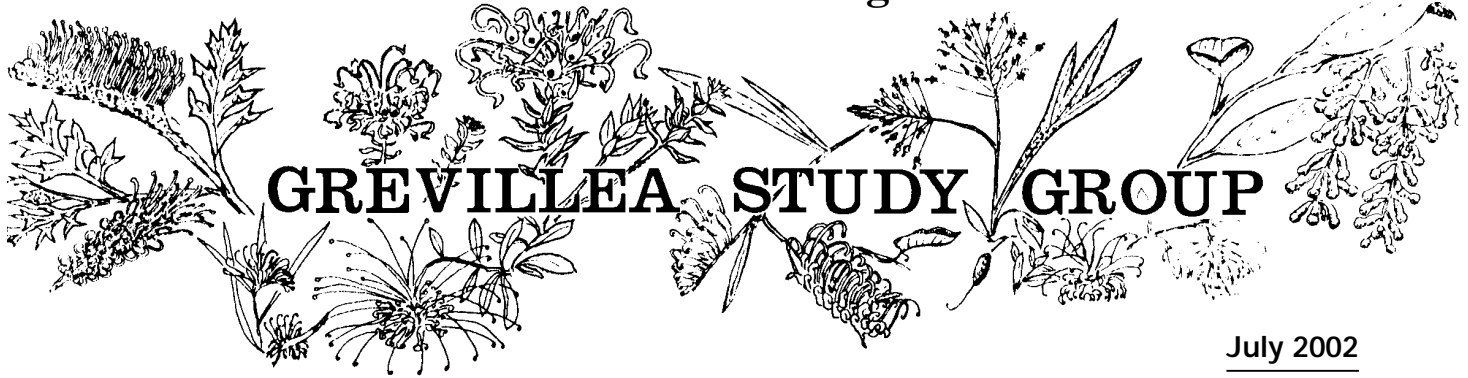


Association of Societies for Growing Australian Plants



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July 2002

Newsletter N° 62

Victoria Chapter Excursions

Participants please contact Max McDowall 9850 3411 by previous Sunday to receive further details of itinerary, etc., and to organise plant and cutting swaps.

Saturday August 10th - Sunday August 11th - (or previous weekend)

Excursion in Southern Grampians - if leader is available. Details to be advised at a later date of this or an alternative excursion.

Monday Nov 4th to Friday Nov 8th:

Extended Field Trip Trip to Labertouche, Rosedale & Licola Combined with Boronia and Allied Genera Study Group and Correa Study Group

Monday - Excursion organised in association with activities of the FJC Rogers Seminar weekend on Boronia and Allied Genera starting at Labertouche, but departing from Seven Acre Rock near Powelltown for Holey Plains Park near Rosedale camping in or near the park Monday and Tuesday nights.

Tuesday and Wednesday - visit the garden and cut-flower farm of GSG members Craig and Sharon Beeching near Sale and explore Holey Plains Park and nearby Stradbroke Flora and Fauna reserve proceeding to Licola north of Heyfield camping Wednesday and Thursday nights.

Friday return home.

Checklists of Flora in the areas visited have been made from the Viridans CD "*Wild Plants in Victoria*" 1999

Grevilleas in the area: *G. australis*, *chrysophaea*, *lanigera*, *miqueliana*, *victoriae*, *?rosmarinifolia* (near Morwell).

Rutaceae in the area: *Asterolasia asteriscophora*; *Boronia anemonifolia*, *citrata*, *parviflora*; *Correa lawrenceana*, *reflexa*; *Crowea exalata*; *Leonema lamprophyllum*, *phylicifolium*; *Phebalium squamulosum* ssp.?; *Philotheca trachyphylla*, *verrucosa*; *Zieria arborescens*, *cytisoides*, *robusta*, *veronica*.

Intending participants please contact Max McDowall (03) 9850 3411 or EMAIL maxamcd@melbpc.org.au to record an expression of interest. Further details or changes of plan may be posted in the respective three study group newsletters and by mail/EMAIL to those responding.

Please note that prior registration is essential on extended field trips with details of dates of participation, vehicle (and caravan) description (4WD?) and registration number(s), list of passengers, mobile phone numbers and home contact details, so that a printed list of these details can be distributed to participants at the start of the trip.

NSW Programme 2002

Wednesday July 31 9.30 am

Place: 138 Fowler Rd., Illawong

Subject: Results of 2001 expedition.

New WA *Grevillea* Species and *Grevillea buxifolia*.

Speaker: Peter Olde

In the afternoon, perhaps a short bush-walk or a short visit to a nearby garden to examine the effects of an unusual mulch.

Saturday August 24 9.30 am

Place: 107 Pitt Town Rd., McGraths Hill Phone 4577 2831 jomo@pnc.com.au

Subject: Propagation by cutting and grafting. My way

Speaker: Mark Ross

Following the talk a short collecting trip in the Windsor - Wiseman's Ferry - Dural area focussing on *Grevillea buxifolia*.

Just a bit more info on what I do here. I graft about 30 or so varieties of grevilleas, 2 varieties of hakeas. Im also working on grafting of some Isopogons and will be attempting some ermaea grafts shortly. I also grow hybrid grevilleas for the nursery trade. All this is done in my spare time between my job as a production manager for a large wholesale nursery.

Field Trip to South Coast

Wednesday October 2- Saturday October 5

INSIDE THIS ISSUE:

...

CONVOY GUIDELINES

prepared by Max McDowall and Neil Marriott, February 2002

LEADERS and ORGANISERS of excursions and extended field trips need:

BEFORE THE TRIP:

1. To adequately **research, and where feasible to road-test, the proposed itinerary** well beforehand,
2. Where possible, on extended field trips, to provide drivers with a **list of participants** with details of **vehicle descriptions, registration numbers and mobile phone numbers,**
3. To consider bringing CB radio, GPS, emergency beacons and rescue equipment,
4. To ensure that all drivers be **informed audibly and/or in writing of the detailed itinerary** at all times - including provision of **relevant road maps, sketch maps or map references** and **written instructions,** and to notify them of any **unscheduled changes** to the itinerary for whatever reason,
5. To restate to the participants the **basic rules** of travelling in convoy,
6. To give the entire convoy **adequate time and space to assemble** and prepare for departure, especially from a conference venue where several different convoys may form at once and vehicles may have been parked in different locations around the building. The distribution and display of **colour-coded ribbons** is especially helpful in such situations,
7. On excursions to arrange for **less agile members of the party** and slower vehicles to drive near the front,
8. Where possible to provide a **tail-end driver** who is knowledgeable of the area or experienced in driving in convoy and capable of rendering assistance to other vehicles, and where appropriate to be in **CB radio or mobile phone contact** with the lead vehicle,
9. As a **fail-safe** measure to designate an emergency **rendez-vous point** along the road or otherwise provide drivers with sufficient information to enable them to proceed to a destination independently.

ON THE ROAD:

1. To drive **safely within the speed limit** with consideration for the capabilities of the following vehicles,
2. To make **catch-up stops** immediately after major turn-offs, or where the convoy has been dispersed by built-up areas, busy intersections, traffic lights, road dust, emergencies, etc.,
3. To plan and make **flora/scenic stops** only where the whole convoy is able to **stand/park safely** with adequate visibility to approaching traffic,
4. To state clearly and **audibly the purpose & duration** of each flora/scenic stop or comfort/food/fuel stop.

INDIVIDUAL DRIVERS (and their passengers) need:

BEFORE THE TRIP:

1. To ensure that their vehicles and spare tyre are **road-worthy,** adequately fuelled, equipped with **emergency items** such as tow-ropes, jumper cables, emergency windscreen and water,
2. When appropriate, to bring **first-aid kits and exposure blankets, a whistle and compass, essential prescribed medications, torches and spare batteries, good walking boots or sturdy footwear, hats, parkas, warm clothing, sunscreen, insect repellent, drinking water, dry food rations and a mobile phone.**
3. **On extended field trips to provide all details** of their passengers and vehicle, dates and times of participation, home and emergency contact details to the leader/con-venor at the time of registration, and notify same of **cancellations or changes in plans,** and to **sign the roll before departure,**
4. To bring adequate **maps** of the region and to familiarise themselves with the itinerary beforehand.

