

DRYANDRA STUDY GROUP
NEWSLETTER NO. 45



Dryandra subpinnatifida var *imberbis*

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ASSOCIATION OF SOCIETIES FOR GROWING
AUSTRALIAN PLANTS

Dryandra subpinnatifida* var. *imberbis

The plant shown on this issue's cover is one of the most spectacular of the small mound-forming dryandras. It is found between Boddington and Broomhill in the south-western wheatbelt growing in gravelly loams among taller shrubs. The long, dark green, nearly entire leaves contrast well with the many lemon-yellow flower heads. Plants at Cranbourne after several years of flowering formed a mound around 60 cm high and about a metre across, the upper surface of the plant being nearly completely covered with flower heads.

DRYANDRA STUDY GROUP

LEADER

Mrs. Margaret Pieroni
16 Calpin Crescent
ATTADALE
WA 6156

NEWSLETTER EDITOR

Mr. Tony Cavanagh
16 Woodlands Drive
OCEAN GROVE
VIC. 3226

Hello and welcome to Newsletter 45.

Thanks again to everyone who has written with information about their dryandras. It was also great to receive a detailed account of his garden and plans for the future from new member, Bob O'Neill. Like him, I have found that conditions change as the garden grows and former wet areas are now dry and can take a new range of plants. Unfortunately for me, shading is now a problem so my range of dryandras is more restricted. We did manage to create a new bed when we had our driveway redone and had a huge *Acacia mearnsii* taken out. The old gravel was used to form a raised bed and as the area is now in full sun for much of the year, we have high hopes of again increasing our numbers. However, the dryandras might have to share with a few eremophilas!

I think that the colour page in this issue is the best yet. Many thanks to Margaret for supplying the photographs and to David Lightfoot for again scanning and producing the sheets. They show again the wonderful variations in *Dryandra* foliage and the incredible beauty of the flower heads. Isn't the foliage of *D. subpinnatifida* var. *imberbis* simply stunning! The cover picture of the growth habit of this plant explains how that special group of mound forming dryandras get that way. Margaret lists and describes the main mound formers; they as a group are well worth considering for the garden as they are both small yet spectacular. Unfortunately, drought still afflicts much of Australia and it is certainly affecting plant growth and flowering. For the first time in years, my *D. longifolia* did not flower and *D. squarrosa* is only patchy. The ground is still bone dry just a few centimetres down and even in June I was hand watering; the so-called rains we were supposed to receive just never arrived.

Other articles in this issue include Margaret's account of a trip to the Cape Arid National Park where many species have barely survived the combined disasters of drought and bushfires. More possible *Dryandra* hybrids were found as well. I am also very grateful to Kevin Collins of Banksia Farm near Mt. Barker for supplying information on the many *Dryandra* species he is growing. He is spectacularly successful but the list of difficult species shows that there is still a long way to go before we can say that some species will make reliable garden plants. And I am sure that you will all wish Margaret well in her "Sea Change". She is very excited about the move and is already planning a eco-sustainable house for the block. I am sure that it won't be long before she is trying out some of those dryandras that she found hard to grow in Perth.

Again thanks to everyone who has written or contributed information. I hope that you enjoy the Newsletter. I have included a list of current members with the financial report to follow in the next Newsletter. Membership fees for 2003-2004 are now due. They remain the same as previously and a subscription form is attached. Please forward your cheque to Margaret.

Happy *Dryandra* growing

Tony Cavanagh

Dryandras and Drought

A return visit, in February to the *Dryandra vestita* plants seen on a back road, south east of Moora last year proved very disappointing. (See photo of new growth in Newsletter no. 44).

I was hoping to find the plants in full flower but, instead, they showed just about every defect and stress symptom that exists. Buds on the abnormally long new growth had aborted and leaves were shooting from them. There was fasciation of some leaves and, of only three flowerheads among the three or four shrubs, one was abnormal, looking like two fused together and with pale yellow, rather than golden yellow limbs on the flowers. There was no seed set but evidence of insect damage in old flowerheads. These Dryandras are practically the only remnant plants on this stretch of grass-ridden, narrow road verge and the adjacent paddock is cleared right to the fence. It would seem that the combination of three years of drought and spray drift from the farm is causing possibly terminal damage to the plants.

We were to see the consequences of the lack of rainfall while on our subsequent trips so far this year. It is the worst year for flowering that I've seen. Early, heavy rain in many areas should make it a good spring but vast tracts of heathland were devastated by fire in January.

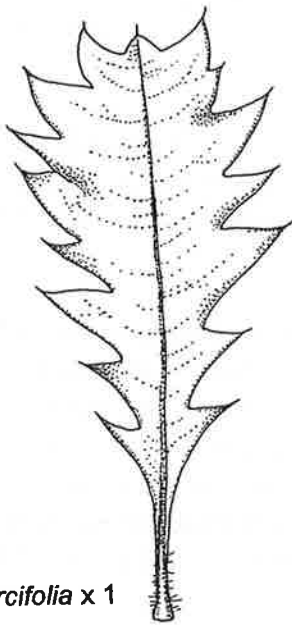
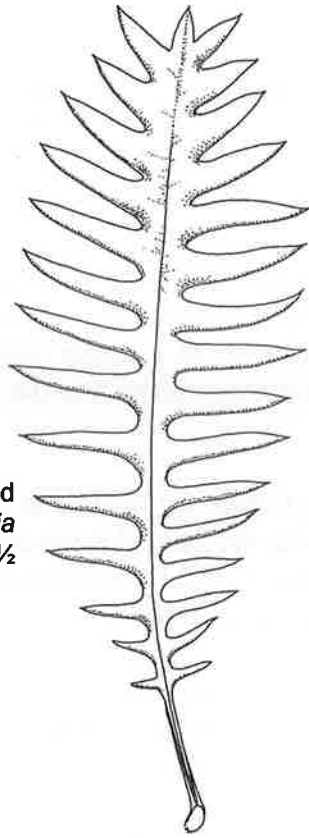
During one of my visits to Hi-Vallee last year, Don and Joy Williams expressed a desire to visit Cape Arid National Park. We were constrained to fit the trip in between the hot, dry summer with its bushfire threats and their busy tourist season. Autumn, two years ago had proved to be a good time to visit both the Ravensthorpe area and Cape Arid with many plants, including several Dryandras, in full flower, so we planned our trip for mid-April.

