

GREVILLEA STUDY GROUP

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I always forget how wonderful spring in the garden is. Just as we were thinking how dull the garden was looking, it exploded into colour, and we remembered just why we planted the plants we have. Our pride and joy this spring was not a Grevillea, but a Waratah, which finally rewarded us with two flowers. I could actually see the flowers from my bed – what a wonderful sight to wake up to.

We now have some T.V. stars amongst us. Don Burke's gardening program "Burke's Backyard" has recently featured Merv Hodge, who demonstrated his grafting technique and showed some of his garden, and Ray Brown, who demonstrated his propagating techniques. It's good to see people who dedicate so much of their time to the advancement of our knowledge of native plants, and Grevilleas in particular, getting some recognition for their efforts.

Meanwhile, talking about the advancement of knowledge, I hear that Peter and Neil are still striving for perfection in their Grevillea Book. It must be difficult to be satisfied with a final copy of a book, because no matter how long you wait, someone will always discover a new species just after the book has been published. In the meantime, we non-perfectionists are patiently waiting

ACTIVITY

"Illawarra Grevillea Park"

Work has been progressing rapidly, thanks to the devoted attention of Ray Brown.

To support Ray in his work, a special general meeting was held 22nd September to formulate a management plan for the Park. Group Study Leader Peter Olde attended and presented some interesting concepts.

The Park's A.G.M. will be held Saturday 1st December at 4 p.m. with a walk through the grounds followed by the meeting at 5.30 p.m. and a B.B.Q. at 6 - 6.30 p.m.

All Study Group members and family are welcome and are encouraged to come along at 4 p.m. and join in the afternoons activities.

See you all at the Park 1.12.90.

Col Tyndall S.G.A.P. Newcastle Group.

NEWS IN BRIEF

Shirley Clemo lives in Cornwall, which is in a very warm part of England, with usually heavy rainfall. They had a very bad winter in 1987 with temperatures of -10°. The only Grevilleas to survive outdoors then were *G.juniperina* var. *sulphurea* and *G.rosmarinifolia*.

At present, Shirley has the following Grevilleas growing in her garden – *G.alpina*, *G.banksii forsteri*, *G.bipinnatifida*, *G.juniperina*, *G.juniperina* var. *sulphurea*, *G."Olympic Flame"*, *G.rosmarinifolia*, *G.x semperflorens*, *G.thyrsoides*, *G.jephcottii*, *G.lanigera*, *G.leucopteris*, *G.prostrata* (yellow form), *G.Poorinda Rondeau*, *G.thelemanniana* and *G.tridentifera*.

Win Bristow of Sherwood Q., has been a study group member since its inception, but now unfortunately she is forced to resign owing to poor eye sight due to advancing years.

Win had a special interest in the Queensland hybrids. *G."Pink Surprise"* was a spontaneous hybrid which came into being in Win's garden, and was so named because it was a real surprise. It was registered in Canberra about 8-10 years ago. One of it's progeny, two generations removed, is the exquisite *G."Majestic"*, a spontaneous seedling in Graham Nosworthy's garden.

John Tretheway from Hobart, Tasmania, reports that he has the following plants flowering in his garden at present - *G.rosmarinifolia*, *G.jephcottii*, *G.arenaria* (yellow), *G."John Evans"*, *G."Jubilee"*, *G."Pink Star"*, *G.bipinnatifida*, *G.speciosa* var. *dimorpha*, *G."Pink Pixie"*, *G."Boongala Spinebill"*, *G.thelemanniana* (upright "Pinaster" and low grey form), *G."Olympic Flame"*, *G.aspera*, *G.ripicola*. The birds which visit them are the Yellow Wattle Bird, Brush Wattle Bird, New Holland Honeyeater, Eastern Spinebill, and the Crescent Honeyeater.

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IN THE WILD



Go West Young Man – In the early days

by David Gordon, "Myall Park", Glenmorgan QLD

Alf Gray commenced work here with me in October 1954 and finally left for the west in October 1957 – to join Lullfitz in a native plant nursery project in Perth, which proved disastrous for Alf. He lost everything.

Len Miller also collected a lot of Grevilleas for me during the period September 1954 to late March 1955.

I engaged Len, a professional Bristol, England gardener, in July 1951, nominating him for employment under the Commonwealth/British Ex-serviceman's Employment Scheme. After being here for 3 years, he decided to leave for greener pastures. However, I persuaded him to serve another 6 months, collecting seed and herbarium specimens in Western Australia. Len had not been particularly interested in Australian plants, but after seeing the W.A. flora, he fell in love with it. Since then he has made countless trips to W.A. and Northern Territory, spending all of his holidays there, accompanied by his late wife, Ivy. He is now in retirement. He collected 140 Grevillea specimens but not seed of all these.

Alf Gray spent 1955 propagating seed collected by Len Miller. He left here accompanied by his wife, Vreda, on Christmas Eve of 1955, and travelling via the Nullarbor, collected in W.A. until Easter 1956. He spent the rest of the year propagating his own seed collections until early October, when he and Vreda left for the west again. This time it was to be via the Canarvons, Charters Towers and the Kimberleys, mainly to avoid the Nullarbor road which he said was terrible.

Alf collected some unusual tropical seeds around Darwin, including *Verticordia cunninghamii*. He collected a lot of Grevillea seed in Queensland and N.T. but much of it was immature. However, he raised plants of *G. wickhamii*, *G. refracta*, *G. dryandri* (collected at Barrowen) and *G. pungens*, collected where the road to Darwin crossed the railway line.

