

Association of Societies for Growing Australian Plants



Ref No. ISSN 0725-8755

October 2004

Newsletter No. 69

GSG Victoria Chapter

Leader: Neil Marriott
Ph: (03) 5356 2404, Mob: 0408 177 989
Email: neilm@netconnect.com.au

Convener: Max McDowall
Ph: (03) 9850 3411, Mob: 0414 319 048
Email: maxamcd@melbpc.org.au

VIC Programme 2004

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.

VIC Programme 2005

Easter Friday March 25 – Monday March 28

Grevillea Workshop and Excursions, Campout and Working Bee at "Panrock Ridge" near Stawell.

- see details of itinerary on page 2.

Full programme for 2005 will be included in the February GSG Newsletter, to be produced by the Victoria Chapter. We propose to lead an extended Field Trip to Western Victoria and adjacent parts of South Australia in November 2005.

GSG QLD Programme 2004

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

Friday, October 29– Monday, November 1 2004

Field trip to the NSW North Coast

- see details of itinerary on page 2.

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.

GSG NSW Programme 2005

Wednesday, February 23 2005

VENUE: Grevillea Park, Bulli

SUBJECT: Building a database of species for the Grevillea Park.

Wednesday, March 27 2005

VENUE: Nathan Kirkwood
9 Corella Road, Kirrawee

SUBJECT: An enthusiast at work in grafting and hybridising the Australian flora.

April 23 – 24 2005 - Autumn Plant Sale

Sunday, May 29 2005

VENUE: Bushwalk, Darkes Forest

SUBJECT: Search for *Grevillea caleyi/macleayana*

June 2005 – Merv Hodge

July 2005 – *Grevillea phyllicoides* east side of Hawkesbury

August 2005 – Robinson Garden

September 2005 – no meetings as yet

October 2005 - Field trip

November 2005 - Christmas party

Inside this issue:

- The George Althofer-Burrendong herbarium
- What's in a name
- Propagation of Grevillea

and more....

Easter Friday March 25th to Monday March 28th

Grevillea Workshop and Excursions,
Campout and Working Bee at "Panrock
Ridge" near Stawell.

Due to the popularity of the Easter 2004 Working Bee at the Study Group's official collection at Neil and Wendy Marriott's and to requests from those unable to attend, we will be holding a similar event over Easter in 2005. Participants are welcome to arrive/depart before, during or after the scheduled period by prior arrangement with Neil and Wendy. More details will appear in the February 2005 newsletter, but record it in your diary now. Activities will include:

- maintenance work on the grevillea collection.
- seminars on digital photography, taxonomy, and new flora,
- demonstrations and workshops on propagation, grafting and landscaping,
- members' slide shows of recent field trips, etc. (please volunteer so that your proposed contribution can be included in the programme),
- plant sales and cutting exchange – please send a cuttings/plant list or a wish list – cuttings offered should be individually packaged and labeled with full details of provenance, habit and grower's name or numbered with a code identifying the grower and referring to a printed list provided with the same details.
- field trips around the Grampians and Mt. Langi Ghiran to examine populations of *Grevillea montis-cole* ssp *brevistyla* and *Grevillea microstegia*, etc.
- evening barbecues (BYO food) and a pub dinner (on Saturday night for which prior registration will be necessary).

REGISTRATION:

By Monday, 7th March with Neil and Wendy Marriott in writing/EMAIL including details of participants, telephone and mobile numbers and CB radio (if any), vehicle description and registration number, and expected times/dates of arrival/departure and enlistment for the pub dinner.

Phone enquiries welcome.

ACCOMMODATION :

1. Camping, caravanning or billeting at "Panrock Ridge"

Neil and Wendy have plenty of space and facilities for campers and caravaners including power, water and ablutions as well as some spare beds in the house and cottage. Book directly with Neil and Wendy for on-site accommodation.

2. Stawell Park Caravan Park, phone (03) 5356 2709, corner of Western Highway and Panrock Reservoir Rds. Early reservation is essential because of the Annual Stawell Easter Gift. This, the nearest caravan park, is located on the Highway at the start of Panrock Reservoir Road approx 7 km from "Panrock Ridge".
3. Other Caravan Parks and Motels in Stawell or Ararat.

Note on August Weekend Excursion to Wangaratta, Violet Town and districts:

Over 25 participants including members of the local A.P.S. Wangaratta District Group, enjoyed an excellent field trip visiting various populations of *Grevillea alpina* ably led and organised by John and Trish Gibbons and David Shiells whose gardens we also visited. Interstate participants included Peter Olde and Gordon & Carol Meiklejohn from N.S.W. We welcome new GSG members Ray & Helen Barnes from Melbourne.



Grevillea alpina

Friday October 29 – Monday November 1

Field Trip to the North Coast of
New South Wales.

The trip will commence at Grafton post office at 9 am on Friday Oct 29. The trip will examine the coastal areas between Angourie and Brunswick Heads, looking at *Grevillea humilis*, *Grevillea robusta* and *Grevillea hilliana*. From there we will travel west to Tenterfield and Mole River Station, near which *Grevillea beadleana* grows. A conducted tour of the nursery and interesting nearby wild areas will be conducted by Sarah, the nursery proprietor. We will travel into southern Queensland, looking at *Grevillea viridiflava*, *Grevillea scortechinii* ssp. *scortechinii*. Further south we will travel into Copeton Dam where we will see *Grevillea floribunda*, *Grevillea juniperina* and other interesting species. At Torrington, we will see more of the same as well as *G. scortechinii* ssp. *sarmentosa*. We then plan to proceed east through Gibraltar Range NP, where we will see several *Grevillea* species, including *Grevillea mollis*, *Grevillea rhizomatosa*, *Grevillea acerata* as well as *Telopea asper* and other interesting species. Lastly we will travel to view *G. beadleana* further to the south at the type locality. Please contact Gordon Meiklejohn (ph 4657 1912 or 0407 104 464) if you are interested in this outing. You will not need a 4 wheel drive for this trip.

Members travelling north may wish to see some interesting species on the way.

At 3-5 km south of Bulahdelah take a look at *Grevillea virgata*, quite common beside the highway.