ON THE ROAD:

1. To be **ready for departure and available to receive instructions** at the start and en route.
2. To **advise** the leaders of **any need to stop** along the road for fuel, necessary repairs, provisions or medical attention,
3. To **inform the leaders** of relevant matters concerning the health, disabilities, fitness or stamina of participants, or of problems with the vehicle and to request if necessary to travel near the front.
4. To **communicate** with the drivers of the **vehicle ahead and behind** before each departure to ensure each understands the itinerary and leader's instructions,
5. To keep the **following vehicle in view** at all times, especially at turnoffs and on dusty roads and not to accelerate suddenly on gravel roads,
6. **To keep up with the vehicle in front,** and so avoid making large breaks in the convoy into which other traffic can intrude, while driving safely within the speed limit and prevailing conditions, and still keeping the following vehicle within range,
7. To **minimise unnecessary queue-jumping,**
8. Not to make private stops except in emergency or for safety reasons (e.g. to change drivers),
9. **Not to leave the party** (e.g. at town stopovers) nor **depart ahead of the convoy or otherwise separate from the convoy** without prior arrangement with the leaders and the knowledge of the rest of the party,
10. To ensure that they hear and understand or otherwise be informed of any **announcements** made en route.

QLD ACTIVITY REPORTS

SGAP (QLD REGION) INC - Grevillea Study Group Meetings for 2002

Sunday 25 August

Venue: Home of Merv & Olwyn Hodge,
81-89 Loganview Road, Logan Reserve 4133

Phone: (07) 5546 3322 UBD Map281 N8

Subject: A tour of the gardens and nursery to compare cutting grown and grafted grevilleas.

Sunday 27 October

Venue: Home of Home of Denis Cox & Jan Glazebrook,
87 Daintree Drive, Logan Village 4207

Phone: (07) 5546 8590 UBD Map 303 M7

Subject: Best horticultural practices for grevilleas.

Sunday 24 November

Venue: Home of Cliff Coddington,
3 Ironbark Street Toowoomba 4350

Phone: (07) 4635 1513

Subject: Grevilleas in a small garden.

Sunday 23 February 2003

Venue: Home of Bernard & Rona Wilson,
120 Avalon Road, Sheldon 4257

Phone: (07) 3206 3399 UBD Map 204 C19

Subject: Grevilleas in humid weather.

NOTE: The Wilson garden is an excellent one for this hot time of the year as it has a large, shaded rainforest area.

Queensland Activity Report - April 2002

By Elaine Jell

It was Sunday 28 April and a drizzly, rainy day as 25 GSG members converged on the property of Carolynn and Ian Waldron at Jimboomba some 50 km south of Brisbane.

Jimboomba is known as an extremely dry area and we all believed as "it never rains at Jimboomba", we would have a fine day for our meeting. Not so. Fortunately, Carolynn and Ian have a perfect under-cover area so the meeting progressed regardless of the constant drizzle. The Waldron property covers 12 ½ acres composed mainly of degraded Marburg sandstone and Ian's love of water features was evident as we took advantage of the few breaks in the weather to explore the gardens.

The subject for discussion for the meeting was "Fertilising and Pruning Grevilleas". Ian has researched into, and experimented with fertilisers for grevilleas, and has come up with what he believes to be a perfect mix which suits not only grevilleas but all natives. He believes the addition of gypsum strengthens cellular structure and nutrient uptake, so he has included that product in his special mix. Other ingredients in his Proteaceae mix consist of IBDU (nitrogen as Isobutylidene-diurea 31%), slow release fertiliser, magnesium sulphate and iron chelates at an application rate of 40 ml of fertiliser mix to a 140 mm pot. The mix doesn't alter pH levels. Ian has now been using his fertiliser mix long enough to prove that although it is a gross departure from the norm - it works.

The importance of producing attractive plants by regular pruning was discussed next. We should know our plants and their growth habits and prune accordingly. Some "don'ts" were - don't prune a plants when it is stressed and don't prune heavily coming into cold weather. A better healthier more floriferous plant is achieved by fertilising and pruning.

The meeting closed with the usual popular rolling raffle. Members were then faced with the problem of negotiating a very steep, muddy driveway before making their way home. We understand *almost* everyone made it.



IN THE WILD



Grevilleas of the Desert

P. Olde

In July 2000, I participated in a trip to the Great Victoria Desert (GVD) facilitated in part by a group known as Desert Discovery Inc., a non-profit organisation that aims to organise and document for the public record safe expeditions into remote areas of Australia. The trip was also partly sponsored by Birds Australia in return for work done on mapping a bird atlas by many of the participants. The base camp selected by the organisers was south of Warburton, just north of Cooper Hills on the Connie Sue Highway, accessible off the Nullarbor via the old railway town of Rawlinna. My travelling companions were Neil Marriott, botanist and ornithologist, and Clive Crouch, a fauna scientist specialising mainly in reptiles and small mammals. This report has been divided into three parts: around the Desert Discovery camp; cross country bird atlassing trek; the Rawlinson Range

Part One: Around the Desert Discovery Camp

The Great Victoria Desert extends over a vast area of Western and South Australia and the Northern Territory. It has an average rainfall of only 7-90 which falls unreliably in scattered showers and storms throughout the year with no assured growing season. The longest recorded drought for the region (at Warburton) was 40 months without any rain at all. Traditional owners of the western section of the desert now live at Tjuntjuntjara Community and we were to see firsthand evidence of the difficulties encountered by these people and those from the Pitjantjatjara communities to the east in simply surviving this region in bygone years.

Although a party led by Ernest Giles passed through the Warburton area in 1873, John Forrest and his brother were the first Europeans to cross the desert from west to east, in 1874 with the help of two aboriginal companions. We also followed some of the tracks of Frank Hann, the first European to traverse the desert from south to north in 1903, along a route closely followed by the late Len Beadell when he laid out the Connie Sue Highway. (The highway was named after his daughter, who incidentally was also a participant in the camp. Connie is now a violinist with the South Australian State Orchestra.) Hann, who financed all his own expeditions, was accompanied by a Queensland Gulf aboriginal, Talbot, whom Hann taught to read and write. They made a practice of blazing their initials on rock-faces and trees wherever they went in search of gold and one of these blazes was discovered by the camp participants near Point Wood. Hann was one of the west's most efficient explorers, naming over 500 land features in W.A., some of them bearing the names of the women he knew, such as Point Lillian (named after a Miss Lillian Stokes of Sydney). Others are reportedly named after barmaids and other women he knew in a casual kind of way.

Much of the mostly undulating terrain of the GVD consists of red, alkaline sand. However the area is also peppered with breakaway features that remind us of a former high rainfall period during which the area was eroded by vast waterways leaving sandstone rocky peaks and shaly, gravel banks, clay pans, saline depressions and vast sandplains now blown up into parallel sand dunes and swales. The breakaway features held the most promise for us to discover new taxa and we endeavoured to collect at these locations anything we had heretofore not encountered. Some of the features we visited were Point Wood, Point Lillian, Ryan's

Bluff, Waterfall Gorge, Hann's Tabletop Hill, Syke's Bluff, Sydney Yeo chasm, McKenzie Gorge.

Commencement. We travelled across the Nullarbor Plain, heading north-west from Cocklebidly towards Rawlinna, where we received some unexpected hospitality and accommodation from the mining company. From there we travelled north towards Neale Junction. The track was rough and uncomfortable with many rocky limestone potholes and outcrops to negotiate. We quickly found that these areas could not be crossed with speed and soon began travelling as the country would allow, very slowly. About 65 km north the track became easier and soon we found ourselves in the red sand where a complete change in the flora began. Now began encounters with the beautiful *Eucalyptus gongylocarpa*, *E. concinna*, *E. youngiana*, *E. glomerosa*, *Dichrastylis exsuccosa*, *Radyera farragei* (blue hibiscus), *Eremophila forrestii* and other common plants of the sandy desert. In moist depressions we came upon large flowering specimens of Sturt's Desert Pea (*Swainsona formosa*). Other interesting herbaceous plants appeared in abundance, *Rhodanthe floribundum* with its yellow-centred, snow-white flowers and *Cephalopterum drummondii* with yellow, rounded stalked heads.

