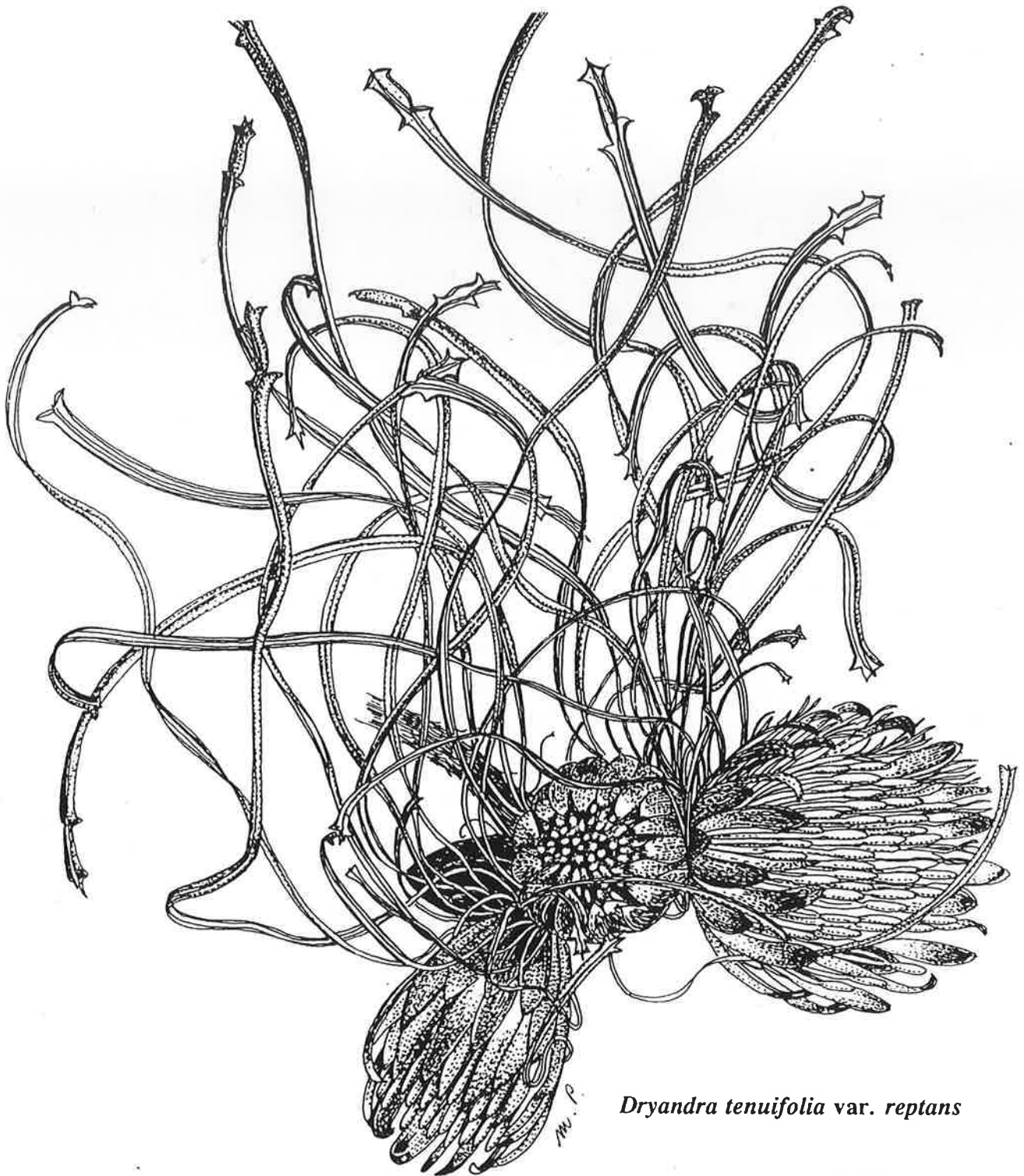


DRYANDRA STUDY GROUP
NEWSLETTER NO. 37



Dryandra tenuifolia var. *reptans*

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SOCIETY FOR GROWING AUSTRALIAN
PLANTS