When Alf arrived at Pine Creek, the police would not let him go on through to the Kimberley – the wet season had set in early. The police told him that if he went on, he would get bogged and have to leave his landrover which he would never see again. So he had to cross the Nullarbor again after all.

On this trip, Alf worked the Eastern Goldfields, and penetrated as far north as the head of the Murchison River. Overall, on this trip, he collected many types of plants missed the previous year. This time, Charles Gardner, the Government Botanist, helped Alf with valuable advice as to where he would find rare species. He got complete herbarium material of species that Gardner had been wanting for years.

Both Len and Alf collected new Grevillea species and on the two trips, Alf collected 248 Grevilleas, but of course not seed of all. When he did find seed, he collected large quantities and that is why he was so successful in raising so many. The collections of both Alf and Len included many different geographical forms of the same species.

You must all realize that collecting in the heat of summer, Alf and Vreda suffered great hardship – intense heat, dust, ticks, high winds, salt water, mechanical troubles, no refrigeration, no motels or hotels. They camped under the stars when in the North-Eastern Goldfields, the water pump broke down, but they continued to collect seed. On the first trip, they had a Volkswagen, on the second trip, a small Landrover.

At the time, Alf was an old man – not strong, a poor walker, and stone deaf. When he was being subdued and finally captured during the First World War, he was hit over both sides of the head with a rifle butt and rendered stone deaf.

This was a severe handicap in communicating with people on the track. When he was here, I had to carry around a writing pad for communication.

It is unfortunate that many of the Grevilleas collected and raised by Alf from seed, were irretrievably lost during the ten years when I was crippled with arthritis all over the body.

Alf wrote up a page in his notebook for each species collected. This, along with his letters, contains a priceless fund of information. Not only did he collect new Grevilleas, but new species in other genera. An Acacia was named for him, but unfortunately it turned out to be a hybrid.

I do not know how Alf collected so much seed in such a short time, under such trying conditions.

* * * * *

Grevillea Species in the East Kimberleys

by Loma Murray, Jindalee, Qld

On our recent trip to the Kimberleys and the Top End, Allen and I took note of all Grevillea species that we could see in the areas visited and I give this brief account of some of our observations in the East Kimberley area.

Grevillea pteridifolia was seen in fine stands soon after crossing the border from the Northern Territory and was common in many areas. On the Central Plateau between Leopold and Durack Ranges, this species occurred as quite large trees, similar to those common in the Northern Territory. In these areas, *G. parallela* was also common as a slender tree.

Another species with spectacular red flowers, *Grevillea heliosperma*, was seen frequently near Lake Argyle and Kununurra and also further west on the Gibb River Road beyond Durack River. In the higher rainfall area of the Mitchell Plateau it is also common. We did not see the similar plant, *G. decurrens* in these areas.

A widespread species occurring from the N.T. border across to the West Kimberleys is *Grevillea refracta* var. *refracta*, attractive with its silvery-backed foliage. It was not until we went to an area just north of the Durack River Falls that we saw the plant referred to as *G. refracta* var. *velutina*. This was a more compact shrub with rather wide leaflets and brilliant bronze colouring underneath. This variety, which seemed quite distinct even from a distance, was then observed along the Gibb River Road across the Central Plateau until we were west of Mt. Barnett Station. (In the Northern Territory near the Cullen River, on the Roper Highway towards Roper Bar, and on the road from Roper Bar to Boorooloola, there were many plants of *G. refracta* with very definite bronze colouring under the leaves, but usually with rather fine leaflets. Should these N.T. varieties also be included in *G. refracta* var. *velutina*?) Some of these varieties should make good horticultural subjects.

In drier areas of the East Kimberleys, *Grevillea pyramidalis* is common. The width and length of leaflets varied greatly in this species even in the same area. Some of the plants had greyish leaves, and generally fitted the description *G. leucadendron*, which seemingly is no longer recognized as a separate species. The very similar species *G. erythroclada* was seen in wetter areas near creeks and on the Mitchell Plateau. *G. dimidiata*, another species with spectacular displays of cream flowers in spikes above the plant, was seen as an untidy shrub or small tree in drier areas, as on the Kununurra to Halls Creek Road and the eastern end of the

IN THE WILD (continued)

Gibb River Road. *G. mimosoides* was seen in some areas, particularly in the west towards the King Leopold Range and towards Halls Creek, but it was not nearly as common as in the Territory.

This year, we visited the Kimberley region much earlier in the dry season than on our two previous visits, and therefore were able to easily distinguish *Grevillea agrifolia* and the similar species *G. velutinella*. When these species are not in flower they appear very similar with bronze new growth and obovate leaves with holly-like teeth. However, in May, flower spikes were still present on many plants of *G. velutinella*, so these two species could be identified from a distance without the need of a close inspection of the leaves. This latter species was much more widespread than we had previously thought. It was common near Kununurra, west towards the Wyndham Road, near the Grotto and along the Gibb River Road as far as the Durack River Crossing. It was also seen south of the road near Oomaloo Falls on Bindoola Creek. *G. agrifolia* also occurred in these general areas as well as much further afield, but we could not see *G. agrifolia* in close proximity to the Grotto where it had previously been reported growing.

Grevillea prasina was very common in the area from near the Pentecoste River on the Gibb River Road to Jacks Waterhole on the Durack River, and also further south near Oomaloo Falls. No other plants of this species were seen east of these areas in W.A. but there are other populations in the Territory near Timber Creek and Victoria River Crossing. Near the Pentecoste River, we saw grevilleas growing near typical plants of *G. prasina* but which were much larger quite dense shrubs up to 6m high with a distinctly different leaf shape and larger seed pods than the normal *G. prasina*. Could there be a hybrid between *G. prasina* and perhaps *G. agrifolia*?

