ISOPOGONS & PETROPHILES

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Isopogon cuneatus. Garden specimen, Ocean Grove, Vic, July 2006. (See pages 7-9 for more details about this species)

CONTENTS

- 2 EDITORIAL
- 3 MEMBERS' LETTERS & EMAILS
- 6 NEW DRYANDRA BOOK
- 7 ISOPOGON CUNEATUS R.BR.
- 8 ISOPOGON CUNEATUS VS ISOPOGON LATIFOLIUS
- 10 GLOSSARY, BALANCE SHEET, REFERENCES
- 11 MEMBERSHIP LIST

It's spring and it's issue 9 of the Isopogon and Petrophile newsletter. This year my garden has been fantastic, despite the lack of winter rain, with particularly good displays from *Isopogon formosus*, *I. anemonifolius* "woorikee", *I. mnoraifolius* and *Petrophile media*. I have also had a couple of flowers on *P. linearis* and *I. longifolius* for the first time, but unusually *P. biloba* was not showy. Most of my other *Isopogons* and *Petrophiles* are looking healthy but have not flowered. I am especially happy with the growth of *I. cuneatus*, *I. latifolius*, and *I. fletcheri* and have my fingers crossed for next year.



A few years ago now, I visited the Kalbarri area of WA and collected seed from a white flowered form of I. divergens. I have grown a couple of plants from that seed, but as the parent is the only white plant of that

Isopogon divergens white

species I have ever seen, and as it was surrounded by the usual pink variety, I was not optimistic that the seedlings would be white. I thought I would find out this year, as my largest plant developed 5 good-sized buds that started to flower. Unfortunately, a few months have now passed, with no further movement. The rest of the plant looks fine and is now putting on some spring growth, but the flowers seem to have been aborted (Perhaps due to the lack of rain). So I have reached the conclusion that I will have to wait until next spring to see if I have a rare white *I. divergens*. Even if I don't, the pink form is a lovely plant so I know I won't be disappointed either way.



Isopogon divergens. Usual pink form

During my research for the newsletter I have noticed that there seems to be very little known about the pollinators of Isopogons and Petrophiles. This is a subject I think members of the study group could address. Has anyone noticed any potential pollinators on their plants e.g. ants, bees, native bees, birds, marsupials? If you have noticed anything, could you please let me know? I would also be very interested to know if people have had viable seed set outside the plant's natural distribution, and if anything seems to affect the number of seeds set.

Feast your eyes on *Isopogon cuneatus*, the featured species this issue. Tony Cavanagh has a specimen that is spectacular and amazing with around a thousand inflorescences this year! There's also some great letters and info from study group members. I hope you enjoy the newsletter and that your spring is floriferous and full of growth!

David Lightfoot ©

From Neil Marriott, Stawell, Vic. May 2006

Isopogon formosus under water

During a search for a possible new subspecies of Grevillea diversifolia in the area to the west of Mt Frankland to the north of Walpole in the lower SW of WA, we travelled through some very wet country. I was amazed to observe Isopogon formosus consistently growing in the winter wet depressions these at the time were completely full and as a result the Isopogons were in full flower out in the middle of swamps!! From the look of the surrounding vegetation, I would say that the depressions would remain inundated for many months of the year. Why is it that the Isopogon formosus do not die of root-rot? If we tried to grow this species in a poorly drained site in our gardens they would be dead within a couple of weeks! This clearly shows that we still have much to learn about the successful cultivation of so many of our native plants. However the above observation would explain why I have lost all my large, established Isopogon formosus plants in my garden during the current drought.



Isopogon formosus

This may also explain why this species is one of the hardiest of the western taxa on the more humid East Coast. That said, it is still pretty easy to kill in my garden! Ed.

From Greme Krake, Mitcham, Vic. June 2006

The only *Petrophile* that we have put in to date is *P. biloba*, which has done well after initial attack by the wallabies, rabbits and wombats. We soon realised that we needed wire netting surrounds

rather than plastic guards. After the *biloba* had initially been chewed down a bit, we cut it well back. Once it had hardened off we removed the guard and it hasn't looked back. We are looking forward to getting more *Petrophiles* and some *Isopogons* planted.