The first grevillea, *G. nematophylla*, was encountered on June 27, 261 km N of Rawlinna growing in red sand. This species is normally found in the dongas or clay depressions on the nullarbor. Here clay was probably not far away. It was a small seedling regrowing after one of the extensive patchwork burns commonly set off by local aborigines to stimulate the vegetation and not in flower (summer is the normal flowering time). However, a short way further on (307 km N of Rawlinna), on both sides of the road, we came upon three *Grevillea* species growing together.

The first was *G. juncifolia* subsp. *juncifolia* with its brilliant orange blooms. This species with its erect branches and orange conico-cylindrical conflorescences was to become a feature as we encountered more and more sandhills and was one of only two species that we found to be commonly flowering. The second species was *G. stenobotrya* which is found mainly on the tops of the dunes, usually in association with *Thryptomene maison-neuvii*. This grevillea is a robust shrub with long leaves that have a silvery underside and branched conflorescences with white or pinkish-white flowers. The third species found on the sand dunes, usually on the lower slopes or near the base, was *G. eriostachya*, though this species was relatively uncommon in this area and was not in flower. The desert form of *G. eriostachya* is quite distinctive and plants have a noticeable shaggy appearance and robust flowers. Superficially at least, they seem to form a distinct sub-group.

Another common member of the desert proteaceae is *Hakea*, of which we found only three species, *H. lorea*, *H. leucoptera* and by far the most common, *Hakea francisiana* which among the botanically challenged soon became known affectionately as "Frank". People everywhere soon became confident enough to point excitedly to specimens of Frank growing and flowering as we drove along- or they recounted how they saw Frank up the track - or Frank's here - and so on. Quite amusing and a good way to introduce plants to people. There were many interesting eremophilas encountered along the way too, some newly described, some with distributions now extended beyond known

IN THE WILD (continued)

areas by our collections on this trip. The *Eremophila* species encountered were *E. alternifolia*, *E. arachnoides ssp. tenera*, *E. arenaria*, *E. battii*, *E. clarkei*, *E. duttonii*, *E. exilifolia*, *E. exotrachys*, *E. fallax*, *E. forrestii*, *E. gilesii*, *E. gibsonii*, *E. glabra*, *E. latrobei*, *E. longifolia*, *E. maculata ssp. brevifolia*, *E. oppositifolia*, *E. platythamnos*, *E. punctata*, *E. revoluta*, *E. serrulata*, *E. undulata*, *E. viscimaginata*, *E. willsii*, *E. youngii*.

The area is also full of sennas with their faintly perfumed bright golden yellow flowers. *Senna artemesioides*, *S. helmsiae*, *S. nemophila*, *S. venusta* and a number of unidentifieds or intermediates were collected or seen.

We reached the area set aside for base camp in the twilight and quickly set up camp and got a fire roaring. Next morning, we helped around camp, setting up the latrine and shower system with hot and cold water, and collecting water from a nearby bore. There was even a washing machine. This system ran on gravity-fed pressure from an elevated header tank that was filled with water pumped from drums that had been collected at the nearby bore by the same method. A portable diesel pump was used for this purpose. Water then ran from the tank in two black plastic lines, one through a series of 44-gal drums that could be heated by wood-fire for hot and one direct to the taps for cold. The central focus of the camp was a large circus-style tent wherein was housed a satellite phone, computer, food and literature. The elevated water tank worked well until one evening after the daily filling routine was completed, the pump-line remained inadvertently attached as the vehicle drove away and pulled the whole thing over.

Another problem was feral camels. Camels were not a problem overall at the camp-site but one night we were awoken by a bull and several females haring past and over our tents in full battle-cry. Tents were no match as the camels hurtled by, bellowing and roaring, hitting restraining ropes, banging into the canvas. It's a scary experience, man, especially when woken from sleep in the dark.

Every evening after dinner, a large community camp-fire was the order of the day with individuals giving reports of their daily activities and educational talks on flora, fauna, astronomy, geology, geography, GPS operating procedures etc.

Grevilleas At Sykes Bluff, 2717 37 S 126 26 44 E, we encountered and collected *Grevillea berryana* for the first time. This species has a wide distribution in the eremaeon zone and has been collected right through the GVD in Western Australia. We found it on almost every rocky hill or breakaway but rarely in flower, the single exception being at McKenzie Gorge (26 46.018 S 126 27.045 E) where we found a few out of season, the plant obviously responding to recent rains rather than seasonal flowering. Collections were also made at Waterfall Gorge and Ryan's Bluff. Mostly plants rarely exceeded 3-5 m and had silvery foliage similar to *G. stenobotrya*. We also collected it on a cross-country trip at 5 km east of Baker Lake (26 47 08 S 125 59 10 E) and later in the Rawlinson Range where it had not previously been collected.

On 11 July we came upon and collected a magnificent population of the shaggy form of *G. eriostachya* on the Great Central Road,

c. 6 km north of Number 2 Parallel road. The plants were truly magnificent in this area where they grow and hybridise with *G. juncifolia* subsp. *juncifolia*. Attempts in the past have been made to bring a number of these hybrids into cultivation with varying success.

The next day saw us voyaging towards Sydney Yeo Chasm. At 25 km off the Connie Sue at 26 59 59 S 126 33 57 E among a population of *G. juncifolia* subsp. *juncifolia*, we found a plant that was almost certainly a *G. spinosa* x *G. juncifolia* hybrid. This was an unusual collection because we did not see or collect *G. spinosa* anywhere near the road or elsewhere on the trip. Nor is it recorded from the area. The only other species nearby was *G. eriostachya* but it bore no intermediate features of that species even though it is known to hybridise with *G. juncifolia* elsewhere. These intermediates are well-known to us in at least two locations and are truly nothing like the hybrid we collected on this track. The possibility that *G. spinosa* occurs in this area is greatly increased by this finding. I think the possibility of a bird flying over many hundreds of km from the Canning Stock Route without stopping to feed elsewhere with pollen on its brow of *G. spinosa*, to cross pollinate a *G. juncifolia*, for that seed to swell, germinate and grow, achieve a height of 3 m and flower to be infinitesimally remote. Elsewhere as far as I know, hybrids occur in species that grow pretty much adjacent to each other. Nearby also we collected an unusual form of *G. pterosperma* (no flowers) with very broad leaves. We saw this later at Mirramirratjarra and it must surely be an infraspecific taxon.

Sydney Yeo Chasm held many hopes for us, being a remote area not intensively collected and potentially yielding new species. The area boasts a huge waterhole and was an aboriginal oasis in times gone by with sheltered gorges and caves and good clean water. The water hole is perched within undercut strata about halfway down a vertical 12 m cliff and holds 10-15,000 litres of clean water. This is one of the few areas of the desert not being wrecked by camels and other feral animals because of its difficult access. This waterhole forms part of a continuous chain of waterholes from Laverton to the ranges east of Warburton. It was a haven to birds which were also few in number elsewhere in the desert. Unfortunately there were no grevilleas here.

Most areas elsewhere in the GVD were devoid of life. The waterholes have been sucked dry by marauding camels, leaving nothing for native animals, and the delicate, desert vegetation is being eaten out and broken down. Most native wildlife is long extinct. We only saw six red kangaroos on the whole trip. The most common animals seen were feral mice, rabbits, cats, foxes and camels. Perhaps the saddest reminder of the feral presence was the silence, deathly, eerie silence. Very few birds, no mammals (apart from a plague of house mice), just broken-down, trodden vegetation and dry water-holes with few scats.

While participation in Desert Discovery is by invitation only, people can apply by email to desertdiscovery@fabtek.com.au if you desire participation in future desert camps. Copies of the Desert Discovery Report of the Cooper Hills Project can be obtained on CD Rom for \$12 from 113 Woodpark Rd Smithfield NSW 2164.