Don and Joy met Brian Moyle and me at Hopetoun and we were joined by another Wildflower Society couple for the journey to Cape Arid, making three 4WD vehicles in all. We met at the carpark at No Tree Hill, at the north east corner of the Fitzgerald National Park where *Dryandra quercifolia* and *D. pteridifolia* subsp. *pteridifolia* should have been flowering. Not one plant of either of them was in flower - a few buds on *D. quercifolia* had simply dried before they were fully formed. As we walked a short way toward the hill, I noticed a strange plant on the edge of the track. It was about 40cm. high, with its leaves all arising from a single stem and four spent flowerheads. Three were probably from last year. Below them was one from the previous year when, quite likely, it was in flower when Brian, Paul Kennedy, Keith Alcock and I had walked past it, twice. The old flowerheads looked very much like those of *D. quercifolia* and the leaves as the drawing. There was no sign of any buds this year, but there had been some good rain and more was to come, so maybe next year...

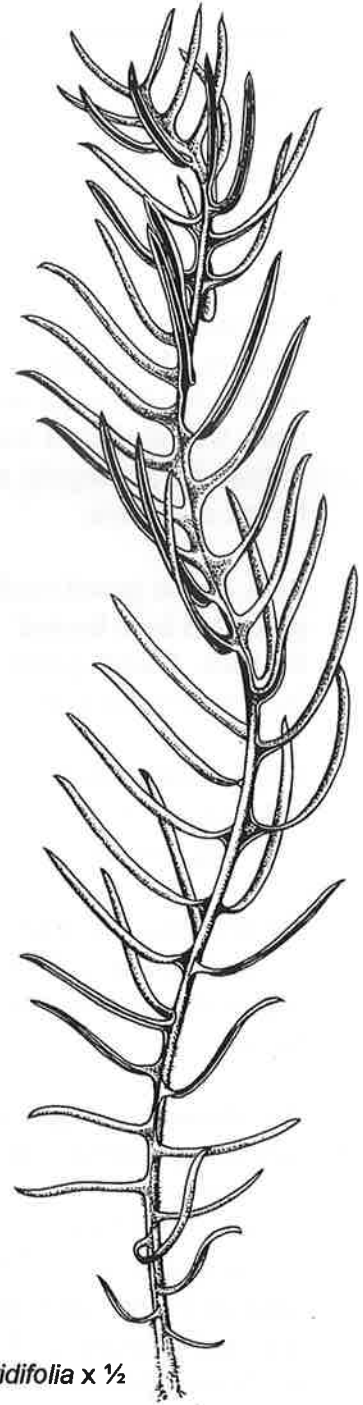
This is the fourth hybrid with *D. quercifolia* that I have seen in the wild. Further east, near Mt. Desmond in the Ravensthorpe Range, I have seen and photographed *D. quercifolia* x *cirsioides*, *D. quercifolia* x *corvijuga* and *D. quercifolia* x *foliosissima*. These last two were destroyed in the last catastrophic fires, in December of 2000.



Probable hybrid
D. quercifolia x *pteridifolia* subsp. *pteridifolia*
Leaf x ½



D. quercifolia x 1



D. pteridifolia subsp. *pteridifolia* x ½

At Mount Desmond we looked in vain for flowers on *D. foliosissima*. In 2001, it was flowering in April. Only a few blooms were seen on the endemic *Beaufortia orbifolia*, which usually flowers year-round and two or three plants of *D. quercifolia* had paler than usual, yellow inflorescences.

The widespread fires of last January have also destroyed a good patch of vegetation east of Ravensthorpe, where there were tall, mature plants of *D. quercifolia*, some with pink flowers, among other species that occur in the Ravensthorpe Range and Fitzgerald National Park.

On our way to Esperance and Duke of Orleans Bay we noticed that even *Banksia speciosa*, *Hakea laurina* and *Lambertia inermis*, usually flowering prolifically at this time were almost all without flowers. *Banksia pulchella* was in flower at Orleans Bay and east to Cape Arid but *Kunzea baxteri* was not. Only *Verticordia minutiflora* was putting on a brave show in the low-lying areas and along the roadsides.

It had begun to rain and there was a lot of water lying along the road as we approached Cape Arid National Park so we had misgivings about our chances of reaching Mount Ragged or The Diamonds Hill on this trip. The rain was mostly confined to the coast and Mount Arid was almost obscured by cloud. Unfortunately, when we got there it was raining heavily. *D. cuneata* was flowering well near Hill Springs but, strangely, although it is very common in the region, we didn't see it in flower elsewhere.

Back on the gravel road to Poison Creek, we found that a patch of good *D. nervosa* plants has been burned. Elsewhere in the park, this species has been badly affected by die-back. I didn't get an opportunity to look for flowers, which, on previous visits to the location I have failed to find on *D. nervosa*.

Large tracts of the rich heathland to the north-east of Mount Arid has been burned, including most of the *Banksia occidentalis* on the Poison Creek Road although a few surviving trees had one or two inflorescences.

We decided to head inland, north of Fisheries Road. Because of all the rain, this access to The Diamonds Hill would have been impassable so we had to forego another opportunity to return to where Brian and I had made our exciting discoveries last August.

