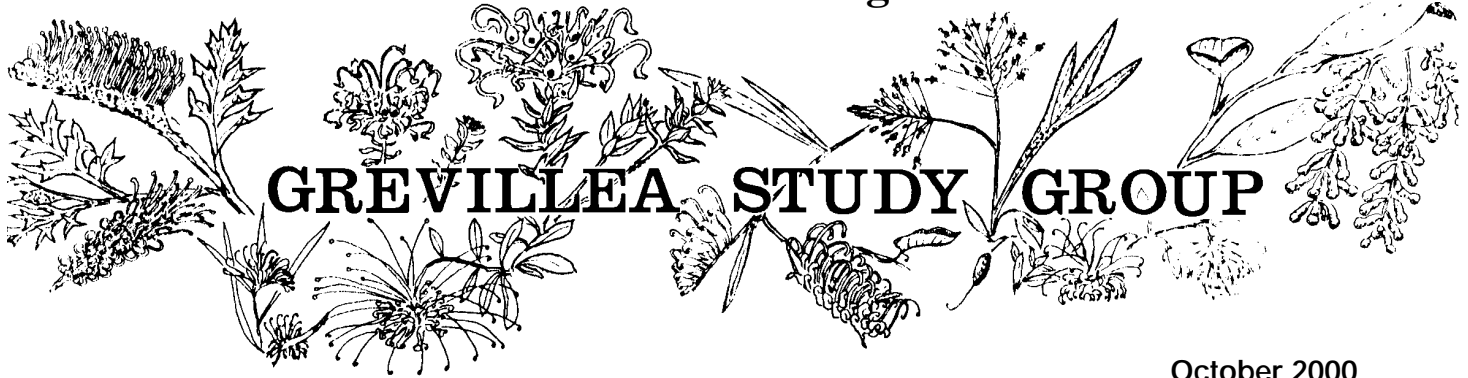


Association of Societies for Growing Australian Plants



Ref N° ISSN 0725-8755

October 2000

Newsletter N° 57

VICTORIAN CHAPTER

November 4th-10th:

**The FJC Rogers Seminar at Ararat (Nov 4-5),
Grampians Grevillea Tour (November 6) and Grevillea
Crawl in Central Victoria (Nov 7-10).**

Details of Registration in February GSG Newsletter #55.

There are still 20 places available at the Saturday dinner venue, and 50 places available for the Seminar and Saturday night speaker. Alternative dinner arrangements are being made for the 30 places unable to be accommodated at the official venue.

(see inside for details of Field trip)

QUEENSLAND REGION

MEETINGS FOR 2000: All meetings commence at 9.30 am unless otherwise notified. For further information contact Merv. Hodge on (07) 5546 3322.

SUNDAY, 29th OCTOBER

Venue: Home of Peter & Jill Turnbull
39 Jellicoe Street, Toowoomba, 4350

Phone: (07) 4632 0772

Subject: Grevilleas for different conditions

SUNDAY, 26th NOVEMBER

Venue: Home of Ralph & Margaret Hickling
16 Mary Smokes Creek, Kilcoy, 4515

Phone: (07) 5497 2056

Subject: fertilizers

Sunday, 28th JANUARY 2001

Venue: Home of Merv & Olwyn Hodge
81-89 Loganview Rd, Logan Reserve

Phone: (07) 5546 3322

Subject: Propagation by grafting

NSW STUDY GROUP

Sunday, October 15 9.30 a.m.

Home of Gloria and Gordon Brooks, 138 Ridgeway Dr.,
Castle Hill Phone 9680 4951

Mulches for Successful Cultivation Garden Visit.

November 4-10 Fred Rogers Seminar and Field Trips

Programme of Events 2001

Sunday, February 11, 9.30 a.m.

29 Gwyther Ave., Bulli Subject: The Production of Grevilleas
as Standards. Speaker: Ray Brown

Sunday, March 11, 9.30 a.m.

Mt Annan Botanic Garden. Subject: The Use of Smoke in the
Germination of Seed Speaker: TBA

Sat & Sun April 21 & 22

Autumn Plant Sale Set-up Friday April 20

Sunday, May 13 9.30 a.m.

138 Fowler Rd., Illawong. Subject: New Species of Grevillea
Speaker: Peter Olde

Sunday, June 10 9.30 a.m.

Subject: Propagation. Simple Propagation by Cutting. Venue
and Speaker: TBA

Sat - Sunday, July 21-22.

Garden visit and field trip Saturday: Hunter Region Botanic
Garden and local gardens. Sunday: Two wildflower farms on
the Central Coast.

Sunday, August 12 9.30 a.m.

Subject: New Grevillea Hybrids Don Burke, Kenthurst. Visit
to Don Burke's Hawkesbury Sandstone Garden featuring new
hybrids. Limited numbers. You must book with Peter Olde
9543 2242 if you wish to be on this outing.

Sunday, September 9 9.30 a.m.

Outing to Georges River near Wedderburn. Leader: Bruce
Wallace.

Fri Sep 28 - Mon Oct 1 Field Trip Riverina District.

