered form. It was found along Picton Rd. A form with beautiful pink flowers from Avon River was recognised by Olde & Marriott (1995). It is a low suckering shrub. There is also a disjunct rhizomatous form in the Blue Mountains near Leura. This species, which does not extend north of Sydney Harbour, is being reviewed taxonomically with a view to recognising some of these variants.



G. oleoides white

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Grevillea parviflora. In its strict interpretation, *G. parviflora* does not occur in the Sutherland Shire but is present in transitional soils around Meadowbank, where it is under heavy pressure from urbanisation, at Voyager Point, East Hills and at Kemps Creek, near to where the type specimen was collected. It is much more common to the south-west around Tahmoor and south-west along the old Hume Highway at Bargo and Wirrimbirra. It is listed as Vulnerable but I have separated a tall seed-obligate shrub 2–3 m high in the area between Wilton, Wedderburn and Campbelltown as a separate species as yet unnamed. *G. parviflora* is a low-growing suckering shrub with tiny white flowers and fine linear leaves.

Grevillea patulifolia. McGillivray lumped this under *G. parviflora* but Olde & Marriott reinstated it. Its most northerly population is at Heathcote NP and along the old Princes Highway near Garrawarra, although it is difficult to find there now. The type of *G. patulifolia* is probably a root-suckering shrub and was collected at Barbers Creek, in an area known now as Tallong (towards Canberra). Several searches have failed to find the populations from which the type was collected but similar populations nearby are all root-suckering. Recently I was able to observe the plants at Heathcote and they were all seed-obligate. I actually think now that it could be an undescribed new species.

Grevillea sericea* subsp. *sericea. If generative mode is an important taxonomic character then *G. sericea* can be divided into 4 species, including a root-suckering form that occurs in the Blue Mountains from Mulgoa to Leura, a small-leaved seed-obligate form from Lees Pinch on the western side of the Blue Mountains and a strongly root-suckering population from near Scone. The Sydney plants uniformly are killed by fire and are apparently insect-pollinated.

Grevillea sphacelata. In 1986 *G. sphacelata* was included as subspecies of *G. buxifolia* by McGillivray (1986). The subordination was challenged by Olde & Marriott in 1993 using the concepts of the BCI itself, which holds that plants growing together and not interbreeding are species. *G. sphacelata* is a widespread, reasonably uniform species that grows sympatrically with *G. buxifolia* over a wide area of its extensive range. A form from the south coast, described by Gandoger (1919) as *G. scabrifolia*, but with slight morphological differences should also be separately recognised. It has been genetically tested and warrants reinstatement as a separate species.

Grevilleas in adjoining suburbs

- G. acanthifolia* (Blue Mountains)
- G. aspleniifolia* (Woronora plateau, Nattai, Hilltop, Yerranderie)
- G. laurifolia* subsp. *laurifolia* (Blue Mountains)
- G. laurifolia* subsp. *caleyana* (Blue Mountains)

- G. milleriana* (Maddens Plains)
- G. capitellata* (Illawarra)
- G. parviflora* Dharawal NP
- G. phyllicoides* (Blue Mountains)
- G. juniperina* (Holroyd)
- G. arenaria* (Richmond)
- G. baueri* subsp. *baueri* (Wollondilly)
- G. asperula* (*baueri* ssp. *asperula*)
- G. ferruginea* (Wollondilly)
- G. milleriana* (Illawarra)



G. arenaria



G. ferruginea

Grevilleas on the North Shore:

- G. buxifolia*
- G. caleyi*
- G. linearifolia*
- G. mucronulata*
- G. speciosa*
- G. sericea*

A NEW SPECIES IN *GREVILLEA WHITEANA*?

P. Olde, NSW

I have been reviewing the *Pteridifolia* Group *sensu* Flora of Australia under a phylogenetic species concept (PSC). Rather than group morphologically similar populations as a single species, the PSC seeks to examine the evolutionary journey of these populations. Cracraft (1983) defined the phylogenetic species as the 'the smallest diagnosable cluster of individual organisms within which there is a parental pattern of ancestry and descent'. This suggests that phylogenetic analysis cannot properly test broadly circumscribed species. Most of the currently recognised subspecies in *Grevillea* are fully diagnosable and should be recognised as distinct, closely related species rather than as subordinated populations of some species or other with say, similar flowers.

Grevillea hodgei Olde & Marriott has already been delimited from *G. whiteana* McGill. I personally believe that recognition of this species is totally appropriate but the Flora writer commented that in his opinion, it is 'barely distinct at species level'. We have to tolerate this sort of comment with a smile.

Now I am looking harder at *G. whiteana*. There seem to me to be two taxa here. Supporting the PSC, De Quieroz (2007) advocated for species recognition using multiple lines of evidence. The typical form of *G. whiteana* from Mundubbera is a seed-obligate shrub that grows to c. 3–4 m high. It occurs in sandstone derived sand in woodland associations. Plants from the Biggenden-Mount Walsh are lignotuberous and grow often to 6 m high and occur on volcanic soils in open areas which they dominate. McGillivray (1993) also points out that these plants have longer common bracts than the Mundubbera plants. Separate recognition for the Biggenden-Mt Walsh plants is being considered because they are diagnosably different on several lines of evidence, albeit closely related.

Do you have any comments to make regarding the differences put forward here?