A side trip 3 km east of Booral, just north of Raymond Terrace, you can find *Grevillea guthrieana*.

At Karuah, in Hobart Forest Rd, 0.5 km from Booral Rd you will find *G. humilis* ssp. *humilis*

Near Port MacQuarie, you may find *Grevillea linsmithii*. Some of the members will search for this at some stage on the journey. Location details can be obtained from Gordon.



Grevillea beadleana

Peter Olde

Research news

Research has begun into the generic limits of *Hakea* and *Grevillea* using DNA sequencing. Funding to the tune of \$10,000 is expected to be necessary as well as the voluntary contributions of the members of the *Grevillea* Study Group. The research is being co-ordinated by Dr. Peter Weston, Senior Research Scientist at the Royal Botanic Gardens, Sydney who has a keen interest in Proteaceae especially the genus *Persoonia*.

The cost of DNA sequences is extremely expensive and research into the best site and

technique has been commenced on a voluntary basis by James Instoe, a professional researcher in human genetics based at Westmead Hospital.

It is expected that the research will tell us whether the two genera are separate or congeneric. A process of collecting plant material from as many species as possible from both genera has begun, using the *Grevillea* and *Hakea* collections of study group members and the collection at Mt Annan and National Botanic Gardens.

The George Althofer-Burrendong Herbarium

Reproduction of a letter to the NSW herbarium via acting director, Brett Summerell.

On Monday July 26 and Tuesday July 27 I travelled at my own expense and examined the Burrendong herbarium held in the garage of Hazel Althofer, 29 Maxwell St., Wellington for the purpose of establishing its fitness for incorporation into the NSW herbarium, following brief discussions with Tim Entwisle, Gwen Harden and Peter Weston at varying times over the past few years.

History

The Burrendong herbarium was maintained and expanded over a period of approximately 50 years by George Althofer who began his interest in native plants as a nurseryman proprietor of Nindethana, Dripstone, New South Wales. He was ably assisted by his brother, Peter, younger than George by some 15 years. They also collected and sold seed on a commercial basis. The seed business 'Nindethana' was eventually sold to the Luscombe brothers in Western Australia who maintain it still. Nindethana nursery catalogues appeared in the 1950s but the nursery does not appear to have survived a period of ill health suffered by George in the 1960s. George himself kept specimens of many (but not all) of his own collections. He also kept specimens of those plants that were sent to him by others during his nursery days. Once Burrendong Arboretum was begun, all the plants collected for the arboretum had a dried specimen retained for it. It was George's wish that the herbarium be housed in the mid-west of the State and be available for the use of people from the area interested in the Australian flora. Eventually it was hoped the specimens would be stored at Burrendong Arboretum. This wish has proved to be impractical and unfulfilled. George transferred the herbarium to the hospital in Wellington where it was held dry and safe for many years but more recently it found its way into Hazel's garage where it has remained for the last 10-12 years. Discussions with RBG suggest we could store the specimens at NSW and they could be available

to anyone via computer database. Perhaps we could code the specimens with a special data field such as George Althofer Burrendong Herbarium to enable retrieval of all specimen data.

Hazel has expressed the wish to be rid of the specimens now and would like them to be taken where they will be of most use. I have suggested NSW and she has agreed.

Specimens

At present, not only are the specimens unavailable for ready use by students but they are beginning to suffer from neglect. Hazel told me that only two people have ever looked at them in all the time they have been there. One was Brian Timmis who examined the substantial *Prostanthera* collection. They are stored in a dry earth floor garage on heavy duty plastic overlain by hardwood planking on which they are stacked in large cardboard herbarium boxes to a height of 1.5 m. Two steel racks made by Jim Birchall house a number of others to a height of 2.5 m. There have been two recent infestations of white ants that have attacked the boxes and destroyed a few specimens, eaten the paper and cardboard boxing. Damage was limited. Some specimens have been 'mulched' by grubs and moths but in general they are in surprisingly good condition. They have been regularly 'naphthalened' by Hazel Althofer and Cliff Debenham who worked on the specimens (see later).

There are approximately 12,000 'useful' specimens. The most important are those that detail wild source collections of the principal contributor George Althofer. Other collectors include Peter and Hazel Althofer, Jack and Lillian Harris, John Cane (son of Bill Cane) and the Lowe sisters. The specimens represent collections from all states of Australia. There are numerous other collectors, too many to list here. I have estimated the size at 400 large herbarium boxes. I have marked the boxes that would be suitable for the NSW herbarium. The boxes have been categorised and labeled according to Bentham's system. Some are full but most are less than full in varying degrees.

In addition to the 'useful' specimens there are a large number of boxes that contain specimens from the arboretum collected by the late Cliff Debenham. The idea appears to have been to

continued

record all plants growing at the arboretum and their location there. Accordingly a code has been attached to each plant by means of staple and it gives by way of example ACC, or BDD. These letters apparently agree with some plan of the arboretum gardens drawn up by Cliff. I have rejected these specimens. They are badly curated and of limited value, without locality. They are strictly an arboretum resource and their value needs to be assessed by the arboretum itself.

Label data

Labels consist of an identification, usually binomial, given probably by George. There is quite a lot of correspondence between George and the herbaria of various states giving him the identification of plants. I consider this correspondence to be very important historically as it extends over the times of Mair, Anderson and Johnson at NSW and various other correspondences with John Carrick (SA) and others. I did not have time to read it all. Apparently the identifications were then transferred to the specimens held. When Burrendong Arboretum commenced in 1964, specimens of wild collections, including seed, sent by numerous parties associated with the arboretum have been saved.

Most labels also consist of a locality or even more accurate 3 miles along road from A towards B. Some labels have simply Western Australia. Many specimens are off plants growing in the arboretum. These need to be separated out and where possible I did this while there on Tuesday. There are not too many of them in the wild collection boxes from what I could ascertain, although I did not go through every box.

Each label has a collector, usually identified by initial only but for which there is a code in the associated master books (see below).

Each label has a number. This is a Burrendong number, rarely a collector number. The Burrendong number has two associated handwritten booklets in which the locality data, collectors initials and most importantly the date has been recorded. The date has not been recorded on the specimen labels. There is no other information on the labels.