Graeme has a property in NSW, just in case you were wondering about the wallabies and wombats in suburban Melbourne! Ed.

From Fiona McCallum, Greta West, Vic. May 2006

Thanks for the newsletter - always great to print it off and read it in the hammock with the birds singing in the background.

I only have a few Isopogons in the garden. There are three *I. dawsonii* in a group on the northern edge of the garden and in full sun. They are now three years old, flowered prolifically last spring and are the happy home of a family of fairy-wrens. We had a few 40+ days over the summer, one in particular with very strong northerly winds. I usually give the garden a good drink a few days before a hot spell but on this occasion, I hadn't watered the plants on the northern side of the garden. Two days after, the Banksia and Agonis on either side of the Isopogons were dried to a crisp half way through each bush, the rest of the plant dying a couple of weeks later. But the Isopogons were still very happy.

I had also planted out *I. formosus* and *I. cuneatus* last spring. Both of which have weathered the summer and doubled in height.

Thanks for your letter, Fiona. It's always great to here how people are doing with their Isopogons. I love the thought of the family of fairy-wrens dashing in and out of your Isopogon dawsonii.

It's interesting that they survived your really hot days without watering. I have found that, in general, when young the Isopogons and Petrophiles do need a little supplementary water, but after that they seem to be able to survive Melbourne's summer heat and dry. Ed

From Jeff Irons, UK. May 2006

I. anemonifolius is in full bloom in my greenhouse, 53 heads open at the moment. I keep meaning, but never get round to striking a cutting of it and trying

the plant outside. We do not get frosts below -7 now and I think that even with our wet winters, it would withstand that.

My I. anemonifolius was grown from seed collected in the Blue Mountains and first produced blooms in its 11th year. The reason I think it could be hardy outside is that a few years ago I had to remove my greenhouse while a wall was being built. It was a dry fortnight, with no rain, but nights down to -7 and days around 0°C. The Isopogon was unaffected. At the moment Lambertia formosa (also collected in the B.M.) is producing its first buds of the year. Calomeria amaranthoides (coll. Mount Tomah [also in the Blue Mountains]) is growing apace. A couple of years ago some friends from Mildura were staggered to find Native Tobacco and an Eremophila growing in northern England.

It does snow moderately often in the Blue Mountains of NSW, where Jeff collected his seed. I'm not sure how low the mercury does get in winter though. Please let us know Jeff, if you get a cutting grown plant established in your extreme conditions. I must say that 53 inflorescences sounds pretty spectacular. Ed

From John Wrigley, Coffs Harbour, NSW June 2006

Hi David,

Thanks for Newsletter no 8.

now tiny, garden at Coffs Harbour. We moved into town some four years ago from our 20acre property at Korora and started a new garden on a site. Ι sunny emphasise 'sunny' as at Korora, the rainforest collection, 21 years old when we left, provided nothing shade. The but sunny site has allowed me to fiddle around with few Western а



Isopogon asper

Australian species with moderate success.

Isopogon asper was my first success after finding a tiny tube, labelled I. formosus, at a nursery at Grafton. The plant thrived reached 1m high and flowered well with over 100 flower heads. After 3 years, however, it decided to leave us and unfortunately none of the seed was viable. My other WA success has been I. formosus, which is now in its third year, about 2m high by 1m across and with dozens of flower heads beginning to swell up. Should be good in the spring. It had a couple of dozen flowers last year.

Eastern species are much happier here generally as our humid summers are not conducive to growing the WA species. This year I will have good flowering on I. petiolaris, I. mnoraifolius and I anethifolius. All were grown from seed. A small plant of the local Petrophile canescens, cutting grown, did well for a couple of years but died of neglect being overrun by a rampant patch of Penny Royal.

Thanks for the update John. I particularly love I. asper. It is a superb rockery plant with the multicoloured effect of the inflorescence up the stems. Ed.

From Paul Kennedy, Strathmerton, Vic July 2006

The weather has been awful up here. We have had many frosts down to minus 7 degrees C. I tried germinating the seed you gave me using the method of putting the seed on kitchen paper towelling inside a green freezer bag. I started in April but had little success because I think the temperature at night was too low even though it was inside the house. I think November-February planting would have given better results. Will try again later this year. The species that germinated were Petrophile canescens, carduaeae and semifurcata. These are in the hot house waiting warmer weather to plant out.