When we visited the Bungle Bungle area, we were delighted to see *Grevillea psilantha* growing on the sides of the walk into cathedral Gorge and also along Piccaninny Creek. This small grevillea with the silky underside to the leaves and

racemes of white flowers held above the plant should make a good garden subject. It was interesting to note that plants would have received only limited sunlight where they were growing on the sides of the walls of the gorge.

Grevillea wickhamii ssp. *aprica* is common in drier areas of the Kimberleys, particularly towards Halls Creek and south of the Central Plateau on the road to Fitzroy Crossing. Then in areas not far from Cathedral Gorge and also on the northern side of the Bungle Bungle area, we saw the spectacular grevillea which seems to be listed in C.A.L.M. records in Kununurra as *Grevillea* sp. aff. *wickhamii*. This was a tall upright shrub to 6m high with bright red racemes of flowers largely held near the main stem towards the top of the plant. This grevillea did not seem to fit the description of *G. bymesii*. One C.A.L.M. officer told us that *G. bymesii* grows near Glass Hill and Mt Buchanan to the east of the main Bungle Bungle formations, areas we were unable to visit.

The other attractive grevilleas in the Bungle Bungle area was *Grevillea miniata* which was seen near Echidna Gorge and Frog Hollow on the northern side. This is an upright shrub 2m to 3m high with ovate leaves covered with woolly hairs and having sharp prickles along the wavy margins. Plants were just starting to flower at the beginning of June with orange racemes in the axils of the leaves.

A small quantity of cutting material was collected from all of the above grevillea species which were not already in cultivation in Brisbane. These cuttings were posted back here and have now been grafted on to plants of *Grevillea robusta* or *G. venusta* by four members of the Grevillea Study Group in Brisbane. As a result of these collections, it is hoped that more of these grevilleas will become available to other members of the Study Group.

Table 1.

Vegetative and Floral Characters of the *Grevillea brachystylis* complex

TAXON	<i>G. brachystylis</i> subsp. <i>brachystylis</i>	<i>G. brachystylis</i> subsp. <i>australis</i>	<i>G. bronwenae</i>
HABIT	Prostrate stems from lignotuber	Erect and prostrate from lignotuber	Erect, no lignotuber
BRANCHING	Many stems	Many stems	Few stems
RESPONSE TO FIRE	Resprouts	Resprouts	Killed
LEAF Length (mm) Colour underneath Width (mm) Position	64-87 White 8-10 Erect (at 90°)	62-91 White 9-10 Erect	104-127 Green 4.5 Spreading (at 45-60°)
INFLORESCENCE BRACT length (mm)	5	5	7
BRACTEOLE length (mm)	Persistent, 4	Persistent, 4	Caducous, 2
PEDICEL length (mm)	6-8	6-8	3.5-4.5
PERIANTH length (mm)	7-8	7-9	11-14
POLLEN PRESENTER colour	red	purple	purple

IN THE WILD (continued)

Taxonomy of the *Grevillea brachystylis* species complex (Proteaceae)

G. J. Keighery

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Abstract

Keighery, G.J. Taxonomy of the *Grevillea brachystylis* species complex (Proteaceae). *Nuytsia* 7(2): 125-131 (1990). Material formerly included in *Grevillea brachystylis* is shown to comprise two distinct species, one undescribed. *Grevillea bronwenae* is described, and illustrated. This new species is confined to the northern margin of the Blackwood Plateau, whereas *Grevillea brachystylis* contains two distinct subspecies occurring on the Swan and Scott coastal plains.

Introduction

The genus *Grevillea* has recently been studied by McGillivray, who has published a list of new taxa (McGillivray 1986).

McGillivray has a relatively broad species concept within this large genus and he has left a series of species complexes as single units. As an example, the populations studied in this paper were considered to form a single variable species (Marriott 1986) and specimens at PERTH are annotated as such by McGillivray.

Grevillea brachystylis is confined to the Swan and Scott coastal plains and the Blackwood Plateau of south-western Australia. Horticulturalists and field botanists alike have recognized the existence of distinct forms within the species. This paper presents the results of field and herbarium studies on the conservation status and variability of *Grevillea brachystylis* that indicate that the variation is discontinuous and that the Blackwood Plateau populations comprise a distinct species.

Methods

During the flowering season of 1986/87 areas of remnant bushland, state forest and conservation reserves covering the natural range of *Grevillea brachystylis* were surveyed for the occurrence of this species. Observations were made on the habit, habitat, vegetative and floral morphology of these populations. Comparisons are made on the basis of fresh material.

Utilizing this material the populations were found to differ significantly in habitat, habit, the angle of the leaves to the stem, shape of the flower, perianth, pistil and pollen presenter. These characters are occasionally discernible on herbarium material, but form a major character sequence readily obtained by field observations. Characters of habit, leaf presentation, the form of the perianth, pistil and pollen presenter are constant and significant characters in this complex and elsewhere in the genus *Grevillea* (author, pers. obs.). These differences are difficult to describe but are presented in illustrations.

Results

Field surveys carried out in 1986/87 showed that populations occurred in three disjunct regions, namely Swan Plain, Scott Plain and Blackwood Plateau. Tabulation of a wide range of vegetative and floral characters (Table 1) clearly demonstrates that the Blackwood Plateau populations are markedly different from the other plains populations. These differences are reinforced by habitat differences (see under species descriptions) and floral characters (Figures 1 and 2). There are no intermediate populations, and populations of *Grevillea brachystylis* and *Grevillea bronwenae* occurring within 100 metres of each other on Queen Elizabeth Road, maintain the differences.

Clearly the Blackwood Plateau populations should be given specific status. The two disjunct coastal plain forms differ in minor characters (habit, colour of pollen presenter) and are thus given subspecific status.

Taxonomy

1. *Grevillea brachystylis* Meissn. in Lehm., Pl. Preiss. 1: 538 (1845); 252 loc. cit. 2: *Type*: Mooloy's Plain, Sussex District, 20.12.1839, J.A.L. Preiss 714 (holo:NY, photo seen).

Much branched, prostrate or decumbent to erect shrub with branches to 2 m long. *Stems* slender, shiny red with current years growth almost glabrous except at ends, \approx 1 mm wide. *Leaves* erect, linear-lanceolate, 64-87 x 8-10 mm; margin recurved; upper surface smooth green; under surface densely hairy-white; apex acute or pungent with a black point 0.5-1 mm long. *Inflorescence* axillary, 6-7 flowered. *Peduncle* 4-6 mm with long, densely pubescent with short silver hairs. *Basal bract of inflorescence* lanceolate-ovate, brown; apex acute, \approx 7 mm long, densely hairy. *Bracts/bracteoles subtending flowers* normally 3, imbricate, ovate; brown, 3-4 x 5 mm, pubescent, persistent; apex acute. *Pedicel* 3.5-4.5 mm long. *Perianth* red, slightly saccate, 7-8 mm long; limb 6 mm long, sparingly hirsute. *Pistil* 7-9 mm long; stipe 3 mm long; ovary 0.5 mm long. *Pollen presenter* 3-4 mm long, red or pale purple. *Ovary* densely hairy. *Nectary* yellow, c. 1 mm long, producing copious nectar. *Capsule* 10-11 mm long, sparsely hairy with retained style. *Seed* elliptic, superville, \approx 7 mm long, brown; eliasome white, \approx 2 mm long. Figure 1.

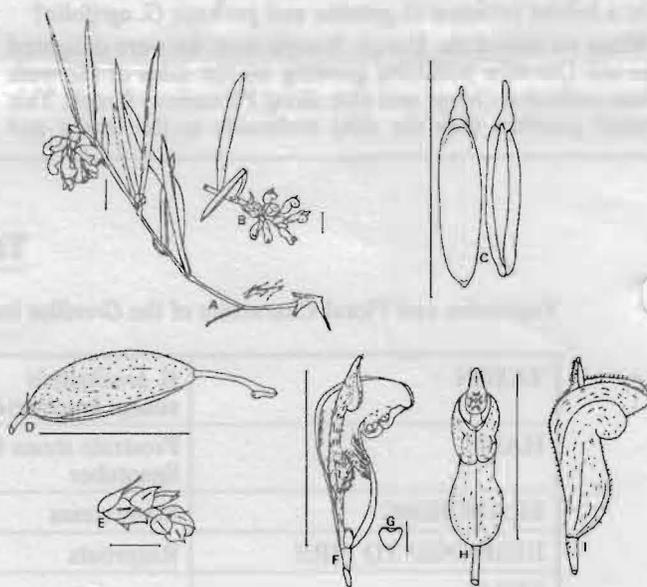


Figure 1.

Grevillea brachystylis Meissn. A - Habit, B - Inflorescence, C - Seed, D - Capsule, E - Inflorescence in bract showing bracteoles, F - Lateral section of flower, G - Nectary, H - Front view of flower, I - Side view of flower.
A, B, E-I G.J. Keighery 1022 C, D G. J. Keighery 9484.
Scale bar = 10 mm, except G = 1 mm

The species contains two subspecies.

1a. *G. brachystylis* Meissn. subsp. *brachystylis*

A much branched, prostrate or decumbent shrub with branches to 60 cm long. Pollen presenter red.

Specimens examined. WESTERN AUSTRALIA: Busselton, 27 Sept. 1944, C.A. Gardner s.n. (PERTH); Yoongarillup, R.D. Royce 3806 (PERTH); Busselton area, (33° 40' S, 115°

IN THE WILD (continued)

35° E), A.R. Fairall 2557 (KPBG); 3 km E of Busselton, S. Paust 117 (PERTH); Ruabon, G. J. Keighery 1022 (PERTH); Fish Road Nature Reserve, G.J. Keighery 9494 (PERTH).

Distribution. Confined to the southern Swan Coastal Plain, east of Busselton.

Flowering period. September.

1b. *Grevillea brachystylis* Meissn. subsp. *australis* Keighery, subsp. nov.

Frutex prostratus vel erectus robustus ramis ad 2 m longis. Flores rubri, praebitor pollinis purpureus.

Typus: Scott River Road, Scott National Park, 29 January 1988, G.J. Keighery 9711 (holo:PERTH; iso:CANB,K,MEL).

Other specimens examined. WESTERN AUSTRALIA: Scott River (34° 15' S, 115° 15' E), D. Young 348 (KPBG); Scott River Road, S. Paust 263 (PERTH); Scott River, 20 Sept. 1973, E.C. Nelson s.n. (PERTH, CANB); Scott River Road, H. Demarz 4334 (KPBG); Scott River, E. Wittwer 2205 (KPBG); intersection Courtney Road and Payne Road, G.J. Keighery 9579 (PERTH); Governor Broome Road, G.J. Keighery 10343 (PERTH).

Distribution. Endemic to the Scott Coastal Plain, east of Augusta.

Flowering Period. September-January.