Sunday, November 11 9.30 a.m. Grevillea Park, Bulli Sub-
ject: The Art of Pruning Grevilleas Speaker: Ray Brown

INSIDE

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- How to Graft Grevilleas
- Developing *Grevillea* Breeding and Development as a Cut Flower

CONSERVATION REPORT

Conservation Protection for *Grevillea juniperina* ssp. *juniperina*

P. Olde

Further to an application on behalf of this taxon by the author and Robert Miller (Prostanthera Study Group), correspondence with Chris Dickman, Chairperson of NSW Scientific Committee has been received.

Dear Mr Olde,

Further to our previous correspondence, the Scientific Committee⁴ has made a Final Determination to list the shrub *Grevillea juniperina* R. Br. subsp. *juniperina* as a VULNERABLE SPECIES on Schedule 2 of the Threatened Species Conservation Act. This species was called *Grevillea juniperina* R. Br. (Type Form) in the Committee's Preliminary Determination. Listing is provided for by Part 2 of the Act.

Public notification of the Determination will be given shortly as specified in the Act.

Final Determination The Scientific Committee has found that:

1. *Grevillea juniperina* R. Br. was first collected 11 km NW of Prospect in October 1803 by George Caley and described by Robert Brown in 1810. *Grevillea juniperina* is currently treated in the Flora of New South Wales as an aggregate of several distinct taxa. Makinson (Flora of Australia Vol 17A) recognises 7 subspecies. This species was called *Grevillea juniperina* R. Br. (Type form) in the Scientific Committee's Preliminary Determination. This taxon is now known as *Grevillea juniperina* R. Br. subsp. *juniperina*.
2. *Grevillea juniperina* R. Br. subsp. *juniperina* [Family Proteaceae] is described by Makinson as: More or less erect to spreading dense divaricate shrub 0.5-1.5 m tall; major branches appearing subcolumnar (leaves clustered on short lateral branchlets); foliage dense. Adult leaves often dark green with paler veins, usually narrow, needle-like, 10-22 mm long, 0.6-0.8 mm wide, angularly deltoid to trigonous

in cross-section; midvein and intramarginal veins usually very prominent; upper surface with appressed hairs; margins strongly and angularly revolute; lower surface usually fully enclosed; juvenile leaves scarcely broader than adults. Flower colour: perianth red, yellow, pale orange, or rarely greenish; style similar to perianth or a little paler. Perianth subsericeous outside with biramous hairs only. Pistil (13-)20-25 mmm long.

3. *Grevillea juniperina* R. Br. subsp. *juniperina* is confined to Western Sydney and is known from the area bounded approximately by St Marys-Londonderry-Prospect. It has been reported from the local government areas of Blacktown, Hawkesbury, Liverpool, Parramatta and Penrith, often persisting along roadsides.
4. *Grevillea juniperina* R. Br. subsp. *juniperina* has a restricted range occurring on red sandy to clay soils - often lateritic on Wianamatta Shale and Tertiary alluvium in Cumberland Plain Woodland and Castlereagh Woodland. It occurs as localised, often small populations, often on road verges.
5. A small population has been recorded from Castlereagh Nature Reserve.
6. *Grevillea juniperina* R. Br. subsp. *juniperina* is threatened over most of its range due to habitat destruction including clearance for urban and industrial development, road upgrading, inappropriate fire regimes, weed invasion, rubbish dumping, trampling and vehicular damage.
7. In view of 3,4,5 & 6 above the Scientific Committee is of the opinion that *Grevillea juniperina* R. Br. subsp. *juniperina* is likely to become endangered unless the circumstances and factors threatening its survival cease to operate.

Itinerary for GSG Vic Field Trip through Central Victoria Nov 7-10th 2000

CAMPING OUT TUES, WED, THU

Participants should register with Neil Marriott (03) 53562404 or Peter Olde (02) 9543 2242

TUESDAY 7th:

Depart east Barkly Street opp Ararat Community College 9 am

Mt Langhi Ghiran summit (steep climb)

G. montis-cole ssp. *brevistyla*

Western Highway 187-189 km posts *G. alpina* (type form)

Dillwynia hispida, *Correa aemula* hybrids

Warrack Cemetary *G. alpina* (type form - most easterly)

Mt Cole SF -Glut Picnic ground

G. montis-cole ssp. *montis-cole*

Raglan - Musical Gully *G. floripendula* form

Ben Major *G. floripendula* - type form

WEDNESDAY 8th:

Avoca en route *G. alpina* - Goldfields

Dunolly *G. ilicifolia* (most easterly), *G. alpina*

Maldon *G. micrantha* - dwarf suckering

Castlemaine *G. alpina* - Goldfields

Fryers Range *G. obtecta, repens, alpina*

THURSDAY 9th:

South Bendigo, Mandurang, *G. alpina*, dryophylla & hybrids

Aqueduct *G. rosmarinifolia* - dwarf suckering

Bor. anemonifolia Philotheca verrucosa

Goldfields Revegetation Nursery - many indigenous natives

Bendigo Whipstick *G. alpina*, *G. rosmarinifolia* (*glabella*)

Crocea exalata ssp. *revoluta* *P. verrucosa*

Tooberac, Puckapunyal Road *G. alpina* - (small-flowered)

Heathcote, Mt Ida, *G. alpina* - (small-flowered)

FRIDAY 10th:

Heathcote - Pavey Rd - Rushworth *Boronia anemonifolia*

G. alpina - Whroo Forest Goldfields form,

G. rosmarinifolia - burnt orange flower form

Warby Ranges *G. alpina* - Northern Vic form

Chiltern Hills *G. alpina*, suckering, small-flowered

Go Home



IN THE WILD



Discovery of a wild source for *Grevillea banksii* cv 'Ruby Red', *G. banksii* colour variants and *G. banksii* cv. 'Hot Lips'

Bryson Easton be1@qml.com.au September, 1999

The prostrate red-flowered plant known in the nursery trade as *Grevillea* 'Ruby Red' is extremely popular in tropical and sub-tropical gardens and makes a beautiful ground cover. The origin of this plant has long puzzled the Study Group and its members. While it possesses all the taxonomic fundamentals of *Grevillea banksii*, it has very small leaves and inflorescence features, including pistil length and rachis length, that are well outside the accepted circumscription of *G. banksii sens. lat.*

Following the Study Group meeting in August 1998 at Merv Hodge's I was moved to try and locate this plant and establish its wild source—more particularly on the headlands of Central Qld around 1770 and north to Yeppoon ~ 700 km north of Brisbane. After travelling to the Yeppoon-Byfield National Park area in Sept 1995 via Agnes Waters and 1770 where I found exceptional coloured forms of *G. banksii* I realised that potentially there were further forms waiting to be seen.

On my recent trip I noted that white-flowered plants of *G. banksii* occur geographically from Maryborough (230 km north of Brisbane) to Agnes Waters in the north (a range of about 200 km to the north) in a more or less pure stand. These plants are also similar in stature i.e. shrubs to 4-5 m. At Agnes Waters/1770 they meet with a red-flowered population coming down from at least Shoalwater Bay to the north, and extending up discontinuously to Townsville. At Agnes Waters the colour variations are wonderful; for every ~30 pure red or white plants there is a colour variant. I observed roughly a mix of 60% red to 40% white, with extremely beautiful colour variations from the softest pink, through mid pink to dark pink.

I also observed that whenever red-flowered plants co-occur with white-flowered plants that the styles on the white-flowered plants age to red after anthesis. Where the population is purely white-flowered i.e. south to Maryborough, the style does not age to red.

Changes in stature occur as you reach the coast. The amazing thing is that when you go on the Round Hill Headland at 1770 less than 5 km away from Agnes Waters, the decumbent population of *G. banksii* is 99% white. In a population of hundreds of plants approximately three plants were red and no shades of pink were found. This observation was made after eight hours of searching. I was really keen to discover what was happening on the headlands north of here. Would the decumbent headland populations cross over to red?

The coastline to Gladstone is basically unexplored as there are no road systems while the Gladstone to Yeppoon road is a series of small holiday towns. Again for 20 km north of Yeppoon i.e. due east of Rockhampton the coast is swampy and uninhabited country. After Corio Bay, which holds the delta system for this swampy country, the coastline becomes a series of headlands and beaches up to Shoalwater Bay, famous for its military exercises and off limits to civilians. It was to this coastline south of Shoalwater Bay that I headed, in search of *G. 'Ruby Red'* and other colour variants.

Approx. 30 km north of Yeppoon via a single lane dirt road is the township of Byfield (1 school, 1 shop, 1 garage and 6 houses). Byfield you may all know is botanically famous as the

location for *G. venusta*, which is occasionally seen along the watercourses in the shaded areas, and *Bowenia serrulata*, the Byfield Fern. Byfield State Forest is now a vast plantation of radiata pine. However, along the roadside verges and on undisturbed land, the tree form of *G. banksii* occurs in the thousands and virtually all are red-flowered! Twice now I have spent 1.5 days driving several hundred km and seen less than ten white plants. What an amazing geographic distribution of colour and WHY??? Why at Agnes Waters do they cross over and give off variant colours? The plants here can be huge. Quite often to 10 m and more high, with trunks 0.6 m in diameter.

In 1995 my greatest find was a weird yet beautiful colour form which I call 'Hot Lips', where the perianth tube is all white but has a dark red perianth limb. I only found 3 such plants (c. 1 km north of Byfield in a roadside ditch). Sadly, in 1999 these plants were no longer there! I have often wondered whether there were any prostrate/decumbent forms of 'Hot Lips', 'Ruby Red' etc on the headlands to the east of here. This was the sole reason for my latest 1800 km round trip.

The 50 km of coast east of Byfield consists of long beaches (up to 15 km long) punctuated by approx. five rocky barren wind-swept headlands. Parabolic sand dunes formed over the millennia from south-easterly winds have built up a vegetation of very unique flora. These dunes extend some 10-15 km inland and consequently the tracks are all sand and definitely 4WD country only. The only way out to the coastline from Byfield is via a 5 km forestry track and then 12 km of shifting dune tracks i.e. KEEP THE OCEAN ON YOUR RIGHT!!. Rockhampton people have somehow set up a shanty fishing village of approx 12 houses at Stockyard Point - my first destination. It took me some four hours from Byfield with plenty of luck. But wasn't it worth it. Nestled in behind the headland are these gorgeous little shacks/houses full of very friendly, retired people. From here to the edge of the headland cliffs (c. 1 km) the vegetation becomes progressively flatter i.e. from 1 m down to absolutely prostrate.

