DRYANDRA STUDY GROUP

NEWSLETTER NO3 JUNE 1979

This is the first of several newsletters in which I hope to provide a summary of information I have collected and which has been provided by members over the last few years. There appears to be something between 40 and 50 species in cultivation though it is possible a number of these have been misnamed. Propagation by seed has usually achieved a reasonable level of success though with some of the smaller seeded varieties such as D.carlinoides the success rate has been very low. I have had no recent information on propagation by cuttings and I believe this is vital if more plants are to find their way into cultivation. The pink form of D.praemorsa should be more widely available but cuttings are the only sure way of perpetuating this outstanding species. This spring would be a good time for trials. In each newsletter I will provide locality information so that it may be possible if members are in the west to obtain seed. Please remember however, that it is an offence to collect flowers or seeds without a licence. Such licences can be obtained for bona fide collectors by writing to:

The Conservator of Forests
R and I Bank Building
54 Barrack Street
PERTH W.A. 6000

and/or

Department of Agriculture
Jarrah Road
SOUTH PERTH W.A. 6151

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Dryandras in Tasmania

The climate of Tasmania might appear to make it unlikely that Dryandras would grow there. However at least three species are doing well - D.praemorsa; D.formosa and D.quercifolia, and D.praemorsa has again proved to be our hardiest Dryandra. It apparently flowers well, usually within 18 months, and regularly sets viable seed. This is characteristic of its behaviour in Victoria and other states. The Tasmanian experience appears to be that D.praemorsa is not fussy as regards position but requires some protection from wind.
(I am grateful to Mrs. Jeannette Close for providing me with the above information).

Identification Aids

Frequently the only part of a Dryandra plant which is available for identification when seeds are collected are the leaves. Unfortunately, leaves are notoriously variable in Dryandras and are rarely useful for positive identification. Where possible, a flower head should be collected, even if the flower is dead, or if leaves only are available, try to ensure they are mature and typical, and not floral or juvenile leaves. Some species are reasonably unmistakable - D.speciosa, D.carlinoides, D.obtusa, D.praemorsa, D.pteredifolia, D.calophylla, D.fraseri, D.formosa, and D.sessilis.
The sketches attached may also be of some use. They are taken from A. Engler and O. Drude "Die Vegetation der Erde" Vol. VII P.196, Leipzig, 1906, and have the advantage of being at actual size. I would like to obtain similar full-size sketches for other species which would at least serve as a guide for a preliminary classification.

Helpful Hints

Seed Removal

Though it is usual to heat Dryandra capsules to obtain seed, Hartley Tobin has a novel technique which appears to be more satisfactory. He uses a nail clippers and carefully cuts away about 2/3rds of the capsule along the junction of the two halves. It is usually then a reasonably simple task to remove the seed. The method is especially useful for some of the species with small capsules where the seed is frequently difficult to extract.

Clay Banks and Dryandras

My own experience and that of Ivan Francis at Eltham bears out the fact that Dryandras are very tolerant of soil type providing they are reasonably well drained. Ivan is growing D.sessilis and D.quercifolia on solid clay mounds which resulted from excavation of the foundations of his house. No treatment was applied to the clay and no special soil preparation was made for planting yet the plants are seven years old and thriving - D.quercifolia is 2x2 m.
I have used excavated clay mixed with some top soil as a basis for raised beds in which D.quercifolia and D.proteoides, both of which have given me a lot of trouble in the past, have grown remarkably well. So perhaps the answer to those unwanted clay banks might be - grow Dryandras on them!

Dryandras in Danger:

In a recent publication of the Australian National Parks and Wildlife Service ("Australian Plants at Risk": Occasional Paper No.3, by W. Hartley and J. Leigh), 24 Dryandras are listed as being endangered. The species concerned are: D.arborea, calophylla, comosa*, concinna*, cynaroides", foliolata, formosa, horrida*, longifolia*, nana, polycephala, praemorsa, preissei, proteoides, pteridifolia, pulchella*, quercifolia, schlerophylla*, seneciifolia, serra, squarrosa*, stuposa, subulata, tridentata.
*Not known by me in cultivation.

It appears that none of these are in really serious danger though D.comosa, polycephala and pulchella are listed as "endangered" - in serious risk of disappearing from the wild state within one or two decades if present land use

and other casual factors continue to operate. Dryandra polycephala is doubly at risk because of heavy commercial exploitation for the cut flower trade and its limited population range. Most of the others are listed as being in danger primarily because of their restricted range, or their rarity and small population size or restricted habitat type. Fortunately some species are known to occur in national parks and declared reserves, though this is no necessary guarantee they are adequately conserved.