Notes. The collections designated as *Grevillea brachystylis* subsp. *australis* can be distinguished from *G. brachystylis* subsp. *brachystylis* by the purple pollen presenter, the branches being up to 2 m long (instead of 40-70 cm), often erect, and much branched. No intermediate populations are known because of the disjunct nature of the species.

Etymology. From the Latin *australis*, referring to the southern distribution of this subspecies.

Habitat. Both varieties occur on winter wet flats normally covered by heath with sand over clay.

2. *Grevillea bronwenae* G.J. Keighery, sp. nov. Figure 2.

Typus: Sabina Road, Whicher Range, 15 km S of Busselton (33° 45' S, 115° 27' E), B.J. & G.J. Keighery s.n. (holo: PERTH; iso: CANB, K, MEL).

Illustration. Marriott (1986), as *Grevillea brachystylis*.

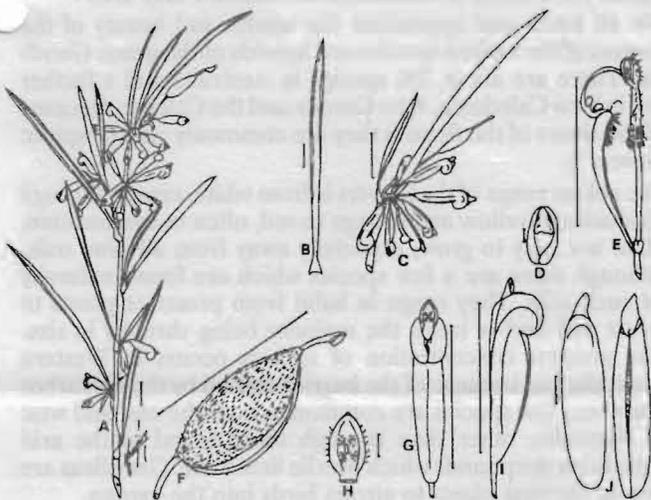


Figure 2.

Grevillea bronwenae Keighery. A - Habit, B - Leaf, C - Inflorescence, D - Top view of flower, E - Lateral section of flower, F - fruit, G - Front view of flower, H - Pollen presenter, I - Side view of flower, J - Seed, A-E, G, H, I, B. J. & G. J. Keighery s.n. (holo:PERTH). F, J G. J. Keighery 9471. Scale bar = 10 mm, except D, H, J = 1 mm

Frutex erectus gracilis, ad 1.5 m altus. Folia erecta, lineari-lanceolata, 104-127 mm longa. Flores rubri, praebitor pollinis purpureus.

Slender erect shrub, with 1-5 main branches, to 1.6 metres tall. Stems \approx 2 mm wide, dull red; current year's growth slightly ribbed; ribs reddish marginally, green covered centrally by dense, short, bifid hairs, becoming glabrous with age. Leaves erect, linear-lanceolate, 104-127 x 5-6 mm; margins recurved, scabrid on upper surface, sparsely hairy on lower surface; apex acute or pungent with a black point 0.501 mm long. Inflorescence axillary, 6-7 flowered. Peduncle 4-6 mm long, densely pubescent with short silver hairs. Basal bract of inflorescence lanceolate-ovate, brown, \approx 5 mm long, densely hairy. Bracts/bracteoles subtending flowers 3, ovate, 1-2 mm, caducous; apex acute. Pedicel 6-8 mm long. Perianth red, yellow under anther pockets, 11-14 x 4 mm, square in T.S., sparsely hairy. Pistil 10-11 mm long; stripe 3 mm long; ovary 0.5 mm long. Pollen presenter 3 mm long, purple or dark violet. Ovary densely hairy. Capsule 8-9 mm long, with retained style. Seed elliptic, supervolute, \approx 6 mm long; eliasome white, \approx 2 mm long.

Other specimens examined. WESTERN AUSTRALIA: Hill Road, Chicher Range, C.J. Keighery 3634 (KPBG); Jarrawood, Aug. 1949, E. Salisbury s.n. (PERTH); Darling Scarp, E of Jarrawood, 21 June 1965, C. Davies s.n. (PERTH); Whicher Road, Whicher Range, 29 Sept. 1979, T.J. Hawkerswood s.n. (PERTH); 19 km S of Busselton on Nannup Road, G.J. Keighery 9471 (PERTH).

Distribution. Confined to the northern edges of the Blackwood Plateau, between Nannup and Busselton.

Habitat. Grows on sand over laterite under *Eucalyptus haematoxylon* low woodland or *E. marginata*/*E. calophylla* low woodland. The species forms dense populations 5-8 years after fire in this area.

Flowering period. June-December, peaking August-November. Mature fruits are produced November-February.

Discussion. *Grevillea bronwenae* is an attractive horticultural subject, and is frequently grown under the name *Grevillea brachystylis* "Whicher Range Form".

Etymology. The specific epithet honours Bronwen Keighery, my wife, for her help both in field work in this and many other studies and for her assistance in maintaining our family during my numerous absences in the field over the past 15 years.

Conservation Status

Although highly restricted, the range of *Grevillea bronwenae* is entirely in State Forest, much of which lies within the proposed Whicher Range National Park. This species does not seem to be under any immediate threat.

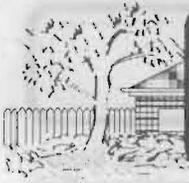
Grevillea brachystylis subsp. *brachystylis* was located at 20 sites on the Swan Coastal Plain. However, 17 of these are road verge populations with little protection. Three populations occur in actual or proposed nature reserves at Yoonagarillup, Ruabon and Fish Road.