IN THE WILD (continued)

Marvellous Merredin

Hilary Merritt

To the uninitiated Merredin, WA, might seem an unlikely destination for the serious wildflower tourist. Located west of Coolgardie on the Great Eastern Highway, about 260km from Perth, Merredin is a busy agricultural town with a population of 3500 and is surrounded by vast wheatfields and increasingly serious patches of salt scald.

The 2/1 st Australian General Hospital was located there during the Second World War, and, as far as I knew, the town's main claim to fame, apart from the millions of bushells of wheat produced in the region, was the emergency wartime dump of fuel and other supplies stockpiled there for repelling the expected Japanese invasion. Even the Lonely Planet Guide to Western Australia says 'there aren't too many reasons to go there'.

But the uninitiated and the Lonely Planet would be wrong as we discovered on a recent trip to the West. The first intimation that Merredin was worth a visit came in Kalgoorlie-Boulder. We had been unable to leave Canberra until after the ASGAP Conference so had fairly skittered across the continent, coming to rest in the Boulder Caravan Park. There we took in the tourist sights, did the washing, and restocked our larder, the latter having been sorely depleted by the five Quarantine posts we'd passed on our way west.

By chance we had camped next to Ellen and Horst Mey, two SGAPers from the Lower Blue Mountains who were on their way home following an extensive tour of the State. Ellen and Horst told us that, although they had visited places with iconic wildflower status such as Kalbarri and the Stirling Ranges, the best flowers they had seen were just out of Merredin on the side of the road to Wave Rock.

On the spur of the moment we took their advice, changed our plans, and made Merredin our next port of call. A brochure from the Tourist Bureau was the second clue, mentioning that there was a herbarium in the town. The Tourist Bureau staff knew little about it beyond its location near the Railway Museum, just across the car park. We discovered however that, although closed, there was a phone number on the door offering additional information. Eventually we got through to the president of the local branch of the Wildflower Society, Heather Adamson (the phone number was missing a couple of digits) who said we had just missed their annual wildflower show but offered to come into town and open the herbarium for us.

We were mightily impressed with the herbarium. It's run by the Wildflower Society and is a most professional operation. Plants are collected within a 15km radius of the Merredin post office, dried, debugged, mounted, classified and stored in readily accessible folders, and data is exchanged with the Western Australian Herbarium in Perth. Heather gave us a guided tour and briefing on the project, and showed us some of the *Verticordia* species that she said were a particular feature of the wheatbelt flora. Even better, she drew us a mud map pointing to sites of particular floral interest and told us what we might find there.

Following her map we set off down the Naremben Road to Bullshead and Scott Roads and into a wonderland. The wide verges on these back roads were thick with colour. Standout plants were the grevilleas- *G. pterosperma*, *excelsior*, *eribotrya*, *teretifolia* and the beautiful pink *G. paradoxa*, that opens from the tip rather than the stem end of the conflorescence.

There were *Dampieras*, five sorts of *Verticordia*, *Hakea*, *Thryptomene*, a *Dryandra*, *Llechenaultia*, and many *Acacias*. All in bloom and looking absolutely exquisite.

Some time later we tore ourselves away with great difficulty and pressed on to Koonandji where there were *Calothamnus*, *Bankisia sphaerocarpa* and a gorgeous pink *Isopogon*.

Being an ignorant Eastern-stater I wasn't able to record, let alone identify, the many, many species we enjoyed that day. My photograph album however is brimming and Mr Kodak is well on the way to making his fortune.

We spent nearly two months in the west, and visited a great number of delightful spots, many of them justly famous for their floral displays, but the three days we spent in Merredin were a definite and unexpected highlight. We would highly recommend including it in the itinerary of anyone heading west for the wildflower season.

Our thanks go to Ellen and Horst for putting us on the right track and to Heather for helping us get the most out of our visit.

Grevillea Email Group

This email group was begun by John and Ruth Sparrow from Queensland. Free membership.

To subscribe go to groups.yahoo.com and register, using the cyber-form provided. You must provide a user name and password as well as your email address to enable continuing access to the site which houses all emails and discussions to date.

You will receive a confirming email back and then you are able to access the site wherein you can select the groups you would like to subscribe. In this case search for "grevilleas" and then subscribe.

ON-LINE CONTACT

1. President's: email address: petero@australians.com
2. The email group grevilleas@yahoogroups.com
3. The URL of the Grevillea Study group website <http://grevilleastudygroup.homestead.com/first.html>
4. The URL of the Illawarra Grevillea Park website <http://www.speedlink.com.au/users/ziebell/grevillea/>
5. The URL of the Grevillea Page of the Australian Plants Society where you can read the .pdf (Acrobat Reader) copy of the newsletter and other grevillea information. <http://farrer.riv.csu.edu.au/ASGAP/greville.html>

CONSERVATION

Threatened Species Conservation Act 1995

NSW Scientific Committee Final Determination

The Scientific Committee, established by the Threatened Species Conservation Act, has made a Final Determination to list *Grevillea parviflora* R.Br. subsp. *parviflora*, a shrub, as a VULNERABLE SPECIES on Schedule 2 of the Threatened Species Conservation Act. Listing of vulnerable species is provided for by Part 2 of the Act.

The Scientific Committee has found that:

1. *Grevillea parviflora* R.Br. subsp. *parviflora* is a low open to erect shrub, 0.3-1m tall. Major branches are ascending to erect and leaves are mostly 0.8-1.3 mm wide. A description of the subspecies will be found in the forthcoming Flora of Australia Vol. 17A.

A description of the full species *Grevillea parviflora*, of which *Grevillea parviflora* subsp. *parviflora* is a part, can be found in McGillivray (1993) *Grevillea*, a taxonomic revision, Melbourne University Press as *Grevillea linearifolia* "form d", and in Makinson (1991) *Grevillea*, In Harden, G.J. Flora of New South

Wales, Vol 2, University of N.S.W. Press as *Grevillea linearifolia* "Narrower-leaved Sydney form".

2. It occurs in light clayey soils in woodlands and most plants appear capable of suckering from a rootstock.
3. It is known to occur or have occurred from Prospect to Camden and Appin, with disjunct northern populations near Putty, Cessnock and Cooranbong. No populations are known from a conservation reserve.
4. The species is threatened by clearing, urban development, road maintenance, weeds, and possibly inappropriate fire regimes.
5. In view of 3 and 4 above the Scientific Committee is of the opinion that the species is likely to become endangered unless the circumstances and factors threatening its survival cease to operate.

Proposed Gazettal Date: 12/6/98

NSW Scientific Committee Final Determination

The Scientific Committee, established by the Threatened Species Conservation Act, has made a Final Determination to list *Grevillea parviflora* subsp. *supplicans* R.O. Makinson ms, a low shrub, as an ENDANGERED SPECIES on Part 1 of Schedule 1 of the Act. Listing of endangered species is provided for by Part 2 of the Act.

The Scientific Committee has found that:

1. *Grevillea parviflora* subsp. *supplicans* R.O. Makinson ms (Proteaceae) is a distinct taxon that will be recognised in the forthcoming Flora of Australia volume dealing with *Grevillea*. It corresponds to the "Maroota-Berrilee form" of *Grevillea parviflora* recognised by Olde and Marriott, 1995, The *Grevillea* Book Vol. 3, Kangaroo Press, Kenthurst NSW. Makinson (Flora of Australia in press) describes *Grevillea parviflora* subsp. *supplicans* as a low shrub (0.3-1m) tall. Major branches spreading; branchlets usually strongly secund with the leaves held skywards. Leaves 0.6-2(-3) mm wide. Stipe of ovary 0.5-0.6 mm long. Flowering is from August to November.
2. It occurs in heathy woodland associations in skeletal sandy soils over massive sandstones (Makinson in press).

3. It has a very restricted known distribution (approximately 8 x 10 km) and is confined to the NW of Sydney near Arcadia and the Maroota-Marramarra Creek area. It is known from only a few locations, one of which is in the southern portion of Marramarra National Park.
4. An estimate of the size of populations is not available, although where known, population sizes are small (often 20-30 plants).
5. The species is threatened by clearing, urban development, roadworks and inappropriate fire regimes.
6. In view of 3, 4 and 5 above the Scientific Committee is of the opinion that *Grevillea parviflora* subsp. *supplicans* is likely to become extinct in nature in New South Wales unless the circumstances and factors threatening its survival or evolutionary development cease to operate.