We should try to ensure that as many as possible are established in cultivation. I would like to hear from anyone who has any of the asterisked plants growing. If seed is available or if it is possible to obtain cuttings, we should endeavour to see they are as widely distributed as possible.

Cultivation Notes

So far, almost all propagation has been from seed, cuttings still being a relatively untried area. The techniques tried by several members may be of interest and some of these are given below.

Media: Tom Fawcett: 3 parts coarse washed sand, 1 part peat moss, 1 part sieved compost. Most members appear to use something similar to this - I use perhaps less peat moss and no compost or soil, mainly on the basis that the seedlings have their own food supply for the first month or two and I try to pot them up before this.

When and how to sow: Recent South African work on the germination of Proteas and Leucopogons indicates that high temperatures (≈ 25°C) inhibit seed germination. Hence, it is probable that seeds sown in summer will not be very successful (though this is certainly not definitely established for Dryandras), September - October, early November and March-April seem to be the best times, though the latter causes problems in Southern Victoria with small seedlings surviving the winter.

To minimise damping off, seeds should be sown in the open though Zineb sprays can be ueed at fortnightly intervals if desired. I sow the seeds 5-10 mm deep and cover with a layer (3-5 mm) of coarse gravel. In general, they are slower to germinate than Banksias and a time from 5 to 8 weeks is usual.

Care of Seedlings: I like to pot Dryandras up while the seedlings are quite small (Bruce McDonald recommends as soon as the cotyledons appear above the soil and before the true leaves are formed. At this stage, the root system is quite small and any problems arising from root disturbance are minimised) If the seeds have been germinated in the open, the seedlings can go straight back outside - in hot areas it may be advisable to provide some light shade for the first week or so. Very few species appear to be rapid growers as seedlings - perhaps D.praemorsa, D.patens and D.pteridfolia are faster than others. In general, if the potting mix is sufficiently rich, Dryandras don't require feeding; Maxicrop, slow release Osmocate (especially the so-called Proteaceae Osmocate with N.P.K. of 18:2.6:10 and similar are suitable if it is desired to force the plants on. Minerels can be used to correct trace element deficiences. Remember, however, that many Dryandras grow on highly impoverished soils and the plants we are attempting to grow are being raised from seed collected in the main from wild plants. As yet, few species have become "gardenised", so apply any fertilisers very carefully and in small amounts.

Soil Mixes: The main requirement of any mix is that it be well drained, hence it should consist mainly of coarse washed sand - 75% or more. The balance can be mountain soil and peat moss (15-20%, 5-10% peat) or sieved compost and peat. In our area, a material known as ligna-peat is available. This has the appearance of unconsolidated brown coal and is in fact mined from the Bacchus

Marsh area. It is now being used by many nurseries and in the proportion of 1 part ligna-peat to 3 to 4 parts coarse sand and half to one part peat moss provides an excellent mix for many plants. I am still evaluating it for Dryandras and Banksias but it looks promising. The above mix (sand, ligna-peat and peat moss) is "soil less" and so a small amount of feeding is necessary. Slow release Osmocate is proving satisfactory.

Planting Out: It appears that many Dryandras resent being held too long in a pot. It is very difficult to duplicate garden conditions in a pot and I have almost invariably found that seedlings which are unhappy in their container do much better in the garden. They can be put when quite small - 25-50 mm - and in Southern Australia, early autumn is a good time. A well drained site is essential, but full sun is not necessary, though usually desirable in colder areas. In districts with high summer humidity, an open though not an exposed site is preferable, to provide some wind circulation around plants.

Problems: Seedlings often suffer from yellowing leaves, most likely due to iron deficiency. Treatment with iron chelates, preferably as a solution, will usually correct this and minorels will supply iron and other trace elements if needed. Very slow growth and stunted seedlings are characteristic of some species and may perhaps be overcome when propagation material is available from several generations of garden grown plants. The only cure seems to be to get them into the garden. Species which have caused me a lot of trouble at the seedling stage are D.proteoides, D.carlinoides, D.kippistiana, D.nobilis, D.stuposa and D.mucronulata, usually because of the difficulty of keeping them alive and moderately healthy. I would welcome any comments from members who may have had more success, particularly in holding these and other seedlings in pots for up to 12 months.