Standing on this sort of headland is amazing because you can see up and down the coast forever. What a sight! Fantastic blue/green water with whales migrating past and long stretches of golden beach north and south. But there's more. On this headland covering more than a square km are literally hundreds and hundreds of decumbent plants of *G. banksii*, 99.99% of which are RED!!! I spent 3 days and 2 nights, using the village as my base, to search this headland and another called Five Rocks, just 2 km to the north as the crow flies, but one hour by 4WD. At Five Rocks again all were basically red, thousands of them. It was here after nearly a full day I located on the cliff edge plants that to me looked very much like *Grevillea banksii* cv. 'Ruby Red'. These plants occupy a specific habitat which is very exposed and harsh, no doubt contributing to their miniaturisation. I will await a verdict from photos and specimens sent to Peter Olde. Another item of interest was that on the beach between Stockyard Point and Five Rocks the decumbent *G. banksii* was growing right to the high tide vegetation line i.e. nearly into the water!!!

IN THE WILD (cont)

By lunchtime on the third day I had about had it of decumbent red banksii and decided to head back to Rockhampton not having found any colour variations of note. Just the occasional paler red or darker red-flowered plants -but RED!!! Whilst at the unofficial Mayor/First Aid Officer/Chief Fireman's shack of Col & Carol Ryan, a very nice couple, they told me that there were whales off the point. I took one last drive out to the Telecom repeater station, parked and walked down the track to the cliff edge. Wow!!! I found three plants of decumbent 'Hot Lips'. It was so great to see another colour and my weird colour variant to boot-time for a TOYOTA jump. After all my excitement I missed the whales.

I left Stockyard Point with such great memories and lots of questions. Why is everything red up here and white further south? Why do the shrub forms mix colours at Agnes Waters? Do the decumbent forms mix colours on some remote headland between 1770 and Yeppoon? Is this coastline the home of *G. 'Ruby Red'*? Is *G. 'Hot Lips'* just an exceptional mutant gene (tall & decumbent form)? and Will the study group let me have some money to finance a boat trip landing and exploring every headland from the township of 1770 to Yeppoon in Sept. 2000?

Just wondering Peter?????

P.S. Many interesting plants existed on these headlands e.g. decumbent forms of *Banksia integrifolia*, *B. robur* and an extremely prostrate form of *Leptospermum* sp. which covers an area of 2 sq.m. and just 100 mm high!!!

Observations on the plants from Stockyard Point.

P. Olde

I have examined the specimens sent to me from Stockyard Point by Bryson Easton in September 1999 and in my opinion they are virtually indistinguishable from *Grev. banksii* cv. 'Ruby Red'. The cultivar is obviously being propagated from a single plant collected in this area or some other area nearby.

However, what is important is the understanding that the cultivar does have a wild source.

Now we must try to understand the extent and cause(s) of this floral miniaturisation. Is it a gradual process in the same way that large shrubs become decumbent and prostrate towards the coast? What is its taxonomic significance? Are we witnessing species evolution? The influence of habitat on these populations is clear-cut, but what came first? Were the plants here before the change in coastline caused them to change or did they evolve gradually into this habitat after the change in coastline and other prevailing harsh conditions became operational?

The decumbency/prostrate habit has become fixed genetically as has the leaf, flower and inflorescence miniaturisation. In other words, when transferred to a protected habitat such as the garden they retain their characteristics and do not grow out to the standard habit found in natural protected situations further inland. However, in the wild this miniaturisation is site specific. There does not appear to be any taxonomic significance being attached to this miniaturisation. A similar thing happens at Angourie/Shelley Beach in New South Wales with *G. sp. aff. linearifolia* (grey leaf prostrate form) except that there is no inflorescence miniaturisation.

FUNDING ISSUES

As to the other matter raised by Bryson, the Study Group would look at funding, at least in part, a proposal to explore the area and collect plants. A rough costing of such an expedition would be necessary first. Conditions on reporting and aims of the expedition would need to be set out and arrangements made for the collection of plant material, including licences and permits to enter. Plants from coastlines often make wonderful horticultural plants and observations on the habit and habitat of *Grevillea* species could be extremely important in a scientific sense as seen from the above. From my memories of Shoalwater Bay in the army, you will definitely need plenty of mosquito repellent.

Are there any motels for us to stay in, Bryson?



IN THE GARDEN



Grevilleas in Wandin

Bob O'Neill

We have grown grevilleas for some years, nothing particularly unusual - *G. 'Robyn Gordon'*, *G. lavandulacea*, *G. jephcottii*, *G. 'White Wings'*, *G. 'Winpara Gem'*, *G. robusta*, *G. victoriai*, *G. lanigera*, *G. alpina* in a number of forms plus others that were gathered as cuttings from time to time. Generally speaking we have little trouble with the hardier species because of our moderate climate, regular rainfall, northerly aspect, good drainage and fertile soil.

Late 1999, we prepared, ripped, drained and mulched a 550m² bed primarily for grevilleas, but also for more arid area type *eucalypts*, *dryandras*, *acacias* etc. At present there are approximately 40 grevillea plants in the bed and patiently await to add another 50 or so. After 8 months, *G. magnifica* is growing beautifully, with a 6 foot spike. *G. wilkinsonii*, *G. tenuiloba*, *G. mag-*

nifica G. remota, *G. baueri* and a number of *G. alpina* are making excellent progress.