Conclusion

I have brought two sample boxes of *persoonias* for examination. You will get the idea from these. I recommend that we act promptly. I suggest that I obtain a quote for removal by pantechnicon. I think I can get this done cheaply by one of my former employees. I still own a truck. Perhaps the Australian Plant Society could be asked to meet this expense. The herbarium will need to decide how to handle such an influx of specimens and where to store them.

Postscript

Discussions with Brett Summerell and Barry Conn.

Brett has indicated that the information has been forwarded and discussed in committee. Barry has agreed that the collection would be best placed at NSW. There are two problems: space to store the boxes prior to processing, and staff to incorporate and enter label data into the system.

Possibilities exist for funding to pay someone to enter data eg Kathie Downs, and for volunteers to assist with the incorporation (i.e. sheeting, mounting, bar-coding). Funding might be possible through the Australian Plants Society or other organisation.

POSITION VACANT

Honorary Research Assistant and Technical Officer.

I am seeking a volunteer who could assist Peter Olde at the NSW herbarium in my *Grevillea* research and who could assist in the incorporation of my specimens and collection data in the NSW herbarium. If you are interested in the possibilities that this position offers, please contact me for a discussion. Full training on the job will be given. It is expected that the person would be able to work on their own with direction and a period of training. One day a week is envisaged or whatever can be afforded. My contact details are on the back page of this newsletter.

Peter Olde

Grevillea dunlopii Makinson

Fl. Aust. 17a: 494 (2000)

Type Northern Territory: Mt Gilruth area, C.R. Dunlop 4901, 5 June 1978. Holo DNA; Iso BRI, CANB, K, NSW.

A description of this species can be found in The Grevillea Book Vol 3:151-152. and Flora of Australia P.111.

G. dunlopii is known from relatively few collections on the Kakadu escarpment. It is closely related to *Grevillea rubicunda* from which it is distinguished by numerous characters. It has shorter and broader leaf lobes (2-5 cm long, 1.8-4 mm wide), a sparser stylar indumentum and longer, narrow-lanceolate floral bracts (4-7 mm long). *G. rubicunda* in contrast has floral bracts 3-4 mm long and also of a somewhat different shape (ovate-acuminate) and often has leaf lobes to 10 cm long and mostly 1.2-2 mm wide. The presence of glandular hairs in varying degrees of consistency on the leaves, fruits and floral parts is also a distinguishing feature of *G. dunlopii*. Other leaf and venation characters are also given.

G. dunlopii and *G. rubicunda* form a distinct and unique group (Group 31) within *Grevillea*. Don McGillivray thought that they were sufficiently distinct to be recognised as a separate genus. However, he did not go to the extent of naming it nor outlining the generic characters. The flowers are basiscopic and quite sessile.

Etymology Named to recognise Clyde R. Dunlop (1946-) former curator (now retired) of the Northern Territory Herbarium who collected the holotype.

Grevillea Book Reference: *Grevillea* sp. aff. *rubicunda* Vol 1: 215 Vol 3: 151-152.



Grevillea rubicunda, The Grevillea Book, Vol. 3 (P. Olde)

A southern distribution for *Grevillea caleyi*

Credible reports were received last year that *Grevillea caleyi* and *Grevillea macleayana* had been observed in the Darkes Forest area. The observations made by Nathan Kirkwood are in fact over 10 years old but the general area was considered small enough to warrant a major field investigation. A search was conducted on Wednesday Aug 25 2004. The party consisted of Richard Johnstone, Michie, Andrew Orme from Mt Annan Botanic Garden. Richard organised the necessary permits from the Dharawal Recreation Area.

Tony Henderson, P. Olde, Dot & Hess Saunders, Robert Miller and Nathan Kirkwood represented the *Grevillea* Study Group.

Sadly the search which was conducted over a period of four hours was unsuccessful.

The reported congruence of geological, soil and habitat features in addition to associated species was not found. *Grevillea caleyi* is reported to be associated with an upper ridge system in tall vegetation adjacent to a low heath. *Grevillea longifolia* was common in the area of occurrence and the soils were heavily laterised. The location was not far distant from a track. The species was not abundant as only a few scattered plants were seen.

On the same day that *G. caleyi* was discovered, *G. macleayana* was found on the banks of a stream. It was associated with a great deal of sand that had been piled up in a dune like heap near to the bank and was growing on the top of it.

The area covered by the search was on the map – Appin 1:250000.

It is hoped that more searches can be mounted for these two species in the near future. People interested in assisting with the search should contact the writer.



Grevillea longifolia, The Grevillea Book, Vol. 2 (P. Olde)

What's in a name – updated

Update of a previous article entitled 'What's in a name' and published in the Queensland SGAP journal.

I think that all grevillea lovers have often tried to work out just how some hybrid grevilleas got the names that are theirs for life. Certainly I have spent a great amount of time delving into their names and just why they are so-called. Lots are named after some person, perhaps known to the breeder, and some have no realistic reason for their being so named.

The first grevillea I ever bred was *Grevillea* 'Caloundra Gem'. In those days, around 1980-81, I had an acre of land at Little Mountain and I was buying plants by the hundred to plant there. I began to think that a better way would be if I grew some of my own plants. So I began to hybridise grevilleas.

Grevillea 'Caloundra Gem' was a hybrid of *Grevillea* 'Honeycomb', the seed parent, now called *Grevillea hodgei*, and *Grevillea banksii* var. *forsteri*, the pollen parent. It was released about 1986 by Lakkari Nursery. It is still available in Queensland and maintains moderate popularity. It grows to about 3m x 5m and flowers throughout most of the year. It is regarded as reliable and is a good bird attractor.

All of this brings me to the reason for writing this article. I have bred a grevillea which has a name that possibly nobody would guess the origin. I refer to what I bred which goes under the name of *Grevillea* 'Golden Yul-lo'. Certainly this magnificent tropical grevillea is golden in colour, but where does the 'Yul-lo' part come in?

It was bred in 1989 from a 'Sandra Gordon' seed. I shifted address sometime in that period and lost the record of the other parent. I once thought that it was 'Caloundra Gem', but I am certain now that it was not.