Dryandra tenuifolia* var. *reptans

This is the only prostrate dryandra with above-ground stems
It covers a large area and is excellent for spilling over walls or
banks. The flowers are well displayed unlike the shrub form, var.
tenuifolia

DRYANDRA STUDY GROUP

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As I will be away for much of July, I have endeavoured to get this Newsletter out a little earlier than normal. For the first time, we have been able to include a colour page of three pictures supplied by Margaret. I am very grateful to David Lightfoot who volunteered to produce them and I am sure that everyone will join with me in thanking him for his generosity. We may not be able to provide such a page in every issue but if you have pictures of your favourite dryandra and will loan them to me, Margaret, David and I can make a selection. All pictures will be returned.

The big news is the recent publication of the second volume of the Proteaceae in the *Flora of Australia* series. I have not seen a copy but I understand that it contains *Banksia*, *Dryandra*, *Grevillea* and *Hakea* among others, and has been eagerly awaited. I am not sure how long it will remain "the last word" as with further vegetation surveys, new species seem to be cropping up continually. Still, it will be great to have these large genera of the Proteaceae revised and up to date, for the time being at least.

Margaret has provided several very informative articles on the "resurrection" dryandra (*D. meganotia*), and prints for the colour page, as well as an excellent summary on hybrids in the wild. Is anyone growing any of the hybrids Margaret refers to or has a plant that looks "odd" and may be a hybrid? It is an intriguing subject and one that we have not heard the last of so please let Margaret or myself know. I had almost forgotten that this was our 25th anniversary and Margaret has reviewed the achievements of the Group. Much of our success has been due to Margaret's untiring work, in the field (I am sure that she has seen every dryandra species several times over in the field!), in cultivating plants in her own garden in Perth and in writing her informative and detailed articles for the Newsletter. She has also been an enormous help to members in identifying plants in their gardens and providing seed, and to me, making my job as Newsletter editor so much easier. I am sure that I speak for everyone in thanking her for her invaluable contribution to the Group and to furthering knowledge of dryandras. (Margaret did not mention in her review that a number of her specimens were also used as types or were included in the selected collections examined in Alex George's revision and that several of her "discoveries" turned out to be new sub species or varieties).

I was very pleased to receive the article from Ray and Rose Purches on growing dryandras from cuttings. This is still a much neglected area and they give many useful tips on how to do it. Has anyone else had much success from cuttings? I have a *D. anatona* grown by Ray from cuttings which has flowered and is growing well. The last item in the Newsletter is an index I compiled to follow from the two indexes provided by David Randall. With the revision and with Margaret's articles, most of the species have been mentioned in various Newsletters and I felt it would be helpful to everyone to have an index to them. I hope it is of use. And lastly, two reminders. Subscriptions are now due for 1999-2000 and should be paid to Margaret (they remain the same as for the last couple of years). Secondly, Margaret has provided information on two excursions which could be of interest to WA members or to anyone visiting at the time. Details are given on the subscription form page.

Happy Dryandra growing

Tony

As this year is the 25th anniversary of the Dryandra Study Group, I thought it appropriate to review the achievements so far

Tony Cavanagh, with the help of Alf Salkin began the study group in 1974. In his first newsletter, Tony reported that there were about 59 species of dryandras and around 20 undescribed taxa, all of which occur in the south west of Western Australia.

Subsequent newsletters contained information on collecting and germinating seed and growing from cuttings. Tony also listed books and other publications where, what knowledge existed about dryandras, could be gleaned and where illustrations could be seen as well as the key to their identification in 'How to Know Western Australian Wildflowers' by Blackall and Grieve.

In 1979 Alf Salkin reported that the Melbourne Herbarium had 30 named and mounted species (mostly, I believe thanks to Ferdinand Von Mueller), and many un-mounted specimens. Locations given for these early collections were often vague, for example 'the south west of WA', and some times misleading.