Our climate is cooler, wetter and more extreme than Melbourne central. The plants get maximum sunshine, the drainage is good and the several light frosts have had no ill effects, enabling the plants to continue growing throughout the winter. So far there have been no losses in this bed, suggesting that I should have ripped all the other new beds earlier on before planting.

There are some problems. Many plants are unlabelled - the birds, faded labels and unknown plants for cuttings. The wind upended a *G. robusta* and dismembered a few other plants, but fortunately rabbits have not been a problem. From now on I wish to trial more of the unusual plants and with any luck at all, I anticipate interesting times ahead.

BITS 'N' PIECES

WORM CASTS

Russell McLean (bevruss@northnet.com.au) writesMy wife Bev & I live on a one acre property at Woombah, which is near Iluka on the NSW north coast. We are about 5 - 6 km from the ocean and the soil is silty clay. It is a fairly young garden, and we did have some plant deaths in the early stages. But we seem to be over that now. The following plants (from our top 10) are growing very well:

Grevillea 'Moonlight'. Never without flowers. They grew too quickly in the early stages and became top-heavy. But after some fairly severe pruning the roots were able to get a good foothold and now the plants are looking very good.

Grevilleas 'Ned Kelly' and *'Superb'*. Very quick growers from tube stock. Make a lovely show all year and attract lots of different honey-eaters.

We run a small commercial worm farm on our property and so we have lots of liquid and dry vermicast in stock to use on our plants. I can't think of one plant that has "protested" at being given the vermicast treatment. Even the supposedly sensitive ones like grevilleas and banksias show no ill-effects. Our plants mainly get liquid vermicast, normally at about 3 or 4:1 dilution rate, but we sometimes apply dry vermicast to our *Grevillea 'Moonlights'* and get very good growth rates.

Our on-site waste management system (by a firm called Dowmus) is based on worms rather than chemicals, and so all the plants (native) on our irrigation bed are getting a dose of liquid vermicast up to twice a day and are thriving.

Source: *Gumnuts 24, April 2000*



Ian Cox (itcox@bigpond.com) has some experience with worm castings and writes.....

"I have a worm farm and find that the resulting liquid and castings are very useful in the garden. Our soil is impoverished Hawkesbury sandstone, and some natives do like this rich organic fertiliser under these soil conditions.

The plants I put it on are:

* Ferns and palms * Eremophilas * Grevilleas grafted onto *G. robusta* * Rainforest species * Kangaroo paws

The trick is to dilute the liquid down before applying (about two cups in 10 litres of water). I have also used it successfully on potted out cuttings."

Source: *Gumnuts 20, December 1999*

NATIVE PLANTS PRODUCTION

The Nursery Industry Association of Australia has reported that sales of Australian native plants made up 35.4% of total sales by production nurseries compared to 64.6% exotics. Western Australia had the highest proportion of sales as natives (44%) and the Northern Territory the lowest (20.9%). Other states range from NSW (37.8%), Qld (35.3%), Vic (30%), Tas. (29.5%) and S.A. (26.2%).

Bunching of foliage in tropical grevilleas has been a serious problem for some growers. Elva Carter (Burpengary), an experienced propagator, advises that the cause of this may not be thrips as previously thought but nutrient or trace element defi-

ciency. Nursery plants showing sign of this problem have recovered after receiving a balanced, complete nutrient diet.

GREVILLEAS ON TV

Peter Olde will soon appear as a regular, monthly 'Native Plant' expert on 'Morning Shift', a national TV morning show on Channel 7/Prime. The programme represents an opportunity for members to air news and publicity about plants and Native Plant events. The first appearance was on Thursday June 15 at 10 a.m. and dealt with Grevilleas. Other dates were Olympic Bouquets 14/9; Spring Natives 4/10 at 9:10am, coming up Waratahs on 11/10 and one on Kangaroo Paws date to be advised.

HERBARIUM NEWS

Peter has also been honoured with a request to curate *Grevillea* at the Herbarium of New South Wales (NSW) and is currently in the process of lodging all his specimens there.

CULTIVAR REGISTER

Peter Olde & Neil Marriott have submitted a descriptor standard to ACRA (Australian Cultivar Registration Authority) for use by people submitting specimens for registration by the authority. In the past, such registrations have sometimes been accompanied by brief descriptions that do not necessarily adequately distinguish the cultivar or hybrid submitted. The description will accompany the 'standard specimen' as a reference against which other cultivars etc can be compared.

FUNGAL PEST IDENTIFICATION

Brett Summerell (Royal Botanic Gardens, Mrs Macquaries Road, Sydney) has offered to examine and try to identify any leaf fungal spots on *Grevillea*. Identification is always a first step in the successful treatment of problem pests. Just post the leaf to him indicating species (or hybrid) and your name address and phone number. Brett is also conducting ongoing research on fungal leaf spots of waratah and other proteaceous leaves.

'GREEN' GREVILLEAS

Jonathan Lidbetter (an.lidbetter@agric.nsw.gov.au) writes for help About a month ago I heard about a 'new'? green *Grevillea* sweeping the cutflower markets of Europe marketed as Spiderman. Do you know what this *Grevillea* is or who to ask?