Proposed Gazettal date: 24/12/99
Exhibition period: 24/12/99 - 4/2/00

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CONSERVATION (continued)

Threatened Species Conservation Act 1995

NSW Scientific Committee Final Determination

The Scientific Committee, established by the Threatened Species Conservation Act, has made a Final Determination to list the shrub *Grevillea juniperina* R. Br. subsp. *juniperina* as a Vulnerable species on Schedule 2 of the Act. Listing is provided for by Part 2 of the Act.

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, in press) 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* (Makinson in press).
2. *Grevillea juniperina* R. Br. subsp. *juniperina* [Family Proteaceae] is described by Makinson (in press) 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 3-20 mm 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.

Proposed Gazettal date: 28/4/00

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Autumn Plant EXPO 2002

REPORT?

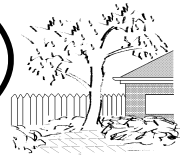
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IN THE GARDEN



The Art of Pruning Grevilleas with Ray Brown

Sunday 10 February - Illawarra Grevillea Park Bulli - Report by Jacinta Allen

Sunday turned out fine for Ray Brown's demonstration on pruning grevilleas. Quite a few species were in flower, the *Grevillea* "Superb" truly living up to its name and many were also impressed with *G. leptobotrys* (grafted onto *G. "Fanfare"* I'm told) with its delicate glaucous foliage contrasting with small but very attractive mauve-pink flowers, a greatly underutilized plant in the home garden. Wildlife was also in abundance with Eastern Spinebills and New Holland Honeyeaters devouring the abundant nectar supplies and a very striking Eastern Water Dragon making an appearance on the lawn.

After the general meeting on the verandah of the old church with sparkling ocean views we moved down to the lower slopes where Ray demonstrated his pruning techniques.

First we were introduced to the tools of the trade.

- Secateurs for tip pruning and smaller branches,
- Loppers/pruners for thicker branches,
- Extension or pole pruners for hard to reach branches
- Hedge clippers/shears for an all over trim,
- Power Hedgers to do the same job faster,
- Pruning Saw for branches too big for the loppers,
- Chain saw - faster than a pruning saw
- Brush Cutter with chainsaw attachment for really big jobs (eg heavy duty model [30 cc] from TAS Parklands Trading.

Ray then discussed the reason for pruning. As with most plants, pruning results in denser foliage and more flowers, enables a particular shape to be maintained and is a means of rejuvenating plants that have become straggly. Trees may also be pruned to raise the canopy or thinned out to let in more light. (Trees should never be lopped i.e. have the top cut off)

He then demonstrated the principles of pruning by reducing a 2.5 m. *G. "Sylvia"* almost to ground level

He began by reducing the weight of branches by removing the dense foliage on the ends. He then progressively shortened the branches before cutting them back to the trunk. Ray stressed the importance of using the correct technique for branch removal in order to reduce the potential for damaging the plant. He made the first cut under the branch for a about half its diameter then placed the top cut in front of the first cut (i.e. towards the leafy end of the branch) to about half the branch diameter. This allows the branch to snap off cleanly without tearing the bark. Wounded bark creates an entry point for decay forming pathogens.

When the branch had been sufficiently reduced a final cut was made as close as possible to the main trunk so as not to leave a stub but also not cutting through the branch collar. The branch collar is the slightly thickened area where the branch joins the trunk, it is often wrinkled on the underside. This is the point to which a branch would naturally die back. It has more cell activity enabling it to quickly seal over the wound. Painting the wound is not necessary. Sealing compounds may be detrimental in that they retain moisture and enable wood rotting fungi to develop. If for aesthetic purposes you don't want the wound to be visible Ray recommends smearing it with dirt from the surrounding area. This will disguise the wound but still allow it to dry out.

After removing all the branches *G. "Sylvia"* was reduced to a stump using the Brush Cutter with chain saw attachment. Ray pointed out that this rather dramatic exercise was an experiment, as he didn't know how this particular species would respond to pruning. We will see next Grevillea Park open day!

Each grevillea differs in its ability to regenerate after pruning so often it's a case of trial and error. Many grevilleas have blind shoots, buds that lie just beneath the surface and so are not visible. This makes it difficult to cut back to a node as is the normal practice with pruning and may mean having to cut back any dead branches that have not re-shot both for aesthetic reasons and also to remove dead wood that may act as a reservoir for pathogens.

Dead wood can be cut off at any time but pruning generally takes place during the growing season usually from spring to late summer. Hard pruning in the cold months may kill the plant or render it incapable of full recovery.

Regular tip pruning can be carried out during the warmer months by cutting back current season's growth. Start regular tip pruning from the time of planting to obtain dense foliage from the base of the plant. Commencing pruning too late often causes the plant to become top heavy and it may topple. A couple of generalizations to consider are that Queensland *Grevillea* species often do not reliably re-grow from blind shoots. Also species that grow readily from seed do not always have epicormic growth and may not respond to hard pruning.

Some species such as *G. "Robyn Gordon"*, *G. "Superb"* and *G. "Coconut Ice"* can be rejuvenated by cutting back to within 10cm of the base in Nov/Dec. every year. Do not cut if weather is still cold or in later autumn or winter

Although the Art of Pruning Grevilleas remains very much in the experimental stage and Ray's rather dramatic techniques may seem scary at first if you have a plant that's not looking its best you might as well take the risk and see what happens. At worst it creates a much needed space for a new plant or you may well end up with a flourish of new growth and a splendid floral display.

Grevilleas, like any plant, will grow best in the right conditions and with the right treatment so always start with

- A healthy plant with sound root development - never root bound
- Plant in the best possible position with 6-8 hours of direct sun
- Always have good drainage.
- Start tip pruning from planting time and regularly thereafter
- Prune in the warmer months on current seasons growth
- Don't prune in extreme conditions ie too hot, too cold, too wet
- Prune from the outside in
- Always undercut branches first.
- Cut on an angle to allow water to run off. Water remaining on the surface encourages fungal growth.
- Prune off dead wood at anytime

Follow these simple guidelines and your grevilleas will look even better. The Robyn Gordons and Superbs, Honey Gems and Moonlights that had been pruned in November to 30 cm stumps were already regrown to nearly 50 cm and coming into bud.

Principles of Pruning

Audrey Gerber

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Many Australian Natives and Proteaceae grow into large, straggly, extremely woody plants if left untended. This growth habit is suitable in some landscaping situations where the plant is used as a screen, e.g. on roadsides and central highway strips. However, in a commercial plantation where we require plants to be productive and compact we need to develop strategies to manage plant growth.

Why do we prune?

-To control growth and develop a suitable shape

Managing the shape of the plant ensures that each plant has sufficient space to grow, and enables easy access of machinery and personnel between rows. A good pruning programme also restricts plant height, thus making picking easier.

-To encourage flower production

In plants grown for commercial flower production, flowers are most commonly produced on current season's growth. Annual pruning stimulates production of new, flower-bearing growth. Exceptions are some proteas, banksias and waratahs where the flower-bearing stem grows for 2 seasons before flowering. Pruning strategies for these must be adjusted to avoid removing seemingly unproductive stems which would produce flowers in the following year.

-To promote plant health

An open canopy allows free air movement and light penetration which discourages pests and diseases. If chemical sprays must be applied they are more evenly distributed throughout an open canopy. New growth from the centre of the plant following picking or pruning is stimulated by free movement of light and air, and vigorous, healthy growth is encouraged.

-To remove diseased or damaged branches

Shoots that have been broken by machinery or damaged by wind, frost, or hail are removed to encourage new growth to replace the damaged portions. Branches with pests or disease damage are also removed to reduce the risk of the infection spreading.

-To rejuvenate old, unproductive plants

Plants vary in their response to severe pruning, which can be used to stimulate new productive growth. The best response comes from those plants with a thickened stem base, known as a lignotuber. Old, woody stems of these plants can be cut off at the base, resulting in young vigorous regrowth from the lignotuber.