In May 1980 the Study Group's 'living collection' at the Cranbourne Annex of the Royal Botanic Gardens in Victoria was established at the instigation of Alf Salkin. 31 species- 185 plants- were planted, 100 more the following year. By 1987 there were at least 1000 dryandras in the plantation. Tony gives regular reports in the newsletter, we have had members' visits and Tony has recently helped to map the species in the plantation. There are about 115 taxa represented. Other Study Group members have been involved with this project over the years. Prior to leaving the country Keith Alcock gave many seedlings to the project and other interested growers, and later wrote a detailed report of his germination results for the newsletter. This has been referred to by scientists doing similar trials recently.

One of Tony's particular interests is in the history of cultivation of Australian plants in Europe. He has published articles and lectured on the subject and provided fascinating articles for our newsletter.

In 1981 Keith Alcock made an 8 week visit to Western Australia returning to Victoria with a huge collection of specimens and seed which not only vastly increased the Study Group's seed bank but also augmented, quite significantly, the collection of specimens at the Melbourne herbarium. This made it the best collection of Dryandra specimens at that time.

Tony was unable to carry on as leader full time and Keith took over in 1983, building on the magnificent effort Tony had made in establishing the Study Group and gathering and disseminating so much information.

Keith began a series of articles based on his WA trip, when he had found all but one of the named dryandras and collected many of the other unidentifiable ones. Some had not been collected previously or were only poorly recorded. When Alex George was working on his revision of the genus several of Keith's specimens were used as types.

I joined the Study Group about this time and began corresponding with Keith. I had 16 dryandras in my Perth suburban garden- now I have over 60. We learned that Alex George

had begun his revision of dryandra for Volume 17 of the Flora of Australia (due out in 1988 but finally, this year, about to be released).

With help with locations from Keith and Alex, I began collecting dryandra specimens and photographing plants in the wild (and occasionally in cultivation) for a book on dryandras which has long been the objective of the Study Group. I have also produced line drawings of the leaves, seeds and follicles and seedlings of all the taxa as, and when I found them, during many fascinating and very enjoyable field trips, accompanied by various friends, most of whom are Study Group members.

Ted Griffin, a consultant botanist in Perth had briefly described 10 'new' dryandras but within a short period Alex's list of un-named taxa was 55 and still counting! In the 'Flora of Australia' there will be 93 species and 34 subspecies and varieties.

In 1984 Keith had another trip to WA during which he visited me. He had cartons full of specimens, most of which he seemed to be able to identify but which were almost a complete mystery to me! I had a lot to learn but I had the advantage of living in the 'dryandra state' and a copy of Keith's meticulous collection notes.

1986 was a good year for dryandra discoveries. By this time I had learned more about them and was able to make the field trips mentioned before. We re-located several poorly collected species- two of which had originally been discovered by two different Study Group members from Victoria. Alex, who was at the time, based in Canberra, made a dryandra-collecting trip to WA in the spring and by the end of the year most of the new species had been seen and photographed in the wild.

Several more taxa have been discovered or re-discovered since then, the latest in 1998. When the new dryandras had been described, named and published in the WA botanical journal 'Nuytsia', Alex generously gave his permission for the Study Group to publish an illustrated key to dryandras as an interim guide before the 'Flora of Australia' and our own long-awaited "Dryandra Book". This has proved popular with botanists and others working in the field and has been a 'revenue-raiser' for the Study Group.

It has been a most rewarding experience for me and there's still much more to learn about this beautiful genus. I would like to thank all the members, past and present, who have contributed to the Study Group and friends who have accompanied me on field trips and those in country WA and interstate who have shown me so much hospitality. I am particularly indebted to Tony who, when Keith announced suddenly in 1987 that he was going overseas for a number of years, agreed to help me, by taking on the task of newsletter editor.

I hope you are all pleased with, what I consider to be a worthwhile achievement so far. Many people have contributed during the last 25 years, by writing articles, reporting on seed germination, propagation and the cultivation of dryandras among other activities.