The other major problem concerns unexplained deaths of apparently healthy plants. Thesa are usually sudden, the first signs being a "wilting" of the tips of branches (which may sometimes indicate lack of water), a "curling" and stiffening of the leaves and a discolouration of their ends, usually to pale green or yellow. These changes seem to be irreversible and I must confess I am no nearer to a solution. It is too late at this stage to do anything for the plant though in case dryness is the cause, it is probably advisable to water and note what happens in the next week. D.formosa, even in well drained spots, seems especially susceptible to periods of humidity and sudden temperature changes. Deaths largely occur in spring and summer so it appears that water stress and/or high temperature could be involved. Soil type may also play a part - sandy soils seemingly give fewer problems. This "sudden death" syndrome is perhaps the most troublesome aspect of growing Dryandras and is obviously going to restrict their more widespread use in gardens. We can perhaps learn something of the causes if we all try to keep a few notes of any Dryandra deaths we suffer - record age of plant, size, whether flowered or not, time of year of death, weather conditions and any obvious or possible connection between weather and the death. When you are sure the plant is irretrevibly lost, dig it up carefully and examine the roots. As in Banksias, I think many of the apparently unexplained deaths in spring are due to rotting of roots in winter. During sudden warm weather the wasted root system cannot supply the foliage and excessive water stress conditions occur. I suspect that Dryandras and W.A. Banksias may be especially susceptible to this - perhaps careful observation may prove this.

TONY CAVANAGH

Dryandra Locations:

The National Herbarium of Victoria holds in its Australian collection mounted, pressed specimens of some 30 species of Dryandra. It also has a great deal of material that is not mounted that could provide some useful insights into Dryandras generally and early Australian botanical history. The following is a list of some of the species in the mounted collection and should be useful to members interested in collecting material. It should be noted that a licence is required for any type of collecting and these are available to bona fide scientific collectors from:

Department of Agriculture
Jarrah Road
SOUTH PERTH W.A. 6151

Dryandra anatotides:

Stirling Range below Bluff Knoll Turntable on old Bluff Knoll Track.

Dryandra cirsioides:

Geraldton Highway 6 m north of Three Springs. Kalbarri Road, 27 m SE of Kalbarri.

Dryandra comosa:

Eastern slopes of Wongan Hills, 5 m N.W. of Wongan Hills township.

Dryandra concinna:

Lower slopes, Mt. Toolbrunup, Stirling Ranges.

Dryandra fraseri:

6 m N of Three Springs on Geraldton Highway.

Dryandra carduaceae:

York-Perth road, west of the Lakes.

Dryandra hewardiana (= patens):

Dale Road, near Perth.

Dryandra horrida:

East of Williams

Dryandra kippistiana:

Three Springs Road, 7 m N.E. of Eneabe depot.

Dryandra longifolia:

Merridin and King George Sound.

Dryandra mucronulata:

King George Sound (A Robert Brown collection of 1801). Mt. Toolbrunup, Stirling Ranges.

Dryandra nivea:

Lucky Bay (R. Brown); 16 m N of Bundren; 1.7 m east of Trasurin (Between Narrogin and Kandinin) John Forrest National Park; Summit of Mt. Lesueur.

Dryandra nobilis:

Red Hill Road, 5 m S. of Toodyay.

Dryandra obtusa:

Jerramungup - Ravensthorpe Road, 2 m east of Hamersly River Crossing.

Dryandra plumosa:

Albany - King George Sound (R. Brown). Bremmer Bay Road, 12 m W of Bremmer Bay.

Dryandra polycephala:

Great Northern Highway 16 m N. of Bundoen

Dryandra pteridifolia:

Below Bluff Knoll Turntable, Stirling Range.

Dryandra pulchella:

Byford, SSE of Perth.

Dryandra ferruginea:

2 m W. of Bremmer Bay.

Dryandra quercifolia:

Stirling Range. Southside of Mt. Barren in gullies.

Dryandra serra:

Meredin.

Dryandra tenuifolia:

Lucky Bay (R. Brown).

Dryandra vestita:

Tammin, 115 m E. of Perth.

Dryandra sp. off D.conferta, D.patens:

(long thin leaves 270 mm long, spines over 10 mm apart).
Hill River Springs, 16 m NW of Badgingarra, 20 m E of Jurien Bay.

ALF SALKIN

Seeds:

There is still stock of some species in the seedbank and I would like to thank Mr. K. Alcock and Mrs. B. Chinner for recent additions.

Occasionally, some of the commercial seed suppliers have Dryandra seeds for sale. These include:

Nindethane Seed Service
Narrikup
W.A. 6326

Western Australian Wildflower Soc.
P.O. Box 64
NEDLANDS W.A.

The Harper Seed Co.
P.O. Box 111
SOUTH PERTH W.A. 6151

H.G. Kershaw
P.O. Box 88
MONA VALE N.S.W. 2103

K.G. Seeds
P.O. Box 182
ALBANY W.A. 6330

In most cases, the minimum charge is 50-60¢ or $1.00 per packet; sometimes a minimum order is also required.