How do plants grow?

Shoot growth starts from growth buds, which are essentially compact, miniature stems. These buds can occur:

- on the tip of the shoot (terminal buds), and their growth results in elongation of an existing stem.
- on the sides of the shoot, generally in the fork where the leaf meets the stem (lateral buds, or axillary buds). Growth from lateral buds produces new shoots at an angle to the main stem.

- on other parts of the plant (adventitious buds), generally mature stems and roots, often as a response to injury, such as occurs in pruning. Not all plants are capable of producing adventitious buds.

What techniques do we use?

Techniques used in structuring and controlling plant growth:

Pinching

The soft growing tip is pinched out between thumb and forefinger. This stops the shoot from growing longer and encourages side shoots to grow from the lateral buds of the uppermost mature leaves. Pinching is used widely to encourage branching of young plants for increased complexity.

Heading cut (heading, heading back, cutting back)

Pruning to shorten branches is done using the heading cut. The top portion of the shoot is removed, and side shoots grow from the lateral buds on the shoot portion remaining, thus increasing plant complexity. In commercial flower production the picking cut is a heading cut, and the side shoots form the next season's flowering stems. A heading cut which removes less than a third of the shoot generally results in many short side shoots. A heading cut which removes more than 2/3 of the stem generally results in production of few, very vigorous side shoots.

Thinning cut (thinning, thinning out)

The thinning cut removes the entire stem at its point of origin. Thinning is done to reduce the canopy and does not result in a growth response. Thinning is done to remove old, unproductive stems and reduce competition within the plant. Light and air penetration within the plant are improved following thinning.

When do we prune?

As mentioned before, the picking cut is a pruning cut, and is, therefore, applied at the time of flowering. Regrowth following picking forms the next season's harvest. If necessary, a clean-up prune is applied after harvesting is finished. The shape of the plant is assessed and altered if deemed necessary. Branches blocking light and air movement through the plant, or trailing on the ground are removed with thinning cuts. The number of bearers is assessed and adjusted to balance vegetative and reproductive growth.

If pruning is done to correct or rejuvenate plant growth, it is best done in late winter. Pruning before spring growth starts takes advantage of the naturally vigorous growth occurring at this time of year. Pruning in mid-late summer can retard plant growth.

What's the ideal shape for commercial production?

- Complex for maximum productivity.
- Clear base for weed control
- Picking at waist height
- Open canopy for light and air

With the vast range of products grown in the Wildflower industry of Australia it is impossible to design a single pruning strategy which will apply to all plants. Developing pruning strategies requires a simple knowledge of the plant's growth, based on observations. You must have clear in your mind what you are trying to achieve by pruning, and some knowledge of what the plant is capable of doing.

Translocation of *Grevillea scapigera*: is it working?

Bob Dixon and Siegy Krauss
Kings Park and Botanic Garden
Perth, Western Australia

The Corrigin Grevillea (*Grevillea scapigera*) is a rare and critically endangered species endemic to the wheatbelt region of Western Australia. Only a handful of naturally occurring plants exist in the wild today, generally as single plants along roadsides in an area bounded by Corrigin, Bullaring, Bulyee and Quairading. It is threatened mainly by land clearance, with as much as 95% of its habitat destroyed. This species is a seeder, appearing after disturbance such as fire or grading, and living for about seven years. Presumed extinct in 1989, extensive searches rediscovered a total of 47 plants from seven populations (Rossetto et al., 1995).

Dr Maurizio Rossetto, now of Southern Cross University, studied the genetic diversity of these 47 plants using a DNA fingerprinting technique (Rossetto et al., 1995). This identified a subset of plants that was largely representative of the total genetic diversity and which could be used for increasing the number of plants in the wild (translocation). This genetically representative subset of 10 plants was propagated by tissue culture, as germination from seed was not at the time possible. The first large-scale reintroductions took place in 1996 using plants grown from these original clones, planted into a secure 'natural' site near Corrigin.

The recovery team

Since the first large-scale plantings in 1996, further plantings have been made each year, with actual numbers depending on available stock. These reintroductions are done under strict guidelines, led by the *Grevillea scapigera* Recovery Team, made up of experts and supported by volunteers. The field team is led by Bob Dixon from Kings Park and Botanic Garden and Emma Slark from the Corrigin Land Conservation District Committee (LCDC), and oversees the establishment and monitoring of new populations and existing plantings.

The establishment success rate varies considerably from year to year and often depends on the vagaries of the weather. However, the introduction of a customised and self-contained irrigation system (see Box) has greatly improved the success rate.

By August 2001, 684 plants had been established in three translocation sites, most of which have flowered prolifically, producing a continuous carpet of strongly scented white flowers in spring. Though most plants have been raised vegetatively, the Bullaring site was established in 2000 with almost all plants grown from naturally generated seed from the Corrigin translocation site following new advances in seed germination techniques. The seed rain (falling to the ground) from the Corrigin site has been considerable, and more than 30,000 seeds have been collected from the artificially grown plants for germination, scientific research or long-term storage.

Getting the genetics right

Through the ground-breaking use of new DNA fingerprinting technology, all the translocated clones have been checked to es-



tablish whether genetic diversity has been maintained throughout the translocation process (Krauss et al., forthcoming). This showed that rather than equal representation of all 10 clones in the translocated population, more than half of the plants at

Corrigin were a single clone, probably due to errors in labeling. These results highlight the difficulty of maintaining genetic fidelity in a large-scale translocation program that depends on the contributions of many individuals.

This problem is now being addressed, with new plantings of under-represented clones to correct the balance. DNA fingerprinting has also shown that this poor mix of genotypes led to the first generation plants being 22% more inbred than the original founders. These more inbred plants were used to establish the Bullaring site, and they are now being closely monitored to see whether this affects the success of this translocation.

The approach to the recovery of the Corrigin Grevillea offers a model for rare plant recovery. The continued detailed study of these successfully translocated populations is not only leading to the long-term recovery of this species, but will also help generate general principles for the recovery of other threatened species in situ.

Acknowledgments

Thanks to the following people, the Corrigin Grevillea now has a much brighter future:

The program was supported by the Endangered Species Program of Environment Australia, Kings Park and Botanic Garden, Kings Park Master Gardener volunteers, the *Grevillea scapigera* Recovery Team and the Corrigin LCDC and Bullaring community volunteers. Special thanks are due to the original workers in the program including Darralyn Ebsary and Greg Durell.

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Krauss, S., Dixon, K., Hood, P. and Barrett, M. Forthcoming. Practical outcomes in conservation genetics of Australian plants. In: Promotion, Practice and Partnership. Proceedings of the ANPC Conference, 2529 November 1999.

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Irrigating translocated threatened plants

It is not usual to water translocated plants; however, with critically endangered species it can be a cost effective way of improving survival rates, increasing soil seed banks and consequently producing self sustaining populations. At Kings Park and Botanic Garden, in conjunction with Watering Concepts, a local irrigation company, we have developed a cost-effective and efficient trickle irrigated system for two of the *Grevillea scapigera* translocation sites.

The system is illustrated here. Due to the nature and location of the sites it is important to have a battery operated system which delivers low volumes of water. On loamy soils water just runs off when the soil is dry so we use 2 litre per hour drippers to deliver 4 litres, in slight depressions, over a 2 hour period which allows the water to soak into the soil. This is ideal as during this period we are able to monitor the plants at the same time. The system is hooked up to a 12 volt car battery; we use the battery

on the vehicle that we drive to the site which saves time and is much better than carrying a spare battery.

The water tank is filled 2 or 3 times a year by volunteers, usually local farmers or the Corrigin Shire staff. We generally only water the plants during one season (spring, summer or autumn). Frequency of watering depends on the moisture content of the soil and time of year.

The total cost, including water tank (9000 L fibre glass), for 500 plants on a 0.2 hectare site is approximately \$1500. This system has significantly reduced mortality rates, increased growth rates, and flower and seed production. While the plants tend to be shorter lived than slower growing plants, the soil seed bank is significantly improved compared to non-irrigated plants.