Those seed were reasonably old ones from the seed bank and so it's good to see that there are still some viable seed. I must say I don't like the sound of -7°C, but given the dry winter and very hot spring, we may all be wistfully thinking of the cooler weather soon. Ed.

Update September 2006

I have meant to write to you for some time but life has been hectic in the APS Presidents position. Terribly dry and windy up here, but it has been a great flowering season despite the lack of moisture and the terrible frosts. So what is still surviving?

Row 8. P. serruriae, 0.6 x 0.6. flowered profusely. P. megalostegia, planted 5/2006.

P. scabriuscula, planted 5/2006.

P. media, planted 5/2006 and is in flower.

P. seminuda, a small bush 0.3m high and has flowered for the first time this month.

I. polycephalus, 1.0m high and flowers well.

P. ericifolia, planted 5/2006, flowering for the first time, 0.25m high.

I. ceratophylla, planted 5/2006, flowering for the first time. 0.2m high.

I. dawsonii, 1.2 m high and has flowered for the past two years.

I. sphaerocephalus. Two years old and just survives our climate and sandy soil. Near house.

I. latifolius, 1.3 x1.0m and has flowered for a number of years.

I. cuneatus, 0.5 x1.0m, flowers about to appear.

I. formosus, slow growing but has flowered.

I. dubius. As for I. formosus.

P. glauca, flowers well but leaves die back and reshoot in spring.

P. longifolia. Lived for five years before it gave up after the very hot summer.

Seedlings in pots.

P. pedunculata, semifurcata, canescens and carduacea.

Will try seed on saucer again in November when the night temperature is higher and expect to get much better results.

Thanks for bringing us up to date, Paul. You certainly have a great collection. Please keep us informed as to how things progress, especially on the germination during warmer weather. Ed.

Email "thread" from the Banksia Yahoo group email list.

June 2006

From Peter Shaw- Hello everyone,

I am going to take some cuttings of *Isopogons* (*anemonifolius & formosus*) and would like to know how "hard" the cutting should be... softwood early spring... semihardwood... late sping early summer or hardwood... late summer into autumn?

The wood is just firming up now and seems like a good time to try, the cuttings are about 10-16 cm long I guess. Will use 4000 ppm IBA and place under mist. Anyone know of a great reference on cutting propagation of your native plants? (I am a Californian) Second question also about *Isopogon*. I collected some seed of *Isopogon latifolius* and would like to sow it soon. Any pretreatments suggested, like the smoke treatment or just sow? Cheers

From Phil Trickett- Hi Peter, With the wood just firming up now would be a good time. *Isopogon formosus* is one of the easiest Australian natives to propagate from cuttings, so you should get a really high strike rate (above 70%), *Isopogon anemonifolius* also strikes readily from cuttings. I don't seem to have any luck with *Isopogon* seeds but I would certainly use smoke treatment.

The best general reference book on Australian natives is 'Australian Native Plants' by Wriggley and Fagg. This book has an excellent section on propagation. Good luck. Regards

From David Lightfoot- I concur with Phil re the cuttings. You shouldn't have any trouble. I have found that fresh seed germinates reasonably well without pretreatment, but smoke will not hurt and may improve things. Just make sure you actually have seed, as most of the *Isopogon* seed head is non-fertile seed and chaff. *I. latifolius* seed is black and about 2-3mm by 1.5mm in size and covered in hair. Cheers

From Liesbeth Uijtewaal [*Who grows many Australian plants in Holland! Ed.*]- Thanks David for the info regarding *Isopogon latifolius* seed. I've been waiting fruitlessly for seedlings with a couple of *Isopogon* species so far. Do all fertile *Isopogon* seed have to be black and clearly a seed? I've only seen hairy flattish tick-like things so far, so maybe I never had proper seed. I'll check my *I. latifolius* seed thoroughly now before I start sowing again!