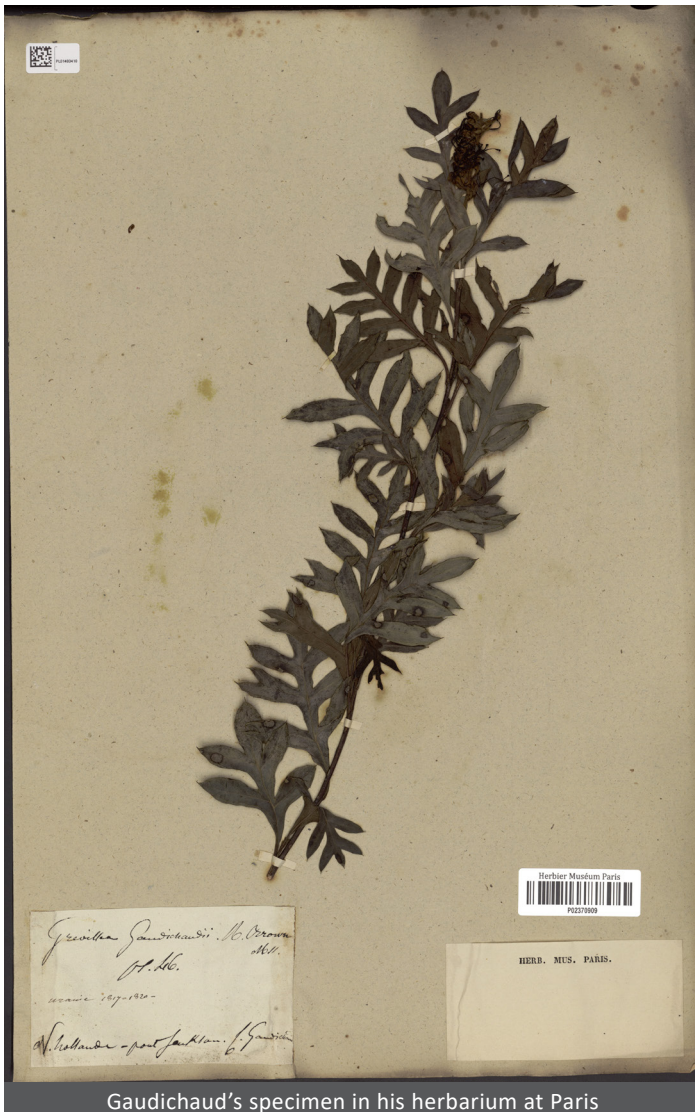
*G. whiteana* habitat*G. whiteana* flower

NATURAL HYBRIDS AND THE PROBLEMS THAT ARISE: *GREVILLEA GAUDICHAUDII* EXAMINED

P. Olde, NSW

G. gaudichaudii R.Br. ex Gaudichaud was discovered by Charles Gaudichaud-Beaupré (1789–1854), during 'An Excursion to the Town of Bathurst' by a small party from Freycinet's voyage (1817–1820) travelling on the invitation of Governor Lachlan Macquarie. The voyage, comprising the ships *Uranie* and *Physicienne*, had called at Port Jackson in 1819. The expeditionary party were crew members René Quoy (1790–1869) surgeon-zoologist, J. Alphonse Pellion (1796–1868) midshipman, artist and Gaudichaud. For an interesting and full account see Mackness 1965 (11: 6). They set out from Regentville, the property of Sir John Jamison, on November 29, returning December 7 1819. Although Gaudichaud has many *Grevillea* species in his herbarium at Paris, (at least one of them communicated to him by Fraser), only two collections can be attributed to him with certainty on the journey to Bathurst: *G. gaudichaudii* (obviously then unnamed) and *G. acanthifolia*, which was growing sympatrically.

On his return to Europe, Gaudichaud sent a piece of his mystery specimen to Robert Brown in England who indicated that he would call it *G. gaudichaudii*. Brown obviously thought it was a new species and he proposed to publish it in his forthcoming supplementary publication on the Proteaceae along with numerous other undescribed new species that had accumulated since his publications in 1810. Specimens from William Baxter, George Caley, Franz Sieber, Allan Cunningham and Charles Fraser all vied for his attention.



Gaudichaud's specimen in his herbarium at Paris



Charles Gaudichaud-Beaupré

Gaudichaud had other ideas. As the appointed botanist to Freycinet's voyage which had travelled all over the world, he was preparing a considerable botanical treatise in which all the new taxa he had discovered or collected were described or listed. Thus, Gaudichaud's description of *G. gaudichaudii* formed part of the botanical report of the Freycinet voyage in the *Uranie* (see reference below). The first parts of this work appeared in 1826. According to Stafleu and Cowan, (Art.1968: P. 922) the work appeared in 12 parts between 1826 and 1830 and was accompanied by illustrations and atlases. An illustration of *G. gaudichaudii* (Tab. 46) appeared in the fifth part in 1827 with the eponymous epithet. An illustration does not constitute a proper description but can be cited as a type in the absence of a botanical specimen.

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Gaudichaud's description appeared in the 11th part, issued in November 1829, just months before Brown's publication in 1830.

Thus, Gaudichaud's description has priority and, although it might seem that he named the plant after himself, it was Brown who had decided on the epithet. Gaudichaud acknowledged Brown's manuscript name in the text but not his description. I conclude therefore that Gaudichaud's description is entirely original. If Brown had earlier given him a copy of his descriptive text, which Gaudichaud then copied, then either Brown or Gaudichaud must have changed it because the two descriptions, though similar, are definitely not the same. Brown's is far more detailed and I doubt that Gaudichaud would have reverted to a more basic account after he had seen it. Brown must have been greatly peeved at the publication because in so doing Gaudichaud had usurped the priority of Brown's description unto himself. Priority was a sore point with Brown.

To continue with this slightly extraneous discussion, Brown (1830: 22) eventually published his own description of *G. gaudichaudii*. There he placed Gaudichaud's description in synonymy, even though it clearly had priority. Not only that but he indicated that he was the authority, not Gaudichaud. He was ultimately unsuccessful in that, I might add, but many followed Brown afterwards including Bentham, who thereby implied that Gaudichaud must have used Brown's text. For a man who demonstrated sensitivity to the priority of publication as early as 1805, Brown, not for the first time, was demonstrating a certain anglocentric arrogance and hypocrisy. He had already in 1810 treated the Spanish botanist Cavanilles' priority descriptions with disdain by referring them all to synonymy, some justifiably and others not (e.g. *Embothrium linearefolium*). The histrionics over Richard Salisbury's and Joseph Knight's priority descriptions of a few cultivated *Grevillea* species in 1809, which may or may not have been deliberate, was blown up into the defining moment of 19th Century botanical history (see *The Grevillea Book Vol.1*). Salisbury never published again. Yet here is the most important botanist of his time willing to install his own post-dated description of *G. gaudichaudii* above that of a perceived more lowly Frenchman. Only Brown's descriptions mattered to Brown.

Interestingly, Brown, also cited an undated collection which had been gathered by Allan Cunningham and determined by him (A.C.) as *G. acanthifolia* var. *quercifolia* (BM915607). The label data, in Brown's hand, states that it occurs 'in spongy bogs on the Blue Mountains where it assumes a sub-procumbent habit.' However, it seems Cunningham's collection was gathered much later than Gaudichaud's. Cunningham described *G. acanthifolia* in 1825 and made no mention of the variety. I assume therefore that it was collected by Cunningham after this date on one of his subsequent journeys over the mountains, of which there were many, and not in 1817 when he accompanied Oxley. Cunningham's 1817 diary, admittedly abbreviated,

was published by Ida Lee (1925) but var. *quercifolia* is not mentioned in the text. Such a collection would have predated Gaudichaud's and attributed its discovery to Cunningham. In the end, Brown based his description on Gaudichaud's specimen and did not mention Cunningham's except as a synonym. Bentham (1870: 438) also provided a description of *G. gaudichaudii* which appears to have been based on three specimens (those collected by Gaudichaud, Cunningham and Charles Fraser). The latter specimen, I suspect, is at Kew but is inaccessible online.

New collections of *G. gaudichaudii* continued to be made. Maiden & Betche (1904) discussed its spotty distribution. By then it had been collected at Wentworth Falls (Camfield, October 1896) and at Katoomba (Forsyth, November 1904) as well as Jamison Valley. Maiden noted that 'Bentham had only seen herbarium specimens and had 'assumed too much' when describing it as an 'erect shrub'.

For nearly 100 years *G. gaudichaudii* was thought to be a true species. However, in 1927 doubts began to emerge after a paper was published on the subject by Musson and Fletcher, which is mainly an account of the observations of J.J. Fletcher (1850–1926), a member and former president of the Linnean Society of New South Wales. Fletcher's original paper, as noted in the contents of Volume 38: 449 (1913), was never published, for editorial reasons it seems. So we waited another 14 years to 1927 by which time Fletcher had died.



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In Musson & Fletcher's paper, Fletcher contended (I have selectively paraphrased), with many facts, much detail and a large range of specimens, that *G. gaudichaudii* R.Br. consists of a series of transitional forms between *G. laurifolia* and *G. acanthifolia*; that the entire series known as *G. gaudichaudii* is a series of variable naturally related forms, explainable only as being hybrids between the two other species mentioned...that the conditions favouring cross-pollination arise only at or close to the boundary between their respective habitats and consequently they are usually found in company with one or the other, or both the parent species.... It is furthermore stated that 'they are the first Australian, Proteaceous, wild hybrids recorded. They are not infertile but they rarely reproduce themselves'.

Musson & Fletcher also concluded that Gaudichaud could not have collected *G. gaudichaudii* in the Jamison Valley as stated. At the time and for many years after, the valley itself was inaccessible. They argue that he probably collected it near or on the new road across the mountains, possibly near where Charles Darwin visited in 1844. 'What he means, we may fairly well conclude, was the little valley and its tiny rill of water visited by C. Darwin. It seems quite probable that Gaudichaud, when at The Weatherboard, the early name for Wentworth Falls, on his way to Bathurst, took advantage of the short time at his disposal to take one walk...' The isolectotype label states that it was collected between the second depot and that valley.' Gaudichaud also collected *G. acanthifolia* at the site (P02310443) but did not mention *G. laurifolia*.

Musson & Fletcher also pointed out that the three descriptions of *G. gaudichaudii* then known (Gaudichaud, Brown and Bentham) all differed on significant points and are clearly based on different specimens. They conclude that the descriptions are not based on a species-like taxon with relatively fixed characters but rather 'fill places in a graded series between the parents'.

This paper also has very detailed observations on the morphology of all taxa, especially flower colour. They instance seven populations (some as few as one plant), studied between Blackheath and Wentworth Falls involving what is now *G. laurifolia* subsp. *caleyana*. Historical collections at the NSW herbarium indicate a plant also once occurred at Woodford (Miss Bowden, 1948). This must have involved *G. laurifolia* subsp. *laurifolia* as pod parent but with long-distance pollination from *G. acanthifolia* the nearest population of which occurs some 8 km to the west at Wentworth Falls.

By way of criticism, Musson and Fletcher make no comment on the connection between habitat disturbance and the occurrence of natural hybrids. They did not click to the obvious fact that the hybrids are almost exclusively the result of habitat disturbance (road or other) and as such

they do not result from random purely wild occurrence.

A careful analysis of *G. gaudichaudii* was subsequently published by McLuckie (1930). Thereafter its hybrid nature was agreed among botanists. *G. gaudichaudii* can still be found in variable populations today. I know of two, one of them quite extensive. To be clear, I am not advocating for its recognition as a species, even though it is still around after 200 years, and even though gene sharing between species is recognised in evolutionary theory as contributing to new species. We'll see what happens in the next million years.

The two locations known to me now are Clarence and along the back road to Hartley.

The natural prostrate hybrid *G. gaudichaudii* has been cultivated in Australia since at least 1970 (Austraflora 1970: 11), although it is believed that the Sydney nurseryman, Sid Cadwell (1911–1995), who did not produce sale catalogues, sold it before that time, probably introducing, in the 1960s, the form widely grown today.

The cultivated plants usually take their form from a single plant which has been propagated over and over. This is the plant that can be regarded as the horticultural type of *G. gaudichaudii*. It is not the same as the botanical type, a picture of which is included here, and which is very different. In recent years, after the wild location was revealed, some nurserymen thought it might be a good idea to go recollect specimens from the different plants in the wild population.



G. gaudichaudii, botanical type

This was all fine until they began selling them as *G. gaudichaudii* instead of labelling each collection with a different name. There was technically nothing wrong with their actions because they resorted to the botanical argument that polymorphisms can be expected in a natural hybrid. However, the horticultural trade, of which they are members, was destabilised. Different plants with the same name.

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A similar kind of problem exists throughout the nursery trade. In this case, the same plant with different names (I know of one cultivar (*Grevillea* 'Long John') with four different names. I have even seen all four for sale at a nursery at the same time). The horticultural and botanical concepts should not be confounded because they can be very different. Fortunately, these new collections of *G. gaudichaudii* have not persisted and the industry still mainly sells the standard form under this name. I am however noticing some differences in flower colour, some with pink styles and others with a deep pink-red. This is one rabbit hole that I am not going down.

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BARRY TEAGUE – WHAT A GREAT MAN

N. Marriott, Vic

At an Easter working bee at our Grampians property around 10 years ago, I first met Barry Teague as a member of the Grevillea Study Group. Barry came down from Swan Hill and worked tirelessly for days helping out with the heaviest jobs. Barry was older than most other attendees, but being an ex-farmer he knew the meaning of a hard day's work, and set a standard that most of us struggled to emulate! But Barry was also hungry for knowledge, and so enthusiastic for research into our native plants –he loved the camaraderie of these get togethers and the knowledge that was shared amongst those attending.

At that first meeting we discussed all the latest research into the genus *Grevillea*, and one of the topics was the proposal to lump *Hakea* in with *Grevillea* to create a super genus. As a result, I was keen to establish a large collection of *Hakea* species, just in case this eventuated. Barry told me that he propagated a large range of *Hakeas*, mostly Western Australian, and that he would love to help me establish my collection. Later that year Barry, on his way to Western Australia with his wife Elva, dropped in and delivered a wonderful collection of beautiful *Hakea* plants that he had grown in his nursery. The embarrassing thing was that Barry refused to take any money for all those beautiful plants. The two of them walked with us and we found much in common, and appreciated their generous spirit that many hands make light work.

That was the start of a great friendship, with Wendy and I heading up to Swan Hill to talk to the Loddon-Kerang APS Group, staying at Barry and Elva's, and always returning with a boot full of new plants for our collections. As if that weren't enough, Barry would come down at various times of the year to help planting out the *Hakeas* he donated, and even just when there was cleaning up to do in the gardens or the *Grevillea* collection. Quite quickly our *Hakea* collection grew and grew, now with at least three plants of over 160 species. Barry then turned to supplying us with a large collection of Mallee Eucalypts! I have heard on the grapevine that this sort of generosity is the norm for Barry in supporting promotion and research into our wonderful native flora. Barry had a lovely plant of *Grevillea mccutcheonii* in his garden and one *Grevillea* Study Group working bee he brought down several dozen beautiful young plants of this endangered species and gifted one to every attendee!

Barry was also extremely knowledgeable on the flora and fauna of the mallee that he called home. On one visit he took Wendy and me on a wonderful trip into the backtracks of the mallee to show us populations of *Grevillea huegelii* and many more localised mallee plants. On the drive he knew and could point out many plants that he had grown and gifted to friends and locals.

On their way to the West, Barry and Elva would drop in for a few days and mark out on his maps, the locations of the many rare and endangered, or new species of *Grevillea* that Peter Olde and I were researching. They would then spend much of their holiday in the outback, searching for these plants, providing us with precise information on GPS locations, population sizes, photos and much more. This information was emailed to Peter and I or would be downloaded on their way back home sometimes months later. In this way Barry and Elva have been invaluable in providing critical scientific information on many rare and new species of native plants in Western Australia.

When I was ill one year Barry came all the way from Swan Hill to help us and cut up firewood and dug holes for our new plants. He would not stop till the firewood was all stacked away in the woodshed and all the plants were in and watered. I have, over time, employed numerous young men, but none have worked as long or as hard as Barry –he was a wonder!

Barry would have to be one of the most generous men I have ever known. He was a most worthy recipient of this year's Impressa Award, given by the Australian Plants Society of Victoria to its most important honorary workers from right across the state. This was awarded to Barry in September at a special function in Swan Hill –as you could imagine Barry was most humbled and surprised at being the recipient of this important award. I could not think of a more deserving recipient.

It has been an absolute honour to have known and worked with Barry, and I will miss him greatly. I know that there are many others who have come to know Barry and his wonderful positive attitude to life and all its beauty, who will also miss his enthusiasm for life. Rest In Peace, my wonderful mate!



Barry Teague collecting plants in WA - Photo by N Marriott

From Judy Clark, UK:

I was really interested in the article about *Grevillea* 'Barkly's Daughter' that appeared in Newsletter No. 124 because I think what I'm growing (and presumably others in the UK) is *G. 'Barkly's Daughter'* and not *G. barklyana* which is what it came as. I can't find any simple leaves or any leaves wider than about 6.5 cm on my plant but the leaves I have looked at have between 8 and 11 lobes. I had a look at *G. 'Poorinda Anticipation'* on the ACRA website but its leaves look more deeply lobed and more alternately lobed than those of my plant. Also, I wouldn't call my plant's lobe points pungent. Pointed yes, but not piercing.

So, I think my plant, and probably one I photographed in Cornwall (Tregrehan Garden) last year, are likely to be *G. 'Barkly's Daughter'*. I'd be grateful for an expert opinion as when I tried to compare flower colours I got in a tangle. I know photos can be misleading when it comes to colour. The styles of the inflorescence on my young plant look a richer pink in photos than they do in reality. I shall be really pleased when the book on hybrids is published!



G. Barkly's Daughter in UK flower



G. Barkly's Daughter in UK flower and foliage



G. Barkly's Daughter in UK foliage

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G. Barkly's Daughter in UK plant

From Peter Olde:

In my opinion, you have *G. 'Barkly's Daughter'*.

From Judy:

Thank you very much for your opinion. I've already checked with a friend and his plant is like mine so it will be *G. 'Barkly's Daughter'* too.

Thinking about this, I'm not surprised. If the true *G. barklyana* hasn't been on sale in Australia for about 30 years then any true *G. barklyana* here would have to have been propagated continuously down the years by cuttings or grown from seed.

Almost 20 years ago Jeff Irons who was one of the founders of the northern hemisphere Australasian Plant Society, wrote a piece in GSG newsletter 68 (June 2004) which included a list of grevilleas supposedly for sale in the UK (2003-04 edition of the RHS plant Finder). He notes that he purchased a plant labelled *G. barklyana* and it turned out to be a hybrid; *G. 'Barkly's Daughter'*? At that time *G. barklyana* seed was available from the GSG seed bank. A UK GSG member could have requested some. I guess there's no way of knowing if that seed was true *G. barklyana* or not.

Given its limited distribution and critically endangered status I guess that at least in recent years, seed of true *G. barklyana* would be unavailable except to botanic gardens.

From Peter:

At this distance, it is very difficult to be accurate. Other things also come into play including (indumentum on the leaf undersurface, persistence of common bracts). Hybrid taxonomy is not an exact art yet.

It is extremely unlikely that the original seed to the UK was sourced from the wild. Even the original introduction to horticulture was likely from cutting. I think it was first introduced in the 1960s. So, if it is garden seed, it could theoretically be anything, including *G. barklyana*. Just because it came from garden seed does not mean it is a hybrid because so many grevilleas are self-fertile (selfing).

Your plant in the UK looks like *G. 'Barkly's Daughter'* but theoretically it could also be a similar look alike. I am unsure myself what the male parent of *G. 'Barkly's Daughter'* actually is, perhaps, *G. longifolia*, or even maybe another hybrid. In fact, there could theoretically be endless numbers of slightly different *G. 'Barkly's Daughter'*, both now and into the future. If you grow it from seed in the UK you could have a new cultivar, God forbid.

I am trying to keep a lid on it but I think I have opened a can of worms

NEW MEMBERS

Lorraine Zions, North Arm Cove, NSW

I have been interested in grevilleas and other Australian plants for many years. I have, however, been working in the grevillea garden at the Hunter Region Botanic Gardens for approximately two years. I have been fortunate enough to be able to obtain some nice plants for my own garden, where grevilleas seem to grow well.

Tanya Hoolihan, Jilliby, NSW

I am a botanical illustrator with a particular interest in Grevilleas. Hopefully through the group I can learn more about the Genus.

GREVILLEA SCAPIGERA

Liesbeth Uijtewaal, Holland

In 2019 I was very lucky in receiving 33 seeds of *Grevillea scapigera*. I usually find it quite hard to get *Grevillea* seeds to germinate but it was definitely worth a try even though the *Grevillea* Book state that seed from cultivated plants has a low germination rate. Low, but not nil!

Note: The first two batches were pre-germinated between moist layers of sturdy kitchen towel. All grafts were whip & tongue grafts.

First attempt: 10 seeds, soaked in hot water (75°C or so) followed by removal of a sliver of seed coat. No luck.

Second attempt: seven seeds, soaked in Kirstenbosch smoke solution. No luck.

Third attempt: nine seeds for 24 h in warm water in a warm place followed by 14 hrs smoke, then planted into propagating mix (not sterilized) 15 mm deep. After three days they spent each night in the fridge. One seedling emerged after 5 weeks!

Fourth attempt: seven seeds, warm water for 24 hours, sliver removed, two were 'empty' so, five sown in potting mix I think, first seedling after four weeks, second seedling one week later. Excellent!

So, the third and fourth attempt yielded three seedlings, the first one germinating in January 2020 -five weeks from sowing, the other two in March – four and five weeks from sowing respectively.

Of course, I was very pleased to have jumped the first hurdle of germination. I felt it might be tricky for me to grow the plants on their own roots for a longer period of time so I felt I'd better graft them onto a sturdy rootstock. I grafted some *G. flexuosa* on *G. robusta* in March to have rootstocks available as soon as the *G. scapigera* material seemed suitable.

First success*G. scapigera* seedling 11-6-20

The first seedling (see photo) was ready for grafting in May. I grafted two pieces and covered them with a bag. The stem diameter of the scions used was only 1.5 to 2 mm or so but fortunately the stems were quite firm so it wasn't too difficult to do. The first signs of growth on both plants showed 16 days later (low plant in the foreground).

I also attempted to graft *G. flexuosa* and *G. scapigera* onto *G. robusta* at the same time in July, the scions were covered with a plastic bag. However, all three plants failed: the three *G. flexuosa* did take, *G. scapigera* did not. On these *robusta/flexuosa* combinations I tried to graft *G. scapigera* again in September, this time I wrapped the *G. scapigera* scions in parafilm. They all failed.

Second success*G. scapigera* seedling 11-6-20

I then tried four cutting grafts on *flexuosa* (October 10th) – it's quite easy to grow *G. flexuosa* from cuttings so I reckoned this might be an option. This time I left the leaves on *G. scapigera* again so, no mummy graft.

However, *G. flexuosa* wouldn't strike roots whereas two of the grafted pieces of *G. scapigera* started to show some growth (November 11th) so, I decided to graft those combinations on *G. robusta* on 12/12/20 which worked for one of them!

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Good growth was observed two weeks later. *G. scapigera* ended up only 10cm off the ground so I decided to train it upwards to obtain a plant higher off the ground and currently it's growing well at a maximum height of 80 cm with shoots along the main stem (plant on the left hand side).

One *flexuosa/scapigera* combination that was left in the propagator showed some growth with a rootlet on *G. flexuosa* but failed in the end.

Third success

A third plant was obtained in April 2021 by grafting *G. scapigera* on top of a *flexuosa/robusta* combination where *G. flexuosa* was a low graft on *G. robusta*. I had allowed this *G. flexuosa* to grow to a height of 80 cm and grafted *G. scapigera* on top. It's lucky *G. flexuosa* doesn't easily produce lateral shoots -unlike *G. robusta*- so the plant has a nice and straight bare stem and there's no need to keep an eye on shoots from the rootstock trying to take over (plant on the right hand side).

Concluding: for me it worked best to graft *G. flexuosa* before I put *G. scapigera* on top. Mummy grafts are not advisable even though they work very well for other species.

Unfortunately, I didn't manage to successfully propagate material from the two youngest seedlings, they didn't grow well enough to take material from for grafting before winter, even though I tried. They didn't survive in the end so, all plants I'm growing now originate from the one, first, seedling.

I was very pleased to find first buds in March 2021 and beautiful flowers in April, 15 months from germination. So quick! What an amazing species it is. It flowers for a long period as well and even set some seed which I haven't tried yet.

With respect to disease resistance, it's not as fussy as I understood it is in Australia. Apparently, it's very susceptible to fungal attack for you which needs to be treated regularly. Despite the high humidity in my glasshouses in winter (up to 98%), the low temperature (between 0 and 5°C for extended periods) and the low light conditions, not to mention extended rainy periods in summer, my plants do not seem to be bothered at all. Would it be possible this fungus is present in the material that is used for propagation and not transferred in seeds?

Or, another option, mine is not a true *G. scapigera*, the seeds having been collected from a cultivated plant. The leaves look slightly different to what they should be, they're less prickly and less divided. The colour is a beautiful blue-green though, so I don't complain. Apart from the unusual leaves there's a pinkish tinge to the flowers which, I've been told, is unusual as well.

The question is, which could have acted as the other parent? This may remain a mystery. I haven't taken a photo of all three seedlings but I am quite sure they all looked pretty much the same. I would believe one would expect differences in seedlings grown from hybrid seed??

Anyway, whatever it really is, I am very pleased with what I still tend to call, for lack of a better name, *Grevillea scapigera*.



G. scapigera flower



G. scapigera foliage

TIP PRUNING OR HARD PRUNING

P. Olde, NSW

At the last meeting of the Queensland Chapter of the Grevillea Study Group (see page 3 for details), the topic of pruning was discussed. We know that pruning invigorates grevilleas but how far should you take it and what is the method(s) and protocol surrounding same. There is no single rule. I would say there are two. The idea is to invigorate and shape the plant at the same time.

The type of pruning to be employed is based on the fire-response of the plant. As a general rule, go for hard pruning. This is because all tropical hybrids and species have epicormic buds and they regenerate rapidly from the bark after hard pruning and fire. You can also hard prune plants that have a lignotuber, such as *G. bipinnatifida*. All cultivars based on this species can be hit hard with the secateurs. Optimally, pruning must occur in the warmer months. I would say between October and April. Trim off all the little branches and the branches that cross over each other until you have a plant with 3–6 branches 5–10 cm in diameter with the ends sawn off. In some cases, old plants can be rejuvenated by knee-capping. Cut the whole plant down to a trunk 30–50 cm high.

Once you have cut it back, you should fork the ground around it, remove any weeds (it's an ideal time to spray herbicides) and then broadcast slow-release fertilisers. Any low-phosphorus slow-release fertiliser will do. You can also spread compost or shredded pine and water well with a soil conditioner such as Seasol. Seasol is not a fertiliser. I also recommend using a water-based fertiliser at this point. Water it in with the watering can. Then mulch the whole area. Mulch is like a warm blanket to a plant. They love it. I use pine chip but there is a wide variety of options. Tree prunings chopped up will not last as long as hard-wood chip. Try not to mulch up hard against the trunk as this can foster bark rotting (also known as collar rot).

You must not prune in extreme weather, hot or cold. Make sure the soil moisture level is good before you start. Once you have finished, just leave the plant alone. Before long green shoots will emerge from the bark or lignotuber, sometimes in less than two weeks. These will rapidly grow away and even flower.

Tip-pruning is a waste of time. You will never keep up with it. Buy a battery-powered hedger. Sweep it over the plant leaving some foliage on. Clip the ugly torn branches with the secateurs. Hedgers do not give a clean cut to grevilleas. You use this technique when you have a plant that regenerates from seed only. You can tell from the plant itself. The lower branches will be bare and the leaves will be restricted to the outer branches. If the plant is too old and leggy you have probably missed the chance to hedge it successfully. You need to do this annually to keep the plant compact and leafy.

Groundcovers should also be pruned every few years lest they run amok. I imagine a circle 2–3 m diameter. Cut all the trailing branches back to the outer circumference of the circle.

FINDING A GREEN SPIDER FLOWER... OR THREE

E. Nash, NSW

Last year Ian Cox came to our place in Kenthurst and we took him for a walk in our bushland to have a look at our plantings on various levels. About 100 metres from the back gate, nestled at the foot of an old Yellow Bloodwood (*Corymbia eximia*) and deep in the clutches of a clump of Spiny-headed mat rush (*Lomandra longifolia*) was this interesting looking shrub identified by Ian as *Grevillea mucronulata* or the Green Spider Flower. Ian advised there were not many plants in the local district, just 30 sightings in the Kenthurst area recorded in The Atlas of Living Australia. Fortunately for us, it later produced 3-4 beautiful flowers for us to enjoy. Last year I had also planted a Grey Gum seedling (*Eucalyptus punctata*) in a pocket of ground just below a sandstone outcrop. To protect it from hungry native animals, I installed a high wire guard to give the tree a chance and whilst digging the hole I noticed another *G. mucronulata* growing there, partially hidden by some long grass. This specimen continued to flourish as whenever the Grey Gum was watered and fertilized, the *Grevillea* also received similar treatment and it too this season is developing several flowers.

Last week I planted a Grey Iron bark seedling (*Eucalyptus crebra*) not far from the Grey Gum and whilst fossicking around in the bush to find some strong sticks which could act as pegs to secure the guard, I came across yet another Green Spider flower. Smaller than the other two, it looks to

be thriving and has also produced a couple of flower heads! I'm really looking forward to seeing all the plants in flower as it will be very special in such a lovely bush setting.



Green Spider Flower growing at the base of the Yellow Bloodwood
– Photo by E Nash

MY GARDEN AT HIGHFIELDS

J. Goodwin, Qld

Although I am getting an increasing number of grevilleas in my Queensland garden, my favourite is still a good old Silky Oak. I have one that would be about twenty years old. It came up amongst a pile of railway line we had purchased that had been kept under a Silky Oak. When I finally got around to wanting to access the railway line, I had to first cut the grass that had grown around it. This was when I discovered a *Grevillea robusta* seedling. I cleared the grass and moved the railway line and placed a guard around the seedling. Over time it grew quite rapidly and after around six years it started to flower.

From the first flowering it started attracting wildlife. At first the usual insects such as bees and other common invertebrates but as the years went on and the tree grew, an ever-increasing variety of animals visited the tree. In the years that it is in full bloom through the day it is visited by a myriad of insects. Several species of honeyeaters visit the tree to feed on the nectar including Blue-Faced, Brown, Lewin's, Striped, White-naped, and White-cheeked. Other birds include Noisy Friarbird, Little Friarbird, Noisy Minor, Scaly-Breasted Lorikeet, Rainbow Lorikeet, and many other

birds either feeding on the nectar or on the insects that are feeding on the nectar visit the tree or birds just using the tree as a resting spot. Apostle Mistletoe (*Dendrophthoe vitellina*) has also taken root in the tree which then attracts the Mistletoe Bird. The tree is also a haven for numerous animals at night. Again, a good number of insects visit the tree at which in turn attracts Green Tree-frogs and micro bats which feed on the insects. At least 2 species of Flying-fox also feed on the nectar. Brush-tailed possums also visit the tree. The tree hit its peak during a very heavy flowering period the summer before last when it was visited every night by at least one Squirrel Glider during the flowering period.

Having all these animals using the Silky Oak it has also created a situation where there is a lot of other plants taking root underneath it, such as *Ficus macrophylla*, *Clerodendrum tomentosum* and various other plants, some wanted and some unwanted. It is very satisfying seeing this tree flower with its magnificent golden flowers while attracting so much life.

GREVILLEA PUNGENS IN SYDNEY

P. Olde, NSW

Of all the plants that can be cultivated in the Sydney region, *Grevillea pungens* is decidedly not one of them, or so I thought. I recall a plant that Merv Hodge was trying to grow in Brisbane and, even though he protected it in a pot, and kept it under cover in winter, it never flourished. I am not sure what its provenance was but it never made it to the garden and eventually died. I do not even think he could get a cutting off it. I think the problem was that it was ungrafted.

On a recent trip to the Northern Territory, I discovered a small population growing at what seems to be the southern-most point of its distribution, near Roper Bar. I was collecting material for DNA testing and a few cuttings found their way into the magic hands of Richard Tomkin. And now I have a grafted plant in Illawong. It has flourished through last winter and summer and this year through autumn. It has not stopped flowering. Of course, we do not get frosts here unlike at the farm at Oakdale and in consequence, I anticipate it successfully negotiating the coming winter.

In Brisbane recently, I saw a magnificent plant also growing at the home of Allan Lee.



G. pungens in Illawong – Photo by P Ode

GREVILLEA ROBUSTA (SILKY OAK): THE TREE OF LIFE

J. Blatchly, Qld

Although I am getting an increasing number of grevilleas in my Queensland garden, my favourite is still a good old Silky Oak. I have one that would be about twenty years old. It came up amongst a pile of railway line we had purchased that had been kept under a Silky Oak. When I finally got around to wanting to access the railway line, I had to first cut the grass that had grown around it. This was when I discovered a *Grevillea robusta* seedling. I cleared the grass and moved the railway line and placed a guard around the seedling. Over time it grew quite rapidly and after around six years it started to flower.

From the first flowering it started attracting wildlife. At first the usual insects such as bees and other common invertebrates but as the years went on and the tree grew, an ever-increasing variety of animals visited the tree. In the years that it is in full bloom through the day it is visited by a myriad of insects. Several species of honeyeaters visit the tree to feed on the nectar including Blue-Faced, Brown, Lewin's, Striped, White-naped, and White-cheeked. Other birds include Noisy Friarbird, Little Friarbird, Noisy Minor, Scaly-Breasted Lorikeet, Rainbow Lorikeet, and many other

birds either feeding on the nectar or on the insects that are feeding on the nectar visit the tree or birds just using the tree as a resting spot. Apostle Mistletoe (*Dendrophthoe vitellina*) has also taken root in the tree which then attracts the Mistletoe Bird. The tree is also a haven for numerous animals at night. Again, a good number of insects visit the tree at which in turn attracts Green Tree-frogs and micro bats which feed on the insects. At least 2 species of Flying-fox also feed on the nectar. Brush-tailed possums also visit the tree. The tree hit its peak during a very heavy flowering period the summer before last when it was visited every night by at least one Squirrel Glider during the flowering period.

Having all these animals using the Silky Oak it has also created a situation where there is a lot of other plants taking root underneath it, such as *Ficus macrophylla*, *Clerodendrum tomentosum* and various other plants, some wanted and some unwanted. It is very satisfying seeing this tree flower with its magnificent golden flowers while attracting so much life.

GREVILLEA HUEGELII – SUCKERING?

W. Kutsche, SA

I have spent a week in April at my property and on one of my morning walks, I noticed that one of my *Grevillea huegelii* plants appeared to be suckering. Careful (and at times painful!) scraping away of the soil around the base of the plant has revealed a horizontal root with a couple of vertical shoots on it.



Vertical shoots on *G. huegelii*

The parent plant appears to have about 5 - 6 young plants around it (see attached photo), two to the right of the parent, two or three to the left and one about 0.5m away from the outermost left plant at right angles to it. There is a spread of approximately 1.5 - 2m across the plants from one extremity to the other. I noticed that there was also a seed capsule on the parent plant.



Suckering habit of *G. huegelii*

There are 3 other plants of *Grevillea huegelii* which I have planted in the general vicinity and they are all single plants. The soil is a fairly highly alkaline (pH 8.7), sandy loam with small limestone rocks in it.

I have also planted 4 - 5 other specimens right up the top of the property in similar soil. From memory, one of these appeared to have a sucker as well, but this was a few years ago when I noticed it. I didn't have time yesterday to have another look at the plants at the top of the property, but I'll try to remember when I next go there.

There is no evidence of any seedlings in either location on the property even though I have noticed seed capsules on some of the plants. It has come to my attention that Peter is doing a revision of *Grevillea huegelii*, so this information may be of interest.

Note from Peter:

I find your information extremely important. In some species, rhizomaty defines whole populations and these deserve consideration on these grounds alone for recognition as separate species. Personally, I believe at this stage that *G. rigidissima* will be reinstated for the eastern populations. The type population of *G. huegelii* comes from near York WA. It has wider leaves with some secondary division. Most of the variation occurs in WA and several species are proposed there.

Although rhizomaty often indicates itself as a non-sexual means of reproduction it is not exclusively so as seed reproduction also occurs, though less commonly. We call this means of reproduction 'seed-facultative'. When a whole population reproduces only from seed we call this seed-obligate.

It is possible that rhizomatous plants retain the capacity to reproduce by suckers but never actually develop them until the circumstances are suitable, eg after fire. All populations in SA, Vic and NSW are probably rhizomatous. Further observations are required.

Income

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Interest	\$19.07

Total income **\$34.07**

Expenditure

Newsletter publishing	\$00.00
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Total expenditure **\$00.00**

Bank account details

Balance in current account
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DONATIONS

The newsletter is now free but groups are encouraged to make an annual donation. Individual donations are always welcome. Direct deposits can be made into the Grevillea Study Group account.

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Please notify the Treasurer of transfer by email (bruce.moffatt@tpg.com.au)

SEED BANK

There are no changes. Please see newsletter No. 117 for details.

NEWSLETTER CONTENT

Thanks to the Qld members who contributed to this newsletter. It is NSW's turn next time. Please send your content to grevilleanews@optusnet.com.au by August 30.

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