BRIAN'S BOBBY DAZZLERS

Grevillea rhyolitica subsp. *Rhyolitica*
(Rye-O-lit-eka)

Brian Roach

One of the great pleasures to come from an interest in the Australian flora is that the range of plants suitable for the garden is far from well-known.

A recent expedition into the wilds of Western Australia by Peter Olde and Neil Marriott, the co-authors of the 3 volume '*The Grevillea Book*' serves to illustrate this point with several new species of *Grevillea* being recorded. While *Grevillea rhyolitica* is not one of those new ones, it is nevertheless a relatively unknown new species that can be added to the growing number of grevilleas suitable for horticulture.

Grevillea rhyolitica attained species status several years ago when it was hived off from *Grevillea victoriae*. There's no doubt in my mind that it will soon become one of the most popular and sought-after native plants. It's got everything going for it.

Growing to around 1m by 1m, *Grevillea rhyolitica* produces its red, pendulous flowers throughout the year. It has a relatively large, entire, mid-green leaf with soft, light-green new growth. Botanically one of the significant features is that the hairs on the underside are sparse and not densely covering the surface.

Apart from its continuous flowering, it has another attribute that is so much sought in suburbia; it performs well in shade. All the indications are that it will accept a very wide range of conditions, even extending to permanently damp spots (which is often

the case with shaded areas) provided there is reasonable drainage. Its growth habit does not demand regular pruning and in my experience it makes an extremely good pot plant.

Make a note of it – *Grevillea rhyolitica* – grab one when you can; it's a bobby-dazzler.

HORTICULTURE

Grevillea: Breeding and Development as Focal/Filler Flowers.

Peter Abell, PBI Cobbitty

The project was undertaken during November 2000. Initial work focussed on a; literature review, survey of plants and co-operators, preliminary vase life trials and experimental trial layout, location and preparation.

Literature review

A literature review was carried out covering: general overview (including: taxonomy, cultivation, industry foliage), postharvest (temperatures, life, treatments), postharvest and gene expression (antisenescence ethylene genes, breeding for keeping quality), plant breeding and genetics (chromosome numbers, selection issues, reproductive biology), tissue culture (*G. rosmarinifolia*, *G. scapigera*, *G. robusta*), and grafting. The list of literature sighted is included in the appendix.

Contacts

A range of contacts have been set up to assist with aspects of this project. A survey conducted at the end of 2000 has (with over 120 responses) provided a significant number of supporters, many willing to be active and some valuable information to consider when trialing possible varieties. The Grevillea Study Group (GSG) membership has a broad range of experience with many willing to be involved with broad vase life assessment and ideas for species/varieties for assessment as well as growing trials. Growers from both the Australian Natives Flower Growers and Promoters (ANFGP) and Australian Flora and Protea Growers (AFPGA) have indicated their support with a number wishing to be actively involved.

Vase life trials

A number of preliminary trials have been carried out on a range of species. Trialing will continue throughout the duration of the project as we intend to test as many species and cultivars from as wide a range of sites as possible. This is to look for trends that may be associated with climate, fertility and soils. It is also important in identifying genetics sources for breeding as well as possibly identifying new products for trialing from existing species or cultivars in cultivation. Initial indications are that excellent vase life of up to 21 days exists in the genus *Grevillea* with *G. sericea* being the standout. There are some surprises within the very small flowered species with a couple managing better than 7 days and one more than 10 days before significant perianth drop.

Species and variety selection

Consideration was given to all species in the genus thought to have 'potential' as cut flowers. Discussions took place with growers, wholesalers and florists and a floral designer/teacher as to what was considered worthy of inclusion. A larger replicated group of 'broad leaved' hybrids (see appendix for full planting list) is the nucleus of the initial planting. This is to provide infor-

mation to growers of these varieties as to how they may improve their production practices as knowledge is gained. At present a range of species, garden hybrids and natural hybrids (many grafted) with a broad range of flower size and colour, inflorescence size and shape make up the remainder of the trial. It is considered that the plants within the trial may be volatile or expendable depending on their suitability to the project. The range of varieties includes the larger terminal flowering tropical types which includes species and hybrids, species that flower in the leaf axils, and the very small flowered species that may provide a good 'fill'. A couple of groundcover types are included on the advice of Mr Richard Go who is a very well and internationally respected floral designer.

Experimental plot and layout

The plot has been laid out and the selected species and varieties have been planted. The layout used was intended to allow for easy maintenance as well as following a row crop concept in an effort to provide a guide towards a production system. Two rows presently have wires as these plants are to be grown 'grape like'. This is part of a plant maintenance and pruning strategy that is hoped will improve flower yield, quality and accessibility. Tech line drip irrigation has been installed the dripper spacing is 300mm with two lines per row with an 300mm (approx) separation. Allowance has been made for manual installation of an injector for fertigation. Significant problems were encountered with stability/mobility of the weed mat which has been laid as a complete cover to reduce maintenance. It would be preferable in future to weed mat the rows and bury the mat edges.

Mt Annan Botanic Gardens

Parts of the trial are to be replicated at the botanic gardens and will be on public display with interpretive signage. Expertise of the propagation staff will be used to graft the tropical hybrids (Sylvia et. al.) as part of a comparison between cutting grown and grafted plants for yield, vigour strength and overall performance.

Other

Two articles relating to this project are currently 'in press' for publication in Australian plants. One is an overview of the project and the other is a report on preliminary vase life trials. The later has already been published in the Grevillea study groups newsletter along with the full literature list. Informal discourse about aspects of the project at an AFPGA meeting and an ANFGP conference has been well received.

Appendix.

The appendix includes; planting list, literature list, initial vase life survey comments, two articles for publication and the planting layout.

HORTICULTURE (continued)

Planting list

Genus	Species	Cultivar	Notes	Location
<i>Grevillea</i>	<i>aquifolia</i> (prost)		grafted, PV	B3
<i>Grevillea</i>	<i>bipinnatifida</i> (dark flr form)		grafted, PV	B11
<i>Grevillea</i>	<i>bronwenae</i>		grafted, PV	B12
<i>Grevillea</i>	<i>candellabroides</i>		grafted, PV	F15
<i>Grevillea</i>	<i>chrysophea</i>			B10
<i>Grevillea</i>	<i>decora</i>		grafted, PV	F9
<i>Grevillea</i>	<i>eristachya</i>			D22
<i>Grevillea</i>	<i>eristachya X juncifolia</i>		grafted, PV	E22
<i>Grevillea</i>	<i>eryngioides</i>		grafted, PV	C22
<i>Grevillea</i>	<i>georgeana</i>		grafted, PV	F14
<i>Grevillea</i>	Hybrid, ex. Cultivation	Caloundra Gem		D5, E5
<i>Grevillea</i>	Hybrid, ex. Cultivation	Firesprite		F19
<i>Grevillea</i>	Hybrid, ex. Cultivation	Golden Yu-Lo		D6, E6, C24
<i>Grevillea</i>	Hybrid, ex. Cultivation	Honey Gem		D10-12, E10-12
<i>Grevillea</i>	Hybrid, ex. Cultivation	Honey Wonder		F21
<i>Grevillea</i>	Hybrid, ex. Cultivation	Majestic		D7-9, E7-9
<i>Grevillea</i>	Hybrid, ex. Cultivation	Moonlight		D13-15, E13-15
<i>Grevillea</i>	Hybrid, ex. Cultivation	Pink Surprise		D16-18, E16-18
<i>Grevillea</i>	Hybrid, ex. Cultivation	Sandra Gordon		D4, E4
<i>Grevillea</i>	Hybrid, ex. Cultivation	Sylvia		D1-3, E1-3
<i>Grevillea</i>	Hybrid, ex. Cultivation	Yamba Sunshine		F20
<i>Grevillea</i>	Hybrid, ex. Cultivation	Excellence		B17
<i>Grevillea</i>	Hybrid, ex. Cultivation	Grassfire		B8
<i>Grevillea</i>	Hybrid, ex. Cultivation	Bush Carpet		B6
<i>Grevillea</i>	Hybrid, ex. Cultivation	Olympic Flame		A1
<i>Grevillea</i>	Hybrid, ex. Cultivation	Misty Pink		D20, E20
par <i>Grevillea</i>	Hybrid, ex. Cultivation	Evelyns Joy		F17
<i>Grevillea</i>	Hybrid, ex. Cultivation	<i>G. Joy (=Longjohn f2)</i>	grafted, PV	F13
<i>Grevillea</i>	Hybrid, ex. Cultivation	Pink Flash		F12
<i>Grevillea</i>	<i>insignis</i>		grafted, PV	F10
<i>Grevillea</i>	<i>johnsonii</i> (orange)		grafted, PV	F11
<i>Grevillea</i>	<i>juncifolia</i>		grafted, PV	D21
<i>Grevillea</i>	<i>juncifolia X bipinnatifida</i>		grafted, PV	C20
<i>Grevillea</i>	<i>lavandulaceae</i>			B1
<i>Grevillea</i>	<i>leptobotrys</i> (Tutanning)		grafted, PV	B8
<i>Grevillea</i>	<i>leucopterys</i>		grafted, PV	E21
<i>Grevillea</i>	<i>longistyla</i> (red)		grafted, PV	F16
<i>Grevillea</i>	<i>nivea</i>		grafted, PV	B1
<i>Grevillea</i>	<i>obliquistigma</i> (? River)		grafted, PV	B15
<i>Grevillea</i>	<i>oligomera</i>		grafted, PV	E19
<i>Grevillea</i>	<i>paradoxa</i>		grafted, PGA	A2
<i>Grevillea</i>	<i>petrophiloides</i> (nth race)		grafted, PV	D19
<i>Grevillea</i>	<i>pteridifolia</i>			F18
<i>Grevillea</i>	<i>repens</i>			B7
<i>Grevillea</i>	<i>secunda x hooheriana</i>		grafted, PV	B9
<i>Grevillea</i>	<i>speciosa</i>			B2
<i>Grevillea</i>	<i>spinosa X juncifolia</i>		grafted, PV	C21
<i>Grevillea</i>	<i>superba</i>		grafted, PV	B14
<i>Grevillea</i>	<i>synaphea</i>			A1
<i>Grevillea</i>	<i>wilkinsonii</i>			F8