Grevillea brachystylis subsp. *australis* is currently known from six sites, four of which are on road verges. Two (including the type of population) are located in Scott National Park.

Currently all the above taxa are located in reserves. The variety most at risk appears to be *Grevillea brachystylis* subsp. *brachystylis* for which the reserves and populations are relatively small.

References

- Marriott, N. (1986). Newly Cultivated *Grevillea*. Australian Plants 12:335-340.
 McGillivray, D.J. (1986). "New Names in *Grevillea* (Proteaceae)." (D.J. McGillivray: Castle Hill, New South Wales.)



IN YOUR GARDEN



Attracting Birds to Your Garden

Most Grevilleas are a good food source for birds, particularly honeyeaters, at some time of the year. Those hybrid Grevilleas such as *G. "Robyn Gordon"*, *G. "Ned Kelly"* and *G. "Superb"*, which flower constantly throughout the year, provide nectar to birds at times when little else is flowering. Although some of these Grevilleas may appear to have been over-done in the past, I'm sure the birds don't think so!

Another Grevillea which is less well known, but extremely attractive to honeyeaters, particularly the migratory New Holland honeyeater is *G. shiressii*. This is a large shrub to around 3m, with attractive lush foliage with reddish tonings to the new growth. Its flowers are generally green, with tones of bluish-purple, which are mostly well hidden inside the shrub. They are not very showy, but are extremely attractive to birds, and when put in a vase, the subtle combination of colours can be appreciated. Another good reason for growing *G. shiressii* is that it is a very rare species, having a very limited distribution, occurring along the banks of streams running into the Hawkesbury River near Wondabyne NSW. It makes a great screen plant and is tolerant of some shade — every garden should have one!

G. rosmarinifolia is also particularly attractive to birds. Not the common and very ordinary hybrid with its bright green prickly foliage, but the "true" one with its broader blue/grey foliage (hence its botanical name meaning with foliage like rosemary) and dark red spider flowers.

Apart from attracting birds, this original variety is worth growing because of its interesting history. It was thought to be extinct, but in the early 1960's was "discovered" growing in the Edinburgh Botanical Gardens in Scotland, having obviously been cultivated there in the early days of colonisation. Propagation from this plant took place and the plant was brought home. The shrub grows to about 1.5m and flowers over a lengthy period in winter and spring.

* * * * *

Grevilleas in Bugaldie, NSW

by Michael and Lynette Smith

Bugaldie is about 25kms north of Coonabarabran, and the Pilliga Scrub comes right up to our fence. The soil is very poor — red sandstone soil (which cakes very hard on the surface) with whitish sand underneath.

Most of our Grevilleas are growing well. We have over 60, and some of these include *G. arenaria*, *G. longifolia*, *G. lavan-dulacea*, *G. baueri*, *G. juniperina*, *G. speciosa*, *G. lanigera*, *G. thelemanniana* and *G. alpina*.

The other factors here are the extremes of temperature. In the 11 years we have been here, we have had a maximum of 46°C and a minimum of -7°C, although this winter (1989) we have had only a -4°C minimum. We are at an elevation of 1300 ft (Coonabarabran is 1700 ft), in the foothills of the Warrumbungle Mountains. The area's average rainfall is 610mm, so we have to do a bit of watering in summer, but we don't like using too much water as it is bore water and there is a lot of lime in the water. All the young plants are watered by hand with rain water.

By the way, I had a look at our *G. "Robyn Gordon"* and sure enough it has "Psyllids". The bush is in a terrible state — I thought it was the soil and the weather!

* * * * *

Pruning for more Grevillea Colour

This article is taken from "Bush Telegraph", a newsletter produced by Zanthorrea Nursery, 155 Watsonia Rd, Maida Vale, W.A. 6057.

Many of the new hybrid plants are capable of flowering all year. Some, like *G. "Robyn Gordon"*, will flower all the time without any pruning. Some, like *G. "Honey Gem"*, usually have a six month flowering run and then a few months off flowering unless we judiciously snip a bit off here and there.

The old flowering raceme or stem should be snipped back to a bud that's already developing. As soon as the flowers have lost their colour, they can be removed to encourage the new buds. This process can be done as often as you like, or as little as once in two months to keep the flowering going.

Each branch end will eventually become twisted and dense from the tip pruning. The growth here is slow and unthrifty and the stem is dark. It should be pruned back to above a leaf that is pointing in the direction that you would like the new stem to grow.

Once in about three years, you should use a pruning saw to remove crossing branches or stems growing where you don't want them. This operation makes the frame of the plant the shape you desire.

Grevilleas that respond well to this treatment are the large flowered ones which include *G. "Robyn Gordon"*, "Misty Pink", "Pink Surprise", "Honeycomb", "Honey Gem", "Claire Dee", "Superb", "Ned Kelly", "Majestic", *G. banksii* and *G. bipinnatifida*.

Anyone visiting Perth would find that a visit to Zanthorrea Nursery would be worthwhile, as they stock over 60 species of Grevilleas. Alex and Jackie Hooper are members of the study group and they would be pleased to meet any of our members.

Grevilleas causing Contact Dermatitis

by Noel Lothian

taken from article in Australian Horticulture July 1989

We all know and appreciate the wealth and beauty of the flowers of the various species and hybrids of the genus *Grevillea*. There are about 250 species in Australia and a further few in New Caledonia, New Guinea and the Celebes. Because of the shape of the flowers they are commonly called "spider flowers").

The colour range of the flowers is from white, cream, through all shades of yellow and orange to red, often in combination. Most are easy to grow, especially away from alkaline soils, although there are a few species which are found naturally on such soils. They range in habit from prostrate plants to forest and timber trees, the majority being shrubby in size. The greatest concentration of species occurs in Western Australia and because of the barrier caused by the Nullarbor Plain very few species are common to both the east and west of Australia, other than through those found in the arid regions on deep sands which overlie limestone. Grevilleas are among the best plants to attract birds into the garden.

During the past 20 or so years numerous hybrids (either natural or artificial) have been recorded or produced, many between species from the west and east, and the simple or pinnate and the pinnatisect species. *xG. gaudichaudiana* is a natural hybrid found in New South Wales. However, in "Australian Plants" from Volume 3 onwards records of various hybrids will be found, especially the Poorinda series produced by Leo Hodge in Victoria.

One of the outstanding hybrids of all times is *G. "Robyn Gordon"*, a spontaneous hybrid raised by David Gordon at Myall Park, Queensland in 1965. This hybrid is between *G. bipinnatifida* and *G. banksii* (red form), and there are others which have a similar parentage ("Mason's Hybrid"), but "Robyn Gordon" has rightly become the most sought after plant for our gardens.

What is apparently not well known, at least amongst growers of Australian plants, is its potential to cause a rash (dermatitis). My attention was drawn to this hybrid by two dermatologists, Dr G Hunter and Dr J Menz. Both, and their professional colleagues, have recorded a long list of clinical cases, and the two papers by Dr Menz and also those with her colleagues demonstrate clearly the danger of handling "Robyn Gordon", *G. bipinnatifida* and hybrids in which *G. banksii* are involved.

The earliest record so far located is of Leichardt's expedition of 1847. Leichardt states that one of his party "developed a blistering eruption on his chest subsequent to carrying *Grevillea* seeds next to his skin." As this expedition traversed parts of tropical Queensland it would appear that the species involved could belong either to the Section Eugreillea Series Hebegyne or the tropical Section Calothyrsus, but unfortunately history does not specify which.

Cleland records a case of vesication from the follicles of *G. viscidula* and *G. pyramidalis* from Sir Graham Moore Island, north-west Australia, west of Cambridge Gulf. Mr R. Pearce, then in the RAAF, told Cleland that a companion had been stroked across the brow at night time and severely blistered and had a scar left as a result of the blister. C.A. Gardner (Western Australian Botanist at the time) identified the species and stated the "woody follicles are covered with a viscous secretion which rapidly causes painful blistering if allowed to come into contact with the skin. *G. pyramidalis* has the same effect. The native of north-west Australia used the secretion for scarifying their bodies. Both trees occur extensively in north-west Australia."

Francis and Southcott refer to this incident to which is added the reference contained in CSIRO Bull. 232, Hurst & Arnold. Dr Hunter reports that this problem came to his notice in 1967, from cases reported in Honolulu, where *G. banksii* is cultivated for the cut flower trade. Subsequently *G. "Robyn Gordon"* came to the notice of dermatologists during the 1970's. Since that date there are numerous records of its effect on the human skin. In 1984 Dr Menz, over a short period of six months, treated 35 cases of sensitivity from this hybrid. Also a case is reported from Murray Bridge (south Australia) where cuttings of *G. banksii* produced a rash on the hands of the plant propagator. An associate hybrid, "Mason's Hybrid", and also another species, *G. hookeriana*, showed similar effects.

What is of great interest to gardeners and botanists is the fact that these three species all belong to the Section Eugreillea Series Hebegyne of the genus *Grevillea*, as detailed by Bentham in *Flora Australiensis* (1). A check of the 20 or so species which he assigns to this Series, together with recently described species, including *G. barklyana* and *G. laurifolia*, which are the ascribed parents for the natural hybrid from NSW, *xG. gaudichaudiana*, which is also listed in this series. In all about a dozen of the species come from WA, seven from NSW, one from QLD, and three from SA and VIC.

The series is divided depending on the leaf structure;
Leaves undivided - *G. concinna* (WA)

Leaves mostly pinnate or pinnatisect or similar -
G. hookeriana (WA) *baxteri* (WA) *pterosperma* (NSW, Vic, SA and WA), *eriostachya* (SA, WA and NT), *thyrsoides* (WA), *chrysodendron* (north Australia and Qld), *banksii* (Qld and NSW), *caleyi* (NSW), *asplenifolia* (NSW), *circisifolia* (WA), *barklyana* (Vic, NSW), *laurifolia* (NSW), *repens* (Vic), *aquifolium* (Vic and? SA), *x gaudichaudiana* (NSW), *acanthifolia* (NSW), *bipinnatifida* (WA), *steiglitziana* (Vic), *dryophylla* (Vic), *willisii* (Vic).

Most, if not all, the above species are grown by Australian Plant enthusiasts.

From the two dermatological papers, similar effects are recorded for *G. robusta*, in this instance from sawdust. This species is assigned to a totally different section of the genus, namely Calothyrsus. The dozen or so species listed by Bentham for this section are mainly tropical, and except for the few species associated with *G. robusta*, the leaves are undivided. *G. robusta* is the only species in this section with the bipinnatifid foliage.

Beyond the scope of this paper is the chemical composition of the probable active agent from the flowers, flower extract and leaves which causes rashes, blisters and associated responses. However, it has been clearly shown that the allergen of *Toxicodendron* (Poison Ivy) is closely linked with the chemical structure found in *G. banksii*, *G. robusta* and *G. hookeriana* and the hybrids "Robyn Gordon", "Mason's Hybrid" etc.

Associated symptoms with the dermatitis include "extreme tremulousness, dizziness and fatigue". In answer to questions patients generally did not suspect a plant as the cause of their allergy, mainly naming a food or a washing powder as the cause. All parts of the body which were exposed (arms, legs, face and torso) were affected. In one case quoted, extract from an air-dried plant showed positive reaction.

In clinical testing fresh flowers gave 100% response, fresh leaves 92%, while controls recorded 0%. There appeared to be little difference in reaction between males and females regarding response to testing.

Both Webb and Alpin record HCH in *G. helmiæ* and *G. banksii* and *G. robusta* (which is not part of the present matter). The latter hoes on to record that "both *G. mimosoides* and *G. pyramidalis* (both from north-west Australia) produce an exudate which causes large watery blisters and "burns" with skin contact. The actual principle is 5-(10pentadecenylresorcinol).

Alpin further reports "that *G. pilulifera* (a WA species) produced intense rash following walking through scrub". Elsewhere Webb notes that *G. banksii* (flowers, fruit and green capsules) are cyanogenetic and is a common cause of dermatitis venenata in Hawaii. He also reports on a *Grevillea* species locally called Silver Oak (*viscidula*) a secretion from capsules and a "drooping species" both causing blistering of the skin. Another undistinguished species from Chillagoe district "an exudate from the follicles is reported by stockmen to cause painful blisters following skin contact".

Except for *G. mimosoides*, all species mentioned have pinnate or pinnatisect foliage and so far none of the commonly cultivated species and hybrids with simple and undivided leaves appear to cause skin problems.

This note is written because an extensive search through horticultural literature, especially that relating to the growing and cultivating of Australian plants has failed to reveal any reference to the dermatological effects of handling any or all of these *Grevillea* species and hybrids. It is pointed out, as with all allergies, not all persons are affected by the same plant nor does any one species appear to affect everybody. However the above details of results show that gardeners should be cautioned against handling the above species and hybrids.

It would be appreciated if any reader who has had a rash or other symptom after handling any of these species and hybrids produced from the, could advise the writer of the plant(s) involved and the nature of the effects.

This problem could have a major consequence from plants growing in public places, parks and gardens, surrounds to hospitals, nursing homes, retirement villages, and similar institutions as well as plant nurseries.

My thanks are due in the first instance to Dr G Hunter who drew my attention to the matter, and to Dr J Menz for allowing me to quote from her article in the Australian Journal of Dermatology and that of the combined article with her professional colleagues.

PROPAGATION

Cutting Exchange

The best time for David to take cuttings is February/March. This list is provided for you to think about which cuttings you would like, so you can write to David in plenty of time – good luck with your cuttings.

- | | |
|---|---|
| <i>G. acerata</i> | <i>G. alpina</i> – Pyalong form |
| <i>G. alpina</i> – Mt. Dandenong | <i>G. alpina</i> – Strathbogies |
| <i>G. alpina</i> – Morri Morri | <i>G. alpina</i> – Chiltern Hills |
| <i>G. asteriscosa</i> | <i>G. beadleana</i> |
| <i>G. "Black Magic"</i> | <i>G. bracteosa</i> |
| <i>G. crithmifolia</i> – pink | <i>G. depauperata</i> |
| <i>G. erinacea</i> | <i>G. fulgens</i> |
| <i>G. hookeriana</i> var <i>apiculoba</i> | <i>G. infundibularis</i> |
| <i>G. insignis</i> | <i>G. integrifolia</i> ssp. <i>biformis</i> |
| <i>G. involucrata</i> | <i>G. monticola</i> |
| <i>G. obliquistigm</i> | <i>G. paniculata</i> |
| <i>G. pectinata</i> – entire leaf | <i>G. pectinata</i> – divided leaf |
| <i>G. pilosa</i> | <i>G. plurijuga</i> |
| <i>G. quinquinervis</i> | <i>G. tenuiloba</i> |
| <i>G. vestita</i> – Kalbarri | <i>G. willisii</i> |

Please send all requests to David Shiells, Mason Court, R.S.D. Shepparton 3631.

Cutting material is available to active financial members only. On receipt of cuttings, please send a cheque for cost of postage plus 50 cents for packaging to David by return mail.

If anyone else is willing to offer cutting material for the cutting exchange, please send a list of material available to the editor.

A Grafting Update

by Ray Kerr, Boronia, Vic

I have not been able to do much since I injured my back 4 years ago.

Although, as I had promised to graft some prostrate *Grevillea* on standards for some friends I decided to give Merv Hodge's method a go.

I grafted into the growing tip at six feet and covered the scion with nesofilm except for the small terminal leaf on the new growth. The grafted plants were left outside in the full sun.

Grafting was done late December to mid January.

		N° done	N° successful
Rootstock	<i>G. robusta</i>		
Scion	<i>G. laurifolia</i>	6	4
	<i>G. repens</i>	2	2
	<i>G. "Royal Mantle"</i>	4	4

Temperature seems to play an important part in *Grevillea* grafting. I repeated part of the trial in mid February, when the weather was starting to cool down (early this year), with a 30% result. As temperature was the only difference, I must assume that it is responsible for the low result.

FINANCIAL REPORT

OCTOBER 1990

Income	Expenditure
Subscriptions \$285.00	Newsletter Expenses 130.00
Donations \$20.00	Postage 100.00
	Stationery 18.00
\$305.00	\$248.00
	Balance on Hand 10.10.90 <u>\$527.53</u>

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* * * * *

If a cross appears in the box, your subscription of \$5.00 is due. Please send to the Treasurer, Christine Guthrie, 32 Blanche Street, Oatley 2223. Please make all cheques payable to the *Grevillea* Study Group.

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