For fear of overlooking some of you I am reluctant to mention names- the list is so long but be assured that your efforts, large and small, have been appreciated by Tony, Keith and myself. Every report of dryandra growing, success and failures adds to our knowledge of cultivation requirements and, is all valuable input which we are eager to share in the hope that this beautiful genus will be more widely grown.

A 'Resurrection' Dryandra

One of my favourite dryandras is *D. meganotia*. The name means 'Great Southern' which is the region in the W.A. wheatbelt in which it occurs. The shrubs are usually low, less than 1m and sprawling, with a lignotuber. A population, west of Nyabling, includes several plants with a columnar habit and closely-packed leaves.

This species was not well documented until fairly recently when it was briefly described and nominated sp. J by Ted Griffin. It was afterwards known as no. 45 until described and named by Alex George. Since then, several populations have been found, almost always in association with *Allocasuarina huegeliana*, near granite and often with *D. fraseri* var. *fraseri*. The largest population I know is at Yilliminning Rock, a large granite dome, east of Narrogin.

The rather small inflorescence consists of about 50 flowers. The limb is long and golden yellow. Before opening, the long styles form wide loops around the inflorescence and the limbs are somewhat vertically arranged, reminiscent of *D. borealis* in colour and form, but with much shorter bracts. These characteristics make this species so appealing. They are so neat in bud with their widely curving styles, though often not so attractive at anthesis when the styles are released. Other species with a similar flower form are *D. ionthocarpa*, *D. drummondii* and *D. ferruginea*.

The seed capsule is very small and covered with long hairs, like *D. serratuloides*.

I have seen this lovely plant in flower, in Elizabeth Brett's garden, west of Corowa, N.S.W., among other small dryandra species, doing very well.

In my garden I have one plant which has flowered for the last three years. Two other plants did not do well, one dying suddenly after looking very healthy and with its first buds. My first attempts to grow *D. meganotia* failed but three plants did well in the garden after I put some casuarina mulch gathered from their place of origin, around them. It may or may not have made the difference.

In April of last year, Brian Moyle, Keith Alcock and I were horrified to find almost all of the hundreds of plants at Yilliminning Rock, dead or dying- or so we thought. Some had leaves that were grey-brown - they were dead, but most had orange-brown leaves over the entire plant. Only a few shrubs here and there, had green leaves. A subsequent visit in late August revealed that not only had the presumed half-dead plants turned green but they were flowering - earlier than usual. The normal flowering time is in October.

There are several plant species which grow on, or near, granite rocks which are considered 'resurrection' plants, *Borya* spp. some verticordias and *Calytrix* spp. for example. Apparently this phenomenon is a response to having more than the normal amount of water in winter because of run-off from the rocks and often poorly draining soil, and no water to speak of, in our dry summers.

In December last year Keith and I were taken to some areas, north of Eneabba, by Alan Tinker, where we observed a similar situation. In places, practically water-logged in winter and dry in summer, verticordias and other small shrubs appeared quite dead but were obviously just 'closed down' for the summer.

I don't know of any other dryandras which respond like *D. meganotia*, to hot dry conditions. The aff. *nivea* at Morangup, in a similar, winter-wet situation is conspicuous in April, when it flowers, by being almost the only plant species with bright green leaves among dead-looking shrubs - exhibiting the opposite effect.

Is anyone else growing *D. meganotia*? It would be interesting to compare growing conditions. Do let us know.

Margaret Pieroni
January 1999

Dryandra praemorsa
var. splendens

West of Wandering
September



Dryandra meganotia

Yilliminning Rock
September



D. meganotia



UPDATE

Since writing about the plants of the *Dryandra nivea* subsp. 'Morangup' I had the opportunity in March, to revisit their location. The reserve, which has a natural spring and in winter, water running through the clay-pan has been fenced by CALM. All of the plants in this winter-wet area were dead or dying. On sloping ground, in the laterite gravel the plants appeared to be doing well. I have reported this but wonder whether the cause of the deaths of most of the population will be ascertained - too much or too little water? Die-back fungus infection? There have not been any new seedlings for several years so the loss is complete in the flat area where most plants grew.