From David Lightfoot- Hi Liesbeth, Nice to hear you're trying some *Isopogons*. [See the] photo from [page 2] the 3rd Isopogon and Petrophile study group newsletter. On the left is the chaff and infertile seed, on the right are some potentially fertile seed. The one at the top right is *I. latifolius* end on (I think from memory), the others are various other species. Once you've found one proper seed it is easy to sort them out.

From Ian Radford- Liesbeth, the flat wedge-shaped pieces are chaff. The seeds are small and hairy. There tends to be a good deal more chaff than seed. I have purchased *I. anemonifolius* seed from Nindethana on about three occasions. Twice I didn't have much luck, but with the third batch I got lots of seedlings. So there may be considerable inter-batch variability. Cheers From Liesbeth Uijtewaal- I've been growing *I.* anemonifolius and formosus so far (from cuttings), they're doing very well but then they're the easier ones. I've planted *I. anemonifolius* out in the conservatory a couple of weeks ago; there are a lot of buds on it so it must be very pretty in full flower. I feel *I. anemonifolius* needs more light so I will keep that one out in the open in summer; it tends to grow with very long thin shoots here. Not nice and compact anyway. I'll try and relocate my *I. latifolius* seed and see if I can find anything that looks like proper seed.

Peter Shaw- Thanks a ton David. I am pretty sure all I have is chaff, and no seed. Funny, I nicked some from the local arboretum and put it in my pocket, big mistake, the fine hairs are like needles and irritated my leg for several days and had to wash the pants (trousers as you may call them) several times. Karma I guess, next time I'll keep my hands on my camera and off the seed. Well, at least I bought a nice plant to take cuttings off of. Say, does anybody have that dwarf one, (I think it was named 'Woorikee 2000') performing well? Cheers. From Rob Dean- Hi all. I have a "woorikee 2000" down here in NW Tasmania, also in a pot and growing well - has flowered 2 years in a row which is more than I can say for some other plants I have growing down here :-)

From Gill Muller- Hi Peter, I have a 'Woorikee 2000' in a pot. I've had it for ages, can't remember when I bought it. It is really compact, and flowers well each spring in partial shade, and then I prune it. It's been in its current pot (about 300mm) since 2002, and seems perfectly happy. I'm in Adelaide, in the Mitcham Hills.

I have three plants of Isopogon anemonifolius "woorikee 2000" in my garden and they are a wonderful hardy and floriferous plant. Two are in full sun and one in partial sun. They are all compact plants to about 50-70cm. The two in the sun are particularly good this year with hundreds of inflorescences on each! I prune off their inflorescences after flowering, which encourages even more the following year. If you have a sunny reasonable drained spot, this plant should grow virtually anywhere in the country. Ed

New Dryandra book available

A new book *The Dryandras* has just been published. Written by Dryandra Study Group Newsletter Editor Tony Cavanagh and Study Group Leader Margaret Pieroni, it is the culmination of many years of work by members of the Group to publicise this fascinating genus of Western Australian plants and hopefully it will bring them to the notice of a much wider audience. The publication results from a unique collaboration between the Australian Plants Society Victoria and the Western Australian Wildflower Society who are the publishers, and Bloomings Books who specialise in horticultural and natural history books and will undertake commercial distribution. Their principal, Warwick Forge acted as publishing consultant and put a lot of time and effort into ensuring that the book is a quality publication.

Members of the Proteacea family have been a source of fascination to Australian plant growers for years; and *The Dryandras* is the fourth book in recent times to provide updated scientific and horticultural information on another genus in this family. The book is in large hardback format, 244 pages in length, with over 320 superb full colour photographs. It is in two parts. Four introductory chapters discuss the discovery and naming of dryandras and the history of their cultivation; their biology and ecology; practical cultivation and propagation; and their scientific classification, including a key to all species. The bulk of the book provides full information on all 135 taxa (94 species and 41 subspecies and varieties) as well as several unnamed species. For each, there is a botanical description, distribution map, conservation status, habitat including climate information, flowering period as well as propagation and cultivation information. To assist with identification, each taxa has colour photographs of the flower head and the plant, and line drawings of a leaf, fruit, seed and seedling. All line drawings and maps are the work of Margaret Pieroni, one of Australia's most talented botanical artists. There is also an illustrated glossary of botanical terms and tables to assist in choosing dryandras for different garden situations.

