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Association of Societies for Growing Australian Plants

GREVILLEA STUDY GROUP

June 2004

# **GSG** Victoria Chapter

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# VIC Programme 2004

# August 13-14 2004, Weekend excursion

VENUE: Wangaratta, Beechworth, Warby Ranges

and Chiltern, Violet Town, Strathbogies

Subject: Field Trip led by John Gibbons and David Shiells. John has arranged a full and

interesting tour. Species in the area include *G alpina, G. lanigera* and *G. rosmarinifolia*.

Acacias should also be in flower.

- see details of itinerary on page 3

# **November (Melbourne Cup Weekend)**

GSG Victorian Chapter will not host a field trip in 2004. This year Michael Williams and the McDowalls and the Marriotts will be on field trips in WA during Sept and Oct and will not have time to organise or participate in a Nov GSG excursion. Vic Chapter may try to schedule future November Field Trips in years between the biennial Fred Rogers Seminars.

# GSG QLD Programme 2004

Sunday, June 27 2004

**VENUE:** Home of Denis Cox & Jan Glazebrook,

87 Daintree Dr, Logan Village 4027

Phone: (07) 5546 8590

Sunday, August 22 2004 (note: 2nd last Sunday due to our Open Garden on last weekend)

VENUE: Home of Merv. & Olwyn Hodge,

81-89 Loganview Rd, Logan Reserve

Phone: (07) 5546 3322

### Sunday, October 31 2004

**VENUE:** Home of John & Gwen Marsden,

Lot 48 Roxburgh Rd, Wights Mountain

Phone: (07) 3289 3349

## Sunday, November 28 2004

VENUE: Home of Rex & Dawn James,

1 Nichols Rd Highfields, 4352

(Between Toowoomba & Crows Nest)

Phone: (07) 4630 8619

# **GSG NSW Programme 2004**

Note change to June meeting: Wednesday, June 23 2004

VENUE: Munmorah SRA Field Trip

TIME: 9.30am morning tea for 10am start

Subject: Low forms of Grevillea Sericea and other

interesting heathland plants.

For details call Peter Olde on 4659 6598.

Saturday/Sunday, July 24/25 2004

VENUE: Ken & Elizabeth Forbes

1154a Burrier Rd. Burrier Phone: 4423 2921.

TIME: 1pm on Saturday

Subject: Sat afternoon: Study Group Meeting

Sat night: talk by Peter Olde -The History of Grevillea in Australia Sunday: Bushwalk with Nowra enthusiasts.

Sunday, August 22 2004

VENUE: Carol & Gordon Meiklejohn

25 Wildoaks Rd Oakdale Phone: 4657 1912

TIME: 9.30am morning tea for 10am start

Subject: Garden Visit and Tour of the Commercial

Plantings. Gordon will answer questions on his planting methods and secrets.

September - no meetings

October - Grevillea Crawl to be organised by

NSW Chapter, details next newsletter.

Wednesday, November 24 2004

VENUE: The Oldes

140 Russell Lane, Oakdale

Phone: 4659 6598

**TIME:** 9.30am morning tea for 10am start

Subject: Christmas Get Together/ Planning for

Next Year/ Keying Exercise.

# Inside this issue:

- Grevillea maccutcheonii in Tasmania
- Grevilleas in the UK
- More Grevilleas in Yallaroo
- Mount Annan Grevillea Garden
- WA Field Trip 2002

and more ....

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Kerry & Annabel Rathie

5 Salston Rd, Greenbank, 4214.

Phone: (07) 3200 0268

Follow Mt. Lindsay Highway (Beaudesert Rd) south and turn right into Middle Road soon after you pass the Grand Plaza Shopping Centre at Browns Plains.

Just past Andrew Rd (on left) Middle Road crosses the railway line, follow this and turn right into Old Greenbank Road, hard left into New Beith Road and follow to the first street on right which is Salston Road.

No. 5 is the last house on the RHS. UBD Map 278 A5 (or Map 277 R5)

Denis Cox & Jan Glazebrook

87 Daintree Dr. Logan Village, 4207.

Phone: (07) 5546 8590

At northern side of Logan Village, turn over railway crossing in Quinzeh Creek Road. Continue straight ahead (becomes Miller Road)

right into Latimer Road, right into Diamentina Drive, pass the first sign to Daintree Drive follow Diamentina Drive to second sign Daintree Drive.

Jan & Denis are on the corner of Diamentina Drive and the southern end of Daintree Drive. UBD Map 303 M7

Merv. & Olwyn Hodge

81-89 Loganview Rd, Logan Reserve, 4133.

Phone: (07) 4456 3322

Follow Kingston/Beenleigh Road towards Beenleigh, right into Logan Reserve Road go approx. 5km.

Turn left into Loganview Road, go 1km. 81-89 is on left (3 properties before Henderson St).

Rex & Dawn James

1 Nichols Rd, Highfields, 4352. Phone: (07) 4630 8619

(Between Toowoomba and Crows Nest)

At top of Toowoomba Range turn left at Mobils Service Station then right into James Street, Follow James Street and turn right into Hume Street, cross over Herries & Margaret Sts and turn next left into Chalk Drive, then 2nd right into Ruthven Street (this becomes New England Highway), follow this towards Crows Nest for approx. 10km or so.

At Highfields proceed through traffic lights on cnr Highway & Cowdor Rd. Approx. 1km past lights on RHS is Nichols Road. No. 1 is on cnr Highway & Nichols Rd. There are 3 entries side entry or 2 via semi-circular drive (all are on Nichols Rd). SGAP signs will be out.

#### Bernard & Rona Wilson

120 Avalon Rd, Sheldon, 4157.

Phone: (07) 3206 3399

Exit Gateway Arterial Rd at Mt. Gravatt/ Capalaba Road (go left from north, right from south). At 4th roundabout take the second exit - Mount. Cotton Road, go approx. 7km.

Turn right into Avalon Road - go 1.5km (to just past Pioneer Road on the right).

No. 120 is on the left. It has a white five-rail fence across the front and a cattle grid at the front gate.

UBD Map 204 C19



# To assist with planning and catering:

Please **register** for excursions or (regulars) please send **apologies**.

Vic. members wishing to receive notices by EMAIL please contact Max by EMAIL if necessary to ensure that your correct address gets on the EMAIL list. Others please advise of any changes to your contact details.

# 13-14 August, 2004 North-East Weekend Field Trip - Itinerary

**Hosts:** John & Trish Gibbons / David Shiells - Co-leader: Max McDowall (registrations)

Members of A.P.S. Wangaratta District Group are also invited to participate.

## Saturday

**DEPART:** Time and place TBA, Proceed direct to Glenrowan.

#### ARRIVE GLENROWAN 10.30AM

Morning Tea at Kelly's Cookhouse (on right side).

11.00 AM Proceed to two sites in the Warby Range to see the local form of Grevillea alpina

**12.30**PM Proceed to the Gibbons' House for Lunch and purchase some local plants.

Address: 16 Warrawong Lane Wangaratta South. (part of Hamilton Park Estate).

Ph. 5766 2441 (RACV Vicroads Country Directory 34 E8 - town map 308 J5

2.00pm Depart for Tarrawingee, Whorouly and Beechworth, returning via Eldorado. We will be looking at the various forms of Grevillea alpina and possibly forms of Grevillea lanigera and Grevillea rosmarinifolia as well as species of Dodonaea, Baeckea, Pimelea, Hibbertia, Acacia, Pultenaea, Dillwynia and large specimens of Xanthorrhea australis.

**3.30**PM Afternoon tea at Beechworth Bakery.

**7.00**PM Dinner at one of the local hotels.

#### Sunday

9.00 AM Depart from Glenrowan (Lions Park opposite Hotel) for Reef Hills near Benalla (Grevillea alpina and other species) and then on to Warrenbayne (Grevillea alpina and other species). Morning Tea at Warrenbayne in the bush (cooking facilities will be provided).

12.30 PM Arrive at David Shiells' Violet Town for Barbecue lunch and look at his nursery and gardens. Address - through town on Murchison-Violet Town Road on right past Orchid St (McDiarmids Rd) Phone 5798 1788. (RACV VicRoads Country Directory 308 A6).

**2.00** PM Depart for home. Max McDowall will lead members returning toward Melbourne to some interesting sites on the way.

#### WHAT TO BRING:

Wet & cold weather gear. Lunch for both days. Cakes or biscuits for morning teas.

\$20 for dinner Saturday night. Money for Beechworth Bakery and Kelly's Cookhouse and to buy plants.

# ACCOMMODATION:

Members will responsible for arranging their accommodation in Wangaratta.

**Painters Island Caravan Park** (Recommended) They have cabins. Ph 5721 3380

Gateway Quality Hotel (up market) Ph 5721 8399

Warby Lodge Best Western (4 star) Ph 5721 8433

Millers Cottage (3 star) Ph 5721 5755

Advance Motel (3 1/2 star) Ph 5721 9100

# VEHICLES:

The roads we are traveling on will be suitable for 2 wheel drive vehicles. If conditions are wet, some minor changes will need to be made to the itinerary.

# Report on Easter Working Bee at 'Panrock Ridge'

Participants: Neil Marriott and Wendy Renzi, Max & Regina McDowall, Bob O'Neill, Werner Kutsche & Jenny Mills (Clovelly Park, S.A.), Howard & Lorraine Harvey (Houghton, S.A.) Ben & Irene Stocks (Harden, N.S.W), Michael Williams (whose idea it was to hold the working bee), Judy and John Plucinski, John O'Hara, Brian and Betty Lacy, Craig and Sharon Beeching.

This was voted an outstanding success by all 19 participants. Most of the work was done in the main grevillea collection on the eastern slopes. All big grevillea shrubs were extensively pruned, dead branches and dead shrubs removed and infested large acacias and self-seeded acacia saplings cut down. Over 30 trailer loads over 1.5 m high were removed for burning or mulch in the rain forest area and several trailer loads of firewood were stacked near the house and cottage. Bob O'Neill pruned shrubs in the gardens around the house and potted up plants in the nursery.

Neil had intended to demonstrate some garden bed preparation, but a delivery of 21 cu m of soil conditioner that week proved to be gypsum instead of the dolomite which he had ordered. Fortunately Neil has a front-end loader and the supplier will have been able to retrieve his gypsum on delivery of the dolomite.

Other activities: Visits to Stephen Smart's Nursery and arboretum in Stawell on Friday afternoon, and to the Mt Cassell and Grampians Wildflower nurseries at Pomonal on Sunday afternoon. It was heart-breaking to see the damage wrought by the drought to Stephen's grevillea plantings, although the hakeas appeared to have survived better. His dam was almost empty. By contrast, the eucalyptus arboretum was in good condition.

We had barbecues on the Friday and Sunday nights and dined in Stawell at the National Hotel Chinese Bistro on Saturday night. In the evenings we had slide shows, talks and demonstrations. Werner Kutsche showed us his digital photographs taken on a recent tour of Western Australia. Neil showed us slides of new W.A. grevillea species. Harvey has scanned Neil's entire grevillea slide collection, and computerised the Grevillea Kev with photographs which he hopes will be available eventually to members as a CD. He also demonstrated the database which is prepared annually for the South Australian SGAP plant sales, incorporating detailed descriptions and colour photos of all plants listed for sale, with search and retrieval programs to enable intending purchasers to select a list of plants suitable for particular garden situations. Ben and Irene Stocks demonstrated a CD of their nursery in Harden NSW.

# Grevillea Park Bulli OPEN DAYS 2004

July, Saturday 17 & Sunday 18 July, Saturday 24 & Sunday 25 September, Saturday 25 & Sunday 26 October, Saturday 2 & Sunday 3

Each year the Park is open on the last full weekend in April, first weekend of May, last two full weekends in July, last weekend in September and first weekend in October.

#### Location

The Park is located at the rear of Bulli Showground, Princess Highway, Bulli. (Turn at the Woonona-Bulli Sports Club).

# Admission

\$4 adults, children accompanied by adults are free.

Barbeque and picnis facilities available Bring your lunch and make it a family day!

#### Special openings for groups

Special openings for tour groups (such as bus tours by Garden Clubs) can be arranged

The park is open from 10am to 4pm.
For more information email at

grevil2@grevilleapark.org

#### Wedding

First of all congratulations to Neil Marriott and Wendy Renzi on their forthcoming wedding (June 5) and our best wishes for the future. This is the second marriage for both parties and the ceremony will be held in the grounds of Panrock Ridge where they have made their home. They will both be travelling overseas shortly for a holiday visiting Wendy's parents in the UK.

#### **Molecular Studies**

Congratulations also to Made Pharmawati who has published her molecular work on Grevillea in Australian Systematic Botany. Sydney members met Made at one of our Study Group meetings on Molecular studies at Wollongong University in 2002. She is an Indonesian Postgraduate Student in Australia on an AusAid scholarship. Made ran into supervision problems at Uni of NSW and transferred to University of Western Australia. Her paper is the first published molecular study on the taxonomy and phylogeny of Grevillea, studying 12 species and 3 subspecies from New South Wales (16 genotypes).

# Howard's Key.

Over the last 6-12 months Howard Harvey from South Australia has been scanning slides of all Neil Marriott's Grevillea species into digital form so that he can produce an online key. The key is based on that in the Grevillea Book so it needs updating. Howard has sent me a CD of his work so far and it is most impressive.

His homepage is

http://homepages.picknowl.com.au/hharvey

## Max and Regina McDowall.

We have just finished restoring our garden beds after the devastating flood on December 3rd which inundated the bottom half of our block to a maximum depth of 165 cm including our entire nursery and flooded under the house to 55 cm. 35 m of fences had to be replaced. We retrieved about 50% of our nursery plants held in styrafoam boxes from the upper garden beds and adjacent properties where they had floated, and managed to repot stock plants which had been partly washed out of their pots, but many plants died subsequently in the hot summer weather. Many large shrubs were uprooted by the flood and had to be destroyed. Replanting is now in progress. Many plants and cuttings from W.A. plants which we were were growing for Neil Marriott were lost. Almost our entire collection of *Grevillea alpina* stock plants has been lost and many of the few remaining pots have lost their labels.

#### Merele Webb (Nillumbik Bushscapes)

will shortly be putting her Yellingbo property on the market and plans to move east of Mt Dandenong after the sale.

# Autumn Plant Sale

Last year there were serious problems with the advertising of this event to the general public. However advertising to the Australian Plant membership was good. This year the roles were reversed. Excellent advertising to the public within the constraints of the word 'free' but terrible advertising to our main constituency. Despite promises to the contrary the event was not advertised in Native Plants because the March Issue did not arrive until May!!! The December issue also failed to pick up on the event and did not list it. This was a terrible blow. Notwithstanding this the sale was a financial success and raised several thousand dollars towards research. Special thanks to Kyrill Taylor who was the only member of the NSW council to show any real support and offer voluntary assistance. Makes you wonder about whether we are interested in plants or politics.

Some members of the council have never attended a single plant sale.

Another great helper was June Brooks, who is not a member of the Australian Plants Society but who does a fantastic display each year. Don Burke did a marvellous job and gave enormous assistance with radio interviews and coming on the Sunday, thereby attracting our largest Sunday crowd in many years. Special thanks too to Gordon Meiklejohn for organising the roster and to the those who gave up their time to help on it. Thanks to Bruce Wallace for his valued role as treasurer. Other notable helpers were Christine Guthrie, Tony Henderson, Dot and Hessell Saunders, Wendy and Neil Marriott and special vote of thanks to Ken and Elaine Arnold. It was great to see David Shiells back and Merv and Olwyn Hodge came all the way from Brisbane. Thanks to all for their great support.

#### Mount Annan Grevillea Garden.

Several meetings have been held on the Grevillea Garden at Mount Annan since the beginning of the year. Plantings and structure have been discussed and also formed the basis of a study group meeting and site visit at Mount Annan in March. Recommendations were forwarded to the Project Co-ordinator, Geoff Duggan. Research has included visits to Grevillea Park, Bulli, Gordon and Carol Meiklejohn at Belimbla Park, as well as consultations with Neil Marriott, Merv Hodge and David Shiells. Plant lists linked to the objectives are currently being drawn up.

# Grevillea Garden's primary display objective:

Spectacle - Grevilleas and other stuff (eg horticultural fillers) will provide a spectacular display to stop visitors and also provide a drive through experience.

# Grevillea Garden's secondary display objectives

- demonstrates diverse use of Grevilleas in landscaping
- complements the hard landscape ( dry stone walls)
- complements the immediate natural landscape

### Interpretive objectives

#### 1. HORTICULTURAL AND LANDSCAPE DISPLAY

- cascaders on walls, as standards (Why am I on the ground?)
- horticultural and cultural techniques (plant breeding, grafting, links to Garden's Shop)
- horticultural use of flowers and foliage
- floristry

# 2. Pollination strategies

- "Here I am"
- "Big bang" flowering
- "Stayers"
- "Why do I smell funny"
- Birds and mammals nectar
- Insects - smell

#### 3. LIFE HISTORY AND ECOLOGY

# a. Foliage and form

- relate to survival strategies (where possible)
- Why are Grevilleas almost everywhere in Australia
- Pricklies and tactiles
- allergies / dermatitis

#### b. Seeds

- types (nth/sth)
- dispersal

#### c. Soils

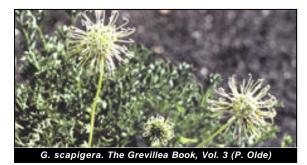
- specifities
- laterite story

#### 4. Conservation issues

- Rare and endangered
- recovery plans (including community involvement)
- natural rarity >> current endangerment
- good news stories eg G. scapigera, G.wilkonsonii

#### 5. GREVILLEAS AND HUMANS

- Indiaenous - Food / other
- Historical - Banks
  - Brown
  - Cunningham
  - Leichhardt
- Timber - robusta
  - striata





# Travels in the West 2002: Part one

Our field trip to Western Australia in 2002 was one of the most extensive yet undertaken in such a short period and took us to many extremely remote and beautiful places along the south coast of Western Australia. Our scientific collections centred almost exclusively around Grevillea, especially the white-flowered group that is at present the subject of extensive research.

2 Sept. 2002. I again travelled with Neil Marriott. Our first collection was on a road north-west of Southern Cross towards Bullfinch where we collected what appears to be Grevillea levis Species in this group can be difficult to separate without fruits and we were unable to find even old fruits with these plants which were growing in a degraded road verge. At Baladjie Rock west of Bullfinch, a huge granite monolith, we encountered more plants of the same or a closely related new species and Grevillea sarissa subsp. sarissa, not yet in flower. Baladjie Rock looked like an ideal place to strike camp if we were ever in the area again near nightfall. But we moved on west to another granite monolith east of Warralakin where a new species has been recorded and identified. This species was treated as the Granite Form of Grevillea paniculata by Don McGillivray but in my opinion is quite distinct, being most closely related to G. levis (which was also included in G. paniculata by McGillivray). After collecting here we entered the nearby Chiddarcooping Nature Reserve, a vast and pristine area of granite rocks and spectacular flora, including Acacia restiacea and Grevillea minutiflora among many other species. Outside the park boundary on roads heading south we collected *Grevillea tetrapleura* and an extremely robust form of *Grevillea nana* which had very large leaves including occasional leaves with secondary division. Until now one of the most consistent features of G. nana has been its once-divided leaves. From here we headed west towards Mt. Cramphorne and Muntadgin where Grevillea xiphoidea and another whiteflowered species grow together. Examining these plants showed how complex this group can be to separate. We closed the day out with a long drive to Kondacutten Rock near Wongan Hills, the most westerly point from which the Granite Form of *G. paniculata sensu* McGillivray has been collected.

This form differs from plants in the western parts of its distribution in the more pronounced ridges on its fruits.

Over the next few days we spent time researching specimens at the WA herbarium in Perth. We found another specimen of Grevillea squiresiae that had been misidentified as G. nana that had been collected from a new site (ironically around the corner from where we had just been) and thus extended the range of this newly described species. It was here at the herbarium that we met up with Mike Hislop who again mentioned what he thought was a new species or form of Grevillea occidentalis. The previous year I dismissed this collection as an error because Mike told me that the specimen was in with the specimens of G. occidentalis and was marked G. sp. aff. occidentalis I found a specimen marked thus and it was just G. occidentalis. So when we met up this time with Mike again, he again asked about the <u>G</u>. sp. aff. occidentalis and I gave my opinion. No, he said, I still think it is new. Ok. so let's have a look at it together. Mike cannot find it. The sp. aff that I had examined previously was not the one he was talking about. Furthermore, it was not in the file he had told me about. I'll find it, he said. and later that day he produced it, clearly yet another new species from near York that I had not previously seen. Fred Hort had collected it. It was another amazing new find for which Fred was becoming famous. A retired headmaster with a prior interest in orchids and photography, Fred and his wife Jean have taken up thorough plant collecting around Perth. Over the last few years, using aerial photographs, Fred has identified vegetation and soil changes and made collections of numerous new species.

**5 Sept. 2002.** We took off for the York area where we found not one but three populations of the new species (aff. *occidentalis*) all growing beside the road. All had previously been collected by Fred and Jean. We saw some beautiful plants this day including *Asterolasia nivea*, *Pimelea flava*, *Chorizema* sp. and several Grevillea species, including *Grevillea pimeleoides*, *Grevillea endlicheriana*, *Grevillea pilulifera*, *Grevillea manglesii*.

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The next day we followed up a conversation about a new population of Grevillea althoferorum near Bullsbrook. When compared with the population near Eneabba, the small population at Bullsbrook appears to be quite different and deserves some formal recognition because of its morphology and geographic disjunction. At this stage we began collecting some of the variation in Grevillea vestita which appears to contain some geographical and populationbased diversity. We collected specimens from Bullsbrook to Badgingarra. Around Badgingarra we searched for two taxa treated as unassigned by Don McGillivray. We found one near old Badgingarra which is clearly a new species but the other collected by Speck on the Hill River eluded us. It is such a big area and needs more time than we were able to afford in order to mount a proper search. In the next few days we headed further north to the Geraldton area in search of some undescribed populations all of which were studied in the field. Two new populations of Grevillea christineae that had been found in this area in recent years were also studied and fruiting specimens collected.

10 Sept. 2002. We began heading south again, collecting around and south of Coorow where a number of white-flowered species occur. We found large numbers of G. levis around here and also a simple-leaved species, referred to as the Watheroo-form of G. paniculata by Don McGillivray. As well as that we also collected G. umbellulata ssp. umbellulata which is quite common north of Perth. Around Wongan Hills we searched for what appears to be a new species collected by Bob Coveny (NSW Herbarium) but did not find it where he collected it. In fact we found nothing there. It had all been cleared. However, some of my old collections have specimens of this potential new species from a different location. The next day we headed around Goomalling to collect an unusual form of *G. paniculata* and then quite by accident we found a remnant roadside population (4 plants) of what appears to be a new species or subspecies of G. vestita. We could not find any fruits (nor even old fruits around the base of the plants). The plants were quite large and old. This suggests they may never set seed and may reproduce only from root suckers.

This may be a good thing in the end because the only remaining natural vegetation in this area is at extreme riskfrom destruction by the new council-owned vegetation-control machines that literally can mulch a whole roadside in minutes. We ended up near Kulin at Jilakin Rock, a huge granite monolith in search of another population, represented by a single unusual collection. We did not find what we went looking for but we did find another new species.

The next day we went to an area little frequented by collectors as it is somewhat away from the main roads that dissect the southwest. Harrismith is an area rich in proteaceae especially Dryandra but only a few grevilleas occur there, including *Grevillea integrifolia* and a beautiful form of *Grevillea cagiana*. We found what is certainly another new Grevillea species around the golf course with rigid leaves and hairy columnar branches. We then returned to Perth and spent a few more days researching in the herbarium.

15 Sept. 2002. We headed out again, driving directly to the Blackwood River in search of another new species that we had identified from specimens. We searched for a day and a half but could not find it. This species was first collected in 1879 and then once again in 1883 by Mrs Mary McHard (1825-1912) who sent specimens from her local area to Mueller. Mrs McHard collected over 800 specimens but did not give clear locality data. In this case, she gave as the locality of her two collections respectively Blackwood and Blackwood River. She lived as the second wife of Thomas McHard at 'Southhampton', located south of Balingup, near the junction of Norikup Brook and Blackwood River. Hopefully, the species is not lost. We searched the Blackwood extensively between Balingup and Alexandra Bridge but the area is vast and needs much more time and personnel than we could give. We headed north again.

I wanted to confirm an unusual collection of *Grevillea uncinulata* near Woodanilling. It was while we were searching for this population that we came upon another new species just north of the Beaufort River. When we discovered it it was only in bud, shedding its floral bracts in

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an unusual manner, so unusual that we immediately recognised it as a species related to but distinct from *Grevillea anethifolia*. We were beginning to weigh down with new species. It seemed that wherever we went they seemed to bob up.

We headed out to Tarin Rock Nature Reserve, a species-rich Reserve well worth visiting for a couple of days if you are travelling to WA. The beautiful Banksia baueri grows in it as well as Grevillea insignis subsp insignis and many other beautiful plants. Nearby we also collected Banksia audax. We were headed for a collection identified by Neil in the herbarium as a possible new species. We spent two days looking for it but we were unable to locate it. It had very large toothbrush flowers and looked like a good one for horticulture perhaps related to Grevillea cagiana or Grevillea excelsior. Maybe next time. We spent a bit of time in the area, collecting several specimens of different grevilleas, including Grevillea anethifolia, Grevillea aneura, Grevillea candelabroides, Grevillea excelsior, Grevillea eryngioides, Grevillea huegelii, Grevillea acuaria, Grevillea incrassata, Grevillea shuttleworthiana, Grevillea hakeoides ssp. stenophylla, Grevillea disjuncta, Grevillea oligantha, Grevillea biformis. Plenty to see and observe.

We made our way to the next search at Boat Harbour. Following a recent collection of a taxon identified by Don McGillivray as unassigned, we spent over two days here searching the pristine wilderness and camping by the sea, undisturbed by any other people. It is a magic place and rich in plant species, especially Proteaceae. We searched high and low for what we were looking but could not find it anywhere. We ended up getting ourselves hopelessly lost in the undergrowth trying to locate it using a GPS. In the end we had to give it away for another day. It was just impossible to find that day. We headed east along the coast towards Esperance and then onto some of the collecting localities of the early explorers such as Maxwell and Robert Brown, east of Esperance. We called in to Ravensthorpe on the way and visited the Wildflower Show held there every year by the local enthusiasts. It is a mind-blowing display of flora, freshly picked from local farms. They are not allowed to pick from Nature Reserves or National Parks. Well worth a visit if you are in the area during mid September. We began searching for new species.

It is interesting to speculate on why the south coast has a proliferation of banksias and other proteaceae but very few grevilleas. In fact the proteaceae predominates through many genera including Adenanthos, Hakea, Isopogon, Franklandia. But apart from one or two species which are very widely distributed, grevilleas are conspicuous only by their relative absence. We were searching for a Grevillea population sampled by George Maxwell at the Thomas River in Cape Arid NP and also for a species identified in horticulture at Mt Annan Botanic Garden that they had collected near Mt Arid and identified as Grevillea anethifolia (which it clearly is not). Don McGillivray and Alex George also collected this second taxon in 1976. We found the latter but even after a whole day of searching could not find the former. We headed further east along the coast track to the 'Diamonds' a remote and poorly sampled sandstone outcrop. We found a few grevilleas including Grevillea concinna ssp. lemanniana and Grevillea pauciflora ssp. psilophylla. We sampled many species here including a new Eucalypt (aff. dolichorhyncha). The most beautiful of all the plants was Leucopogon apiculatus with its magnificent display of pink flowers. The wierdest plant I have ever seen Rhadinothamnos euphemiae was also growing here but alas, no whiteflowered grevilleas.

We continued east to Israelite Bay and then turned north to Mount Ragged which rises above the surrounding plain. Climbing to the top of this Mount is a marvellous experience with a vista all round from horizon to horizon, overlooking the vast vegetated wilderness like a floating sea below. It is not difficult to imagine what it would have been like when sea levels rose at the end of the last ice age 7-15000 years ago. It has an endemic Grevillea taxon, Grevillea pauciflora ssp. saxatilis growing on its upper slopes but few other species. Only Grevillea concinna ssp. lemanniana and Grevillea nudiflora were found nearby while we passed Grevillea oligantha (robust form) and Grevillea sparsiflora on the way. We headed back east along the highway having made 223 collections and with the firm hope of finding the missing taxa for which we had searched so hard

# Grevilleas in the UK

The plants below are listed in the 2003/4 edition of the English Plant Finder. The nursery responsible for most of the new imports says that it works on the assumption that if the wholesaler says that it is winter hardy in Canberra it will be hardy in Britain. My only comment is that seedling *Grevillea bipinnatifida* from Panrock Ridge were not winter hardy here. I bought *G. barklyana* and it is a hybrid and is diseased. Several years ago, before it was available commercially I got Canberra Gem. Within 3 years it had reached 5ft x 7ft, so was dug out. It now has an RHS Award of Garden Merit!

The *Grevillea victoriae* is a plant that I imported from Tasmania's Woodbank Nursery in 1982. It has dark red flowers that abort. When (after 14years) it died I did not bother to replace it. *G thrsoides* will not be that. The nursery from which the other 2 offering it obtained their stock told me that it used to call the plant rosmaninifolia thrysoides but changed the name because of the PF. The nursery is notorious for selling poorly rooted plants in oversized pots under the wrong name at an exhorbitant price. Because it gets Gold Medals for its exhibits at RHS Shows it has a 'name'.

# Plants listed in the 2003/4 edition of the English Plant Finder

Grevillea alpina, A. Goldfields, Olympic Flame, aquifolium, arenaria, arenaria ssp. canescens, aspleniifolia, Robyn Gordon, Austraflora Copper Crest, australis var. brevifolia, banksii, banksii var. forsteri, Canberra Hybrid, banyabba, barklyana, baueri, beadleana, bedggoodiana, bipinnatifida, Bonnie prince Charlie, Bronze Rambler, Canberra Gem, Clearview david, confertifolia, Copper Crest, Cranbrook Yellow, crithmifolia, confertiloba, difusa ssp. evansiana, drummondii ssp. pimeleoides, endlicheriana, Evelyn's Coronet, Fanfare, fulgens x gaudichaudii, Honey Eater Heaven, Honey Gem, involucrata, johnsonii, juniperina ssp. amphitricha, f. sulphurea, Molonglo, lanigera, lanigera Lutea, Mount Tamboritha, lanigera prostrate, laspicalla (I have told the plantfinder that this is probably a mis-spelling of iaspicula), levis, longistyla, Majestic, mason's Hybrid, monticola, Moonlight, nudiflora, obtusifolia Gingin Gem, olivacea Apricot Glow, Orange Marmalade, paniculata, Pink Lady, Pink Surprise, Poorinda Elegance, Poorinda Peter, quercifolia, repens, rhyolitica, robusta, Robyn Gordon, (?Poorinda) Rondeau, rosmarinifolia, ros. Desert Flame, ros. Jenkinsii, Sandra Gordon, ScarletSprite, x semperflorens, sericea, shiresii, Sid Reynolds, Spider Man, Splendour, thelemanniana thel. Spriggs Form, thyrsoides, tridentifera(???), Grevillea victoriae, williamsonii.



Grevillea lanigera x rosmarinifolia Correa pulchella Correa pulchella York Peninsula form Correa pulchella Marge's Marvel Banksia ssp Eucalyptus leaves

#### More Grevilleas from Yallaroo

These are some more Grevilleas that we are cultivating at Yallaroo, our property west of Armidale on the Northern Tablelands of New South Wales.

Grevillea anethifolia is sometimes known as the Spiny Cream Spider-flower. This medium shrub is a native of inland New South Wales, South Australia and Western Australia. The light-green leaves are divided into prickly segments. In spring the plants become covered with highly scented, creamy-white flowers. The perfume spreads throughout the garden. The foliage is another attractive feature and contrasts with other foliage in the garden.

Grevillea anethifolia will accept hard pruning and has proved to be drought and frost tolerant.

The species propagates readily from cuttings.

Grevillea arenaria is one of our favourites. We notice from Peter and Neil's Volume 2 that there are two subspecies. Within these subspecies there are a number of forms. We are growing a silky form of Grevillea arenaria subspecies arenaria. The original material came from a bushy area next door to a caravan park in Goulburn on the Southern Tablelands of New South Wales. Our specimens have grown into dense shrubs up to 2.5 metres tall. The soft

foliage has a velvety feel and the flowers are green with a reddish tinge. The dense foliage provides nesting sites for honeyeaters and other small native birds. The soft foliage could be used as filler in flower arrangements. Seedlings have appeared in a number of places at Yallaroo.

There is also a form with villous foliage. We have not cultivated this form but have observed plants growing in the Mittagong area of the Southern Highlands.

The silky form propagates readily from cuttings

Grevillea baueri is an old favourite. We have a number of specimens that are nearly ten years old. This is another Grevillea that has two subspecies (Olde & Marriott Vol. 2). We are cultivating Grevillea baueri subspecies baueri. Our plants are about 1.5 metres tall with small, glossy leaves and reddish-pink flowers.

We think that *Grevillea baueri* subspecies *asperula* is another species that occurs in the Mittagong area.

We have found that *Grevillea baueri* is one of the easiest species to propagate from cuttings.

Please note: Our website has a new address: www.yallaroo.com.au

Jeanette Closs, Kingston

## Grevillea maccutcheonii in Tasmania

I was interested to read in the last newsletter of *Grevillea maccutcheonii*. I found this plant for sale at the Redbreast Nursery, which has its propagating nursery in the northwest of Tassie. It took me a time to find reference to it, but I eventually did so in Newsletter 46 from March 1997. I was pleased to find such a rare plant in a local nursery and told some Grevillea friends, so they also went and purchased plants.

Checking on my not always accurate card index system, I noted that Dave Mason had sent me cuttings in May 1998 but that I did not get a strike. Since obtaining a plant from Redbreast I have struck many cuttings and passed on plants to other enthusiasts.

My plant is in a sheltered position with plenty of sun and the soil is heavy loam over clay. It has not stopped flowering since I planted it in September 2002. The notes in the newsletter mentioned that it flowers from May to December - but then perhaps it enjoys the situation here very well. I do hope that the recovery project is successful as it is a delightful plant with its unusual leaves and dainty clusters of flowers.

# Grevillea species planted at Ponde as at Jan 2003

My property is at Ponde, which is about 7km from Mannum near the River Murray in South Australia. The property has a south facing aspect and overlooks the river flats towards Mypolonga. It receives about 250mm rainfall and the prevailing winds are from a southwesterly direction. In winter the property can be subject to moderate to severe frosts. Summer temperatures can reach into the low forties.

The soil is an alkaline (pH ca 8.5-10) sandy loam over limestone with depths varying from 0.1m - 2m. The soil is generally devoid of nutrients and is non-wetting. Water is derived from 2 sources. One is from an SA Water tank containing chlorinated River Murray Water via a meter. The second source is from a 6000L rainwater tank.

Planting first commenced in July 1993, mainly Eucalyptus, Acacia and Eremophila species. Plants were watered by taking 2.5L bottles to the tap at the meter, filling them up and then inverting them next to the plant. Later on, 20 L drums were placed next to the thirstier plants. Plants were protected from rabbits by tyres. This was reasonably effective.

In the year 1994 (rainfall 165mm) the survival rate of the plants put in that year was less than 50%. The main reason for this was that a lot of the watering was done via the bottle method and only some areas had water on tap.

During the next year polypipe was dug under the centre of the vehicle tracks with taps placed at suitable intervals.

During 1996 plants were also mulched with straw and a rabbit-proof fence was erected around the perimeter of the property. An expensive but worthwhile exercise judging from the natural regeneration of grasses and shrubs.

Up until the end of 2000, grevilleas were planted in the natural soil. The survivors were mainly those tolerant of alkaline conditions. During the late nineties, one and two litre cartons were placed around the plants for frost protection as well as markers so that they wouldn't be mown or slashed. Twenty litre drums with top and bottom removed were also used for this purpose.

In 2001 I had the idea of planting grevilleas in granite rubble so that at least for the first 5 minutes of their life they were in more or less their preferred pH soil. The first plants planted in this fashion were *Grevillea petrophiloides* and Grevillea magnifica. The result was very favourable with one plant sending up 4 flower spikes this year (2003). From then on all WA grevilleas have been planted in granite rubble with most surviving. A few exceptions are Grevillea candelabroides and Grevillea. annulifera. Another plant, Grevillea superba flowered last year, not quite the spectacular plumes seen in the west, but flowering nonetheless. Hakeas and eucalypts from WA are also being planted in the granite rubble.

The grevilleas with the least maintenance and least fussiness about growing conditions have been *Grevillea leucopteris* (this has in fact generated 2 seedlings which on transplanting died) and *Grevillea ilicifolia* var *ilicifolia*. Other potential grevilleas are *Grevillea olivacea*, *Grevillea huegellii* and *Grevillea albiflora*.

We are now trying to locate a source of neutral/acidic sand for those species preferring sandy rather than gravelly soils. Time will tell how effective the planting in granite rubble will have been.

# Annual rainfall figures for 1994-2002 in mm.

 1994: 165
 1999: 223

 1995: 246
 2000: 265

 1996: 278
 2001: 262

 1997: 280
 2002: 186

# **Bill Cane's Propagating Tips**

This article appeared in Your Garden Magazine. The article refers to Bill's method of growing *E. ficifolia* from cuttings, but I guess would be much the same for other species. Take note that the honey must be "pure" or unheated. Shop bought honey is not suitable, as it has usually been treated with heat to prevent it from becoming candied. The sawdust mentioned was aged sawdust obtained from the heaps at sawmills as I remember. I must stress that the article was printed in 1958, and when rooting hormones and fungicides became available Bill of course made use of those.

Whether he continued to use honey I don't know, but wouldn't be surprised. He was continually experimenting, and over the years used lemon juice, vinegar, and various other acids to try and stimulate root growth. I know that he found the hormones too harsh for some species. I think that honey has properties that are not yet fully understood, you've probably heard of Medi-Honey which is producing amazing results where other medical treatments have failed. Years ago Bill cured himself of a dreadful skin complaint which had the doctors stumped, by applying honey as an ointment.

Another little anecdote about George Althofer, George told Bill that he was having trouble growing Geraldton Wax from cuttings, Bill sent him 3000 rooted cuttings! After Bill died, the family gave me heaps of plants from the nursery when they were cleaning up, and I noticed that certain ones had a rusty nail inserted in the mix. Bill's way of giving certain of the western plants the trace of iron they needed.

# The "Cane" method of striking Eucalypt cuttings.

The age of wood used seems to be more important than the time of the year when cuttings are taken, according to Mr. Cane. With gums, the best cuttings are shoots less than six months old from branches, or new growth after cutting back. Three months is considered the best age.

Gum cuttings should be 3 or 4 inches long with about three top leaves left and the rest cut off close. If cuttings have to be carried some distance, they are best not snipped off, but carried on the branch, taking care to prevent wilting.

Prepare a dip for the cuttings by filling one glass or jar with water and adding enough potassium permanganate to give it a pink colour, and filling a similar container one third full with honey. Use warm water for the potassium permanganate to assist in mixing with the honey, but the value of the honey is lost if the temperature goes above 150 degrees F.

Mix the honey and potassium permanganate together to get a smooth mixture. Use about 1 inch depth in a glass and stand the prepared cuttings in it and leave overnight. (from 8 to 18 hours) Keep covered away from draught. Mr Cane advises making additional drainage holes in the pot used for propagation. The propagating mixture used is equal parts of peat moss (for moisture retention), coarse sand (for air), and pine or hardwood sawdust (to check damping off) together with about 1 inch depth of drainage material in the bottom of the pot.

Transfer the cuttings from the dip to the pot without delay and away from wind, and place the pot in a cold frame - a close box with fitted glass top will do. A strike of 90% is to be expected.

# **EMAIL**

To make communication easier, it would be helpful to have members email addresses.

Please add your email address to any correspondence including when paying subscriptions.

Thank you

# Application of RAPD and ISSR markers to analyse molecular relationships in Grevillea (Proteaceae)

#### Abstract

The potential of RAPD and ISSR markers to construct molecular relationships of Grevillea was evaluated with 23 RAPD and 12 ISSR primers. The 16 genotypes representing 12 species and 3 subspecies of Grevillea were sampled from the collection of the Mt Anann Botanic Garden, NSW. RAPD and ISSR assays generated a total of 401 RAPD and 280 ISSR fragments. High frequencies of polymorphisms, 99.39% for RAPD and 99.51% for ISSR, were detected by both markers. Three statistical approaches were employed to construct phylogenetic relationships from combined RAPD and ISSR data. Cluster analysis by the unweighted pair group method (UPGMA) of Jaccard's similarity and Neighbour-Joining analysis of total character difference generated dendograms with similar topology. Parsimony analysis also generated a tree that was in broad agreement with the two dendograms. The phylogenetic trees divided the Grevillea species studied into three groups. Group A consisted of

G. buxifolia subsp. buxifolia, G. phylicoides and G. sphacelata. In group B, G. mucronulata was grouped together with G. montana, while G. diffusa, G. humilis, G. linearifolia, G. molyneuxii, G. oldei, G. sericea and G. speciosa formed group C. This molecular result was comparable to groupings suggested by a previous author (Makinson 2000) based on morphological characteristics. However, in contrast to the morphological taxonomy, molecular phylogeny suggests that G. oldei and G. speciosa belong to the same subgroup sensu Makinson (2000), whereas G. linearifolia and G. molyneuxii should not be placed in their originally suggested subgroups sensu Makinson (2000). The present study is the first published report on molecular relationships of *Grevillea* and can be considered as an initial point for further research on the genetic relationships and evolution of Grevillea.

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#### Seed Bank

We have a new curator of the seed bank. Matt Hurst from Wagga Wagga has kindly volunteered to take over from Judy Smith who has held the job for many years. Thanks to Matt for volunteering and to Judy for her work over the years. An updated seed bank list will be published in the next newsletter.

# \$1.50 + s.a.e.

barklyana phanel caleyi rivulari Caloundra Gem robusta Copper Rocket scortee endlicheriana Sid Re Excellence stenob johnsonii Superb	hiloides rophlebia is a chinii ynolds rotrya aanniana

# Free + s.a.e.

candelabroides	plurijuga upright
crithmifolis	polybotrya
decora	pterosperma SA
Dryandri ssp	pterosperma WA
endlicheriana	pteridifolia
eriobotrya	pulchella
glauca	pyramidalis
goodii	quercifolia
huegelii	refracta
leucopteris	robusta
moniticola	stenobotrya
petrophiloides pilulifera	teretifolia

- Q. **Jeff Irons**, (jbirons@freeuk.com) has asked about seasonal variation in nectar production.
- A. I know of no study precisely centred on seasonal variation in nectar production of Grevillea. There may be some useful reference in studies of related genera (e.g. Banksia) which I have not examined. Not sure of the point of this question really. Probably (pure speculation on my part) in good seasons there would be increased nectar flow in line with better rainfall and climatic conditions, and possibly higher pollinator attendance but by what amount is difficult to gauge. There is no base-line amount recorded apart from individual amounts in separate floral studies of nectar secretion. These studies have been directed to sucrose ingredient or to pollinator research not seasonal variation, as far as I recall.

Regulation. Individual species and individual plants within species perform differently also. Some of the (sub)tropical species (Grevillea robusta, Grevillea pteridifolia come to mind) create flows sufficient to drip nectar on to the ground like a tap during the day, the amount increasing around the middle of the day. Seems like a waste in effort and not very productive for the plant, does it not? These plants are mostly pollinated by large nectarivorous birds that require an abundant source of seasonal nectar, especially in what is also likely to be the breeding season. Most of the tropical species (Grevillea banksii, Grevillea whiteana and the aforementioned *Grevillea pteridifolia*) and their hybrid derivatives have very high quantities of nectar, sufficient indeed to wet you thoroughly if you happen to walk into a clump or are cutting flowers or pruning. However most bird-pollinated species produce sufficient nectar to attract pollinators and then regulate production in accordance with pollinator attendance.

**Unconsumed nectar.** Nectar, if not consumed, can turn alcoholic in the right conditions of moisture and temperature. When eventually consumed by pollinators it can have an hilarious outcome with birds staggering around, flying into objects, even falling off the branch.

Ants attracted by nectar will traipse sticky feet up and down the stems that eventually results in sooty mould developing. Ants are mostly attracted to the nectar produced by scale but I have observed so-called 'meat ants' forming regular and somewhat unwelcome attention (especially for botanists) at the nectar of flowers produced on *Grevillea hookeriana* growing in the wild.

There is a photo in the Grevillea Book of an aboriginal sucking the nectar from *Grevillea juncifolia* which is one of the things Aborigines did as an energiser. However, this photo is actually an example only. All the flowers we sucked that day possessed either little or no nectar. Some of the flowers were full of ants, a fact to which I can personally attest after two mouthfuls. This was a very dry season in the middle of Australia and may answer your question in part - low production in poor seasons.

Timing. It might seem self-evident that nectar production is highest during daylight hours. For the majority of species that are bird-pollinated this would be true. However, some species have large nectar flows at night (Grevillea annulifera, Grevillea candicans, Grevillea leucopteris and related species). These species are not bird-pollinated but either insect or more likely small mammal-pollinated. There is also usually strong scent (usually unpleasant and heavy) associated with the maximal flows which occur mostly in the early evening. This was reported in a study by Byron Lamont (refer the references in the Grevillea Book). An interesting feature associated with these species is the high number of glandular hairs on the other floral parts especially floral bracts and peduncles that have high viscidity and trap small midges and other insects well before the flowers begin to emerge, let alone approach anthesis. The real 'purpose' of this is unknown but there may be an appetiser effect that gets potential pollinators gathered and feeding. The perfume after anthesis may be an encouragement to mammals or perhaps night-flying moths or insects that could add to the potential pollinator index in terms of type and number.

Phylogeny. There is anectdotal or speculative evidence that grevilleas have an ancient lineage (up to 100 million years). Certainly banksioid and other proteaceous taxa whose leaves bear a remarkable but possibly coincidental similarity to a few modern Grevillea species are known from the Cretaceous. The most primitive species are thought to have evolved in the rainforests known to have been widespread on the continent at that time. Perhaps modern species such as Grevillea baileyana are the closest representatives to that primitive concept. The first flowers were almost certainly self- or insect-pollinated and developed before birds evolved. It is most likely that they attracedt pollinators by perfume or other floristic displays (e.g. tepal eversion, tepal colouration). Large nectaries and hence large nectar flows almost certainly codeveloped with the evolution of bird pollinators.

Peter Olde Grevillea Study Group

# Financial Report - June 2004

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Subscriptions	\$501.33
Seeds	300.00
Interest	0.12
Donations	10.00
	\$811.45
Expenditure	
Newsletter Publishing	\$180
Postage	142.80
Stationery	14.10
Post Office	55.00

\$10,441.89 in Interest Bearing Deposit till July 2004.

Balance in Current Account as at 27/05/04 is \$5,500.61

Balance in Business Cheque Account as at 27/05/04 is \$14,684.18

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# **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 to which you would like to subscribe. In this case search for "grevilleas" and then subscribe.

Following this you will receive the latest emails regularly in your email to which you can respond. This is a good way to encourage new growers and those interested in the genus.

Postmessage: greville as @yahoo groups.com

Subscribe: grevilleas-subscribe@yahoo.com

Unsubscribe:grevilleas-unsubscribe@yahoo.com

List owner: grevilleas-owner@yahoo.com

URL to this page:

\$517.30

http://groups.yahoo.com/group/grevilleas

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- 1. President's email address <a href="mailto:petero@australians.com">petero@australians.com</a>
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http://users.bigpond.net.au/macarthuraps/gevillea study group.htm

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.

2003	2004