The sun was shining when we stopped to have lunch at the beginning of the 4WD only, deep sandy section of Balladonia Road, the track that leads straight to Mount Ragged. So, with a sudden burst of optimism, we decided to try to reach it. We were soon forced to turn back, however, as water across the track was just too deep. The decision was made to attempt to arrive at Mount Ragged the next day, taking the long route via Parmango Road towards Balladonia, across to Bill's Paddock on Balladonia Road and then approaching our objective from the north as Brian and I had in 2000 (see Newsletter no. 40).

There are several interesting places to stop along the way and, although Parmango Road was in much better condition than last time, there were some very rough patches of out-cropping limestone and some very slippery, boggy stretches as well as water across Balladonia Road. But...we made it, in time for a late lunch and a couple of hours to spend at the base of Mount Ragged. *D. longifolia* subsp. *arceos* was not flowering where we'd seen it in April, 2001. There were very few plants of any sort in flower but they were greening up nicely. *Verticordia brownii* on the lower slopes was just surviving and probably hasn't flowered since 2000. The rain had come just in time and, if it continues it should be a good year to re-visit later - providing the tracks have dried out.

We were disappointed for Don and Joy as even views of the spectacular coastal scenery were spoiled by the overcast and rainy conditions but we gave them and the others a taste of Cape Arid and a desire to return and we enjoyed their company very

much. We would like to be able to spend more time at The Diamonds Hill, even though it has been partly burned, and another hill, accessible via the Mount Ragged to Israelite Bay track (Gora Road), on a future trip.

We returned to Perth via Cascades Road which, for about 50 kms of its length is a scene of devastation after the January fires. Huge areas of Verticordia-rich heathland have been burned, just a few patches having escaped the flames.

Margaret Pieroni 25/4/03

Moving On

For some time now, since I 'retired' I have been considering leaving the city for a 'Sea Change'. Albany has always appealed to me. During a brief visit to Denmark, about 50 kms west of Albany, in February, I found my ideal block. It is next to a dis-used gravel pit with good re-growth of Jarrah, Marri and Karri trees and many understorey plants. *Dryandra serra* occurs on the block and in the nearby Mt. Hallowell Reserve. Mt. Barker is a little more than 50kms to the north.

Needless to say, I will be leaving my friends in Perth with a great deal of regret, also my garden with its 70 *Dryandras*. On the other hand, I should be able to grow some species down there that are difficult here. Coincidentally, the only *Dryandra* in my garden that died during our long, hot summer was *D. serra*. It was self-sown and I expect that there will be more seedlings to take its place. While I was away recently, the larger of my plants of *D. longifolia* subsp. *archeos* died quite unexpectedly. A few days before, I dug up and potted the smaller one. I intend to take all of last seasons seedlings and several plants I bought during the past year (some from Albany), down to Denmark.

Tony and Liz were not impressed with the climate in that part of the world. They had the misfortune of being there after a very dry year, when few plants were flowering, only to have two days in two weeks when it didn't rain. The annual rainfall in Albany is less than in Perth but it is year-round. That means, I hope, that I will be able to leave my Denmark garden to go on field trips, without having to worry about my plants not getting watered.

Margaret Pieroni 25/4/03

Growing Dryandras and other Australian Plants at Wandin, Victoria

(Editor's note: The following account of his garden was received from new member Bob O'Neill. I think we will all be envious of those huge new sandbeds that he has created and of the range and variety of species he is growing. The total area of gardens is about 8 acres so I am sure that Bob will find a bit more room to try an even bigger range of dryandras. Many thanks for this information, Bob.)

We have approx. 30 dryandra plants here, 9 I can give a name to, probably about 15 species all up. There would be a number of less common species and a number of plants would be 6-10 years old, demonstrating that dryandras can perform in our conditions.

Praemorsa. Handles frost to -2, from well-drained to relatively heavier moister soils, a number of plants successfully growing in different situations.

Quercifolia. Grows well in a range of conditions.

Fraserii. Strikes well from cuttings, lasts several years.

Nivea. Grows well in medium to well drained soils.

Nobilis. Well drained site, 7-8 years old. To 1.5m then bent like a hoop, horizontal growth became vertical growth. Striking plant.

Formosa. 2.5m x3m.

Bipinnatifolia

iothocarpa

Obtusa.

In general dryandras are planted with as much sun as possible, space to grow in well drained sites. Relatively easier species are tested in less favoured positions, often with good results, eg *praemorsa* and *quercifolia*. The plan is to grow a number more of harder to grow species of dryandras in a raised bed of potting mix where I anticipate the range of successful planting will be quite usefully extended. A number of other plants can be slotted into various parts of the garden where they are likely to grow as well as possible as best I can determine. With a bit of luck, general advice and obtaining seed or a few plants we will probably have 30 or more species of dryandras here within a year or so, it is only setting the focus. As Katandra Gardens is regularly open to the public with approx. 2000 people anticipated to visit the garden this year, this will probably be one of the larger collections of dryandras regularly on display to the public in Victoria, realising that Cranbourne is probably in a league of its own.

Our gardens are a mix of older and new plantings with a framework of maturing trees and larger shrubs providing a range of micro climates. I remember you commenting how maturing vegetation has dried out your garden site and in part a similar process is occurring here, increasing the ease and range of successful planting with experimentation and experience. Dryandras are in the group of plants now easier to grow in our conditions.

Approx. 6-7 months ago I was able to get hold of a few isopogons to extend a few plants to a reasonable collection. In that time I have been able to put together a collection of about 10 or so forms/species with an almost 100% success rate. I did not dream that they would be so easy to strike and grow. There would be about 30 young plants in the garden, all growing well to beautifully well. I tried growing petrophiles from seed and achieved 100% fail rate – old seed maybe or just not very clever. Additional forms and species will now be the challenge for like lechenaultias, obtaining additional material is a game of patience, persistence and surprises. I had imagined that isopogons would be somewhat exacting in their requirements but instead they appear to be quite versatile, growing well in a range of conditions from dryish to heavy, semi-shade to fully open, frosts in the past have not bothered them. Perhaps I haven't tried the more difficult ones yet.