CHAT FROM THE NET

Email correspondence between Karen Bettink and Neil Marriott
I am a Conservation Officer working for CALM in WA, and I recently read your article in "Western Wildlife".

I noticed you mentioned looking at the population of *G. marriottii* at Mt. Holland. I just wanted to let you know that myself with 2 very enthusiastic and hard working volunteers found 4 new populations near Mt Holland, totalling around 6 500 plants (estimated). All plants and their habitat were healthy.

The species is currently ranked Priority 1, but as there are now considerably more plants and populations known we will be looking at downgrading its ranking.

Karen Bettink
Conservation Officer
CONSERVATION AND LAND MANAGEMENT
Merredin District, PO Box 332 Merredin WA 6415
Ph: (08) 9041 2488
Fax: (08) 9041 2454
Email: karenb@calm.wa.gov.au

Hi Karen,

Thanks so much for your great news - really pleased to hear that you have found further populations of *G. marriottii*. Were the new populations on the outwash slopes of the mountain or further out? When I first discovered the species I found a small population about 10 km north along the main road - subsequent searches have failed to relocate this population!! It seems to be a species

that thrives after disturbance and then gradually dies out. Did the new populations exhibit this tendency? Isn't it fantastic isolated country out at Mt Holland!! There must be a lot of new taxa out in that country!!

Best wishes,

Neil Marriott
mailto:neilm@netconnect.com.au
Sent: Wednesday, 21 November 2001 6:27 PM

Hi Neil

Thanks for getting back to me so promptly. The populations we found were several kilometres out on the downslopes of Mt Holland, and you're right they all seemed to be recruited from a wild-fire in the summer of 94/95.

All plants seemed to be roughly the same age, but all were very healthy and flowering prolifically.

Because the populations seem to all be fairly localised (even in high numbers) it will most likely stay on CALM's priority flora list. I will definitely keep my eye out though for that population you mentioned 10km north of Mt Holland.

It is fantastic country down that way, in fact we were commenting the whole time about how many new undiscovered species there must be, you just need to know what you're looking for.

Regards,
Karen Bettink

Apology and Thanks

Due to personal reasons I must apologise for the delay in sending out the last newsletter and for the quality of some of the newsletters. Thanks to those people who helped me out, particularly Endre Nagy who kindly offered to help.

Grevillea bracteosa

Lesley Polomka Priority Flora Survey Officer WA Herbarium
Dept of Conservation and Land Management.

lesleyp@calm.wa.gov.au

I thought you would like to know that I am in the process of nominating *Grevillea bracteosa* for listing as Declared Rare Flora. In our survey work last year we found a couple of new roadside populations, south of Miling. There are now eight known populations, but there are still none in Reserves. The Howatharra Hill population has been reduced by about half, by road widening and the construction of a dam on the private property. The Miling population on private property is healthy, apparently fully recovered from the problem you observed there a few years ago, and the property owner says he is not planning to extract any more gravel from the site.

You told me about a population on private property, off the northern side of Geraldton-Mt Magnet Rd., about 33.8 km NE of Geraldton. Sue Patrick and I searched for this population last year but did not find it. I would appreciate it if you could spare the time to look for this population again, next time you are in the area, and then let me or Sue Patrick know the exact location details.

THE BACK PAGE

SEED BANK

Thank you to Miss Rossington for the donation of *Grevillea scortechinii*, *G. "Superba"* and *G. "Excellence"*.

Free seed - *G. banksii tree*, *banksii grey leaf*, *barklyana*, *beadleana*, *caleyi*

Please note new phone number for Judy Smith (Seed Bank) - 9579 1136.

Please include a stamped, self addressed envelope.

Grevillea Seed \$1.50

candelabroides	juncifolia	pterosperma SA
copper rocket	leucopteris	pterosperma WA
crithmifolia	linearfolia white	pulchella
decora	longifolia	pyramidalis
didymobotrya	longistyla	quercifolia
dryandri	monticola	refracta
endlicheriana	paniculata	rivularis
eriobotrya	petrophiloides	robusta
glauca	petrophiloides	sid reynolds
goodii ssp goodii	phanerophlebia	stenobotrya
huegelii	pilulifera	synaphaea
insignis	plurijuga upright	teretifolia
intricata	polybotrya	tetragonoloba
johnsonii	pteridifolia	thelemeniana

Grevillea Park Bulli OPEN DAYS 2002

April 27th, 28th, May 4th, 5th

July 20th, 21st, 27th, 28th

September 21st, 22nd, 28th, 29th

Each year it is the last full weekend in April, first weekend of May, last two full weekends in July, last two full weekends in September.

<http://www.speedlink.com.au/users/ziebell/grevillea/>

OFFICE BEARERS

Leader: Peter Olde, 138 Fowler Road, Illawong 2234. (02) 9543 2242; petero@australians.com

Treasurer and Newsletter Editor: Christine Guthrie, PO Box 275, Penshurst 2222. Phone/fax (02) 9579 4093

Curator of Living Collection: Neil Marriott, PO Box 107, Stawell Vic 3380

Curator of Grevillea Park Bulli: Ray Brown, 29 Gwythir Avenue, Bulli 2516. (02) 4284 9216

Seed Bank: Judy Smith, 15 Cromdale Street, Mortdale 2223 (02) 9579 1136

FINANCIAL REPORT

	Income	JULY 2002	Expenditure	
Subscriptions	\$647.91		Newsletter Publishing	520.00
Seeds	30.00		Postage	147.50
Interest	177.57		Post Office Box	52.00
			Repair to GSG Fax	90.00
			Bank Charges	9.00
			University of Sydney	5,000.00
			Stationery	20.45
			Float for Plant Sale	400.00
		\$855.48		\$6,238.95

\$10,441.89 in Interest Bearing Deposit till 14 Jan 2003

Balance in Current Account as at 16/7/02 \$3,682.74

* * * * *

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.

2001

2002