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Peaceful country road or site of thoughtless destruction? – see P 4-6 for the story Photo by Lyn Alcock

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DRYANDRA STUDY GROUP

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Hello and welcome to our latest newsletter and apologies for lateness. Growing old has its disadvantages and I have had a few small health issues which have slowed me down somewhat.

It seems that despite extensive travelling by Margaret, some of the plants refuse to co-operate and there are still those elusive ones which never seem to flower at the right time. She has sent me dozens of pictures for the Digital Archive and the two pictures on page 10 show just how delightful flowering dryandras can be. But not everything in the garden (or the bush for that matter) is rosy. Margaret and Lyn Alcock have had major concerns about the dramatic losses of verge vegetation due to road widening in some parts of WA. I have attempted to summarise the situation, Margaret has written about what has happened with several dryandras and Lyn has sent me the fabulous photos which you can see on pages 4 to 6 and the cover which more dramatically than words can say shows the destruction. At least three *Dryandra* type-specimen habitats appear to have been lost as well as the other native vegetation and it is truly to be hoped that Eddy Wajon's Wildflower Roadside Vegetation Sub Committee will be able to change the thinking of the councils involved. Margaret asked me to add the following further information to the articles but I didn't have space so please consider these points as well. "The recent revelation from Lyn Alcock was the latest shock. The entire population of *D. drummondii* subsp. *macrorufa* on the north side of the road, along with every other plant has been obliterated. Road widening has also occurred on the south side. The very large plant which appears in *The Dryandras* and from which I collected the type specimen in 1992, when I discovered it with Marion Blackwell, was on the north side. As far as I know, this is the only known population of *D. drummondii* subsp. *macrorufa* and is also the type location of *D. conferta* var. *parva*."

Liesbeth Uijtewaal updates us on the progress of her collection which seemingly is growing all the time. Has anyone else had the sort of problems she refers to with seeds germinating but then dying over a period of time? I have more problems getting them to germinate but usually have few losses afterwards. I complete the Newsletter with a short history of the Cranbourne plantings over the period 1980 to around 2004 and have included some historical photos to show the trials and tribulations as well as the fascination of having as many as 1500 *Dryandra* plants growing and flowering in fairly hostile conditions.

And lastly, a reminder that membership subscriptions to the Study Group are now due and should be paid to Margaret. There is a form supplied with this Newsletter.

Happy *Dryandra* Growing

Tony

Highs and Lows of a Short *Dryandra* Trip

Because of the flooding rains that occurred widely in the South West, in January, I expected that autumn-flowering dryandras would be flowering well. In early April, with my friend Julie, I set out towards Ravensthorpe, making notes of times and distances for a possible bus trip in 2019, as we went.

At the Phillips River, west of Ravensthorpe, a diversion road has been made around the washed away bridge. When we reached the curve on Devils Creek Rd, just before entering the Fitzgerald River National Park, we stopped to look for any remaining plants of *Dryandra quercifolia*. Much to my relief, we found that the road widening and sealing had not destroyed the whole population as I had feared. There were still a few, mostly old and dead or damaged plants on the north side of the road. This is where I first found pink-flowered plants in the wild. There were some plants with pink flowers although not quite as deep a colour as the ones I photographed for *The Dryandras* or the plant I had in my Perth garden for many years. We also found some pink-flowering plants near the top of Gairdner Rd among the mostly yellow ones on the way to the Quaalup Homestead where we called in briefly.

After staying the night at Lake King, we set off again for Ravensthorpe, stopping at the junction of the Magdhaba Track and Old Newdegate Rd in Pallarup Reserve— one of my most frequently visited dryandra spots over many years. Last year, some plants of *D. pteridifolia* subsp. *pteridifolia* were flowering and we found a few with lovely colour forms east of the corner on Old Newdegate Rd. This time there were only a few plants with early buds at the corner and none at all among the numerous plants east of there. There was new leaf growth on the plants – no doubt at the expense of flowering. Perhaps next year...?

I had been hoping, but without much expectation, to find *D. erythrocephala* var. *erythrocephala*, which normally flowers in late summer with some late flowers. After looking at many plants, I finally found just one to photograph. *D. pallida* was also in flower.

As I wasn't feeling well, we decided, reluctantly, on advice from a doctor at Ravensthorpe Hospital, to

continue on home to Denmark because of the remoteness of the area, instead of spending a second night in Lake King.

Before that, however, I wanted to check out Mount Benson, in the Ravensthorpe Range, north of the town. There is a heavy vehicle by-pass road now to the north of town and a large mine with access roads so we had to ask for directions to Floater Rd, which leads to Mount Benson. We then discovered that a new road has been put in to a different look out area from the one I had visited several times, previously. We were able to find the plants, some endemic to the range, that also occur on Mount Desmond and Mount Short and this is a much easier place to reach. Some of the special plants here are: *D. quercifolia*, *D. corvijuga* and *D. foliosissima*, *Banksia lemanniana*, *B. laevigata* subsp. *laevigata*. In flower were: *Hakea laurina*, *H. obtusa*, *Beaufortia orbifolia* and *Eucalyptus lehmannii*.

We didn't get to Hamersley Drive and East Mount Barren so I don't know whether *D. pteridifolia* would have been flowering there. Just a few days after returning home I received an email from Francis with the co-ordinates that I had requested for the 'lolly pink' flowered plant that he photographed, last year. It is in the general area of the plants that we looked at so it would most probably not have been flowering, either.

I am hoping to find a few dryandras that we still don't have good digital photos of when I visit the Stirling Ranges, possibly in June. Most of all, I'm hoping to find the western form of *D. porrecta* in flower after all these years. Lyn Alcock has photographed early flowers at King Rock. We found late flowers on these plants during our Conferta Project trip in 2015. Of all the populations I have looked at in the last several years, this is the only one I've managed to find in flower. The flowers lack the pink tinge of other western *D. porrecta* plants but they are pale yellow and not a deep golden colour like those of *D. sp.* Boyup Brook, which, incidentally is flowering well in my garden, at the moment. It has 6 flower heads on the plant which is 50 cm in diameter.

Margaret Pieroni 6/5/17

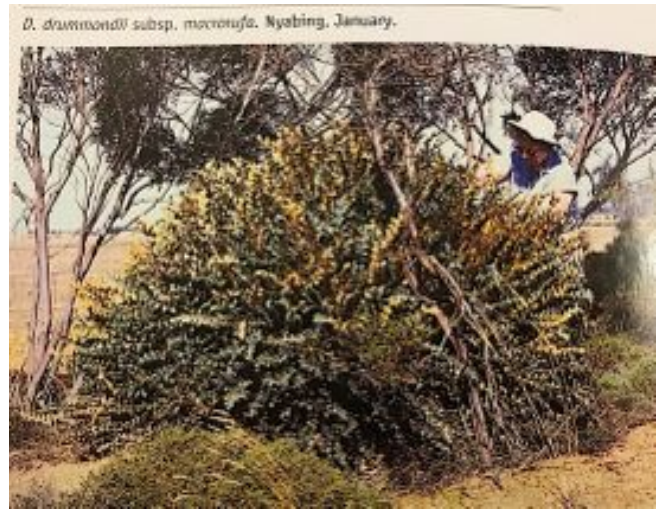


The elusive *D. porrecta*, Mt. Barker Margaret

Verge Clearing and Native Plants (Notes from the Editor)

As Margaret's two articles below indicate, there appears to be a major problem in at least some areas of WA with local councils willy-nilly clearing the verges of country roads with little or no regard to assessing the value of the "wildflowers" to such things as the tourist trade or in trying to protect rare and/or special species such as botanical type specimens. Margaret cites at least two situations where the type specimen localities have been destroyed (*D. trifontinalis* at Three Springs and *D. praemorsa* var. *splendens* along the Wandering – Bannister Road, opposite Ricks Road).

Furthermore, Study Group member Lyn Alcock, many of whose photos have been used below and who as a member of the Roadside Vegetation Sub Committee (see below) is campaigning strongly against the wholesale destruction of road verges without consideration of the plants contained in them, discovered on a trip to Nyabing that the huge specimens of *D. drummondii* ssp. *macrorufa* which featured in our book *The Dryandras*, had been completely bulldozed, as had all the roadside vegetation on that side of the road for seemingly kilometers. Her picture of this clinically leveled roadside is the most graphic I have seen and shows a glaring example of bureaucratic overkill.



Giant plants on the verge

Lyn Alcock



The verge today after road "improvement" LA (See also Margaret's further comments, editorial) You might well wonder why such destruction is necessary. It seems that the Shires and Main Roads departments are worried about injuries and even deaths resulting from vehicles running off the road and hitting the vegetation. There may also be some concern from local farmers about the potential bushfire hazard of heavily vegetated verges. The easiest (and probably the cheapest) solution as they see it, is simply to clear away everything. The worst thing about it, as Margaret indicates below, is that at least some of the legal clearing has been with the approval of the Department of Environmental Regulation. One really has to wonder whether they carried out any field surveys or vegetation evaluation.

Margaret also mentions the (WA) Wildflower Society Roadside Vegetation Sub Committee which is chaired by Dr. Eddy Wajon. They have now had several meetings with various Department senior officers but as far as I know, the situation has not improved. At least part of the problem is that some council bureaucrats have little interest in the vegetation and see their responsibility as making

their country roads “safe” for car and truck drivers and local farmers. Eddy Wajon has sought to present alternative arguments with an article in the Western Australian newspaper Travel Section and items on local ABC news. He points out that it is not the vegetation’s fault that people have crashes: rather, it is people who drive off the road, so efforts should be made to keep vehicles on the road, by safety practices such as edge rumble strips and by drivers taking more responsibility for their behavior. Also, while deaths are likely to occur with cars striking solid objects like trees, scrubby roadside vegetation can actually help to minimize injuries by slowing vehicles down. Of course, there are (possibly expensive) engineering solutions to keeping vehicles on the road, involving use of road safety barriers of metal (guard fences such as W-Beam or Thriebeam) or wire ropes. These are very commonly used in Victoria and are regarded as the best solution to the twin needs of meeting road safety objectives and retaining and protecting trees close to roads, providing they are correctly installed. I will quote the final paragraphs of Eddy Wajon’s article in which he suggests a realistic approach to assessing the best solution for various roads – “Furthermore, road safety barriers are expensive and cannot be installed everywhere. Therefore, risk assessment to be undertaken to determine where they should be installed to give the greatest benefit to road safety while retaining and protecting high-value native vegetation and biodiversity.”

Senseless Destruction

As readers of the newsletters will be aware, populations of dryandras, including type locations especially on roadsides, for example *D. trifontinalis* near Three Springs are being destroyed.

Recently, roadside clearing, both legal and illegal by shires and Main Roads seems to be escalating here, in WA. As a result, the Wildflower Society Roadside Vegetation Sub Committee, led by Eddy Wajon has been very active.

Earlier this year, I received the devastating news from Study Group member, Lyn Alcock, that the population of *D. praemorsa* var. *splendens*, opposite Ricks Road, west of Wandering, the type location for this beautiful taxon has been completely obliterated. Lyn had been in touch with Eddy who asked me for photographs and more

information (see submission),

In May, the Wandering Shire posted Facebook photos of the Main Roads clearing with the heading,

"Excited to see the Ricks Road intersection upgrade progressing well"

Eddy had already had an article published in the West Australian newspaper Travel Section and was keen to further publish the news of the destruction of the dryandra. The committee had a meeting with the Minister for Environment's senior Policy Officers, during which Eddy tabled the photos of the *D. praemorsa* (*Banksia undata* var. *splendens*) clearing, stating that "the whole population was removed without consultation beforehand. The clearing was given approval by the Dept. of Environmental Regulation. Why was approval given when this dryandra is rare and this population contains the type species and the best examples of the species? The convenor of the WSWA (should be ANPS(MP)) Dryandra Study Group, writer of the definitive book on dryandras is distraught by this loss".

Let's hope that the new government and Eddy's team will be able to put a stop to this awful loss of our precious plants.

Margaret Pieroni 8/6/17

Dryandra Type Location Destroyed

As an amateur botanist and illustrator, I have studied Australian plants for many years. Since moving to Western Australia in 1974, I have taken a special interest in the genus *Dryandra* (now subsumed into *Banksia*) and I am currently leader of the Australian Native Plants Societies' Dryandra Study Group.

I have travelled extensively in the South West, collecting and photographing all of the *Dryandra* taxa. With the invaluable help of Alex George, who described the genus in 1996 in *The Flora of Australia*, together with Tony Cavanagh, we published the book *The Dryandras* in 2006.

I am continuing to study dryandras and to make them known. I conduct tours and travel with interested people, mostly from interstate or overseas and have assisted botanists in their research. Sadly,

I am increasingly finding that roadside populations, even of rare and undescribed taxa are being destroyed; mainly for road widening.

A particularly devastating blow recently, was learning of the destruction of a population of *Dryandra praemorsa* var. *splendens* (*Banksia undata* var. *splendens*), on the Wandering – Bannister road opposite Ricks Rd. This was a site I visited often; being the best one known to me. Several years ago, when I observed road-widening occurring, east of the location, I made enquiries and was assured that the dryandra population was not going to be destroyed.



Typical verge before clearing Lyn Alcock



The road today Lyn Alcock

Dryandra praemorsa var. *splendens* is not as common as var. *praemorsa* which always has lemon yellow flowers. It has larger leaves and flowers and the reason for its variety name '*splendens*' is because of the range of shades of pink in the flowers. In the destroyed population there were plants with flowers ranging from pale yellow to deep pink.

The photographs, taken by me on Florabase and in

The Dryandras are all from this population. This is the type location for this taxon. It was described from a specimen collected there.



Deep pink form of *D. praemorsa* var. *splendens*
Lyn Alcock

Dryandra praemorsa, especially pink forms of var. *splendens* is cultivated in eastern states and overseas particularly for the cut flower trade. The seed follicles open annually to shed the seeds so they are difficult to collect.

I sincerely hope that a recovery program will take place for this dryandra with a full range of its lovely colours and that the destruction of our wonderful roadside wildflowers; rare or not, will cease.

Margaret Pieroni 19/4/17

Letter from the Netherlands

First of all my apologies for the long radio silence from this end! And Margaret, belated congratulations on your 80th birthday....

An interesting discovery last year was *D. sessilis* ssp. *flabellifolia*. I shared a 100 seed lot from Nindethana with a friend of mine. They germinated quite well, compared with other dryandras that is. However, they all failed within a couple of months after potting up. I always pot germinated seed up with half strength Osmocote for natives, i.e. 1.5 g/liter which works well with most plants but in this case the seedlings hardly grew and dropped dead eventually. In the end I had only 10 seeds left, put them in my pre-germination box in a last attempt to get at least one to grow for me. Only one germinated. Instead of adding Osmocote however when potting it up, I added Apex Native Blend, 21-0-19. Lo and behold: the seedling continued to

grow and it's still growing well! It could very well be a coincidence but I'd like to think it was the fertilizer that did the trick. I might try the same with *B. cuneata* in future: like the ssp. *flabellifolia*, they're a pain to grow on after germination. Just a note, the 'normal' *D. sessilis* (no ssp. given) proved a lot easier to grow.

A highlight this year was a visit of Phil & Catriona in April. I was very much surprised to hear that Phil reckoned I had the largest collection of dryandras he'd ever seen in a private garden, apart from Banksia Farm of course. It was hard to believe that! At the moment I've got over 20 different taxa growing for me, most of them flowering regularly and some of them even producing seed. Earlier this week I found a dead branch on *D. pseudophumosa*, probably chewed off by a squirrel since there was an acorn neatly placed on some nearby leaves, he/she probably meant to bury it in the soil. Not a pleasant surprise but the good thing is that I found quite a few follicles along the stem that I wouldn't have noticed otherwise.

Another highlight this year will be my trip to Australia. It's been 6 years since my last visit (Adelaide Conf.) so it's about time isn't it. I've only booked it last Sunday. I'll be flying to Sydney and visit Phil & Catriona, then further south via Wangaratta ending up in Melbourne. I'll be going to the Grampians with Nicky for some days (Pomonal Flower Show and some other amazing spots), it sounds just wonderful and I can't wait.

I've attached a couple of pictures, I do hope they won't block your mailbox. The first is the first flower on my 6 year old *D. tenuifolia* var. *reptans* 'Cascading Form'.



Second is of lots of new growth + flowers on *D. obtusa*, grown from seed Margaret and I collected near Quaalup Homestead back in 2008. I planted the seed shortly after I returned home so the plant is almost 9 years old now and thriving. I counted 20 buds in Feb 2016! I seem to recall there were even more this year. First flowers appeared in March 2014.



I'd better go and get some work done in the glasshouse, I'm very much behind with potting on as usual. We had a rather busy summer with guests, open days and garden groups visiting our garden. All very enjoyable but it does take a lot of time!

Liesbeth Uijtewaal;

The Netherlands

A short history of the Cranbourne *Dryandra* plantings

The Cranbourne *Dryandra* plantings came about largely through the efforts of Alf Salkin, Study Group member and stalwart of the Waverley SGAP Group. In the 1970s, the Royal Botanic Gardens, long based in Melbourne, were given some 246 hectares (later 334 hectares) of natural heathland vegetation and barren sand in the outer Melbourne suburb of Cranbourne. This became known as the Cranbourne Annexe of the Royal Botanic Gardens and the ultimate aim was develop a solely Australian garden, an aim which has been magnificently achieved over two substantial projects. The southern part of the area had been heavily mined for sand over many years and contained little of the natural vegetation as the sand is constantly moving. This was designated a Scientific Study Area and was to be used for trial

plantings of various native genera, mainly of *Proteaceae* because of Alf's interest, although *Callistemon* was also tried. Later, the name was changed to the Special Collections.



Bare sand in front of the native bush Tony

The first plantings were around June, 1980, and consisted of whatever *Dryandras* we could lay our hands on, grown from seed obtained from commercial seed suppliers, often misnamed, and in some cases unnamed as this was the period before Alex George's revision. The initial area was elevated and sloping, of near pure, bottomless sand with patches of "coffee rock" (cemented iron stained sands) at the surface. The higher sections were windswept and bleak, with the slopes subject to extensive wind and water movement of the sand – hardly what one could call an "ideal" situation for *dryandras*. For ease of access and identification, the plants were laid out in rows, about two metres between plants and between rows. But, the actual planting was a delight, so easy in the sand, and because no water was available, the plants were planted into the dug holes, tamped down and left to their own devices. It was with much trepidation that I visited the area in May of 1981 after a summer of no water and was astonished with the success.



Older plants around 1985 Tony

Losses were around 5% and some species like *D. nobilis* had taken a real liking to the place. I have include a series of pictures from these early days so you can see for yourselves what it was like and how the plants progressed. Regrettably, I took very few pictures of the people involved and we don't even have a decent picture of Alf.



Study Group members June 1990 Margaret

Yearly plantings continued with our ambitious aim to have all the known species represented (then about 59). By 1982, there were over 300 plants in some 43 species and six unnamed taxa. In that year, Keith Alcock made the first of several *Dryandra* seed collections in WA and successfully germinated many so that we had for the first time plants from wild seed of known provenance for the 1983 planting, over 250 new plants, many of them unnamed. The addition of some 350 plants in 1984 brought our numbers to over 1000 but problems were beginning to emerge. Taller plants in the more exposed locations were developing a distinct lean



***D. squarrosa* in 1986** Tony

while smaller plants were being buried by the moving sand. An attempt to protect them by planting inside 20 litre drums, part buried in the sand and with top and bottom cut out, only worked for a while before the sand piled up against the

drums and then swamped the plant inside. We were only successful with prostrate species in protected areas.



D. fraseri in 1985

Tony



Plantings in 1984 showing drum experiment TC

By the early 1990s, we had perhaps 1300 to 1500 plants in some 90 taxa but two major problems were emerging. Cinnamon fungus *Phytophthora cinnamomi* was found in the Special Collections and had a devastating effect on the Western Banksia plantings and some parts of the Dryandras, especially along water run offs and lower lying areas where losses were eventually nearly 100%. Secondly, some species were showing an unhealthy tendency to weediness with multiple seedlings of *D. squarrosa*, *D. cuneata*, *D. nobilis* and even *D. falcata* appearing throughout the old planted areas. See my article in NL 71 for more details but I should add that dryandras weren't the only culprits; some Isopogons, Petrophiles, eastern Banksias, Persoonias and even Lambertias spreading from the Special Collections into the surrounding bush. The worrying aspect of the first was that it seemed to be mainly the older shrubs being affected and it was heartbreaking to see 2-3m, 15 year old shrubs dying. We wondered whether it was due to the roots of these large plants having reached contaminated water but I, initially at least, took heart in the fact

that they were being replaced by many seedlings. Of course, the worst problem was that we were losing specific and rare plants and could do nothing about it. But as my NL71 article showed, eventually the "weediness" of these proteaceous genera forced the hand of the staff and now the only dryandras you will eventually find at Cranbourne will be in garden plantings.



In its heyday, July 1990

Margaret

Margaret visited the plantings on at least four occasions, the last in 2006 when we launched the *Dryandra* book. Thanks largely to Keith's collecting activities, we were growing and flowering many of the new and unnamed species well before they were named.



The appropriately named new species *D. columnaris* in 1988

Tony

For example, somewhat fortuitously, we had planted several small specimens which we thought looked like *D. subpinnatifida* in the original *subpinnatifida* row. As they grew, it became obvious that they would remain small and compact, unlike their taller fellows, and lived for more than 20 years. Alex George was to name the small form var. *imberbis*. I was always intrigued by her observations that many older specimens grew bigger and bushier at Cranbourne than in their native habitat, and also had larger flowerheads and better seed production. Perhaps it is a case of “the grass is always greener on the other side of the fence”. The “weediness” aspect was much less welcome but I guess it shows what can happen in areas with no predators to control the seedlings.



Typical rampant *D. squarrosa* in late 2015 Tony

Thanks and acknowledgements:

I wrote the original in 1983 and have included additional people from recent years.

I especially want to thank all the people who have supplied plants or assisted in other ways with the Cranbourne venture – Dr. Peter Lumley and the Botanic Gardens for making the area available, Alf Salkin whose idea it was in the first place and who has done so much, Keith Alcock for his interest and generous supply of plants over many years, Ken Stuckey and Phyllis Dadswell who sent me plants from South Australia, while Bruce McDonald, Pat Urbonas, David Shiells, John Topp. Don Yates and Doug McKenzie have locally been generous with their donations. I am also grateful to all those who have helped with the big task of planting over the last three years. It is always a case of “many hands make light work” and this was proved last year when with welcome help from 6

members of the Peninsula SGAP Group, we had everything finished in under two hours.

In recent years, grateful thanks to Rob Cross, horticulturalist, for the surveys he undertook in 1998-9 to map and assess the massive Proteaceae collection at Cranbourne for *Phytophthora* resistance and its floricultural potential. Published as “Proteaceae, *Phytophthora* and Floriculture” for the Maud Gibson Trust in 1999, this listed and discussed thirty seven Proteaceae which appeared to have some resistance to *Phytophthora*, thirty seven plants with horticultural potential and fifty eight for potential landscape use. For the 2015 assessment of the collection by Botanic Gardens staff, I would like to thank John Arnold and Warren Worboys for looking after me so well and Sharon Willoughby for several discussions on the history of the special collections.

Tony Cavanagh, Aug 2017

Pictures of lovely dryandras by Margaret



D. nivea ssp. *uliginosa* at Banksia Farm, June



D. proteoides at Banksia Farm, June

A.N.P.S.A. DRYANDRA STUDY GROUP

SUBSCRIPTIONS FOR 2017- 2018

The group’s year runs from July 1, 2017 to June 30, 2018 and subscriptions are now due. Subscriptions are \$10.00 for Australian members and \$12.00 for overseas. The cost for receiving by email is \$5.00*. Please make cheques payable to the Dryandra Study Group and forward to Margaret. Thanks to all those who have paid.

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