Copies will be available from mid September to ASGAP members at the special price of \$64.00 plus postage of approximately \$8.00 to \$10.00. They will be available initially from APS (Vic.) and WSWA Book Sales and later from other State book sales sections. Addresses:-

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APS Vic. Book Sales 13 Conos Court, DONVALE, Vic., 3111. Phone: (03) 9872 3583 WSWA Book Sales Barbara Backhouse 8/38 Ednah St., COMO, WA, 6152 Phone: (08) 9367 8414

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ISOPOGON CUNEATUS R.Br.

(SYN. ATYLUS CUNEATUS (R.BR.) KUNTZE; ISOPOGON LOUDONII R.BR.; Isopogon latifolius var. lanceolatus Meisn.; Isopogon lanceolatus (Meisn.) B.D.Jackson; Isopogon latifolius var. preisii Meisn.)

Isopogon cuneatus has had a number of previous and synonymous names, but was first described by Robert Brown in 1810 following his January 1809 address to the Linnaean Society of London, "On the Proteaceae of Jussieu¹. It is one of the most popular and better known, of the western *Isopogons*.

Its specific name (*cuneatus*) comes from the shape of its leaves. Cuneate means wedge shaped. However, like a number of other taxa described from limited early collections,

1.5 to 2.5m high and slightly less wide, when fully grown. It does not have a lignotuber and thus is killed by fire.

The branches and leaves are silky haired and ruddy when young. The bright green leaves often have a reddish edge. They are simple, and usually obovate to narrow obovate, 4-10 cm long and up to 2.5cm wide. The apex is usually obtuse but may have a point in some individuals. They tend to have a short to absent petioles.

The inflorescences are

the name does not match the characteristics of the majority of specimens. (The classic example of these naming is errors Hakea prostrata, which was described



appearing from July to October. They are held terminally and often appear in profusion. They can be up to 6 cm in diameter, making them one of the largest of

spectacular,

Isopogon cuneatus at King George Sound near Albany, WA

from coastal plants that were indeed prostrate. This plant, however, is rarely prostate with individuals up to 4m high.) In reality most leaves of *I. cuneatus* are not wedge shaped.

It is a medium sized shrub, tending to be smaller in coastal heath. It is usually around the genus. Each individual flower is about 2.5 cm long and is pink to mauve pink in colour. They open from the bottom of the flower-head to the top, displaying a yellow to orange pollen presenter that darkens with age. The flowers are glabrous except for a tuft of hair at their ends.

The fruiting cone is like a flattened globe, up to 3.5cm in diameter, and contains a variable number of 3mm hair covered seeds.

¹ Robert Brown 1773-1858, the "Father of Australian Botany". See issue 1 page 4

This plant is found in the southern part of Western Australia from the Stirling Ranges, south to Albany and east to Cheyne Bay. It is mainly in heathland, but does venture into open woodlands. The soil being gravelly, lateritic, or sandy and invariably well drained.

Isopogon cuneatus has been in cultivation since the early part of the nineteenth century. It was grown in the UK in 1829. It has been difficult to keep going in humid or summer wet climates, being susceptible to root rot. It must be in excellently drained soil, and although it does best in full sun, will tolerate part shade conditions. It seems to tolerate light frosts and may need supplementary watering in prolonged drought. Seed germinates readily and cuttings strike well. There has been success with grafting onto eastern rootstocks. If you are prepared to get the conditions right for this plant it will reward you with an amazing springtime show.



(Map reproduced from Flora of Australia Vol. 16 with permission of ABRS.)

Tony Cavanagh has grown *I. cuneatus* for some time in his garden in Ocean Grove on the Bellarine Peninsula of Victoria. He sent the following article comparing *Isopogon cuneatus* and *Isopogon latifolius*.

ISOPOGON CUNEATUS VS ISOPOGON LATIFOLIUS Tony Cavanagh, Ocean Grove Vic.

Both these species are widely sought after by growers of Australian plants, primarily because of their hundreds of striking, large pink-mauve flower heads. They each form a medium to large shrub around 2m by 2m



although in good conditions they can grow larger. Although I have cultivated a number of Isopogons and Petrophiles over the years, I have always found these two very difficult to grow on their own roots. They proved to be short lived and often died suddenly without flowering. Fortunately a friend of mine, Doug McKenzie, has had a long-term and successful interest in grafting many Australian plants and was able to supply me with a plant of *I. cuneatus*, grafted onto the eastern species I. anethifolius. This is the plant in the picture at left and has been spectacular this year with many hundreds of flowering heads. It is at least 10 years old and probably older and each year my wife

Liz and I spend a couple of hours after flowering is finished, cutting off the old heads. It is tedious but well worth the effort as it results in better flowering the next year.



They are also good but not particularly longlived cut flowers with best results being achieved by taking the heads at the early bud stage and putting them in water where they will last about a week.

Isopogon cuneatus comes from the heaths and woodlands in the Albany area and further east and grows in sandy and gravely soils which are generally well drained. In Victoria, it flowers best in near full sun situations and for me, my grafted plant is very happy in a medium clay loam with good drainage. *Isopogon latifolius* is found in the peaks of the Stirling Range where it is always a spectacular plant when in flower. It is similar to *I. cuneatus* but has broader, pointed leaves with a reddish tip and very large flower



heads, the largest in the genus and up to 10 cm across. Doug has also grafted this one onto *I. anethifolius* and reports that if anything, it is more reliable as a grafted plant than *I. cuneatus* with which he has had some losses of apparently established plants over the years. I have not recently grown *I. latifolius* as I no longer have room but it behaves very similarly to *I. cuneatus* and is likewise spectacular in flower.

Just as an interesting sideline, both species are often reported as being sought after as cut flowers and plants have been tried overseas as well as in Australia. I am unsure whether this applies today as both have a problem of being relatively heavy flower heads and not especially long lived as cut flowers, even though they are obviously spectacular. In the mid 1970s, Ken Stuckey, a pioneer grower of Australian plants in Furner, South Australia had several acres of *I. latifolius* under cultivation for cut flowers (see picture below). When I went back a



couple of years later, they were all bulldozed into heaps. Ken said that he could not sell them in the cut flower market as the florists found them too difficult to arrange. It was pretty devastating to see all these lovely plants, some with flowers still on them, destroyed and I wonder if anyone knows whether either species is being successfully cultivated for cut flowers today.

GLOSSARY Bipinnate- a compound leaf where the initial division of the leaves is divided a further time. Genus- a group of species linked by similarities. The level of classification below family. Glabrous- without hairs, smooth	ISOPOGON AND PETROPHILE STUDY GROUP BALANCE SHEET Financial Year 2005-2006
Inflorescence- a group of flowers arranged as a distinct entity	Balance brought forward\$482.99
Laterite- a reddish clay like mixture of iron and aluminium oxides and hydroxides formed from the weathering of basalt.	Deposits Membership subscriptions \$210.00
Obovate- like the longitudinal section of an egg with the narrow end at the base Ovoid- elliptical in shape with the base broadest Obtuse- not sharp or pointed. A leaf that has a rounded or blunt tip Petiole- the stalk by which a leaf is attached to the rest of the plant	Withdrawals \$220.00 Withdrawals \$3.60 Postage \$3.60 Software \$139.00 \$142.60 \$142.60 Balance at June 30^{th} 2006 \$550.39
Simple (leaves)- entire without teeth or lobes Taxa- (plural of taxon) comes from taxonomy, which is the science of classifying organisms into groups. A taxon is a group of plants sharing a relationship and so are categorised together. It is a unit of taxonomy. Terete- circular in cross section.	Balance Bendigo Bank account\$498.99Cash at hand\$51.40\$550.39
Terminal- at the end of a shoot Tripinnate- compound leaves where the initial division is divided again and then divided a further time (compare with bipinnate above)	

R EFERENCES

Banksias, Waratahs & Grevilleas and all other plants in the Australian Proteaceae Family by John W. Wrigley and Murray Fagg

Flora of Australia Volume 16 Elaegnaceae, Proteaceae 1. Melbourne: CSIRO Australia

Encyclopaedia of Australian Plants suitable for cultivation by W. Rodger Elliot and David L. Jones

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