Isopogons are easy to test out, just get a number of cuttings to strike and test out clones in conditions in what are imagined to be the more suitable conditions then test the remaining clones in what may be less ideal conditions, bearing in mind what I have seen elsewhere. Dryandras are not so easy. I know enough that the more northerly species would almost certainly be out of our possible range, having read the Dryandra SG newsletters. My guess is that many of the mound type dryandras would be unlikely to strike from cuttings, so it is growing by seed and don't waste plants needlessly. What I need is some advice on dryandra species that would require better drainage to succeed here on the new sandbed in particular, but also in generally good well drained soil in sunny situations.

The raised sandbeds I have referred to have only been constructed recently, one completed 5 months ago, the second 2 weeks. The first bed has 22m³ of potting mix in its construction and has been rather fully planted out with 100 plants, 40 of these being lechenaultias which have done extremely well, yet elsewhere in the property have always died within a year. *Eremophila mcdonaldii* is growing beautifully on its own roots as is *Eremophila Kalbarri* Carpet. *Verticordia grandis* and a couple other verticordias are also doing very well, hence the decision to put in a second bed.

The second bed had 28m³ of potting mix used in its construction. There are about 40 plants in it at present, 20 of these being lechenaultias and a lot more lechenaultias soon to be put in, mostly as fillers till permanent other species are sourced and are ready for planting. A year ago I could not grow a lechenaultia yet here I am using them almost as an annual because they are so easy to strike and they are such striking little plants that will provide a real feature late winter, next spring or whenever they flower. Two forms are currently coming into full flower. One corner of the bed is quite shaded so I have put in a number of our best thin leafed *Correa reflexa* that I feel will do reasonably well as they originated from sandy type areas. The challenge for me is now that I have the site available I now require the special plants to put in that would not grow well elsewhere in the garden. I would love to put in some smaller dryandras, maybe 20 or so plants, along with some special eremophilas, verticordias and additional lechenaultias that I currently do not have. I am flexible to the point that I can only plant what I can obtain and I am prepared to wait for a special plant if necessary.

In the older plantings above our house we have lost quite a few older plants which have been taken out along with others that have passed the use by date. This general area is very well drained these days and suits dryandras, judging by the results of what is in the area currently. I would like to sprinkle a further number of dryandras in this area.

The autumn has been mild to warm and relatively dry to this stage. Today however rain started early morning and 20mm have been registered. Beautiful rain and a bit more of the same would be much appreciated. Watering is over for the season. *Banksia baueri* has greatly thrilled us with 3 plants this year each having over 20 blooms, last year only 3 total, before that disappointing failures. *B. coccinea* has also finally been successful, 3m in 3 years, flowering in the 3rd year. *B. grandis* at 3 years is 3m tall and has already flowered. Various dampieras are growing well and *Grevillea magnifica* flowered at 3m within a year. *Verticordia grandis* has flowered on its own roots as have a number of other verticordias. As you can see, this garden contains a fair range of WA within its fencelines.

Notes from Members

(From Alex George, Perth, W.A.)

I can provide some information on growing *D. platycarpa*. Around the mid-60s, I transplanted a small seedling from near Mogumber and it grew well in my bush garden at Kardinya. It was in brown over yellow sand with limestone pinnacles 2-4 metres down (i.e. Spearwood Dune soil). I had it among tall shrubs such as *Hakea multilinea* (i.e. about half shade) with a southerly aspect, watered by hand for the first summer but no fertiliser or watering thereafter. For several years, it flowered regularly in early winter. This was when I became aware of the habit in some species of having downcurved styles. I don't remember how long the plant lived, not more than 6 or 7 years.

(Thanks for this information, Alex. *Dryandra platycarpa* is rarely grown although Kevin Collins lists it as having showy foliage but apparently it is susceptible to dryness – editor).

(From Phil Trickett and Catriona Bate, Ainslie A.C.T. – from a letter to Margaret)

Thank you for sending us the seeds in November last year. We planted them immediately and, believe it or not, some are still coming up (March). The ones we have been successful with are *D. longifolia* subsp. *longifolia* and *arceos*, *polycephala*, *hirsuta* and *mucronulata* subsp. *retrorsa*. The new plants we hope to add to those which are growing well so far – *D. cirsioides*, *drummondii*, *formosa*, *fraseri*, *nivea*, *praemorsa* and *quercifolia*. We had no luck with the first batch of seeds of *D. drummondii* subsp. *hiemalis* which you suggested would be suitable for Canberra but are keen to try another batch.

We are in the process of replacing our front lawn with garden beds this autumn, and am bringing in a soil mix that the Australian National Botanic Gardens in Canberra have been trialling for W.A. plants. The mix is a blend of around 60% decomposed granite, with the remainder sand and loam. It is very free draining and does not bake hard in the summer months, like many sand-based mixes, thereby preventing good water penetration. The plants in areas of the Botanic Gardens which have this mix are thriving, with lots of healthy banksias and dryandras. We'll keep you informed of how the new garden goes as we plan to put most of our dryandras into this garden.

(The new soil mix sounds interesting and we hope all goes well with the new beds. Do you know what the Gardens' people have done to minimise possible weed growth, always a problem with imported soils? – editor).

(From David Lightfoot, Surrey Hills, Victoria)

The *Dryandra formosa*'s I got from you 18 months ago are doing really well. One of them is in bud with about 10 buds expanding. I'm really excited as this is the first time I have got one to that stage. My *D. obtusa* and *D. lindleyana*'s also have multiple healthy looking buds but you need to search for them hidden under the foliage. On the roadside fence, *D. polycephala* has 5 or 6 buds but only a couple look like they are maturing. My *D. calophylla* is healthy but has no buds, as does *D. fraseri*. I bought a really root-bound 80 cm *D. quercifolia* in a 6 inch pot which I have potted up into a 40 cm pot. It now has lots of new growth and one bud. I really loosened up the root ball and pruned back the outer roots and it looks like it will survive and even thrive. I think I will plant it out in the garden next autumn.