I would be interested to know whether any members besides Kevin Collins and myself have this, as yet un-named taxon in cultivation.

28/4/99

MORE ON HYBRIDS

Rose and Ray Purches contacted me before setting out, with their three girls from Victoria to tour WA for the months of April, May and June. As they were keen to see *Dryandra quercifolia* in the wild and I wanted to show them the hybrids and *Dryandra foliosissima* near Mt. Desmond it was a good excuse for a return to the Fitzgerald National Park and Ravensthorpe Range areas.

Elizabeth George was anxious to find out whether the only known populations of *Verticordia pityrops*, destroyed in the fires around 1990 had recovered. I had not been able to locate any plants at the original location when I was there in January but as it flowers in April, we hoped to be able to readily locate any or all, re-grown plants.

So Elizabeth and I arranged to meet the Purches family at Ravensthorpe at lunch time on 19th April.

After lunch we drove towards Hopetoun and turned east on Elverdton Rd to a spot below Mt. Desmond where a track leads to a disused gravel pit. Those readers who were on the ASGAP Conference southern tour in 1991 will know the location. It is a wonderful area with several plants which are otherwise almost exclusively confined to the Fitzgerald River National Park.

The most spectacular sight this time of the year were tall plants of *Beaufortia orbifolia* in full glorious, glowing red, flower.

We found the *Dryandra foliosissima* in flower and the hybrid, *D. foliosissima* X *quercifolia* still with some flowers. Nearby is the *D. corvijuga* X *quercifolia* plant. It was a thrill for all to discover the first inflorescence opening. This is an extremely attractive hybrid. The bracts, longer than the flowers, like those of *D. corvijuga* which resembles *D. ferruginea*, are covered with dark brown hairs like *D. quercifolia* - a dramatic contrast to the pale yellow flowers within. It reminds me somewhat of a cactus flower. The flowers are borne close to the

main stems but are not hidden like those of *D. corvijuga*. The large, plump un-opened inflorescences with their velvety chocolate-brown bracts were conspicuous. Both hybrid plants are rather untidy-looking, but quite vigorous. The *corvijuga* X *quercifolia* plant has doubled in size since I first saw it. I have described and drawn leaves and seed capsules of both of these hybrids in Newsletter no. 15 (Feb. '89). The *D. aff. ferruginea* referred to is *D. corvijuga*.

We spent some time at East Mt. Barren where we discovered *Verticordia pityrops* had re-located itself about 50 m downhill from where it used to grow. Elizabeth was pleased to find several plants and Ray and Rose were thrilled to see this beautiful species in full flower. The plants resemble tiny cypress trees covered in tiny, bright pink flowers.

As the Purches's were towing a campervan we were not able to drive through the National Park on Hamersley Drive, so the next day we drove back to Ravensthorpe towards Jerramungup with a detour along the northern boundary of the park on Old Ongerup Rd. Plants of *D. pteridifolia* subsp. *pteridifolia* on the northern (unburned!) side of the road were in full flower. Though completely hidden at the base of the blue-grey prickly leaves, the inflorescences are quite beautiful with their long, looping styles. The unopened flowers are also attractive before the style elongates and splits the dusky purplish-pink perianth surrounded by brown velvety, short bracts.

The same afternoon we left the campervan at Jeramungup and headed south and then west on Devils Creek Road to the National Park once again- the western end.

Just outside the boundary I showed our visitors the very dark pink-flowering *D. quercifolia* plants. Since I first saw them the small gravel pit has been colonised by *D. sessilis* var. *sessilis* plants, but fortunately there are certain landmarks to make it easy to relocate.

Luckily these plants and the hybrids are not within the national park boundaries. They have not been burned for 10 years or more. The same can't be said for most of the park, however. A recent fire has devastated a huge area of the western end as can be seen from Mt. Maxwell. In January plants were just beginning to resprout and seedlings to germinate. The most magnificent Christmas Tree (*Nuytsia floribunda*) I've seen, was flowering then, on the slopes of Mt. Maxwell and could be seen from kilometres away.

Elizabeth and I returned to Perth the following day. We took a road from Nyabing to Dumbleyung, part of which I don't remember having travelled. On seeing some *Allocasuarina huegelliana* trees, and then a convenient, large disused gravel pit I suggested, as it might be 'meganotia' country we stop for a break.

Sure enough, we found *D. meganotia*, the compact almost columnar form that grows west of Nyabing, *D. conferta* and *D. porrecta*. Elizabeth also found some *verticordia* plants she'd like to investigate later when they are in flower. The *D. meganotia* plants were in good condition. There was no obvious granite rock so my theory about *D. meganotia* being a 'resurrection' plant in winter-wet conditions, still holds.

I found a strange dryandra about 1m high and more than 2m across with leaves like *D. conferta* but quite short and with upright branches - another hybrid. This one appears to be *D.*

conferta X *meganotia*. The capsules were like those of *D. conferta* but only half the size. It will be interesting to go back to see what its flowers are like.

It seems there's no restriction on the species of dryandra that will hybridise given the right conditions. The right condition according to my observations is disturbance. Whether the disturbance is soil-moving, as in gravel pits, road widening, tracks or clearing with subsequent allowance for regrowth or whether it is because of fire, every hybrid plant I've seen fits this criterion. Plants in cultivation don't seem to hybridise - even where many species are mass-planted as at Cranbourne. In the words of Julius Sumner Miller "Why is it so?" Has anyone any ideas?

28/4/99

Some hybrids observed in the wild:-

- D. conferta* X *meganotia*
- D. quercifolia* X *cirsioides* (hybrid swarm)
- D. quercifolia* X *corvijuga*
- D. quercifolia* X *foliosissima*
- D. preissii* X *ferruginea*
- D. subpinnatifida* var. *imberbis* X *squarrosa* (hybrid swarms)
- D. nivea* subsp. *nivea* X *brownii* (common, widespread)
- D. nivea* subsp. 'Morangup' X *lindleyana*
- D. brownii* X *arctotidis* (fairly common)
- D. nana* X *stenoprion*

In Ken Stuckey's garden after the 1983 bushfire:-

- D. formosa* X *nobilis*

SEEDBANK

Thank you very much to Ray and Rose Purches for the donation of seed of *D. sessilis* var. *cordata* from a plant at their Bald Hill Nursery. This was one of a few taxa not available in the seed bank. It is very difficult to collect being one that sheds its seed annually at the hottest time of the year and which in the wild, is confined to the Cape Naturaliste-Cape Leeuwin area.

If any members have wanted seed of *D. sessilis* var. *cordata* in the past, please re-apply.

GROWING DRYANDRAS FROM CUTTINGS

Here in Wangaratta in North Eastern Victoria we are operating a wildflower plantation for cut flower production.

After 12 years we now have 4 hectares of commercial plantings including *Dryandra formosa*, *D. quercifolia*, *D. nobilis* var. *fragrans*, *Chamelaucium* (waxflower) species, *Ozothamnus diosmifolius* (riceflower) selections. *Cassinia* species and *Eucalyptus* spp. together with *Pimelia nivea* for foliage.

Most of our early plantings of dryandras were sourced from Neil Marriott's White Gums Nursery at Stawell in Victoria and *Dryandra quercifolia*, particularly and *D. formosa* to a lesser extent have displayed significant variation between individual plants within rows.

With *D. formosa* we have some plants with more textured flowers and one plant which flowers a week earlier each year than the others. (half of the original 20 plants still alive after 10 years).

With *D. quercifolia*, variations within a 10 plant row are even more dramatic, with one pink form, one tall form with stems to 60 cm long, one with exquisite flower tonings and shape and one very robust plant with thicker long stems.

Dryandra quercifolia has proven reliable and drought-hardy here once established as our 10 year old surviving plants are still producing quality cut flowers each autumn/winter with no irrigation whatever (even during the 1996/7/8 drought). We do however prune heavily (above green leaves) in September and we do fertilise with 15N 2P 16K soluble fertiliser with trace elements to generate growth.

I must still admit though, establishing young plants without regular summer watering has not worked very well at all in our hard granitic gravel. We will plant our cutting and seed grown plants early this year into double-ripped rows.

As mentioned earlier we have several distinct forms of *D. quercifolia* including a pink form with short stems. Since then we have gained a handsome and very tall upright pink form originating from Margaret Pieroni's Perth garden (seed grown).

Without exception each of the forms of *Dryandra quercifolia* mentioned strike relatively easily when placed into a commercial, free-draining propagation or seed raising mix.

Currently I place my cuttings individually into round 50 mm tubes packed 40 to a tray and placed on the ground on a gravel base in a shade house which is watered daily. Previously I used black punnets with 6 or 8 cuttings to a punnet with similar success of between 70 and 90% rooting.

Prior to placing the cuttings I pack the medium tightly into the tube or punnet either with the fingers or a wooden block.

I then push the prepared cutting with at least 4 leaves dipped in rooting hormone into the medium until either the bottom of the cutting hits the bottom of the tube or the base of the bottom two leaves are under the medium. If you don't feel a decent amount of resistance to insertion of the cutting you need to pack the medium tighter or moisten it first.

Selection of cutting material is generally not difficult because *D. quercifolia* tends to flop. Such growth is useless for cut flowers but is ideal for cuttings because it is often weaker and more slender.

I avoid cuttings thicker than a drinking straw and prefer around bamboo skewer thickness. My cuttings generally are between 13 and 15 cm in length and as long as the cutting is strong enough to be pushed into the tube, the sappier the better.

I have been using Clonex Purple gel, a rooting agent with excellent results over the last 5 years.

Optimum time for placing cuttings in Wangaratta is early March to late May which coincides with a growth spurt to provide good sappy material.

D. quercifolia can root in a month but may take up to three months. Check regularly because roots are plentiful and vigorous and will go through a tray into the ground.

The above system applies to the *D. fraseri* forms, *D. polycephala* and *D. speciosa* but definitely does not work here with *D. formosa*. *Banksia coccinia* will also root with this system but with 5 to 30% success.

I think the key issues are:-

1. good fresh material
2. thin sappy cuttings which don't wilt
3. cutting held firmly in place in the medium
4. plenty of leaves on cutting to produce roots
5. avoid overwatering
6. cuttings 15 cm long or less

For increasing the number of dryandra addicts perhaps the Study Group and commercial propagators could look at cutting grown plants. In the winter of 1998 we produced 20 flowering *Dryandra quercifolia* plants in 80 X 150 mm pots from cuttings taken 15 months earlier. They looked smashing.

Come to think of it, I'll just do a deal with Kuranga Nursery in Melbourne and keep the idea to myself!

**Ray and Rose Purches
March 1999**

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(Covering numbers 27 to 36)

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Underlined 27/6 Locality in the wild
(i) **27/6(i)** Illustration

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<i>stricta</i>	27/2.27/4.28/5.28/7.31/4.31/6.31/9.33/7.34/7.35/2.35/5.35/7.35/8.36/12.
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Excursions:- for WA members or interstate visitors

July 24th The Wildflower Society has planned a visit to three reserves around York. Meet at 10-30 before the bridge over the Avon River in York on the York-Quairading Road. Bring lunch.

August 29th Victoria Plains Tourism Association has organised a wildflower walk at the Rica Erickson Reserve and Wyening Water Catchment Reserve commencing 9-30, at Rica Erickson Reserve, corner Calingiri West Road and Old Plains Road. Afterwards there will be lunch and speakers before the afternoon walk. Please contact Margaret for more details or Betty Wemm PO Box 49 Calingiri 6569 [phone (08) 9628 7121]

DRYANDRA STUDY GROUP

SUBSCRIPTIONS FOR 1999 - 2000

The group's year runs from July 1, 1999 to June 30, 2000. Subscriptions are \$6.00 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.

Name: _____

Address: _____

COMMENTS OR SUGGESTIONS FOR INFORMATION:
