



02 | EDITORIAL

03 | TAXONOMY

SOME NOTES ON HOLLY
GREVILLEA DNA RESEARCH

PHYLOGENY OF THE HOLLY
GREVILLEAS (PROTEACEAE)
BASED ON NUCLEAR RIBOSOMAL
AND CHLOROPLAST DNA

06 | IN THE WILD

A NEW POPULATION OF GREVILLEA
MONTIS COLE SSP BREVI-STYLA

06 | IN YOUR GARDEN

THE LIVING COLLECTION 2018
SUMMER FLOWERING GREVILLEAS
PART 2
GREAT GREVILLEA GARDENS,
PART 1
GARDEN CHAT FROM BULLEEN,
VICTORIA
CLIMATE CHANGE AND
GREVILLEAS

16 | SEED BANK

17 | FINANCIALS

GSG NSW Programme 2018

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.

GSG Vic Programme 2018

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Contact Neil for queries about program for the year. Any members who would like to visit the official collection, obtain cutting material or seed, assist in its maintenance, and stay in our cottage for a few days are invited to contact Neil.

Living Collection Working Bee Labour Day 10-12 March

A number of members have offered to come up and help with the ongoing maintenance of the living collection. Our garden is also open as part of the FJC Rogers Goodeniaceae Seminar in October this year, so there is a lot of tidying up and preparation needed. We think the best time for helpers to come up would be the Labour Day long weekend on 10th-12th March. We have lots of beds here, so please register now and book a bed. Otherwise there is lots of space for caravans or tents: neil@whitegumsaustralia.com. We will have a great weekend, with lots of socializing, and working together on the living collection. We will put on a BBQ on the Saturday night and visit the local pub the next night. We will also break up the work with a visit to Phil Vaughan's nursery at Pomonal and a climb up Mt Langi Ghiran to collect specimens of *Grevillea montis cole ssp brevistyla* and check out the new population outlined in this issue.

GSG SE Qld Programme 2018

Meetings are usually held on the last Sunday of the even months. We meet for a communal morning tea at 9.30am after which the meetings commence at 10.00am. Visitors are always welcome. For more information 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 February

VENUE: Meeting at Peacehaven Park, 56 Kuhls Road, Highfields

SUBJECT: Gardens walk & hopefully nursery visit, followed by a visit to Chris Purchase's garden

Sunday, 29 April

VENUE: Gondwana Native Nursery, Creegans Rd, Barkers Vale, via Kyogle, NSW

SUBJECT: In the past, we have stayed in Kyogle overnight on Saturday, meet for dinner somewhere in town, then travel to Gondwana Nursery in the morning

June – Cancelled in favour of July excursion

Saturday & Sunday, 21-22 July

VENUE: Excursion to Bargara, visiting Richard Tomkin's 'Changers Green Nursery', and 2 private gardens at Gympie & Hervey Bay

A FEW WORDS FROM PETER

Peter Olde, NSW

Welcome to all to our first edition of the Grevillea Study Group Newsletter for 2018. Thanks are especially due to Max McDowall and Neil Marriott who have both written and compiled the articles for this newsletter. Notionally this is the responsibility of the Victorian members. Many people benefit from these articles which are usually researched over many days. But where is the contribution of the majority? How hard is it to research a short article on a *Grevillea* species, its performance in cultivation, its performance as a cut flower. Why the reluctance to contribute even a few lines? As editor, I find this lack of participation, lack of ownership, very dispiriting. There are over 200 members in this group but most people have their hand out and are not willing to share any information. Perhaps one or two could write a short article together if confidence is lacking. At the editorial level, help is always available on request. A reminder too that we want digital photos of all species, especially the less common ones. They can be used to illustrate the newsletter, or for talks or other purposes.

In this edition, we have an interesting article on *Grevillea* gardens. This is a concept that can be expanded to remember in the future garden excellence of the past. None or very few of our gardens last beyond our lifetime and it would be a shame if they are lost forever in the darkness of history. Write about them for the newsletter

and include a few pix.

In this newsletter we have another article also on Summer-flowering Grevilleas. This is a great idea that can be followed by others. What is flowering in your garden at present? Do not forget to mention the failures. It is important to know. What about winter-flowering grevilleas? I always love the first flowers on my *Grevillea lanigera*, a shining example of the genus in winter. But there are others, are there not?. Make a note of them as they come into flower.

Climate change is really becoming a serious issue, long denied by the naysayers, but one we face with trepidation in the garden. Violent storms, long droughts, high temperatures are certainly increasing in my lifetime. I have never known a more difficult and unreliable weather regime. Here in Sydney, we are beginning to despair of rain which has hardly fallen for almost a year now. Small plants put in last Autumn received no support from the weather and were still small when summer came. Scorching temperatures play havoc with small, low to the ground plants, especially if they have a poorly developed root system. We have lost many young plants but even the older plants are drying up, the leaves crisped, branches dying one by one. Pretty soul-destroying but one must remain optimistic. The birds need our plants more now than ever.

REMINDER: NEW FINANCIAL ARRANGEMENTS

Christine Guthrie, NSW

You will recall from the last edition that the **Grevillea Study Group newsletter is now only available online, for FREE**. Please send any email changes to Christine Guthrie at bruce.moffatt@tpg.com.au to ensure you don't miss out on the newsletter. If we are unable to email you the newsletter we will call or text you to confirm email details. Please send your phone details to Christine at the above email address.

While there is no subscription, donations are welcome. We are encouraging all groups and regions to make an annual donation to the study group. This can be done by direct deposit into the Grevillea Study Group account:

BSB: 112-879
Account number: 016526630
(St George Bank)

Please include your name in the transaction details.
 Alternatively post your cheque to:

Grevillea Study Group
32 Blanche Street OATLEY
NSW 2223

Illawarra Grevillea Park

NEXT OPEN DAYS 2018

May 5, 6, 12, 13**July 7, 8, 14, 15****September 1, 2, 8, 9***Opening hrs are 10am – 4pm***Location**

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

Admission

\$5 adults, children with adults are free

email info@grevilleapark.org
 or visit grevilleapark.org

SOME NOTES ON HOLLY GREVILLEA DNA RESEARCH

Neil Marriott, Stawell, Vic

The most illuminating paper 'Phylogeny of the holly grevilleas (Proteaceae) based on nuclear ribosomal and chloroplast DNA' by Gareth D. Holmes, Trisha L. Downing, Elizabeth A. James, Mark J. Blacket, Ary A. Hoffmann and Michael J. Bayly is reviewed in this issue by Max McDowall.

I checked out the paper myself on the CSIRO website and was interested to note that all the SE Australian 'holly grevilleas' fall within four major clades. I was amazed to read the following: "The *G. aquifolium* Clade... shows that *G. microstegia* is nested within the *G. aquifolium* clade", or the possibility that "*G. microstegia* is simply part of the spectrum of variation of *G. aquifolium*."

Furthermore, In the discussion on p 71-72 the authors speculate that a possible explanation for the incongruence between the morphological data and the combined cpDNA data for the two species could be due to **poor taxonomy**, including excessive splitting", and in the Abstract, that the "variation in cpDNA [chloroplast DNA] is incongruent with current species level taxonomy especially for *G. aquifolium* ... and *G. microstegia*" and that "**inappropriate taxonomy** [is a] possible explanation.... for this incongruence".

From this research one might suppose that at some stage *Grevillea microstegia* will be reduced to synonymy under *G. aquifolium*. Yet if one looks at the morphology of *Grevillea microstegia* there are major visual physical differences between the two species.

Grevillea microstegia differs morphologically from *G. aquifolium* in:

Pistil 13.5-15.5 mm long cf. 21-26 mm in *G. aquifolium*.

Flowers typically on narrow pendulous or decurved rachis, cf, stout, normally decurved or erect in *G. aquifolium*.

Bracts 0.8-1.1 mm long cf. 1-2.5 mm in *G. aquifolium* and ovate-acuminate cf. ovate in *G. aquifolium*.

Leaves deeply bipinnate to midrib cf. entire, toothed or slightly divided to pinnatifid, never to midrib in *G. aquifolium*.

Finally there is the **habit** of both plants; *Grevillea microstegia* is always a low, decumbent, often prostrate sub-shrub, whereas *G. aquifolium* is typically a large to very large shrub typically up to 2m x 2m, although there are at least three prostrate or decumbent populations elsewhere that I know of, but this is out of hundreds of 'typical' populations.



Grevillea microstegia – note deeply dissected leaves, pendulous inflorescence and short styles

Photographed at Maranoa Gardens by Melburnian - Own work (digital photograph by author), CC BY 3.0, <https://commons.wikimedia.org/w/index.php?curid=4954312>

I do not profess to know too much about nuclear ribosomal and chloroplast DNA, but I find it very hard to accept that, based on this research, *Grevillea microstegia* should no longer be recognised as a species in its own right. I am probably guilty of picking and choosing sections of this paper that suit my views, as I concur entirely with the findings that *Grevillea montis cole* ssp *brevistyla* does not fall within the same clade as *G. montis cole* ssp *montis cole*, and therefore warrants recognition as a species in its own right. However I just wonder whether the right DNA was taken, or whether sufficient samples were taken to make such conclusions confidently?

This is fascinating research, and is vital to enhance our understanding of this rich and diverse genus. I recommend it as essential reading for all keen members. It shows us the new frontier of DNA research into plant genetics, but in my humble opinion, it also shows that there is some way to go before plant DNA and conventional morphological botany fit smoothly together.



'Typical' *Grevillea aquifolium* – note shallow leaf lobing and slightly deflexed flower with long styles

Photo: Neil Marriott

PHYLOGENY OF THE HOLLY GREVILLEAS (PROTEACEAE) BASED ON NUCLEAR RIBOSOMAL AND CHLOROPLAST DNA

Reviewed by Max McDowall, Bulleen, Vic

Gareth D. Holmes, Trisha L. Downing, Elizabeth A. James, Mark J. Blacket, Ary A. Hoffmann and Michael J. Bayly. Australian Systematic Botany 2014 27 56-77.

This article established the phylogenetic relationships among 15 recognised species of *Grevillea* comprising nineteen taxa (species and subspecies) of the holly-leaves grevilleas - three from eastern Australia (the Northern Holly Grevilleas), and sixteen from Victoria plus South Australia (the Southern Holly Grevilleas).

Cladistic Analysis of the DNA sequences from all 19 taxa plus two 'Outgroups' (*G. acanthifolia* and *G. laurifolia*) recognised a single clade of the Northern Holly Grevilleas (*G. scortechinii* (subsp. *scortechinii* and subsp. *sarmentosa*) and *G. renwickiana* (and four major clades of the Southern Holly Grevilleas as shown in the Cladogram (Fig 7) of the article:

***G. aquifolium* Clade** includes collections (accessions) from various locations of *G. microstegia* (2 locations), *G. bedgoodiana* (1) and *G. aquifolium* (20) which clearly show that *G. microstegia* is immersed within the *G. aquifolium* clade but that *G. bedgoodiana* could stand alone within the clade.

***G. dryophylla* Clade** includes *G. dryophylla* (2), *G. floripendula* (2) *G. steiglitziana* (2) *G. infecunda* (3), *G. montis-cole* subsp. *montis-cole* (2) and specimens of *G. aquifolium* (3) which fall outside the *G. aquifolium* Clade.

***G. repens* Clade** includes *G. repens* (4), *G. montis-cole* subsp. *brevistyla* (3) and *G. obtecta* (2).

***G. ilicifolia* Clade** includes *G. angustifolia* subsp. *wirrigaensis*, *G. angustifolia* subsp. *angustifolia*, *G. ilicifolia* subsp. *ilicifolia*, and subsp. *lobata*, and *G. dilatata*.

The detailed locations of each of these collections are fully described in Table 1 of the publication and are clearly identified in the cladogram (Fig 7); their geographical locations are plotted in maps Figures 1 and 8 of the original manuscript <http://www.publish.csiro.au/sb/Fulltext/SB13045>

Inferences regarding *G. microstegia*, *G. montis-cole*, *G. bedgoodiana* and *G. aquifolium*:

G. microstegia Molyneux occurs exclusively on Mt Cassell and nearby streams in the Mt William Range, and differs by only two point (single-base) mutations in the DNA study from the nearest accession of *G. aquifolium*.

Based on this study it would seem that its inclusion as a **separate species** nested within a subclade of the *G. aquifolium* Clade could not be sustained and accordingly that *G. microstegia* ought to be considered part of *G. aquifolium* and the epithet *G. microstegia* reduced to synonymy under *G. aquifolium*. However, it is conceivable that the very significant differences in morphology between the two species, could be due to differences in **other regions of the genomes that were not tested** in the present investigation, and that the two species in this locality may have diverged much earlier than the published results would suggest.

In the discussion on *G. microstegia*, the authors consider that "it is possible that *G. microstegia*" is simply part of the spectrum of variation of *G. aquifolium*". Alternatively that "it is also possible that *G. microstegia* represents a separate lineage that has obtained a *G. aquifolium* chloroplast by introgression", that is, by repeated back-crossing of the precursor of *G. microstegia* into a hybrid between *G. aquifolium* and the precursor species. They recommend further sampling of the two species over the range of *G. microstegia* in the Mt Cassell region.

G. montis-cole subsp. *montis-cole* R.H Smith from Mt Buangor and Mt Cole and *G. montis-cole* subsp. *brevifolia* R.H. Smith from the summit of Mt Langhi Ghiran are found in separate major clades and therefore the taxon *montis-cole* is polyphyletic - requiring the recognition of subsp. *brevifolia* as a new species to remove the polyphyly.

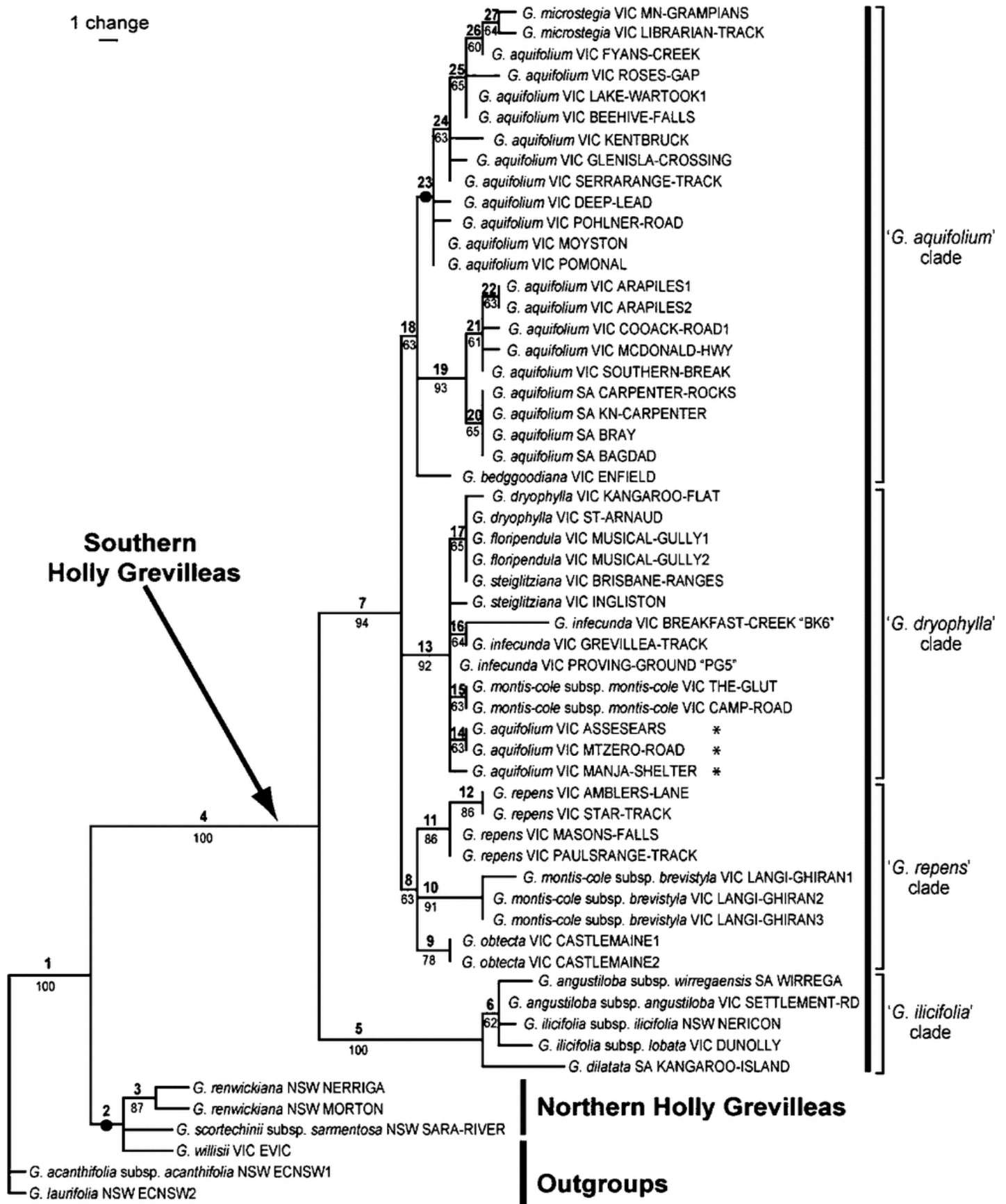
G. bedgoodiana J.H. Willis ex McGill from Enfield south of Ballarat remains unresolved in its relationship to *G. aquifolium* as a distinct separate branch at the base of the *G. aquifolium* Clade.

G. aquifolium Lindley: Three (3) of the 23 accessions of this species from different populations in the northwest Grampians from Mt Zero to the Asses Ears, morphologically similar to other accessions from adjacent locations, were analysed as belonging to the *G. dryophylla* Clade, other members of which are found in disjunct regions of central Victoria. Several possible explanations were floated by the authors but at the time of publication. the problem of the apparent polyphyly of *G. aquifolium* remained unresolved.

A major subclade of the *G. aquifolium* clade outside the Grampians includes accessions from the Little Desert ('Cooack Giant'), Mt Arapiles north of the Grampians and the Carpenters Rocks in South Australia (see Fig 7).

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Fig. 7. One of sixty equally shortest trees produced by parsimony analysis of the combined cpDNA dataset. (Length = 114 steps, consistency index (CI) excluding uninformative characters = 0.90, retention index (RI) = 0.97). Only two nodes, indicated by black circles on branches, were not present on the strict consensus tree. Nodes are numbered (above branches) and bootstrap-support values are shown below branches. Asterisks indicate the three accessions of *Grevillea aquifolium* that fall outside the '*G. aquifolium*' clade.



A NEW POPULATION OF GREVILLEA MONTIS COLE SSP BREVISTYLA

Neil Marriott, Stawell, Vic

Over the summer, members Dave Binch and Simon Gilliland, Wendy and I made the trip up Mt Langi Ghiran to inspect the extremely rare endemic Grevillea that only occurs on the top of this mountain, *Grevillea montis cole* ssp *brevistyla*. For decades Peter Olde and I have realized that this Grevillea is quite distinct from *Grevillea montis cole* and requires recognition as a distinct species.

After the long walk and climb to the top of the mountain we were thrilled to re-acquaint ourselves with this superb species. We all immediately re-affirmed our conviction that it is indeed quite distinct from *Grevillea montis cole*.



Grevillea montis cole ssp *brevistyla* habit on Mt Langi Ghiran
Photo: Neil Marriott

“*Grevillea brevistyla*” as it probably should be named, has a low, scrambling habit amongst the huge granite tors and slabs on the exposed top of Mt Langi Ghiran. *Grevillea montis cole*, on the other hand grows in deep decomposed volcanic soils in tall forest on the top of the nearby Mt Cole Range. But it is the foliage that immediately sings out as being so different, with the leaves far more deeply divided and ALWAYS with prominent secondary division of the lobes. Close examination of the floral bracts on both appear to me to be also quite different. Superficially *Grevillea montis cole* ssp *brevistyla* looks far more like *Grevillea floripendula* than *Grevillea montis cole*.



The new *Grevillea montis cole* ssp *brevistyla* site – the exposed granite outcrop, visible at the top of this picture taken from site 1
Photo: Neil Marriott

IN YOUR GARDEN

THE LIVING COLLECTION 2018

Neil Marriott, Stawell, Vic

Sadly 2017 annual rainfall was again below average, although only just so if you look at the total figure for the year of 587mm. However a close examination of the year’s rainfall events shows that the vast majority of rainfall days were only between 1-5 mm. In fact we only had approximately 3 days with heavy rain for the entire year! As a result, very little moisture penetrated into the subsoil, and now plants are showing the effects of this. To make the situation worse we are currently experiencing a series of extreme weather events, with day after day above 40 degrees! In this situation we are finding even established plants that are not able to cope with the dry are succumbing, and grafted plants, unless on extremely hardy rootstocks such as *Grevillea robusta* are dropping dead after years of growth.

Plants such as the beautiful *Grevillea* ‘Canning Classic’ that is intolerant of *Grevillea robusta* as a rootstock are all dropping dead after years of growth. I purchased these from the former Smartgraft Nursery in Stawell, and the

owner refused to reveal his rootstocks! Now it is clear that they are quite intolerant of very dry conditions!! Even young grafts on *G.robusta* are succumbing if I miss watering them every few days. This is particularly so for young standards, of which we have lost many so far this summer!

Despite these difficulties, we are continuing to add new species to the living collection, and I wish to thank Robert Brown in particular for a large number of grafted new species donated to the collection. I also collected a number of new species for the collection while in WA last year and will grow these on before planting them out. I now try and grow my plants to a far larger size before planting than I used to. I find that the larger plants, with a far deeper and better developed root system are establishing a lot better than the small tubestock that I used to plant out. We have lost 19 grevillea species and subspecies over the last few years, but have added another 15 species. Currently the collection stands at 326 species and subspecies.

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I also wish to thank Jeremy Tscharke, Phil Vaughan, Dave Binch, Brian Weir, Russell Wait, Barry Teague and Bernie Shanahan for their most generous donations of plants for the living collection. While in SA recently Brian Freeman took our Grampians APS group on a tour of the region as well as to his fabulous garden. Brian took us to several lovely populations of *Grevillea lavandulacea*, including the very rare white flowered form of *G. lavandulacea* - Victor Harbour. Cuttings were taken of all forms and these have now struck and are ready for potting up. Thank you Brian for a great weekend!



The rare *Grevillea lavandulacea* – Victor Harbour white flowered form in Brian Freeman’s garden
Photo: Neil Marriott

During spring-early summer we have had some violent winds rip through the district, taking down a number of trees on our property. Fortunately the only damage to the living collection was a large old *Grevillea argyrophylla* was split down the middle and one of our very large old *Grevillea banksii* - tree form lost a large branch. Fortunately both plants are now re-shooting strongly.



Large specimen of *Grevillea banksii* with broken branch
Photo: Neil Marriott

In the garden at present the *Grevillea annulifera* plants, *G. polybotrya* plants and *G. zygoloba* are all in flower again for the second time this summer! Not sure what has brought this on, as there is no subsoil moisture at all. Maybe it was the week of cooler weather we had just before Christmas? If anyone would like cuttings of any of the plants in the collection feel free to contact me. I have just sent a large batch off to Robert Brown and Jeremy Tscharke. Dave Binch and Simon Gilliland have just come up to get a pile of cutting material and seed, so let’s know, and I will get them for you!

Plants needed for the Living Collection

Sadly I have not been able to relocate the following *Grevillea* species that were lost from the collection due to the 2006 bushfire and ongoing drought conditions:

- | | |
|--------------------------------|---------------------------|
| <i>Grevillea alpivaga</i> | <i>G haplantha ssp</i> |
| <i>G acanthifolia ssp</i> | <i>recedens</i> |
| <i>paludosa</i> | <i>G humilis –all ssp</i> |
| <i>G berryana</i> | <i>G mackleayana</i> |
| <i>G brachystylis –all ssp</i> | <i>G miquelliana ssp</i> |
| <i>G buxifolia –all ssp</i> | <i>moroka</i> |
| <i>G calcicola</i> | <i>G mucronulata</i> |
| <i>G cheilocarpa</i> | <i>G muelleri</i> |
| <i>G candolleana</i> | <i>G polybractea</i> |
| <i>G crassifolia</i> | <i>G sessilis</i> |
| <i>G deflexa</i> | <i>G trifida</i> |
| <i>G delta</i> | <i>G uncinulata</i> |
| <i>G erinacea</i> | <i>G uniformis</i> |
| <i>G hakeoides</i> | <i>G wiradjuri</i> |

If any members have cutting material or plants of these I would be most grateful if they could contact me on neil@whitegumsaustralia.com to organise postage.



The rare *Grevillea lavandulacea* – Victor Harbour white
Photo: Neil Marriott

SUMMER FLOWERING GREVILLEAS PART 2

Neil Marriott, Stawell, Vic

As I write this article it is currently sitting on 38 degrees outside, cooking and drying out even the hardest Grevilleas. Yet despite this heat, there are still those species that just keep on flowering as though they are not even worried by the heat!

One of the longest flowering of all our summer Grevilleas would have to be *Grevillea subterlineata*. This is a very rare plant, both in the wild and under cultivation. I have not seen it in the wild, but it was collected by two of our early Study Group members Fred and Norma Johnston who discovered this species east of the Gascoyne Junction in outback WA. Material they sent was struck and the resultant plants are still growing strongly here in the Living Collection.

These plants begin flowering around September-October in spring, and continue, prolifically right through summer and well into autumn. The flowers are quite large, ovoid and delicate, being pale soft pink in colour in bud before opening cream. As a result they never attract much attention from us humans, however the insects absolutely love them. They emit a delicate sweet perfume, attracting a host of native wasps, bees and butterflies. Here it is growing on its own roots in our very well drained sandy granite loam, however I suspect it would need to be grafted for general cultivation.



Grevillea subterlineata – Photo: Neil Marriott

Grevillea 'annuloptera' is the name coined by Peter Olde and me for the beautiful natural hybrid between *Grevillea annulifera* and *Grevillea leucoptervis*. Both of these species occur naturally around Kalbarri National Park in WA, and it is here where several instances of natural hybridization between these two species have been observed. The late Pat and Norm Moyle from Mandurah in WA also had this hybrid come up from plants of both parents growing in their garden, so it appears that there is a strong chance of this hybridization happening wherever these two closely related species come together.

Flowers are quite beautiful large cream bottlebrushes, and here, they start flowering in December through to early January. Fortunately plants set numerous seed and most seem to retain the hybrid appearance of their hybrid parent. Occasional plants revert to appear more like *G. leucoptervis*, though strangely, very few ever throw back to *G. annulifera*.



Grevillea 'annuloptera' – Photo: Neil Marriott

Grevillea georgeana is one of the very few red flowered species that flowers through the summer months. This makes it an absolute must for Grevillea lovers, and is now becoming more widely available as grafted plants in a number of native nurseries, particularly in Victoria. Coming from rugged hilltops in the Die Hardy Range to the north of Southern Cross in inland WA, *Grevillea georgeana* is now under threat, with attempts being made from mining companies to open up the hills as a huge new iron ore mine! Fortunately for now at least, the WA Environment Protection Authority has opposed the move, and the former WA Liberal Party, who was in favour of the mine, were thrown out of office at the last election! These hills are part of the Helena and Aurora Ranges and are full of rare and endangered plants and animals. This is also the home of another rare and localized lovely summer flowering Grevillea, *Grevillea zygoloba*. Justifiably there are strong moves to make this entire area into a superb inland national park.

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Grevillea georgeana – Photo: Neil Marriott

Grafted plants of *G. georgeana* (on *Grevillea robusta*) thrive in warm sunny sites, and need regular light pruning to develop into a good compact rounded shrub 1.5-1.8 m tall and wide. Here they start flowering in early spring, continuing on right through the heat of summer into autumn. We also have a beautiful pink-flowered form, but sadly this form is extremely difficult to grow, lacking the vigour of the red form, even when grafted. Has any member had success in growing this colour form successfully?

Another red-flowered *Grevillea* that flowers from spring right through summer is *Grevillea fastigiata*. This would have to be one of the very best of all large grevilleas, with its strongly upright, dense habit, rich green foliage and massed superb red to orangey-red toothbrush flowers. In the living collection, plants are fast growing to around 2.5 x 2m, both on their own roots and grafted onto *Grevillea robusta*. They are extremely hardy, showy and look good all year round.



Grevillea fastigiata – Photo: Neil Marriott

Grevillea sarissa ssp *bicolor* is a delightful summer flowering *Grevillea* with slightly hidden but beautiful 'wheel' flowers. These occur on short branchlets within the fine foliage, but are in such a mass that they cannot be missed as you wander past. I guess this flowering strategy is to help honey eating birds to be able to feed freely on the nectar-rich flowers without being under threat from predation were the flowers terminal, as is usually the case for WA grevilleas!



Grevillea sarissa ssp *bicolor* – Photo: Neil Marriott

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Another Grevillea that is summer flowering, this time with rather prickly, deeply divided green leaves is *Grevillea treueriana*. This is an amazing Grevillea from Mt Finke in the middle of the Great Victoria Desert in outback SA. Discovered on the Giles expedition in 1875, it has not been found in any other location apart from this one small peak! In cultivation it requires a warm to hot sunny site with perfect drainage or as a grafted plant. We have both *Grevillea sarissa* ssp *bicolor* and *G. treueriana* in the living collection, and it was interesting to note that when our property and the collection were burnt out in 2006, all plants of *Grevillea treueriana* re-shot from basal epicormic buds.

The flowers are normally pendant, at the ends of branches, and are a superb combination of scarlet and orange. As a result they always arouse comment from visitors who are amazed at the sheer beauty of the flowers. Never a Grevillea to have a mass of flowers, it still impresses with its dense finely divided rich green foliage and contrasting flowers.



Grevillea treueriana – Photo: Neil Marriott

As well as those that flower profusely and often exclusively throughout the summer months, there are those that have their peak flowering at other times of the year, particularly in winter-spring that continue to flower lightly through the summer months. In the living collection this currently includes *Grevillea aquifolium* ssp *nov* Carpenter Rocks, SA, *Grevillea banksii* - tree forms and prostrate form, *Grevillea beardiana*, particularly the Peak Charles and the orange

flowered forms, *Grevillea didymobotrya* ssp *didymobotrya* and ssp *involuta*, *Grevillea evanescens*, *Grevillea haplantha* ssp *haplantha*, *Grevillea newbeyi* and *Grevillea pauciflora* ssp *psilophylla*.

A species that warrants special mention is *Grevillea acerata*, a very rare and localized species from Gibraltar Range in northern NSW. In the living collection this comes into flower during the spring in early September, and just keeps on flowering and flowering right through spring, right through summer and into autumn! Although not a spectacular flower, being a curious pinky grey, it still makes a lovely massed display in the garden and is only a small shrub to around 0.6 x 0.6m with simple linear leaves. We used to be able to grow this on its own roots, however with climate change, we now have to grow it grafted onto a hardy rootstock such as *Grevillea robusta*!



Grevillea acerata – Photo: Neil Marriott

No doubt there are many more, and with flowering, for many grevilleas, this is often dependent on the climate. Good spring and summer rains can bring on flowering in even the least inclined! Perhaps you can make a list of what you have flowering in your garden over the hot summer months - these are the plants we need to promote, to make our gardens look great over those unbearably hot summer months when most plants are looking limp and searching for a drop of water! Make a list and let other members know what looks good in your garden over summer!

GREAT GREVILLEA GARDENS, PART 1

Neil Marriott, Stawell, Vic

There are so many wonderful Australian native gardens, most of which go unrecognised by fellow members of our Society. All too often, when the properties are sold, these beautiful gardens, complete with extensive collections of Grevilleas are neglected, overgrown or at worst, cleared and destroyed by the new owners. This is exactly what happened to Phil and Alexis Vaughan when they sold their beautiful property at Curlewis on the Bellarine Peninsula.

The Garden Design Study Group, thanks to the great work of a number of their members, has become all too aware of this as well, and so they are documenting as many of the major private gardens as they can. Our garden at ‘Panrock Ridge’ has just become the latest to be recorded, thanks to the huge amount of work done by Diana Snape. This can be accessed on the ANPSA website by clicking on the Garden Design Study Group and following the links, or google ‘Marriott garden Stawell’ and you will get there. From this, came the idea that our Study Group should be doing the same thing, for members’ gardens with major collections of Grevilleas. To start the ball rolling, I begin with:

Robert and Norma Brown, Nicholson, Victoria

Robert and Norma are great Grevillea growers, having had a lovely, but crowded garden on their former dairy farm at Kardella near Korumburra in south Gippsland. Here Robert began developing his skills as a grafter of a very large range of grevilleas, the excess of which he began selling through his nursery ‘Grevillea Maximus Nursery’.

On retirement in 2010, he and Norma shifted to Nicholson in East Gippsland, where they bought a house on about 3.5 acres of land. Robert immediately began landscaping the property, with large sweeping beds out the front of the house and smaller, but still impressive beds all round the house and up the driveway. The garden beds were well dug over and formed up for good drainage before planting and mulching.



Robert and Norma in their Nicholson garden – Photo: Neil Marriott

East Gippsland has a wonderful temperate climate, with cool wet winters and mild to hot, usually dry summers. Rainfall is generally reliable, and around 670 mm per year. The soil in Robert’s gardens is deep and rich alluvial sandy loam, of acid pH. The initial plantings took off rapidly, thriving in the good soils and moist conditions, and already the gardens have the appearance of being established for many years, with most grevilleas filling out and spreading widely. Many are now so healthy that regular light pruning is needed to keep them in check!

Robert grows practically all his own plants, propagating primarily by grafting onto *Grevillea robusta*. To overcome incompatibility problems he is now using a number of different interstocks to increase the range of plants able to be grown. He also propagates by seed and cuttings. All excess plants are sold in his lovely little nursery out on the eastern edge of the gardens.



Robert in his ‘Tropical Grevillea’ garden – Photo: Neil Marriott

Due to the favourable climate, with few, generally only light frosts, he has been able to grow an extensive range of grevilleas, including a good number of tropical species including *Grevillea banksii*, *G. decurrens*, *G. heliosperma*, *G. exul*, *G. gillivrayi*, *G. formosa*, *G. wickhamii* and *G. prasina*. Some of these are large established plants kept in large tubs in his hothouse, although the majority are growing outside, using a large north facing brick wall of the house as a thermal mass and backdrop to the tropical plants. In this way, Robert has been able to grow plants way out of their favoured climatic range. Unfortunately a severe late frost last spring badly knocked most of these, however they are now re-shooting and coming on strongly again!

CONTINUED >



'Tropical Garden' featuring superb plants of *G. wickhamii* ssp *aprica*, *G. heliosperma*, *G. decurrens*, *G. prasina* and *G. formosa*
Photo: Neil Marriott

Nearly all of Roberts's plants are thriving, and he is now getting some interesting seedlings popping up throughout his garden. He has just registered *Grevillea* 'Robert's Ripper' and *Grevillea* 'Purple Prowler' with ACRA and these will soon become available for members of the Study Group.



Grevillea formosa flowering outside in the 'Tropical Garden'
Photo: Neil Marriott

Currently Robert has around 300 species and subspecies of *Grevillea* as well as a good number of hybrids and cultivars. His nursery plants are proving to be most popular and he regularly sells out of plants, particularly his grafted ones. He has been training local Parks Victoria ranger come native gardener Jeremy Tucharke in the finer art of grafting and now Jeremy is helping Robert to add to his collection as well as establishing a wonderful collection of his own!

If you are ever in East Gippsland, you must catch up with Robert and Norma and spend a couple of hours wandering around their extensive and beautiful collection of *Grevilleas*!



Massed beautiful *Grevilleas* – Photo: Neil Marriott

Robert and Norma can be contacted on (03) 5156 8956 or robnorm.nb@gmail.com

The nursery address is 10 The Riverside, Nicholson, Vic 3882.

GARDEN CHAT FROM BULLEEN, VICTORIA

Max McDowall, Vic

I have had good flowering displays on my grevilleas this year, including *G. rosmarinifolia* (? *latrobei*?) from Elphinstone, and the nearly extinct clone of *G. latrobei* from Plenty Gorge. Sadly, I lost the beautiful plant of this species that I collected in the Heathcote-Graytown National Park, Victoria some years ago. *Grevillea* 'Fireworks' is long-flowering here. *G. glabella* (two sympatric foliage variants from Barelleen in the Riverina), *G. rhyolytica* (by the front door) and *G. speciosa*, *G. 'nansonensis'* ms., *G. lavandulacea* (unknown provenance from Phil Hempel's old garden), *G. semperflorens*, *G. 'New Blood'*, and *G. 'Lady O'* are all doing well along with my second *G. synapheae*. Spectacular displays from *G. 'simplex'* ms., *G. georgeana* (grafted) and *G. 'Firesprite'* this year have previously been mentioned in 2016. New plantings in the past 2-3 years, *G. 'Tirari Blaze'* and *G. 'Panrock Princess'* are growing well and have responded to pruning back to make more bushy but have so far flowered only sparsely.

Some doubt (head shaking) has been expressed about the merits of *G. 'Soopa Doopa'*, and I noted initially that the flowers did not hold up well or last long on the plant. Could it be a nutritional problem? The hybrid does seem to have some attractive features, fine highly-divided foliage, and dwarf habit, and the flower quality seems to improve with age of the plant. Further selection of seedlings from the original hybridisation or using more vigorous parental clones might be the solution. There are too many big hybrids of the *G. banksii* - *G. bipinnatifida* type and not enough smaller ones. One hopes that a better name can be applied to such new selections.

I have had difficulty in growing the vigorous spectacular form of *G. depauperata* from Denmark that has featured in the Marriott display bed down from their front entrance. I have two established plantings which have survived two summers but not grown strongly, but (surprise, surprise!) one of these has put up new upright foliage as the old prostrate foliage was senescing, so there is new "hope in us". This position has good exposure to the sun among other sparse plants.

G. preissii subsp. *glabrilimba* (in a very high and dry situation in full sun), and *G. fililoba* are both very hardy and long-flowering. There are still some flowers on *G. fililoba*, as I write (February 2018). I have *G. hirtella* prostrate 0.3 x 3 m mostly as an undershrub, under *G. 'Firesprite'* in part to full shade in a dry situation, but it has not flowered well although it should have profited from the potassium sulfate which I scattered around the base of *G. Firesprite*.

The underspace of *G. 'Firesprite'* also includes a spreading and layering prostrate *Acacia lasiocarpa*. Incidentally, I have a 2-year-old grafted 'Nellie Kelly' passionfruit growing close by sharing the root space with *G. Firesprite*, and it has fruited phenomenally for the first time this summer. I have never seen so many fruits on each of the runners of the passionfruit, and we have been collecting from the ground up to 20 fruits per day for several weeks. This must have benefited from the potash application to the *Grevillea*.

I have *G. thelemannia* 'Red Wings' upright and over 2m high and thought it must be a hybrid, but I am assured that it is a vigorous selection of the actual species. It was introduced by Larkman Nurseries, Victoria from a nursery in Western Australia. It flowers spectacularly and beats the hell out of *G. 'Winpara Gem'* which I used to grow but was too 'bigorous' and hid its flowers among the foliage. The concept of *G. thelemanniana* among SGAP members, nurseries and some botanists was not well developed during the seventies and eighties. I note that Don McGillvray recognised seven subspecies under the name *G. thelemanniana* which are now recognised as separate species with additional species and subspecies. One common plant of this group at the time sold as *G. thelemanniana* 'Grey-leaf Prostrate Form' was not recognised by him but has been described subsequently as *G. humifusa*. I must have been one of the first to hear directly from Peter Olde that he had just rediscovered the wild provenance of *G. humifusa* near Jurien during the 1991 Biennial Conference in Perth.

Another common plant in nurseries at the time has been recognised as *G. preissii* subsp. *glabrilimba*. It is still sold in W.A. as *G. 'Seaspray'* but it was sold here as *G. 'Magic Lantern'* and as *G. 'Gilt Dragon'*. I am not sure if there was any difference between the plants, though they were probably sourced from different provenances. *Grevillea humifusa* differs from *G. preissii* subsp. *glabrilimba* in its completely prostrate habit with branches extending up to 3 m in length and in its perianth limb with scattered hairs. It makes a most spectacular standard if you can get one although it is prone to psyllid mite I am told. There is also a *Grevillea* 'Green Seaspray' sold in Western Australia. This plant was sourced from near Muchea, W.A. according to the PBR website and is probably a form of *G. preissii* subsp. *glabrilimba* with green rather than grey foliage.

CLIMATE CHANGE AND GREVILLEAS

Neil Marriott, Stawell, Vic

We hear so much about climate change these days, but few of us have taken much note on how it is impacting on our Grevillea species. Here in Victoria, the impacts of climate change have been most dramatic over the last 22 years, and probably longer. It was in 1996 that at Panrock Ridge we had our very last normal or 'average' year, with good autumn rains, a cold wet winter, good spring rains and a hot dry summer. In those days we used to always have an annual rainfall of between 650-700 mm. Wet years were up to 800 mm! There were 16 permanent springs on our property, many flowing into our large dam and wetland, before flowing out and down a branch of Panrock Creek that runs through our property. Panrock Creek flowed throughout the summer and into autumn before drying up for a few months. Now it never flows!! NB. On reading the local history of Stawell book by Maynard Orde, written in 1874, I was staggered to read that Panrock Creek was "lined with tree-ferns and every pool supported platypus"! How times have changed! This shows that our climate has in fact been changing for a long time, not just a recent thing!

In the "good old days" of the 1990s we used to have an extensive range of 'tropical' grevilleas in the collection. Sadly most of these were burnt out in 2006, and now it is extremely difficult, to nigh on impossible to re-establish many of these. Most species that used to be easily established on their own roots now have to be grafted onto hardy rootstocks capable of surviving our long, extremely hot dry summers. This summer, to make things even worse, the heat and possibly the extreme UV are actually burning the foliage of many of our young plants. They are not being killed, as the soil is still moist and well mulched from my watering regime, but the foliage is being burnt and killed as can be seen in the pictures below. The same species, growing nearby in shaded sites are completely untouched.



Grevillea hilliana showing severely burnt foliage
Photo: Neil Marriott

Discussions with Ian Evans from Bendigo, have revealed that he has, for the first time experienced severe burning of many of his Grevilleas this summer from reflection of the sun off his pebble mulch! Many of us, particularly those in the country, due to bushfire concerns are turning to gravel and pebble mulches due to their fire safety, but from Ian's experience, this may need a re-think!



Grevillea victoriae ssp. *nivalis* showing burnt foliage
Photo: Neil Marriott

CONTINUED >

Recent discussions with Bill Molyneux, well-known botanist, author and *Grevillea* expert reveal that he is working with David Cameron from the Department of Environment, Land, Water and Planning (DELWP) on the long term survival of rare and endangered Victorian *Grevilleas* in the light of climate change.

Bill is an expert on the *Grevillea victoriae* complex, having discovered and named numerous new species within this group. *Grevillea victoriae* and its allies are nearly all confined to the alps, sub-alps and higher peaks in SE Australia. It is well known that our alpine native animals such as the Mountain Pygmy Possum, Alpine Long-toothed Rat and Corroboree Frog will become extinct in the wild in the next few decades as our mountain tops warm. They are on the tops of the mountains and can go no higher, and already they are beginning to suffer.

The very same situation is being faced by our alpine plants! They have evolved to live in very cold, often snow clad mountainous regions, and now as our climate warms up, it is feared that they will not cope with the rapid changes in temperatures, reduced rainfall and little and eventually no snow.

Part of Bill's and David's major overall program includes generation time, numbers of a species in colonies or areas, and its modes of regeneration. Bill has found that the expression "regenerates from seed" is too often used without fuller investigation. "We have discrete patches of *G. repens* in our region, one above us on the upper slopes of Paul's range. This was 'wiped out' by the fires 9 years ago (or so I thought). Having only been to the patch once after the fires, I was surprised to find plants up to 4 m across, with most of the 30 plus plants about 1.5- to 2m wide. Using a trowel I dug down to the central rootstock and uncovered the rootstock only about 10 cm under the soil and litter; it was from here that the stems and branchlets had regenerated. No sign of seed regeneration and no buds or spent capsules. I will continue to survey this patch for flowering and seed set as these observations change the understanding of the potential life span of the species for this region".

Have you noticed changes in, or impacts of climate change on your *Grevilleas*? Perhaps you could put pen to paper and let us all know of your experiences. We really need to work together on this, so we can fully document the impacts on our flora and therefore help each other and other growers of Australian plants on how to cope with these inevitable changes.



Grevillea repens – Photo: Peter Olde

Please include a stamped self addressed envelope.

\$1.50 + s.a.e

<i>Grevillea aurea</i>	<i>Grevillea magnifica</i>	<i>Grevillea refracta</i>
<i>Grevillea baileyana</i>	<i>Grevillea magnifica</i>	<i>Grevillea ramosissima</i>
<i>Grevillea banksii alba prostrate</i>	ssp <i>magnifica</i>	<i>Grevillea ramosissima</i> ssp
<i>Grevillea biternata</i>	<i>Grevillea manglesii</i>	<i>ramosissima</i>
<i>Grevillea candelabroides</i>	ssp <i>manglesii</i> (ltd)	<i>Grevillea stenobotrya</i>
<i>Grevillea crithmifolia</i>	<i>Grevillea monticola</i>	<i>Grevillea striata</i> (ltd)
<i>Grevillea decora</i>	<i>Grevillea nana</i>	<i>Grevillea superba</i>
<i>Grevillea decurrens</i>	ssp <i>abbreviata</i>	<i>Grevillea synapheae</i>
<i>Grevillea eriobotrya</i>	<i>Grevillea newbeyi</i>	<i>Grevillea teretifolia</i>
<i>Grevillea eriostachya</i>	<i>Grevillea nudiflora</i>	<i>Grevillea tetragonoloba</i>
<i>Grevillea excelsior</i>	<i>Grevillea occidentalis</i>	<i>Grevillea triloba</i>
<i>Grevillea floribunda ex</i>	<i>Grevillea paniculata</i>	<i>Grevillea triternata</i>
<i>Coonabarabran</i>	<i>Grevillea paradoxa</i> (ltd)	<i>Grevillea vestita</i>
<i>Grevillea glauca</i>	<i>Grevillea pilulifera</i>	<i>Grevillea wickamii</i>
<i>Grevillea johnsonii</i> (ltd)	<i>Grevillea polybotrya</i>	ssp <i>aprica</i>
<i>Grevillea juncifolia</i>	<i>Grevillea preissii</i>	<i>Grevillea wilsonii</i>
<i>Grevillea leucopteris</i>	<i>Grevillea pteridifolia</i>	
<i>Grevillea longistyla</i>	<i>Grevillea pulchella</i>	

Free + s.a.e

<i>Grevillea banksii</i> prostrate white	<i>Grevillea leucopteris</i>
<i>Grevillea banksii</i> prostrate red	<i>Grevillea magnifica</i>
<i>Grevillea banksii</i> prostrate red ex 1770	<i>Grevillea 'Moonlight'</i>
<i>Grevillea bracteosa</i>	<i>Grevillea petrophiloides</i>
<i>Grevillea glauca</i>	<i>Grevillea plurijuga</i>
<i>Grevillea juncifolia</i>	<i>Grevillea ramosissima</i>
<i>Grevillea johnsonii</i> red flowers	<i>Grevillea robusta</i>
<i>Grevillea longistyla</i>	<i>Grevillea stenobotrya</i>

Please note: seed from hybrid
-substitute -cultivated plants does
not necessarily come true to type.

Fresh stocks of garden seed are desperately needed as most species are almost out of seed.

Can members asking for seed please give an alternative list in case some species are no longer in stock. It is preferred if requests are sent with a small padded post pack. It costs less to send at approx \$1.50 per letter than padding an envelope at \$2.00 each or more so the seed will survive the trip down the sorting rollers. It's a good idea to send extra stamps with requests as extra postage is usually needed to be paid with almost every request. Leftover stamps would be sent back with your seed.

Income

Interest	0.15
Transfer from IBD	1,000.00
Seeds	5.00

Total income \$1,005.05

Expenditure

Newsletter publishing	\$285.00
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Total expenditure \$285.00

Bank account details



Amount in interest bearing deposit till 23/04/2018

\$18,735.34



Balance in current account 07/02/2018

\$1,190.76

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