Yes, Jonathon, it is *Grevillea hodgei*. Apparently it has been developed as a crop in Israel for sale in world cut-flower markets and is doing nicely.

FLORA OF AUSTRALIA Vol 17a

Bob Makinson reports that Vol. 17a of Flora of Australia containing his treatment of the genus *Grevillea* has finally been published. However, at the time of writing, copies have been slow to appear. A number of species have been revised including *G. linearifolia*, *G. juniperina* and *G. victoriae*. It is understood that many new species have been recognised. A review of the new volume will appear in the next newsletter.

PROPAGATION

How to Graft Grevilleas

Helen Moody writes for *Australian Horticulture* Winter 1999

For gardeners who covet those showy (usually Western Australian) grevillea species that are so difficult to grow as ornamentals, especially in eastern states, help is at hand.

Grafting delicate species onto vigorous rootstock can give the required resilience to root rots such as *Phytophthora*. It is also useful for species that are short-lived or frost sensitive. Species with poor root systems that fail to withstand strong winds when seedling - or cutting-grown can be grafted onto more deep-rooted species.

Grafting is the only way to propagate some species or the most reliable way of reproducing rare or endangered species or specific clones. Species that may take up to 10 years to flower when grown from seed may bloom much sooner when scion material from a mature plant is grafted onto a vigorous seedling.

Grafting can also result in unusual forms such as weeping standards.

Rootstocks

Early experimentation on grevillea grafting was largely undertaken by enthusiasts grafting onto *Grevillea robusta*, chosen for its adaptability and ability to take more water than almost all other species.

While enthusiastic amateurs continue to experiment with grafting, often via involvement in the Grevillea Study Group, more commercial nursery people are taking up the cause. The main thrust of their efforts is searching for alternative rootstocks.

Problems associated with *G. robusta* are:

- Shooting below the graft
- Incompatibility with many species
- Altering of growth habit of the species - plants may become very upright and leggy
- poor performance on sandy soil

In the Grevillea Book Vol.1 written in 1994 by Peter Olde & Neil Marriott numerous species and hybrids that have proven suitable in summer-wet and winter-wet climates are listed. They suggest numerous species that should be assessed for suitability.

Six years on, many of these are being used regularly as rootstock. While commercial nursery people and even enthusiastic amateurs are willing to list those they use, many people jealously guard the commercial advantages resulting from their own experimentation and are reluctant to provide details of what they graft onto what and why.

So, we know, for example, that *G. 'Moonlight'* is a particularly useful understock; that *G. banksii* hybrids are superior to *G.*

robusta although they also throw epicormal buds; and that ground covers such as *G. 'Poorinda Royal Mantle'* and *'Bronze Rambler'* can be used as well as a host of others.

But it is generally agreed that there are no hard and fast rules. Phillip Vaughan, of Mt Cassell Nursery at Pomonal, Victoria, says ;"There is no such thing as a universal rootstock. None are infallible and some might be good on sandy soil but not on clay soil."

Peter Olde argues the possibilities are not yet fully exploited and says: "We need to fund research to establish which are most reliable, hardy, vigorous and suited for commercial purposes."

Grafting techniques

Just as opinions on rootstocks vary, so does opinion on techniques and treatments. It is likely we could speak to six different nurserymen and get six different opinions, so for this article we took the advice of just two - enough to illustrate the degree of divergence.

Merv Hodge, of Loganview Nursery, Queensland, only uses a splice graft (also known as a whip graft). He says "it is the easiest, quickest, just as successful as any other method, and results in a complete take with the cambian layer meeting all the way around."

Phillip Vaughan on the other hand almost always uses a wedge graft. He disputes that a splice gives a better take ("It doesn't make the slightest bit of difference") and adds: "I do 800 successful grafts a year and I live in the windiest area."

Perhaps it is simply a case of different techniques suiting particular locations and production systems, for the two - good friends and grevillea grafting pioneers that they are - were equally opposed about appropriate production systems.

Merv Hodge in tropical Queensland does his grafting in spring and summer and provides bottom heat in winter "to keep the plants warmer at night". He leaves some foliage on the scion, places an unsealed plastic bag over the top and mists plants to cool them down and stop scions drying out.

Phillip Vaughan, in Victoria, grafts only in late spring through summer and states categorically that "mist and all forms of moisture are the absolute enemy". He does a mummy graft to prevent dehydration, binding the union and entire scion with tape. Plants are placed in a dry-heated igloo, watered once a day and otherwise kept away from moisture.

While it was Merv Hodge who developed the mummy graft technique a decade ago, he now uses it for only a few species (including *G. dryandroides*, *G. thyrsoides*) preferring mist and plastic bags.

For his mummy grafts, Phillip keeps some leaves on the rootstock, but strips them from the scion, which should have large buds "just about ready to burst". Self-adhesive Nescofilm or Parafilm, bought from medical equipment suppliers, is used to seal graft and scion. It breaks down in the sun once the buds burst through.

Merv Hodge concludes that the choice of technique "is a case of trial and error, and is somewhat dependent on the time of the year. Some methods work for most species, some for none and some species require different methods."

His success rates ... 90% to 100% is the average take. For some species, it is 75%. When it gets as low as 50%, he questions whether it is commercially viable.

GRAFTED GREVILLEAS FOR SALE

Phillip Vaughan has decided not to sell the nursery that he started in Pomonal, western Victoria, known as Mount Cassell Native Plants. Phillip reports that he has for sale a grafted Grevillea collection in 8" pots that he was going to take to his new address. The collection features all species growing in his garden including many new and rare species, over 200 different taxa. Interested persons should contact Phillip on 03 5356 6351. He will fax you a list if not sold already. Major renovations are under way in Wildflower Drive.

CUT FLOWERS

Developing *Grevillea* Breeding and Development as a Cut Flower

Grevilleas are unique flowers with a lot of potential so why aren't they making a bigger impact on the cut flower market? The answer is a lack of good quality, long-lasting flowers. The University of Sydney's Plant Breeding Institute (PBI), with funding from the RIRDC and *Grevillea* Study Group, is looking at both agronomic and genetic means of producing *Grevillea* flowers suitable for both domestic and international markets.

Native Cut Flowers at 'Flowers 2000'

August the 2-6 brought together the industries best in the first Australian flower conference 'Flowers 2000'. A lot of interest was focused on the native flower industry and the potential it has in international markets. The view of native plant breeding expert Peter Abell (PBI) is that we need to develop our 'gifts' for domestic and international markets so we can secure Australia's long-term position in world floriculture. This development needs to occur now in *Grevilleas*, as there are already overseas competitors, such as Israel and their popular 'Spiderman' *Grevillea*, looking at this crop and its potential. If we are not supplying the markets here and overseas someone else will.

Exporting *Grevilleas*

Grevilleas have great export potential. The genus is made up of over 340 species, with a diverse range of attractive flower and foliage characteristics admired by markets such as Japan, China and the U.S. Australia has the advantage of supplying these markets out of season when demand and price are at their highest. To be successful on these international markets *Grevillea* flowers need to be of a high standard. They also need to be able to survive transport over longer distances. Research at PBI will be looking at ways to achieve this high quality flower production and give *Grevillea* the edge needed to compete on these markets.

The Project – A Holistic Approach

Growing *Grevilleas* and other Proteaceae for cut flowers is a relatively new and developing industry. Unlike popular commercial crops, such as carnations, *Grevillea* has not received the extensive research needed to determine the best ways to produce a high quality product. This project will, therefore, look at both agronomic and genetic methods of overcoming problems in production and producing a more commercially viable flower.

Outcomes of this project will also lead to a greater understanding of the cultivation and breeding of other native crops. In addition, there will also be the possibility of selecting varieties to be used as ornamentals.

Currently identified areas in need of improvement:

- Vase life / wilting
- Perianth drop
- Transport damage
- Short, weak and bent flowering stems
- Time to flowering
- Floral production
- Length of flowering period

Project Steps

- Assemble the available gene pool.
- Survey *Grevillea* growers, florists and consumers – To determine the problem areas and traits important for the development of *Grevillea* as a viable cut flower crop.
- Assess the gene pool for these important traits and look at ways of overcoming problem areas.

- Commence an appropriate hybridization program.
- Initiate experimental trials eg agronomic/postharvest trials.
- Assessment of hybrid progeny under improved agronomic conditions.

For this project to be successful researchers at PBI need a better understanding of the current situation of *Grevillea* growers and distributors. Only when this information has been gathered can we focus our aims on developing better production systems and cultivars to keep Australia ahead of international competition.

How Can You Help to Secure Australia's Future in *Grevilleas*? Or where the *Grevillea* Study Group comes into the equation.....

The greatest knowledge base re the genus *Grevillea* is within the membership of the *Grevillea* Study Group. By using that knowledge we hope to make significant progress towards the achievement of our goals. For this project to be accepted and supported by a federal government grant, we need financial support from industry of which the *Grevillea* Study Group is part. The Rural Industries Research and Development Corporation (RIRDC, <http://www.rirdc.gov.au>) are in support of this project and the final issue is for us to secure external funding. This comes in the form of cash and "in kind". The "in kind" is calculated in this instance according to the input of the *Grevillea* Study Group through; the survey, plant material, varietal selection, testing vase life etc.

How much are we asking for? We currently wish to ask that the *Grevillea* Study Group provide \$4,000.00 cash per year for three years with a possible extension for a further two years. The combined Cash and in kind input from the *Grevillea* Study Group would be \$14,000.00 per annum.

What it means to you as a member. Or what do you get from all this.

- A scientific project that addresses a number of the issues currently being debated by the *Grevillea* Study Group. eg. breeding, seed germination, cut flowers, grafting etc.D
- Directed research into the development of *Grevillea* into a major cut flower crop.
- Shared ownership of the intellectual property (IP) developed through the project. This includes PBR varieties and a share in royalties. Our experience shows that significant returns can be made on IP with good marketing (particularly overseas) and correct management.
- New *Grevillea* varieties will be available for horticulture.
- Further knowledge about propagation particularly grafting and stock/scion combinations.
- Improved position of the *Grevillea* Study Group in the eyes of commercial growers and scientific organisations.
- Possible active or increased involvement of members from all areas particularly isolated members.

Please fill out the loose sheet survey found inside this newsletter. If you have any other information / experience you wish to share please send it along as well. For further information contact...

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STOP PRESS...STOP PRESS...The Olympic Bouquets

Peter Olde

The 27th Olympic Games held in Sydney has concluded in triumph, much to the chagrin of the knockers. If it was your decision not to attend the Games, let me tell you it was a mistake. The Games were an absolutely masterful display of excellent organisation and relaxed enthusiasm. To be a part of the roaring crowd at any event, even when an Australian did not compete, was very special. There seemed to be a bond between all the people who sang and barracked without inhibition as one. Yet the athletes and the crowds were not the only winners. Chalk one up for the Australian flora and the magnificent Olympic bouquets and the Grevilleas which were represented in both the Olympic and Paralympic Bouquets.

The story of this triumph began shortly after the Games were announced in Sydney's favour. A Council meeting of the SGAP NSW Ltd formed a lobby group to influence the decision regarding the composition of the Olympic Bouquets in favour of one comprising all Australian Native plants. Naturally, this group met a great deal of opposition from others who had a non-Australian shingle to hang, particularly protea and South African flora growers who even now continue to blur the line between indigenous and non-indigenous flora. Fortunately, Jamie Creer from the Australian Wildflower Company, Mascot tendered a successful bid for the Olympic Bouquets and the Australian Native Flower Growers & Producers Group under the leadership of Craig Scott, tendered the successful bid for the Paralympic Bouquets.

The Olympic Medal-Winner Bouquets.

The main focus flowers were two red waratahs. A number of waratah cultivars were used including selections from *Telopea* cv. 'Cardinal', cv. 'Fire and Brimstone' and cv. 'Gembrook'. These were surrounded by *Grevillea* cv. 'Sylvia', and *Grevillea* cv. 'Golden Yul-Lo', with flannel flower (*Actinotus helianthi*), yellow billy buttons (*Pycnosorus globosus*). Two Kangaroo Paws, *Anigozanthos* cv. 'Bush Games' and *A.* cv. 'Yellow Haze' or *A.* cv. 'Yellow Mist', golden-flowered cultivars were also included. *Anigozanthos* cv. 'Bush Games' is a four way hybrid (*A. manglesii* x *viridis* x *flavidus* x *humilis*) whose colours were supposedly representative of the colours in the Olympic rings. The bronzed underside of *Grevillea baileyana* leaves were used

as foliage high-light as well as three Eucalypts. The first of these was *Eucalyptus forrestiana* ssp. *forrestiana* whose red and yellow nodding buds at the base of the bouquet were to represent the corks that often hang off the brim of drover's hats to ward off the flies, the other two Eucalyptus, a broad thick-leaved *E. pterocarpa* to remind us of the skill of people who blow tunes on the gum-leaf and a narrow-leaved *E. albida*, both of these being nick-named 'Whistle Gums'. Finally, the last component of the bouquet was a White Chamelaucium, *C.* cv. 'Mega White', a hybrid between *C. megalopetalum* and *C. uncinatum*. For more information on the Olympic bouquet, and on the Native Cut flower industry generally, visit www.austflower.com.au/olympics/ *Grevillea* cv. 'Sylvia' and *Grevillea* cv. 'Golden Yul-lo'. The main Grevilleas used in the bouquet are part of the beautiful range of hybrids being developed in Queensland by growers of the subtropical species from northern Australia. *Grevillea* cv. 'Sylvia' is perhaps the best of the taller-growing, tropical hybrids having a beautiful deep pink flower and an extensive flowering period over almost the whole year. The racemes are cylindrical and relatively compact and the pistil is quite long (c. 3.5 cm long). This hybrid is a seedling of *G.* 'Pink Surprise', itself putatively a cross between *G. banksii* red and *G. whiteana* that arose in the Brisbane garden of Win Bristow. The other parent of *G.* 'Sylvia' is not known.

Grevillea cv. 'Golden Yul-lo' is another garden hybrid, putatively between *G. sessilis* and *G. pteridifolia* and has been registered under Plant Breeders Rights. It has a soft-yellow cylindrical inflorescence and forms a shrub to c. 3-4 m high x 3-4 m wide.

Paralympic Medal-winner Bouquets.

The combination of flowers to be presented to medal winners at the Paralympic Games will also contain one member of the genus *Grevillea*, *G. baileyana*. The leaves of this species have great merit in floral arrangements and have been chosen to complement the flowers for their juvenile leaf form and the bronze colour of the leaf underside. Up to 400 bouquets will be made over the period of the Games. Species in the bouquets will have a focus of *Banksia coccinea*, surrounded by Kangaroo Paw, Paper Daisies, Geraldton Wax, supported by Emu Bush (*Podocarpus drouyniana*) and *G. baileyana*.

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FINANCIAL REPORT

| Income | SEPTEMBER 2000 | Expenditure | |
|---------------|----------------|-----------------------|----------|
| Subscriptions | \$210.00 | Newsletter Publishing | 200.00 |
| Donations | 15.00 | Postage | 121.90 |
| | \$225.00 | Bank Charges | 0.02 |
| | | | \$321.92 |

\$11,500 in Interest Bearing Deposit for 6 months
Balance on Hand 11.9.2000

\$ 879.03

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If a cross appears in the box, your subscription of \$5.00 is due.
Please send to the Treasurer, Christine Guthrie, PO Box 275, Penshurst 2222.
Please make all cheques payable to the Grevillea Study Group.