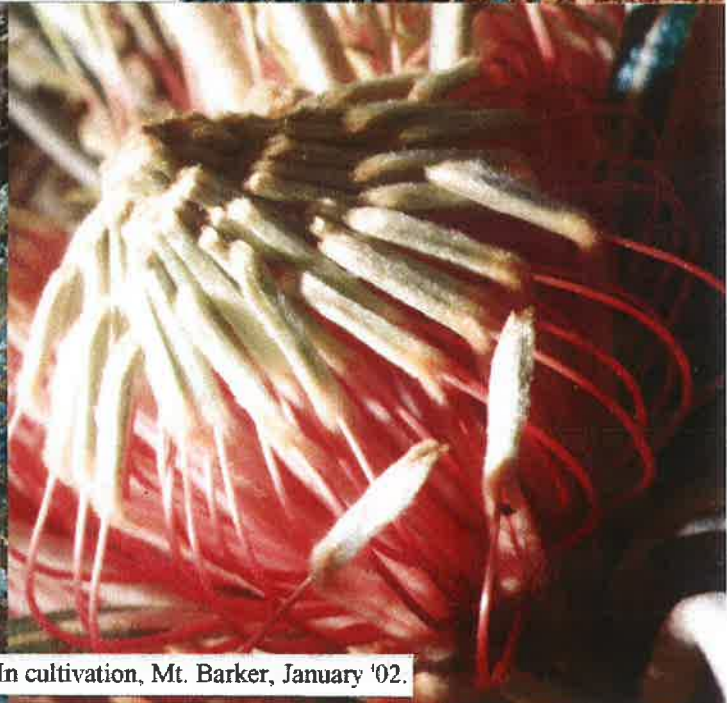
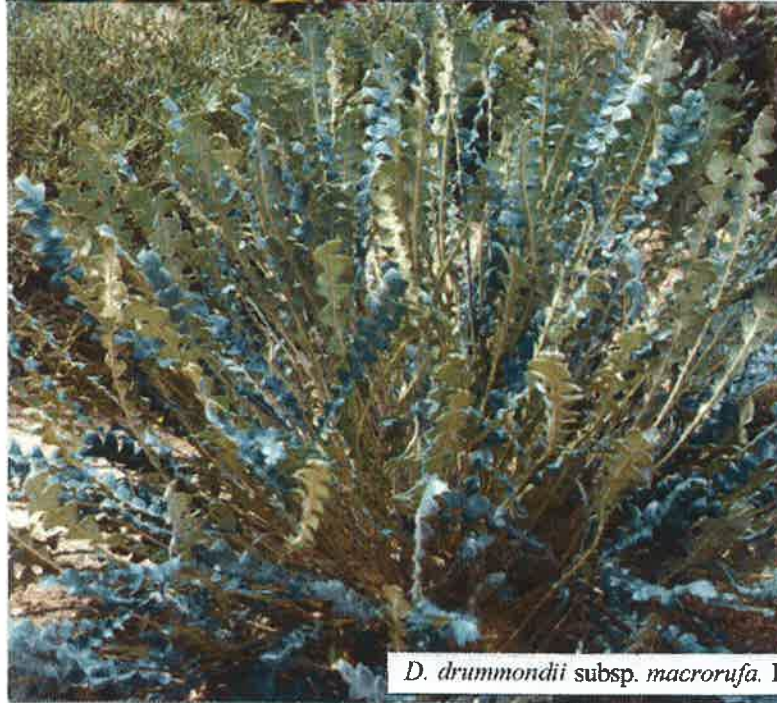
(Glad to hear the dryandras are doing so well, David. Please keep us posted on their progress).



D. nivea subsp. *nivea*. Fl. Bindoon, July '02. Shrub, Tarin Rock Res. April '90.



D. subpinnatifida var. *imberbis*. Bowelling, July '95



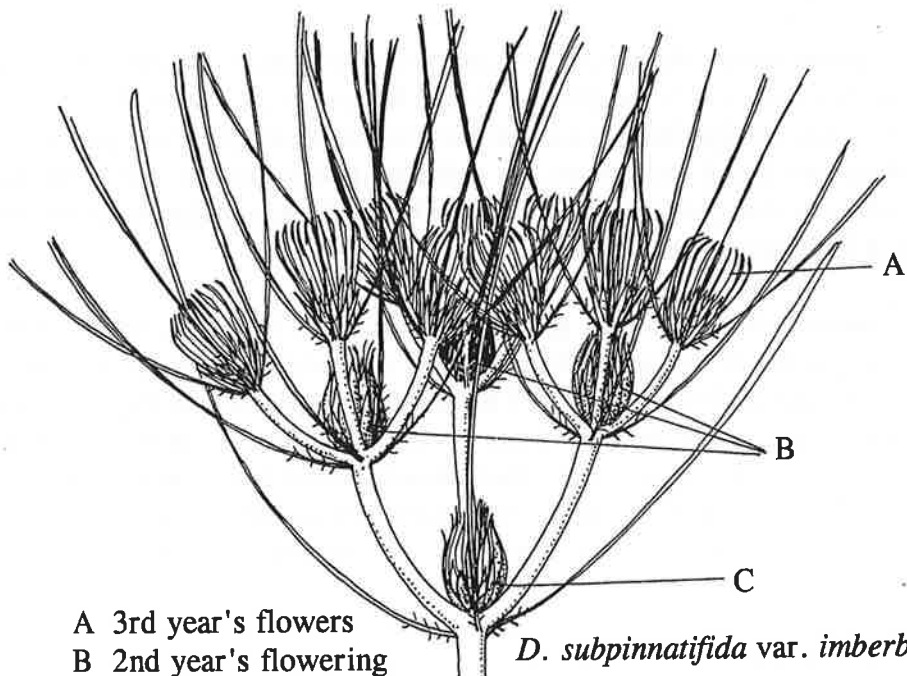
D. drummondii subsp. *macrorufa*. In cultivation, Mt. Barker, January '02.