I first introduced the 'Golden Yul-lo' to Edward Bunker of Redlands Greenhouses and James McGeoch of Birkdale Nursery, both members of the WON's Group.

In June 1992 they came to see me in Caloundra and took with them a large number of cuttings. The strike rate was remarkable, even though June is usually not a good month for striking grevilleas. From memory I think that Edward Bunker's Nursery struck 115 cuttings in less than six weeks.

They decided to market the grevillea, which I called 'Suncoast' for obvious reasons. The planned year for the marketing was 1994. That year just happened to be "The Year of the Indigenous People". With the help of a noted local historian named Stan Tutt, who resides in Landsborough, we found out who was the spokesman for the local aboriginal tribe that lived in this area long before white settlement. The tribe was the Gubbi Gubbi, also known as the Kabi Kabi. We contacted this spokesman in Brisbane querying if his tribe had any word for grevillea. His suggestion was for us to research the John Oxley Library. This was done and success was ours. The name for grevillea within that tribe was "Yul-lo"; so a name was born.

Before I bred 'Golden Yul-lo', the two WON's Group members were interested in a very dark crimson-red grevillea, which I bred around 1987 and named 'Grange Hermitage'. Penfolds knocked back our desire to use such a name. I wonder why? So, it was tagged as 'Crimson Yul-lo'. It was a *G. banksii* var. *forsteri* (pod parent) x 'Misty Pink' (pollen-parent) cross. Like so many 'Misty Pink' hybrids, it has been difficult to strike. In fact, it can take up to five months to produce a root system. Tissue culture methods have been tried, but still the problem remains.

John and Ruth Sparrow of Australia Park Tube Nursery of Belli Park via Eumundi are releasing another one of my hybridising efforts from around 1988-89. I originally sold this plant to Vic and Lorna Martin of Australia Park before the Sparrows took over. It is a cross between an unknown pollen-parent and a *Grevillea* 'Misty Pink' F2 seedling that was growing in my garden. It goes under the name of *Grevillea* 'Gossamer', but when I look up my dictionary as to the true meaning I cannot see any relationship. It is, however, a very pretty bloom.

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I suppose that you could say that it has a delicate look about it, hence the 'Gossamer' name-tag. When the bloom first forms it is apricot in colour and as the bloom ages it turns into a light pink shade. Very pretty indeed. It should do better in cooler climates as well as in the subtropical zone.

It really takes some years before a plant-breeder sees the results of his hybridising. Space is the key word. As I do not have a lot of space, I teamed up with a land developing company 'Pelican Waters' and utilised the garden space that they have for planting natives.

In 2000, I collected the seed off an unusual grafted *Grevillea bipinnatifida* which I purchased from Merv Hodge. As I do with so much seed, I checked the seedlings for signs of unusual growth and I concentrate on these. This plant had lovely soft-looking leaves and when it flowered it had a large smoky-red flower with gold style-end. I named it *Grevillea* 'Judith Anne' after my married daughter Judith Anne Behne (1955-), a high school teacher. It is extremely floriferous. My own plant had 17 blooms on one branch and my son's plant had 20 but the local nursery known as 'Little PD' had a plant with 27 blooms on a single branch. Tubestocks Queensland released the plant in 2003 and it is protected under Plant Breeders Rights Legislation.

So many grevilleas that I hybridise are so similar to one of their parents that it is pointless trying to market them successfully. I have, however, had some success getting a number to present completely different colours to anything else on the market. Birkdale Nursery is a wholesale nursery and it has released to many retail nurseries many grevilleas of my breeding.

Recently they released three new cultivars to which I had allotted three different names, but that is beside the point.

Grevillea 'Coastal Dawn' is a beautiful mixture of red and pink, (red-purple some say), dripping with nectar and blooming for most of the year. It first bloomed for me in 1992-93. It is a contrived cross between *G. banksii* var. *forsteri* and *G. 'Misty Pink'*. It was registered by Birkdale Nursery for protection under Plant Breeders Rights Legislation in 1999 and was released in 2001.

Grevillea 'Coastal Morn' is one that I bred as far back as 1990. Its first blooms were recorded in 1992-93. They form late May through to November and it needs a good pruning after that. It has a red centre with golden styles. I originally named it 'Uluru' because it reminded so much of the "Red Centre" and the sunlight there. It would be very difficult to give a grevillea such a name. It was a contrived cross of *Grevillea* 'Misty Pink' and *Grevillea* 'Honey Gem'. It is truly magic, the colouring mixture. It is probably the top grevillea for the cut flower trade, as it has very long stalks and is a tightly knit grevillea also. Unfortunately it has a very gangly habit and is not a great plant for the garden. Grafting it onto a low-growing plant like *Grevillea* 'Poorinda Royal Mantle' could perhaps correct this problem. At this point in time Peter Lewis has indicated that Birkdale will not be proceeding with it.

The third one to be marketed is the result of my trying a cross with my *Grevillea* 'Golden Yul-lo' around 1994 I think. The cross was *G. banksii* var. *forsteri* x *G. 'Golden Yul-lo'*. The colour variant is truly remarkable. It has turned out to be tangerine and is a very big-bloomed tropical grevillea. It is now named and marketed as *Grevillea* 'Coastal Sunset'. It first bloomed in July 1996. Merv Hodge reckons it is one of the best he has seen. Whenever it flowers at Nielsen's Nursery they sell like hot cakes.

I have another grevillea which is undergoing trialing. I call it 'Terra Cotta'. Why? Because that is its colour. I bred this grevillea in 1992 from a *Grevillea* 'Honey Gem' seedling that I had in my garden at the time. Peter Lewis from Birkdale has given this the official name of *Grevillea* 'Coastal Twilight' and it was released in May 2000.

continued

At the Nursery Industry 'Spring' on 27 July 2004, Birkdale nursery will be releasing another of my hybrids which they have called *Grevillea* 'Prestige Pink'. It has a very delicate pale-pink flower and is the result of a cross I did in 2002 between *Grevillea* 'Sylvia' and possibly *Grevillea* 'Gossamer'. I am not completely sure of the parentage. It has a most unusual flower colour and could be popular with the cut-flower industry.

In September 2004 Tubestocks Queensland will release *Grevillea* 'Gold Medallion' as tubes. It is another seedling of *Grevillea* 'Honey Gem' that I collected and germinated in ?2000. I do not know the other parent but 'Gold Medallion' has a much deeper-gold flower than *Grevillea* 'Golden Yul-lo' but is a more open raceme. Tubestocks will sell the tubes on to other wholesalers and retailers who grow their own plants for retail sale.

What's in a name?

Does it really matter, so long as you get enjoyment out of growing grevilleas. I started my hobby of breeding new grevilleas in 1982. I bought a book written by Don Burke. It was simply named, "Growing Grevilleas". It gave me all the information I wanted at the time and it is certainly a pity that it is out of publication.



Grevillea pteridifolia, one of the parents of *Grevillea* 'Honey Gem', *The Grevillea Book*, Vol. 3 (M. Hodge)

Morphological analysis of the *Grevillea ilicifolia* complex (Proteaceae) and recognition of taxa

Trisha L. Downing, Marco F. Duretto and Pauline Y. Ladiges

Abstract

A morphological study of herbarium and field-collected specimens, using phenetic techniques of agglomerative classification, ordination and minimum spanning trees, and covering the geographic range of the Holly Grevillea, *G. ilicifolia* (R.Br.) R.Br. *sensu lato*, has resulted in the recognition of three species and four subspecies. The taxa are based on leaf form, noted by previous authors to be highly variable between populations. The taxa recognised here are *G. ilicifolia*, *G. ilicifolia* subsp. *ilicifolia* (typical, kite-shaped leaf form), *G. ilicifolia* subsp. *lobata* (F.Muell.) T.L.Downing *comb. et stat. nov.* (oak-shaped leaf form), *Grevillea dilatata* (R.Br.) T.L.Downing *comb. et stat. nov.* (fan-shaped leaf form), *Grevillea angustiloba* (F.Muell.) T.L.Downing *comb. et stat. nov.*, *G. angustiloba* subsp. *angustiloba* (narrow-lobed leaf form) and *G. angustiloba* subsp. *wirregaensis* T.L.Downing *subsp. nov.* (very narrow-lobed leaf form). The rank of subspecies is used where there are some intermediate plants between forms. *Grevillea ilicifolia* subsp. *ilicifolia* is the most widespread taxon and occurs in South Australia, western Victoria and in two localities in New South Wales. *Grevillea angustiloba* subsp. *wirregaensis* has the most restricted range, occurring in semi-arid regions near Wirrega in South Australia. *Grevillea dilatata* is largely endemic to Kangaroo Island, South Australia.

Australian Systematic Botany 17(3) 327 - 341

New Cultivar Code

New rules for cultivar names outlined.

The first edition of the International Code of Nomenclature for Cultivated Plants (Cultivated Plant Code) was published in 1953. Earlier editions set out the accepted rules and categories for cultivated plants. In 2004 the seventh edition was published. The number of basic categories has been reduced from seven to two – the Cultivar and the Group. The Cultivar is by far the most widely used category and would be the most readily recognised by everyone. The Australian Cultivar Registration Authority was set up to monitor this process formally and is administered by staff at the National Botanic Gardens, Canberra. Official recognition of cultivars follows the submission of an application which asks rather detailed questions and is designed to ensure that each cultivar is sufficiently distinct from another. For this reason a number of applications have been rejected. One of these was *Grevillea* 'Claire Dee' because it was too similar to *Grevillea* 'Masons Hybrid', an injustice if ever there was one. There are problems with the administration of this authority. One criticism could be that it has failed to move with the times and the market which often recognises much smaller differences than it is prepared to recognise. A second is that it has lacked insight into the make-up of the taxa and the differences between them and their parents. In some ways its function has been overtaken by legislation protecting Plant Breeders Rights. However, it has formed and continues to form an important function for those interested in documenting the historical and perceived differences between cultivars, especially those that are not necessarily commercial. Recently new descriptors have been introduced which are designed to more usefully compare and delimit accepted cultivars. Cultivars are not necessarily hybrids but may be a selected form of a species or more precisely a selected plant of a species from which propagation by cutting only may be taken to retain all the characteristics of the cultivar.

The second basic category of cultivated plants is the Group which replaces the previous 'cultivar-group'. Most will not know of this little-

used category. However, previously it meant that all cultivars of a common species were grouped together. For example, you might have the *bipinnatifida* x *banksii* group. In orchid hybrids this was known as a 'grex'. Under the revised code, a Group can consist of one or more cultivars originating from a particular stable, for example, the 'Poorinda' Group. These plants do not necessarily have any common parentage or morphological similarity but are grouped for practical and possibly commercial reasons. In *Grevillea*, we might have the 'Clearview' group, or more recently the 'Honeybird Group' or the 'Coastal' Group. Another kind of group that might become popular could be one defined on parentage e.g. *Grevillea banksii* Group for all those cultivars of *Grevillea banksii* which might be further renamed as the *Grevillea banksii* Prostrate Group for all the prostrate and decumbent forms. You could also have a group based on F1 hybrids such as the *Grevillea* 'Misty Pink' Group; this might conceivably consist of all hybrids with *Grevillea* 'Misty Pink' as a parent.

Groups can be further subdivided or incorporated into other groups for convenience such that a particular cultivar might be long to several groups. Writing the Group to which a particular cultivar belongs is done using brackets, e.g. *Grevillea* (Poorinda Group) Royal Mantle. Much of the new code is more relevant to exotic plants but should become common practice in Australian horticulture over time.

The new code also addresses the manner in which a name might conform to internationally accepted standards. In fact there is a whole new chapter on this subject. There are also concise instructions on the spelling of new names.

Copies of the new code can be purchased at www.ishs.org/sci/icracpco.htm.

The author of this article has adapted, expanded and altered beyond recognition an article written by Dr Robert Spencer in Australian Horticulture June 2004.

Propagation of *Grevillea* (Proteaceae)

Krisantini Sanjaya¹, Margaret Johnston¹, Richard K Williams¹, Christine Beveridge²

¹ School of Agriculture and Horticulture, The University of Queensland, Gatton Campus, QLD 4343, Australia

² Department of Botany, The University of Queensland, Brisbane, QLD 4072, Australia

ABSTRACT

Grevillea (Proteaceae) is a native Australian genus with high commercial value as landscape ornamentals, and they are known to be difficult to root. There has been only limited research into the propagation of *Grevillea*. The effect of indole-3-butyric acid (IBA) on the rooting of *G. 'Royal Mantle'* in winter, spring and summer was evaluated at UQ Gatton, southern Queensland in order to determine the rooting ability of this species in different seasons. The effect of cutting type, i.e. tip and stem cuttings, and method of auxin application, i.e. top and basal application, were also tested on *G. 'Royal Mantle'* and *G. 'Coastal Dawn'*. *G. 'Royal Mantle'* demonstrated a seasonal rooting and was more responsive than *G. 'Coastal Dawn'* to the applied IBA. Stem cuttings had a higher survival than tip cuttings, but tip cuttings had a higher capacity to root. Top application of auxin at low concentration (1 g L⁻¹) in *G. 'Royal Mantle'* in spring resulted in a significantly higher rooting percentage than basal application at the same concentration. These findings could be useful for setting up a practical propagation protocol on *Grevillea*.

Key Words; indole-3-butyric acid, cutting propagation

INTRODUCTION

Grevillea (Proteaceae) is a native Australia genus with high commercial value as landscape ornamentals and cut flowers (Joyce and Beal, 1999). *Grevillea* are generally considered a difficult-to-root species (Dupee and Clemens, 1982). *Grevillea 'Royal Mantle'* is a vigorous prostrate shrub hybrid that is marketed for ornamental hanging baskets and as ground cover, whereas *G. 'Coastal Dawn'* is marketed as a landscape shrub. The flowers of *G. 'Royal Mantle'* are red of a toothbrush type and are produced throughout the year, but are profuse in spring and summer. *G. 'Coastal Dawn'* only flowers during winter. Indole-3-butyric acid (IBA) powder at 16 g kg⁻¹ is commercially produced and used in the nursery industry to propagate difficult-to-root, woody Australian native species such as *Banksia* and *Eucalyptus*, as well as some exotics (*Camellia*). Exogenous IBA is generally applied at the base of the cutting. Basal application of auxin to difficult-to-root species may not lead to an increase in auxin concentration in the cells that would give rise to adventitious root formation (Ford *et al.*, 2002), depending upon how the applied auxin is taken up and transported in the cutting. Top application of auxin might enable the applied auxin to enter the natural basipetal auxin transport in the plant so that it reaches the cells competent to form roots. The scarcity of information on propagation of *Grevillea*, particularly of the effects of applied hormones (Leonardi *et al.*, 2001), calls for more studies in this area. The objectives in this work are to determine the effectiveness of indole-3-butyric acid (IBA) at 16 g kg⁻¹ (industry standard) to induce rooting of *Grevillea 'Royal Mantle'* during different seasons. Types of cutting, i.e. tip and stem cuttings, and method of auxin application, i.e. top application to cutting stump and basal application, were also tested on *G. 'Royal Mantle'* and *G. 'Coastal Dawn'* to determine whether they influenced rooting.

MATERIALS AND METHODS

The experiment was conducted in a mist propagation unit with the heated bench at the University of Queensland (UQ Gatton) nursery, southern Queensland. *Grevillea* cuttings were from container-grown, mature stock plants kept in a greenhouse at the UQ Gatton nursery. Tip cuttings were two nodes long with one mature, fully-developed leaf. Stem cuttings were two nodes-long, collected from the fourth to the sixth nodes below the tips with the shoot tip removed. The base of the cutting was trimmed and the leaves on the lower node were removed, leaving only one fully-developed leaf on top. The cuttings were rinsed thoroughly in tap water before being treated with IBA.

Industry standard of IBA concentration at 16 g kg⁻¹ (Yates) was used to test rooting ability of *G. Royal Mantle* cuttings in different seasons. An IBA solution of 1 g L⁻¹ was prepared for method of auxin application experiment by dissolving 1 mg of IBA powder (Sigma) in 500 µL of 50 % ethanol, which was then diluted with distilled water to make 1 g L⁻¹ solution. With the basal application base of the cutting was dipped for 5 seconds in IBA powder (16 g kg⁻¹) or IBA solution (1 g L⁻¹). With the top application cuttings, the top 10-mm part of the cuttings was dipped in IBA solution (1 g L⁻¹) for 5 seconds. Cuttings were then planted in 4.5 x 4.5 x 7.5 cm tubes. The medium used was peat, perlite and vermiculite 1:1:1 with 1 20-g mini Osmocote per 60-L medium. Planted cuttings were placed in a mist propagation house with a heated bench to 24 °C. The winter experiment was conducted between July-September, spring experiment between September-November, the autumn between March-June, and the summer between December-February. Light intensity in the propagation house was maintained between 1500 to 3000 lux by using shade cloth during summer. Bench temperature ranges were 21-27 °C in summer, 17-26 °C in spring, 10-25 °C in winter, and 17-26 °C in autumn.

All experiments were conducted in a randomised block design. Each of the treatments was replicated 3 times with 10 cuttings in each treatment.

Observations were done at weekly intervals beginning 3 weeks after the cuttings were planted by carefully lifting the cuttings from the medium, checking for roots and replacing the cuttings into the medium. Root numbers and root length evaluations were made two weeks after the first root initiation was observed, and roots > 2 mm in length, were recorded.

Data for each species were analysed separately. Data on percentage of rooting where appropriate were analysed using binary logistic regression (Collett, 1991) using Minitab 13.

RESULTS

Type of Cutting

Stem cuttings of both *Grevillea* cultivars resulted in a relatively higher survival compared to tip cuttings (Table 1). However, tip cuttings demonstrated a higher capacity to form roots than decapitated cuttings since tip cuttings. In *G. Coastal Dawn* only tip cuttings, and not stem cuttings, rooted without exogenous auxin, whereas in *G. Royal Mantle* tip cuttings without auxin treatment produced a significantly higher rooting percentage (67 %) than stem cuttings (25 %) (Table 1). Also, percent of cuttings rooted should be noted in relation to percent of surviving cuttings (Table 1).

Table 1. Effect of Cutting Type on Survival and Rooting of *G. Coastal Dawn* and *G. Royal Mantle* Cuttings

| Treatment | <i>G. Coastal Dawn</i> ¹⁾ | | <i>G. Royal Mantle</i> ¹⁾ | |
|------------------------------------|--------------------------------------|--|--------------------------------------|--|
| | Percent of Cuttings Survived | Percent of Cuttings Rooted ²⁾ | Percent of Cuttings Survived | Percent of Cuttings Rooted ²⁾ |
| <i>Tip Cuttings</i> | | | | |
| 16 gkg ⁻¹ ²⁾ | 67 | 0 (0) | 50 | 50(100) |
| No IBA | 100 | 12(12) | 67 | 67(100) |
| <i>Decapitated Cuttings</i> | | | | |
| 16 gkg ⁻¹ | 83 | 23(25) | 92 | 92(100) |
| No IBA | 100 | 0 (0) | 100 | 25 25 |

1) Experiment of *G. Coastal Dawn* was conducted in summer, *G. Royal Mantle* in autumn

2)Percent of cuttings rooted out of total and out of survived (within brackets)

Response G. Royal Mantle 'to IBA Treatment at Different Seasons

G. 'Royal Mantle' demonstrated a seasonal response to auxin. Applied IBA significantly increased rooting in all season except for summer (Table 2). Rooting percentage of *G. 'Royal Mantle'* stem cuttings with and without exogenous auxin was also highest in summer, and lowest in winter (Table 2). Rooting was also fastest in summer, the maximum rooting with IBA treatment being achieved by week 6 (Table 2). Rooting percentage without auxin application was also relatively high (76 %) in this season (Table 2). Except for winter, IBA at 16 g kg⁻¹ resulted in a relatively high rooting percentage (more than 60 %) throughout the year.

Table 2. Influence of IBA on rooting of *Grevillea* 'Royal Mantle' cuttings in different season

| IBA Concentration | Season | | | | | | | |
|--------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| | Summer | | Autumn | | Winter | | Spring | |
| | Rooting |
| | Period |
| | (weeks) |
| IBA 16 gkg ⁻¹ | 90 | 6 | 74* | 4 | 40* | 16 | 60* | 14 |
| Control (No IBA) | 76 | 12 | 39 | 6 | 0 | 2) | 32 | 15 |

1) Number of weeks required to achieve maximum rooting during 16 weeks of experiment period

2) Unrooted during 16 weeks of experiment period

* Treatments significantly different from control at $p < 0.05$

Methods of Auxin Application

Top application of IBA at 1 g L⁻¹ to *Grevillea* cuttings resulted in a higher rooting percentage than basal application at the same concentration, particularly in *G. Royal Mantle* ($P=0.039$) (Table 3). The rooting percentage obtained using top application of IBA at 1 g L⁻¹ in both cultivars was comparable to that of industry standard ad 16 g kg⁻¹. However, top application of IBA at 1 g L⁻¹ in *G. Royal Mantle* resulted in a delayed outgrowth of axillary buds in 10% of the rooted cuttings by about 12 weeks in spring (data not presented) Method of IBA application did not affect root number.

Table 3. Effect of Method of Auxin Application on Rooting of *G. Coastal Dawn* and *G. Royal Mantle* Stem Cuttings¹⁾

| Treatment | <i>G. 'Coastal Dawn'</i> | | <i>G.' Royal Mantle'</i> | |
|--|----------------------------|-----------|----------------------------|-----------|
| | Percent of Cuttings Rooted | Root No | Percent of Cuttings Rooted | Root No |
| Basal IBA 1g L ⁻¹ | 0 | - | 47 | 1.5 ± 0.7 |
| Top IBA at 1 g L ⁻¹ | 22 | 1.5 ± 1.0 | 70 * | 1.2 ± 0.4 |
| Industry Standard 16 gkg ⁻¹ | 13 | 1.2 ± 0.5 | 70 * | 1.2 ± 0.7 |
| Control (No IBA) | 0 | - | 43 | 1.6 ± 0.7 |

1) Experiments were conducted twice between late spring to early summer with similar results

2) Average of root number and standard deviation

3) Unrooted during the experiment period of 10 weeks

* Treatments significantly different from control at $p < 0.05$.

DISCUSSION

Cuttings Type

A higher rooting percentage is normally obtained using tip cuttings rather than stem (decapitated) cuttings. This has been hypothesised as due to production of endogenous auxin in the shoot tip, which is responsible for causing root induction (Marks, 1996). However, *Grevillea* tip cuttings in this experiment had a lower survival compared to decapitated cuttings, which resulted in a low final rooting percentage. Therefore, for commercial propagation purposes the use of stem cuttings might be preferable. Without applied auxin, however, tip cuttings demonstrated higher rooting capacity than stem cuttings (Table 1).

Effect of Season

Grevillea 'Royal Mantle' cuttings demonstrated a seasonal response to auxin application. A relatively high proportion (76 %) of the cuttings without exogenous auxin in summer rooted (Table 2), indicating that the endogenous auxin and other substances that are required for rooting were sufficient to induce rooting in this season. A seasonal response to auxin in cuttings was previously reported in *Populus nigra* (Nanda and Anand,

1970) and *Cotinus coggyria* (Blakesley *et al.*, 1991 a). Plant response to applied auxin differs with season (Nanda and Anand, 1970), since seasonal changes in light, temperature, photoperiod and plant development may cause changes in endogenous hormone levels (Blakesley *et al.*, 1991a). They suggested that this might be due to different production of endogenous auxin in different seasons and in different environmental conditions under which the stock plants are grown. Difference in response to applied auxin might also be caused by differences or changes in plant tissue sensitivity to the applied hormones (Tremawas, 1986). However, the regulation of tissue sensitivity is still poorly understood.

Method of Application

The work here demonstrated that top application of auxin might be an alternative way to propagate difficult-to-root species, and has potential to reduce auxin requirement for propagation. The effectiveness of top application as opposed to basal application might be due to more efficient delivery of auxin into the competent cells to produce adventitious root (Ford *et al.*, 2002), as auxin is transported more in a basipetal direction than acropetal (Jones, 1998). Basally applied auxin might need to be transported up the cutting, and then redirected to the base through the basipetal transport system. However, more work is required before this method could be used widely in commercial propagation since top application might result in a delayed growth of axillary buds in stem cuttings. Also, more experiments need to be conducted to determine the consistency of results in different seasons, since rooting of *Grevillea* is seasonal.

This work has demonstrated the effect of exogenous auxin on adventitious root formation in Australian native species *Grevillea*: (1) Tip cuttings of *Grevillea* had a lower survival than stem (decapitated) cuttings, however tip cuttings demonstrated a higher capacity to form roots in the absence of auxin (2) Rooting of G. 'Royal Mantle' cuttings is seasonal, being highest and fastest in summer and lowest and slowest in winter (3) Top application of auxin might be an alternative method of propagation of difficult to root species. Further studies on the interaction of endogenous and exogenous auxin and its role in adventitious root formation are being undertaken.

Acknowledgment: The authors thank Mr. Allan Lisle for the statistical advices and Lesley Chase for language correction.

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A short history of a pioneering Australian Plant enthusiast – Part one

William Lancashire “Bill” Cane was born in Carlton, Victoria, in 1911. When the First World War broke out, his father enlisted, and while overseas was wounded and repatriated. Then, in Bill’s words, “things became desperate, he went back, and this time did not return”

In 1919, when Bill’s mother died, he and his three brothers were made wards of the state, and sent to live with relatives near Sale in Gippsland. He attended the Wurruk Primary School, a one teacher school. Bill recalled that he loved to read, and wanted to learn, but apparently did not enjoy his schooling until the last two years, when Dick Uncles helped and encouraged him, and urged him to go on to High School. Financial constraints prevented this, and at the age of thirteen Bill gained his Merit Certificate, and was able to leave school. He always remained grateful to Dick Uncles for his interest.

It was during his school years that Bill first became interested in growing plants, and showed the first signs of the innovation that was to mark his later work with native plants. He recalled that he was only growing things like peas and beans, and a small plot of wheat about six feet square, which he watered with the contents of the tin dish used for washing, and observed that his plants and wheat grew better than those of the other boys.

After leaving school, Bill got a job working on a farm owned by a Sale butcher named Jackson. For milking cows, cutting wood, grubbing blackberries, etc. he was paid five shillings per week and his keep, which even in those days was very low. This was eventually raised to seven and sixpence, but Bill was most unhappy, and after four years he left to try and make a living on his own.

Like so many others, he went rabbit trapping, and lived for a time with Charlie Thistlethwaite and family at Little Plain near Valencia Creek. I remember Bill telling me that he grew flowering plants like *Gladiolus* here, on the proviso that he also grew vegetables for the family. He had great success with pumpkins which he grew in the fertile environment of the pig sties. It was at this time that he started his involvement with bees, helping Charlie rob wild hives in “bee trees” for the family’s honey. Working at night, Bill held the lantern while Charlie took the honey, but he soon found out that he received most of the stings.

Bill decided to become a beekeeper, and started off with 100 hives of wild bees, which he obtained by cutting down an estimated 200 bee trees. His first season was a disaster, losing the entire stock, and he was forced to start again, cutting down another 200 trees. This time, with a better season, and a bit more knowledge, he was successful, and went on from there to become a successful apiarist. At first he moved around using horse, jinker, and sulky, but in 1936 he wanted to move further afield, so he hired an A model Ford truck, and took his bees to the bush at Nowa Nowa. in East Gippsland.

During this period Bill started his study of native plants, starting with the Eucalypts, and the plants which were a source of pollen for the bees. He bought a microscope, for the sum of twenty pounds, a lot of money then, and with it compared the pollen grains carried by the bees, with pollen on plants flowering in the vicinity, thereby building up his knowledge of the honey flora. He also realised the obvious shortcomings of local common names, and commenced to learn the botanical nomenclature, a practice which he later encouraged other apiarists to adopt.

Always a man of enormous energy, Bill used to think nothing of riding his pushbike from Nowa Nowa to Melbourne and back for a weekend’s break.

Bee-keeping was not always plain sailing however, and sometimes he had to return to trapping or farm work to supplement his income. At this time, when beekeepers used the rail network to shift their hives over long distances while following the nectar flows, Bill was possibly the first to use semi trailers, which took his hives and equipment as far away as Tamworth in New South Wales, and Kingston in South Australia. Bill also became active in apiarist associations, first at Bairnsdale, and then at both state and national levels, was president of each for several years, and also served on the Eastern States Honey Council.

In those days, honey from north of the divide was considered superior to, and attracted a higher price than honey from Gippsland. Bill was having none of that, and set out to overcome this prejudice, by entering his products in the Victorian Apiarists’ and Royal Shows, where he consistently won prizes, thereby proving his point. If I remember correctly, he regarded honey from the Black Sallee, *E. stellulata*, as the best of all, although hard to get in quantity.

to be continued next newsletter

Financial Report - June 2004

| | |
|-------------------------|-----------|
| Income | |
| Subscriptions | \$380.00 |
| Plants | 272.00 |
| Interest | 218.93 |
| Donations | 35.00 |
| | <hr/> |
| | \$905.93 |
| Expenditure | |
| Newsletter Publishing | \$240.00 |
| Postage | 146.30 |
| Printing | 165.00 |
| Donation to Mt Annan BG | 1000.00 |
| | <hr/> |
| | \$1551.30 |

\$10,441.89 in Interest Bearing Deposit till January 2005.

Balance in Current Account as at 14/10/04 is \$5,855.24

Balance in Business Cheque Account as at 26/09/04 is \$14,099.99

Office Bearers

Leader

Peter Olde
138 Fowler Rd, Illawong 2234
Phone (02) 9543 2242
Email 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 3380 Vic

Curator of Grevillea Park Bulli

Ray Brown
29 Gwythir Avenue, Bulli 2516
Phone (02) 4284 9216

Curator of Seed Bank

Matt Hurst
13 Uranda Street, Wagga Wagga 2650 NSW
Phone (02) 6925 1273

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On-line Contact

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petero@australians.com

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