The Mound Dryandras

Among the most attractive, neatly shaped plants for the garden are the 'mound' Dryandras. They are shrubs, usually less than 1m. tall and wide, which do not have a lignotuber or underground stem and so are killed by fire. From a single stem, the first branches arise from the base of the first flowerhead which is produced on a very short stalk surrounded by ascending leaves. Several of these branches are formed, usually either three, four or five and each of them produces a flower the following year. So, every year a mound of closely crowded flowerheads accumulates. The flowers are hidden by the equally dense, long leaves as the plant matures. Eventually the centre of the plant collapses and it becomes somewhat unsightly and will need to be replaced, in the garden, as pruning is not an option. Non-lignotuberous Dryandras, however, tend to produce good quantities of seed.

I decided to try to find out how long (or short)-lived *D. nivea* subsp. *nivea* is, in the wild. Unfortunately, the plant I chose to monitor, at Rica Erickson Reserve, in 2001 was dead in 2002! It was a young plant, only having flowered twice that probably died as a result of the drought as was the case with many others. There were many seedlings surrounding the dead plant.

If anyone can inform us as to the probable life-span of *D. nivea* we would be grateful. I know that some members in Victoria and South Australia have grown it successfully. It is not to be confused with *D. lindleyana* which is still being mis-labelled as *D. nivea* in some nurseries. *D. lindleyana*, with several subspecies has a lignotuber, is usually prostrate and lacks the formal, mounding pattern of growth. I have a plant of *D. nivea* subsp. *uliginosa* which is five years old and has flowered twice.



- A 3rd year's flowers
- B 2nd year's flowering
Bracts closed over seed capsules
- C 1st year's flowering
Bracts closed over seed capsules

D. subpinnatifida var. *imberbis*

GROWTH HABIT OF 'MOUND' DRYANDRAS

Dryandras which conform to the habit of growth described above and illustrated in the diagram are:

D. nivea subsp. *nivea*

D. nivea subsp. *uliginosa*

D. nivea Morangup

D. drummondii subsp. *drummondii*

D. drummondii subsp. *hiemalis*

D. drummondii subsp. *macrorufa*

D. subpinmatifida var. *imberbis*

D. nivea subsp. *nivea* is variable, both in leaf size and flower colours. Near Bindoon and east of Gillingarra, north of Perth is a form with very narrow leaves. As in all populations, flower colours vary from plant to plant. The styles can be beige, yellow, orange-brown or red and the limb hairs, white through beige to a rich bronze. The most striking colour combination is; dark red styles with bronze limbs. All-yellow flowers also occur. *D. nivea* subsp. *nivea* is widespread in the South West, from north of Eneabba to Israelite Bay. It appears to grade into *D. brownii* at both ends of the distribution of the latter, i. e., from Cranbrook to Fitzgerald River National Park. It flowers in spring.

D. nivea subsp. *uliginosa* is a larger shrub, with leaves to 45 cm. long. It grows in winter-wet clay flats, east of Busselton, in the Whicher Range and on the Scott River plain, to the south. It is listed as 'Endangered'. Flower colours are as subsp. *nivea*. It tends to flower a little later in the spring.

D. 'Morangup', from Morangup Nature Reserve, south west of Toodyay has almost glabrous involucre bracts, bright green, rather than dark green leaves with wider, less deeply-cut lobes. Flowers have deep pink styles with pale green or white limbs. It blooms in April.

D. drummondii subsp. *drummondii* occurs from Cranbrook across to Wellstead Crossing. It is common in the Stirling Range National Park. At both ends of its range, e. g., on North Woogenillup Road and just west of Wellstead Crossing, dark pink-styled forms are found. Otherwise, the styles are pale yellow or cream and the perianth, either yellow or dull pink. Leaves are up to 36 cm. long and somewhat twisted. It flowers in late spring to early summer.

D. drummondii subsp. *hiemalis*, as the name suggests, flowers in winter. The length of the leaves, and hence the size of the shrubs, is comparable to subsp. *drummondii*, but the leaves are generally less twisted. This is a stunning plant that occurs in some of the coldest parts of the state, between New Norcia and Wickepin. It is thriving, in cultivation at Mount Barker, where the (almost) local subsp. *drummondii* is not doing quite so well. The glowing flowers with golden-yellow styles and either coppery or bronze hairs on the limbs are, unfortunately, well hidden at the base of the leaves on mature plants.

D. drummondii subsp. *macrorufa*, 'Big Red' was collected by Marion Blackwell and me, south east of Nyabing in January, 1992. It has very long leaves, to 90 cm., and so forms a larger shrub than the other two subspecies - up to more than 1m high. The flowers are always red, with a beige limb. It flowers a month or so later than subsp. *drummondii*.

D. subpinatifida var. *imberbis*, in particular, deserves to be more widely grown. It is a beautiful, small shrub, less than 1m. tall and wide, with dark green, narrow leaves and pale, lemon-yellow flowers in spring. In the wild, it is in great danger of being hybridised out of existence by *D. squarrosa* with which it grows in 'hybrid swarm' hybrid populations. Prickly lobes on the leaf blade, above the petiole are an indication of *D. squarrosa* 'contamination'. I have seen only two populations where *D. subpinatifida* var. *imberbis* occurs with the far more common *D. squarrosa* and 'pure' plants are rarely found. Var. *imberbis* flowers earlier than var. *subpinatifida* and, though I've not seen any in the wild, I believe that intermediate forms occur, between the two varieties. I had one such plant in my garden for several years. Half of the shrub was a distinct mound like var. *imberbis* and the other half had erect stems with flowers in the axils, like var. *subpinatifida*. It flowered profusely and set seed for a number of years but to my great sorrow, died, literally overnight a few years ago. Kevin Collins, at the Banksia Farm has grown it from seed from my plant, so it will be interesting to see whether it turns out looking like my intriguing 'emu-shaped' one.

Other Dryandras which also form compact mounds are:

D. nervosa

D. fililoba

D. shanklandiorum.

D. ionthocarpa subsp. *ionthocarpa*

Some species often form good mound-shaped plants, though not necessarily so in cultivation. It may be possible to prune these to a neater shape, if required, removing as few small branches as possible. Recommended are:

D. ferruginea subsp. *ferruginea*

D. ferruginea subsp. *tutamingensis*

D. ferruginea subsp. *pumila*

D. ferruginea subsp. *obliquiloba*

D. viscida

D. catoglypta

D. octotriginta

All of the above look great in rockeries. In 1997, I was delighted to see so many of them in Max Ewer's magnificent rockery at Avenue Range in South Australia.

Margaret Pieroni 30/4/03

Ravens as Pollinators of *Dryandra formosa*??

Recently, I was observing a couple of ravens (*Corvus* sp.) in our yard. One of these birds was particularly cheeky and had already failed to endear himself to my wife, having stolen an egg from our chook yard and somehow got his beak through the protective netting and eating holes in the last of our green peppers. Things must have been desperate on the food front because I noticed he was perched on one of the horizontal branches of a *D. formosa* and suddenly began to attack the flowers. I know that they normally eat insects and fruits and the like but he was quite happy to move to several flower heads and behaved just like a New Holland Honeyeater, thrusting his beak several times among the flowers, before moving on. His visitation didn't do the flowers much good, more especially as he later decided to perch directly on a flower head, and left the heads pretty mangled. I assume that he was seeking nectar but I doubt that any pollen would adhere to his beak so my suggestion that ravens might pollinate dryandras is very much tongue-in-cheek. Still, it was interesting to observe this raven's behaviour and see that even quite large birds will seek nectar from a well-presented flower head. Does anyone else have observations on bird visitors to dryandras? It is assumed that the species with showy flower heads are bird pollinated and those which have their heads hidden are probably pollinated by small mammals but there are no detailed observations to verify this.

Growing Dryandras at Mt. Barker, W.A.

(Editor's note: Kevin Collins who with his wife Kathy operate Banksia Farm just outside of Mt. Barker recently supplied me with information on the dryandras he is growing. It is indeed a fascinating list, as he has around 100 species and subspecies/varieties of *Dryandra* as well as, of course, all the banksias. I was particularly interested in the species he found to be hardy or showy or with spectacular foliage in his conditions and those which were slow and/or difficult or had other problems such as proneness to dieback. For the interest of members, I have summarised some of the information about the less commonly-grown taxa and also listed the species he has experienced difficulties with as there are a few surprises. I use the word "taxa" to cover species or subspecies or variety. Kevin has also added some additional notes).

The town of Mt. Barker is in southern W.A., about 40 minutes drive north of Albany and just 20 minutes from the Porongurups and one hour from the Stirling Range National Park. Its climate is mild, average maximum temperature for the year being around 20 °C, average minimum around 9 °C with only 30 days where the temperature exceeded 30 °C. The highest temperature recorded is 44 °C in January while it has almost no frosts or days below 0 °C. Long-term average rainfall is 738 mm with 169 "rain days". Unlike eastern Australia, most of W.A.'s rain falls in winter and Mt. Barker is no exception. Its winter average is around 293 mm (June, July, August) while summer (December, January, February) receives only 76 mm., i.e. nearly four times as much rain falls in winter as in summer. While the winter/summer ratio for rain at Mt. Barker is lower than in the northern areas of W.A., e.g. Eneabba has a ratio of 9.4, I believe that a low summer rainfall is a major factor in determining success with growing some of the more difficult or touchy dryandras.

The majority of the dryandras at Banksia Farm are growing in laterite (gravelly loam) under remnant Jarrah/Marri forest in 40% to 60% shade. About 40 taxa are on an open gravel loam embankment in full sun, where terracing helps show off low flowering and groundcover species beautifully. A few species are in sand over laterite and some are in deep acid sand. The majority of the plants are less than 10 years old with quite a few less than five but a surprising number have flowered and set seed even when relatively young. My overall impression is that many have not grown as large as could be expected in the wild, eg *D. conferta* 0.3 x 0.2 m after 3 years, *D. cuneata* 1.2 x 1.0 m after 8 years, *D. plumosa* subsp. *plumosa* 1.0 x 1.2 m after 10 years. Some may have been pruned but according to Kevin, most are healthy and as I have indicated, he has had great success with getting them to flower and set seed.

Taxa which Kevin listed as HARDY or VERY HARDY include:

acanthopoda, *armata* var. *ignicida* (grows slowly), *calophylla*, *catoglypta*, *cirsioides*, *concinna* (but prone to dieback), *conferta* (all forms), *cuneata*, *drummondii* subsp. *drummondii*, *epimicta* (slow growing), *ferruginea* subsp. (*ferruginea*, *pumila*, *obliquiloba*), *foliosissima*, *formosa*, *fraseri* (all forms), *hewardiana* (often straggling and unattractive), *hirsuta* (prone to dieback), *insulanemorecincta*, *ionthocarpa*, *lepidorhiza*, *lindleyana* subsp. (*lindleyana*, (both vars.), *sylvestris*), *mucronulata* (both subsp.), *nivea* (both subsp.), *obtusa*, *pallida*, *plumosa* (both subsp.), *polycephala*, *porrecta*, *praemorsa* (both vars., sometimes straggly as understory), *pseudoplumosa*, *pteridifolia* (both subsp.), *purdieana*, *seneciifolia*, *sessilis* (all vars.), *speciosa* (both subsp.), *squarrosa* (both subsp., subsp. *squarrosa* dieback prone), *stricta*, *stuposa*, *subpinnatifida* (both subsp.), *tenuifolia* (both vars.), *trifontinalis*.

Taxa which are VIGOROUS and seemingly grow strongly:

anatona, *brownii*, *glauca*, *lindleyana* subsp. *media*, *longifolia* subsp. (*longifolia*, *callicola*), *nervosa*.

Taxa which are SLOW growing or difficult to establish:

arborea, *armata* (both vars.), *bipinnatifida* (both subsp.), *corvijuga*, *echinata*, *epimicta*, *erythrocephala* (both vars.), *ferruginea* subsp. *tutanningensis*, *horrida*, *kippistiana* (both vars.), *lindleyana* subsp. *agricola*, *nana*, *shanklandiorum*, *shuttleworthiana*, *vestita*, *viscida*.

Taxa with SHOWY flower heads or foliage (those with attractive foliage indicated with an asterisk*):

anatona, *borealis* both subsp's, *catoglypta**, *cirsioides*, *conferta* (blue leaf form, both foliage and flowers), *conferta* var. *parva*, *drummondii* subsp. *hiemalis** (young growth), *drummondii* subsp. *macrorufa* (both flowers and foliage), *falcata* (both flowers and foliage), *ferruginea* subsp. (*ferruginea*, *tutanningensis*, *favescens* (both)), aff. *fililoba** prostrate plant, possible new taxa), *foliolata**, *formosa* & *formosa* straight styled variant, *fraseri* var. *fraseri* (dark pink flowers) & (Minyulo form)*, *hirsuta*, *ideogenes** *lindleyana* subsp. *lindleyana* var. *mellicula**, *longifolia* subsp. (*longifolia*, *calcicola** (new growth)), *nivea* subsp. *uliginosa**, *obtusa*, *platycarpa**, *polycephala*, *praemorsa* & *praemorsa* var. *splendens* (flowers & new foliage*), *pseudoplumosa**, *pteridifolia* subsp. *vernalis**, *pulchella* (both flowers and foliage), *quercifolia* & *quercifolia* (pink), *rufistylis*, *seneciifolia**, *serratuloides* subsp. *perissa**, *sessilis* var. (*cordata**, *cygnorum*), *squarrosa* subsp. *argillaceae* (long flowering), *stuposa* (both flowers and foliage), *subpinnatifida* subsp. (*subpinnatifida** (new foliage), *imberbis*), *tenuifolia* var. (*tenuifolia**, *reptans** (embankment)).

DIFFICULT or problem taxa:

aurantia – difficult to get past seedling stage.

comosa – a touchy plant which dies easily.

corvijuga – very slow and struggling, after five years has flowered but struggles.

cynarioides – very difficult to keep going, only specimen flowered and died at four years.

erythrocephala – both varieties are difficult to raise, touchy when planted out and very slow.

horrida – a very slow plant, not at all vigorous.

kippistiana – both varieties are slow and not vigorous.

nana – very slow to establish, now growing well.

preissii – hard to establish, only specimen died when planted out.

proteoides – appears to germinate only from fresh seed, now growing well

sclerophylla – touchy as seedlings, slow in the ground.

serra – can die suddenly, a touchy plant.

shanklandiorum – seed is easy to germinate but plants are slow to establish and not vigorous.

subulata – lost two well-established, flowering plants. Conditions were possibly too dry; this species may prefer sandy soils.

tortifolia – an average grower but struggles in our conditions.

vestita – seed is easy to germinate but plants are very slow to establish. My oldest plant has long, new shoots after 7 years.

viscida – seed is easy to germinate but plants are quite slow to establish.

xylothemelia – have never succeeded in germinating this one.

It should be noted that not all taxa were considered for the above lists. A few, Kevin is not yet growing while others are only recent acquisitions or are listed simply as “healthy” or “growing well”. I would be interested in other’s comments, especially about taxa which they consider are worth including because of their special characteristics. I was a little surprised to see *D. serra* and *D. shanklandiorum* on the list of difficult species. The latter has grown well in several areas of Victoria and for me grew and flowered well in part shade for about six years before succumbing to dryness. *Dryandra serra* in a similar location lasted about 14 years. Perhaps it is just the luck of the draw in selection of soil or location. What was also surprising, and probably indicates that some species are “difficult” no matter where they are grown, was the number of problem plants from southern or south-eastern W.A. or the southern wheatbelt, even from areas close to Kevin. These include *aurantia*, *corvijuga*, *cynarioides*, *erythrocephala*, *horrida*, *preissii*, *serra*, *shanklandiorum*, *vestita* (some locations), *viscida*, *xylothemelia*. Relatively few of the supposedly difficult northern sandplains species figure although a number such as *D. nana*, *D. borealis* subsp. *borealis* and *D. shuttleworthiana* are slow growing and often lack vigour; it is questionable whether such plants can be regarded as “successful” in the garden.

I am very thankful to Kevin for providing me with such a wealth of information on his dryandras. It is helping to gain a picture of reliable species for cultivation although it is also frustrating why some species, no matter where they are grown, seem to be near impossible to establish.

Tony Cavanagh.

S.G.A.P. Dryandra Study Group
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- Victoria.

DRYANDRA STUDY GROUP

SUBSCRIPTIONS FOR 2003 - 2004

The group's year runs from July 1, 2003 to June 30, 2004. Subscriptions are \$8.00 for Australian members and \$10.00 for overseas. Please make cheques payable to the Dryandra Study Group and forward to Margaret. Thanks to all those who have paid.

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COMMENTS OR SUGGESTIONS FOR INFORMATION:
