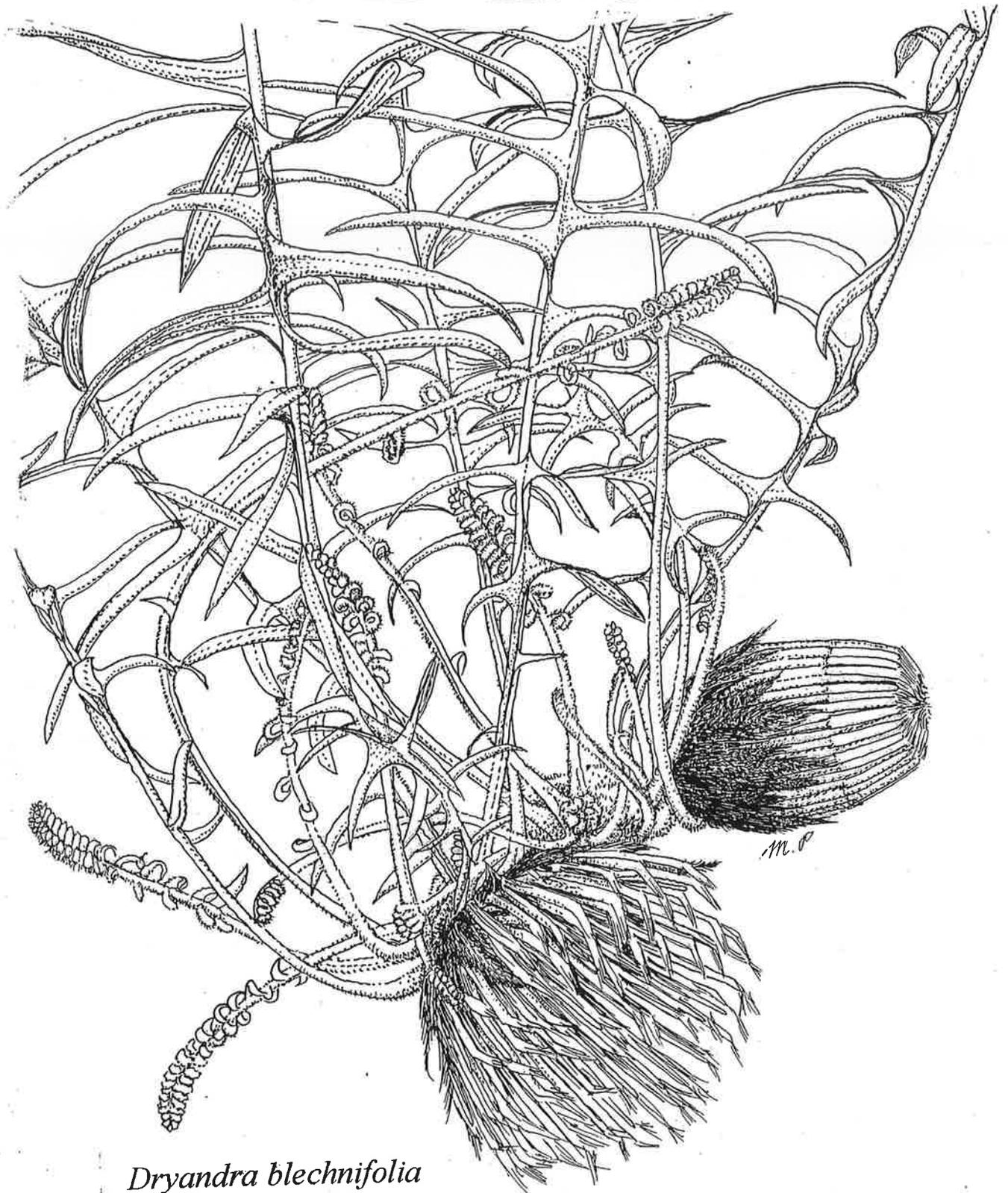


DRYANDRA STUDY GROUP
NEWSLETTER NO. 55



Dryandra blechnifolia

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ASSOCIATION OF SOCIETIES FOR GROWING
AUSTRALIAN PLANTS

Dryandra blechnifolia. This dryandra occurs in the Stirling Ranges and to the south east, to the west of Bremer Bay. It was confused with *D. pteridifolia*, in the past, as was *D. nervosa*, which is more widespread and also in the Stirlings.

It is prostrate, with underground stems and flowers in spring.

The drawing (from a painting), was done from a plant that is doing very well in gravel, in my garden here in Denmark. The first flower head appeared out of season, in summer.

DRYANDRA STUDY GROUP

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Hello everyone and welcome to our second Newsletter of 2008,

Is this the last Dryandra Study Group Newsletter?

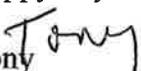
Perhaps the above is a little dramatic but Margaret and I have been considering the position of the Study Group since the proposal that *Dryandra* should be incorporated into *Banksia* was first raised. I recently contacted Phillip Robinson who is the current Study Group Co-ordinator and copied in Cas Liber (current leader of the Banksia Study Group). Essentially, I was asking what perhaps should happen with the Study Group, and suggesting that the situation could be raised with the ASGAP executive. Below is an extract from the email:

“The question is - where does all this leave the Dryandra Study Group? Should we just soldier on and pretend that Austin Mast and Kevin Thiele's work just hasn't happened, or should we exist at all, given the concerted effort by the WA Herbarium to obliterate the word "Dryandra"? I am preparing a Newsletter at the moment which may well be our last. We will ask the current members what they feel about us carrying on and be guided by them. ASGAP may need to make a decision also, given that the purpose of Study Groups is to study current genera and groups, and our genus, in the eyes of some professionals (botanists) at least, no longer exists. I am sure that Cas does not welcome the concept of adding another 135 Banksia taxa to his list so it is a very messy situation.”

Cas replied that he had no problem at all with the Study Groups carrying on as before, ie as two separate groups, while Phillip gave his personal thoughts as “my personal feelings are that to many of us, the name Dryandra carries an emotional weight, as much as botanical, and I would prefer to see the name Dryandra Study Group retained and the group to continue doing the great work that has been done in the past, even if an explanation in brackets follows, such as (*Technically now part of the Banksia Family*)”. He thought that the matter should be raised with ASGAP but I believe that may be quite a while before they would consider it. In the meantime, what do **you**, the Study Group members, want? Should we continue as before, in effect ignoring the whole thing, or should the Group close? We have achieved a considerable amount in publicizing the genus, with the pinnacle probably being the publication of *The Dryandras* which has been very well received by both the scientific community and gardeners and horticulturalists. There is precedent for closing a Group when the Leader believed that it had achieved its aims, namely the Dodonea Study Group under Jeanette Closs. It is vitally important that we have **your input** on how you would like us to proceed so please let Margaret or I know your thoughts.

Just a brief survey of the contents of this issue. Alex George prepared an article for the August issue of the newsletter of the Wildflower Society of Western Australia which is reproduced here with his and the newsletter editor's permission. It clarifies many of the issues around the *Dryandra/Banksia* merger and verifies that we can continue to use the name *Dryandra* quite legitimately. Both Kevin Collins and Randy Linke have also made substantial contributions in laying out their opposition to the change and I thank them sincerely for their efforts. Margaret has continued her very interesting articles on her travels and finding new locations for many taxa, and has begun a series based on her correspondence with former leader Keith Alcock which gives great insight into the massive amount of travel and study they both put into building up the knowledge about dryandras we now take for granted. It is good to see that Margaret has enough faith in our future to indicate that the series will be continued! On a sadder note, I have to record the death of Don Weybury, a long-time member of the Study Group.

Happy *Dryandra* growing,

Tony 

You don't have to call *Dryandra Banksia*

Alex George, 'Four Gables', 18 Barclay Road, Kardinya, W.A. 6163

email a.george@murdoch.edu.au

In 2007 Austin Mast and Kevin Thiele published a paper combining the genus *Dryandra* with *Banksia*, with a further paper in 2008 covering names that they missed in the 2007 paper. The Western Australian Herbarium has now renamed its specimens of *Dryandra*, the Australian herbaria have adopted the change for their national plant census, and Kevin Thiele has been 'marketing' the change to the community. For example, an article on the Department of Environment and Conservation's website, repeated in the Department's newsletter *Western Wildlife*, seeks to explain this change to a wider audience.

Having studied these plants for almost 50 years I am concerned that this change is premature, probably wrong, and is having a profound effect on those using the names of these plants, effects that could have been avoided.

First, however, I wish to point out that *there is no obligation to follow the change simply because it is the latest word, or because herbaria have adopted it*. Under the *International Code of Botanical Nomenclature*, scientific names of plants are available for use if they meet certain criteria, and no further direction is given on how to choose which binomial to use, if a plant has more than one available name. In this case, the names of all species of *Dryandra* meet the criteria, and the *user can choose* whichever generic name they prefer. Likewise, the Australian Plant Census, co-ordinated by the major Australian herbaria, has no formal status that requires it to be followed. The statement in the web article that a name in *Dryandra* is 'not current' refers only to the usage as practiced by the Western Australian Herbarium.

The methodology used by Mast and Thiele to justify the change is an analysis of a selected portion of the plants' DNA (genetic makeup), together with a cladistic analysis of the data. Although cladistics is sometimes claimed to be objective it involves human intervention in its interpretation. Different researchers will have differing views on which of the resultant cladograms ('trees') offered by the cladistic package to publish. DNA analysis and the cladistic analysis that follow are also promoted as repeatable (and by implication reliable) methods, but this is possible only if *exactly* the same material (i.e. the actual samples from which the genetic data were obtained and the data used in a study) are available to other researchers. Material from other plants of the same species may give different results and so we rely on genebanks of a single or few individual plants as representatives of entire taxa in order to repeat the analyses. The study of morphology—structure—is just as repeatable, and we can look at the same specimens that previous botanists—such as Robert Brown and George Bentham in the 19th century—looked at.

In his presentations, Thiele uses two cladistic 'trees' to explain their results. One shows *Banksia* and *Dryandra* arising (evolving) from the same point (Figure 1 in the articles by Thiele cited below) and is said by him to be the traditional view. The other shows *Dryandra* arising from within *Banksia* (his Figure 2), and is said to be a new result, giving a new understanding, that justifies having to place *Dryandra* in *Banksia*. In fact, the latter 'tree', his Figure 2, is the traditional view of the relationship of *Dryandra* and *Banksia*. It confirms the view that systematic botanists have held since Robert Brown published the name of the genus *Dryandra* in 1810—to place the genus at the pinnacle of an assumed developmental or evolutionary line within Australian Proteaceae with the implication that it probably evolved out of *Banksia* and is the most highly advanced genus. In other words, contrary to their claim, Mast and Thiele's 'new' tree confirms the traditional view.

The DNA analysis presented shows that *Dryandra* is a monophyletic taxon, that is, the species 'belong together' genetically. It also shows a number of similar groupings within *Banksia* as circumscribed previously, e.g. in my treatment in *Flora of Australia* vol. 17B (1999), the number groupings variable according to the different kinds of DNA analysed. The question then is: what taxonomic rank should be given to these groupings, and how may they be distinguished?

Mast and Thiele say that, because some species of *Banksia* are related more closely to *Dryandra* than to other banksias, keeping the genera separate is a 'serious anomaly'. This is nonsense—it's obvious that, when a new organism evolves from a member of a large group, it is going to be more closely related to that member than the others. At some point it may then become different enough to be called a new genus.

Mast and Thiele themselves acknowledge that their results are preliminary, stating in their paper of 2007 that their new classification 'is the least disruptive option *at present*' (my italic). Their results show that further work is required to clarify the number of taxa equivalent to the rank of *Dryandra* which are to be found in *Banksia*. They have chosen not to pursue this avenue of research and instead have taken the retrograde step of **reducing the information value** of the taxonomy of this group of the Proteaceae by sinking *Dryandra* into *Banksia*.

Far from taking the *least* disruptive option they have taken the *most* disruptive line with this wholesale transfer. The *least* disruptive option would have been to maintain the two genera. Instead, they have changed the names of 100 species (and the subspecies and varieties) and in the process confused, upset and inconvenienced many people including the public, scientists and the nursery trade, and all their associated databases and day-to-day activities that involve using the names of these plants. Thirty years ago changes such as this, made to a herbarium catalogue, did not have the national flow-on effect they do in today's age of the internet and connected databases. The decision made by the Western Australian Herbarium to accept the change has also been accepted without question for the Australian Plant Census which has flow-on effects to the Australian Plant Name Index, which has flow-on effect to AQUIS, and the flow-on effects go on and on internationally. My prediction is that further research will either confirm that we recognise the two genera, or more likely will result in *Dryandra* being resurrected and *Banksia* being split into several genera (as the DNA already indicates). Either way, further disruption to everyone will result. In other words, it was too soon to make such a sweeping change as combining the two genera because of the unnecessary disruption that has been, and will be, caused.

Mast and Thiele claim that combining the genera gives us a 'new understanding' of their relationships and explains the occurrence of *Dryandra* in south-western Australia. You don't have to call them all *Banksia* to do that. In fact, their new classification obscures relationships within *Dryandra* because they have placed all 100 species in a single series (infrageneric group) within *Banksia*, equivalent to, for example, just *Banksia* series *Tetragonae* with three species and *Banksia* series *Grandes* with two. With three subgenera and 24 series *Dryandra* is at least as diverse as *Banksia* and this should be reflected in its classification even if it is called *Banksia*. In Mast and Thiele's classification all this information is lost. And it has been said many times that many groups of plants and animals have evolved in south-western Australia since the Nullarbor Plain and deserts formed—we don't need a molecular analysis to explain that. The lack of any new morphological study of *Dryandra* in their work means that no advance whatsoever has been made in our knowledge at the level of species and below.

DNA analysis and cladistics are useful tools but should not be followed blindly. Indeed, systematic biologists around the world are increasingly critical of taxonomic results that are dominated by molecular data. DNA is but one component of a biological organism whose physical form we see, but we do not know *how* DNA translates into that form. There may well be factors that come into play that influence how the same or similar DNA is expressed outwardly, and to varying degrees. I repeat that Mast and Thiele's analysis has simply confirmed that previous botanists, far from being 'tricked' into a 'false understanding' as Thiele claims, were on the right track.

I believe that taxonomy should be practical, usable by informed but not necessarily expert users, i.e. it should be based upon readily observable morphological characters. Having studied all species of *Banksia* and *Dryandra* I am satisfied that there are perfectly 'good' characters that distinguish *Dryandra* from *Banksia* and I shall continue to recognise the two genera. Let us accept the new information that confirms their relationship and continue to call them so. No-one can say we are wrong.

Further reading

Mast, A.R. & Thiele, K. (2007), The transfer of *Dryandra* R.Br. to *Banksia* L.f. (Proteaceae), *Australian Systematic Botany* 20: 63–71.

Thiele, K.R., Why dryandras have changed their name, <http://florabase.dec.wa.gov.au/articles/dryandra-banksia/> accessed 16 June 2008

Thiele, K. (2008), Dryandras are banksias!, *Western Wildlife* 12 (3): 6–7.

Vale Don Weybury (1931-2007)

(Editor's note. Some members may not know that Don Weybury passed away in December 2007. Don had a great passion and enthusiasm for Australian plants and was always a keen propagator and grower. He was a member of several Study Groups including Dryandra and attended several of our get-togethers and the Fred Rogers Banksia and Dryandra seminar weekend. I am grateful to Neil Marriott and the Grevillea Study Group for allowing me to publish the following obituary which carries additional facts about Don and which appeared in their No. 79 Newsletter of February 2008. Our sincere condolences to his wife Jean and their family).

"A long-standing member and former Vice-President of the Australian Plants Society (SGAP) Victoria, Don Weybury passed away in December 2007.

Don and his wife Jean were married for 52 years and had two children and six grandchildren. Don worked in the Building Industry and was the Site Manager for reconstruction of the Palais de Dance at St. Kilda.

They joined the Society for Growing Australian Plants in 1977. They were members of the former Werribee District Group and later of the Keilor Plains, the Melton-Bacchus Marsh and the Ballarat District Groups, all of which Don was at one time or other President and Jean Treasurer. In 1998, they were awarded a Certificate of Commendation by the Society in recognition of their services. They have been members of the Grevillea, Banksia, Dryandra and Correa Study Groups.

Their first Australian garden was at their North Altona home where they were reputed to have a "huge" *Grevillea* "Robyn Gordon" plant over four metres across, and also grew *Eremophilas*. They also kept an extensive Australian garden in their 2.5 acre property in natural bushland at Greendale on the tablelands north-west of Bacchus Marsh where they later built their retirement home. It was here that they hosted some of our Grevillea Study Group Victoria Chapter meetings and field trips in the area. *Correa* "Pink Sorbet" (not registered) was a chance hybrid seedling of *Correa pulchella* X *Correa backhousiana* which originated in their garden.

Don and Jean kept detailed records of their plantings in their Greendale property, listing over 2000 plants. Their garden included many fine specimens of *Grevillea*, *Hakea*, *Dryandra*, *Banksia*, *Acacia*, *Eucalyptus*, *Beaufortia* and *Eremaea* species. They generously shared propagating material with visiting members. Don was an ardent propagator and courageously continued to be, even when failing health and chronic pain forced them to move to a new home in Bacchus Marsh where they were again able to grow *Eremophilas*.

We send our sincere condolences to Jean and their family."

Some notes on dryandras flowering this year.

This year we have had reasonable rainfall and the garden is looking green with some plants flowering early. I have been very pleased that several dryandras have put on a good display, one for the first time. This was *D. catoglypta*, about six years old but only about 0.6m high and 0.3m spread. The flower heads are well displayed on short stems along the upright stem, a lovely golden yellow with coppery-brown perianth hairs in the centre of the head adding a pleasing effect. The green-blue deeply cut leaves are also attractive. The plant is in light shade which may account for its slow flowering but I am delighted that I can grow it as it is one of the few from the Northern Sandplains that is successful here. One of my old favourites, *D. nobilis*, is again a picture with literally hundreds of flower heads along arching branches. It does tend to untidiness but can be held in check by careful pruning. It is in one of the driest areas of my garden but has never looked back. I did manage to grow another plant from cuttings (very proud of that) but I could not keep it alive in another dry area – perhaps another indicator of the lack of drought tolerance of cutting-grown versus seed-grown plants. Both *D. foliosissima* and my several forms of *D. nivea* and *D. lindleyana* are flowering well. I am particularly pleased with a lovely red flowering form of *D. nivea* which is at long last is beginning to assume a more upright form. The red flower heads against the dark green foliage is very attractive.

Tony Cavanagh, Ocean Grove.

A Long (Dryandra) Day

In mid February, Kevin Collins asked me to go with him to collect a seed of *Banksia laevigata* subsp. *fuscolutea* east of Hyden.

I have been drawing some of the banksia seeds for a soon to be published book. Alex George is revising his *Banksia Book* with contributions by Kevin. There are a few new taxa, including two new species of *Banksia*. No – not *Dryandra*! Kevin and Alex had been able to obtain seeds of all but *B. laevigata* subsp. *fuscolutea*.

It was risky setting off inland at that time of year but, thankfully, it wasn't a very hot day and we had plenty of daylight. We even had a shower or two of rain near Newdegate – something we hadn't seen for a while.

Although the objective was a *Banksia* seed, I took the opportunity to revisit some *Dryandra* locations to show Kevin. I drove up to Mt. Barker and stayed overnight at the Banksia Farm where we mapped out our route before leaving the next day just before daybreak. The banksia, according to the Banksia Atlas occurs east of Hyden, on the Hyden-Norseman 'track' (as it was then).

A botanist from King's Park had told Kevin about a dryandra he'd seen on Soldiers Road, north east of Hyden with very large flowers and 'long, narrow leaves' and ever since we had been planning to check it out. I had seen *D. shanklandiorum* not far from there and I was sure that would be what it is, notwithstanding the leaf description. *D. shanklandiorum* has long, narrow lobes on the leaves and I thought there may have been a misunderstanding. *D. conferta* has long, narrow leaves and grows in the area also so I guessed that the message had got confused, somehow.

We drove east to Chester Pass Road, through the Stirling Range, through Borden and Pingrup from where we took the Newdegate Road, turning into Burngup South Road for our first stop and *Dryandra* location. This is where I had re-discovered 'IT', *D. idiogenes*. The plants were in good condition – bigger and better than I've seen them, except for the dead ones that had been destroyed in recent road widening. Also in this location are: *D. erythrocephala* var. *erythrocephala* (in flower), *D. ferruginea* subsp. *chelomacarpa*, *D. pallida*, *D. xylothemelia* and *D. pteridifolia* subsp. *inretita*. I collected the type specimen of the latter, here.

From Newdegate, we travelled east as far as Tarco Road where, at the junction with the main road there is a 'hotspot' for rare flora. We were dismayed to find that the road has been re-aligned, the old road had been ripped and so far, nothing had regrown. We found some good plants of *D. ferruginea* subsp. *chelomacarpa* remaining on what had been the edges of the old road, noting how variable the width of the leaves are from plant to plant. This was a feature of this taxon that had had me confused when I first saw it in 1985.

We took Holt Road from there, turning north and navigating our way to Emu Fence Road. We found *Banksia laevigata* before we crossed the Hyden- Norseman Road and then saw lots more. We had lunch in the shade of some Salmon Gums, *Eucalyptus salmonophloia*, with their magnificent salmon-pink trunks and branches

gleaming in the sunshine. It was the right time for some of the beautiful autumn colours of the inland eucalypts.

Soldiers Road was a surprise. At the top of the gravelly hill at the 'mystery dryandra' location there is a wealth of flora, including many Proteaceae - *Grevillea insignis*, several *Isopogon* and *Petrophile*, *Hakea*, *Dryandra conferta* and... *Dryandra shanklandiorum*!

Years ago, Shirley Loney and I had found it further to the south west, only about 10 kms away. On the same trip we looked at a population of a prostrate *D. ferruginea* form, further south but north of Hyden. I think it was one of Keith Alcock's locations. More recently, with Tony and Liz Cavanagh, I collected it in flower for the first time, when we found it a bit further south. I wasn't sure of its correct identity at the time. The plants are small and the leaf-lobes quite short making the leaves narrow. It didn't occur to me to look at the seed follicles then but this time Kevin and I found the original location and we looked at the follicle to confirm that it is subsp. *chelomacarpa*. Subsp. *flavescens*, which occurs to the south east, not very far away, has leaves with short lobes but they are consistent whereas subsp. *chelomacarpa* is extremely variable in the length of the lobes and hence the width of the leaf.

We returned to Mt. Barker via Narrogin, Katanning and Cranbrook arriving back at 11pm. I calculated that we had covered about 1200 km that day - a long way to go for a banksia seed but not for a thoroughly enjoyable day out.

Margaret Pieroni 2/4/08

About the Photos

Dryandra blechnifolia. This is the one that I painted, from my garden in February, this year.

D. borealis subsp. *elator*. This is the magnificent plant referred to in my letter to Keith of July 1985, growing by the road, south of Arrino. It was raining at the time and the picture quality is not good but serves to show the habit and the floriferousness of this plant.

D. longifolia subsp. *archeos*. This is the dryandra featured on the cover of newsletter no. 54 and mentioned in my article. The photo was taken last year, in March from the plant in my garden. This year, we have had very little rain and the flowers are not opening fully. Most of the buds have just withered. Lately, there has been enough rain to keep it alive.

Margaret Pieroni 27/4/08



Dryandra blechnifolia



D. borealis subsp. *elatior*
South of Arrino,
July 1985



D. longifolia subsp.
archeos

Letters and notes from members

(From Kevin Collins, Mt. Barker W.A., July and August 2008).

(Editor's note: I asked Kevin if he would prepare some notes on a meeting of the Albany group of the Wildflower Society of Western Australia held in early July at which Kevin Thiele was the guest speaker. As Kevin indicates, Kevin Thiele was subjected to extensive questioning and seemingly very few of those attending were in any happy with the proposed changes. He later sent me some further notes which are included below. Please, if anyone else wishes to comment on any aspect of the *Dryandra/Banksia* situation, let Margaret or myself know).

I attended a lecture by Kevin Thiele last week in Albany and his opening address was that he had, quote... **"Done something very foolish and lumped *Dryandra* into *Banksia*"**. He then went on to discuss DNA findings, cladistics and monophyletic grouping in an attempt to justify his decision. He was not very warmly accepted by the meeting with the local seed and nursery industry people up in arms saying both existing genus were well known, gazetted and described and although most of the meeting admired the science and welcomed the findings, they saw no reason to change names. *Dryandra* was clearly demonstrated by Kevin as having evolved out of *Banksia*, it has then successfully spread and speciated. Surely this is an admission that it is a separate group worthy of genera status. It has long been recognised that *Banksia* and *Dryandra* are closely related and this has been written in the new *Banksia* book due soon to be released, and earlier publications as well. Hence the ancestry is written and recorded and as re-naming serves no direct benefit, adds no further species data and makes general identification far more complex. In these circumstances, the names should remain the same to avoid industry expense and public annoyance.

The majority believed it was done with ridiculous haste, little consultation and no thought for consequences for others. The attendees considered it very dangerous to act on preliminary findings as other genera of Proteaceae may well be proven to be interconnected, or other sub-sections of *Banksia* could be proven to be monophyletic groups and divided. The findings did not add to the current taxonomic descriptions of any species or simplify identification of the same. The cost to the public purse was questioned with all herbaria specimens being renamed and flora data bases being changed.

The nursery and seed companies certainly advised that they would not be changing but agreed it could lead to international confusion with differing web-site listings. I for educational and cost considerations will also be remaining with the status quo. I could in the worst scenario be sued by tourism visitors for false information advertising 'the worlds only complete collection' (of *Banksias*). I am still 10 *Dryandras* short.

I questioned the legality of Kevin's findings and asked if they were binding in law. Kevin then stated ...quote. **"That we were under no obligation to accept his changes and could stay with the status quo if we so wished"**.

Others in attendance thought that the money and effort of the initial project and subsequent herbarium expenses could have been far better directed into research of undescribed plants, little known genera or practices to save our many rare and at risk species.

Only one person of the fifty or so in attendance supported Kevin's initiatives but unfortunately didn't understand DNA techniques and failed to say why they liked his hypothesis. Albany Herbarium staff, being employees and under orders from Kevin from the Perth Herbarium were understandably reticent to make any comment.

Re Proposal to transfer *Dryandra* to *Banksia*

None of us are disputing the findings...we are upset at the way it has been bludgeoned into the system. The re-naming was totally unnecessary.

In addition, it was stated by Kevin at the meeting that all herbaria were in agreement with the changes. The Eastern herbaria were approached I presume first and as most have very few or no *Dryandra* specimens (except National Herbarium, Melbourne which has a surprising number of type specimens – Editor), they face no inconvenience and would have blindly followed Kevin's recommendations as he is Curator in WA where *Dryandras* live.

Note- Alex George has just returned from Melbourne and informed me that the Melbourne herbarium are not going to rename their specimens as they don't agree with Kevin & Austin's approach and say that *Dryandra* will probably be re-instated at a later date, whilst *Banksia* may be split into several genera. This is clearly different from what Kevin Thiele told us.

Many D.E.C. employees have personally disagreed with the changes.

It is but the tip of the iceberg and I believe this was seen as the path of least resistance before moving onto other genera of Proteaceae. I asked of *Hakea* and *Grevillea* and he suggested that that would follow with them possibly all being *Hakeas*.

I am going to attempt to get articles in WA newspapers to inform the wider public. Many Botanic Parks & Gardens will be confronted with whether to alter plant labels, records etc.

(From Randy Linke, California, USA, February and July 2008.

(Randy likewise has some strong comments to make about these changes. Thanks Randy and Kevin for your input, it certainly seems that the proposal is not at all welcome).

February.

I just finished reading the comments of Mr. Kevin Thiele as well as those of Tony Cavanagh and yourself in the latest newsletter (re *Dryandra* as *Banksia*). I have noted with interest that in Mr. Thiele's argument he states that this is only a proposed change, yet in his and Mast's Wikipedia post they represent it as accepted fact.

Mr. Thiele makes an interesting point on which his and Austin Mast base their entire premise: that all *dryandras* evolved from one species of *Banksia*. This seems also to be the greatest weakness of their argument for change.

In order to accept this position, we must accept that all genera arise from a well defined branch leading from some parent genus. However, would not only a monotypic genus then be able to divide into new genera and subsequently create multiple species within a genus? This view seems to be difficult to support.

It seems much more likely that a genus arises from a variation that occurs within a species. Should not the assumption be that all new genera arise from differentiation within one species of a parent genus which leads to distinct changes. How much more likely it is that this could be the method for the proliferation of genera?

If we were to accept the argument that a genus can not arise from a single species of a related genus we would be forced to conclude that all life is potentially a member of one super genus. This is what the greater hierarchy of Family and above neatly resolves. If the rationale proposed by Thiele and Mast were to be followed, is it likely that *Corymbia* will be placed back into *Eucalyptus*? Or *Acacia* will once again be considered one genus? Will these stand only until someone decides that they indeed branched from some species of some related genus and therefore are not valid genera?

And before we all take this too seriously, we should remember that the entire system of nomenclature has been created by we humans for our convenience. As you pointed out, there are enough questions we have created about the gradation between varieties and species which are not always identifiable as distinct. It seems that taxonomists could find more important pursuits than needless changes. It is already widely accepted that *Dryandra* and *Banksia* are closely related, the distinctions are well documented, and the argument for merging them into one genus based on what is potentially a fallacious theoretical understanding of the creation of new genera, seems pointless.

Cheers,

Randy Linke

I have just been reading up on *Dryandra*, both yours and Tony's wonderful tome and on line. Keep hitting the reference to being incorporated into *Banksia*.

I'm just not buying it! From my reading it is all based on a convenient (for modern taxonomists looking to name things) theory on the origination of genera that just does not make sense. I do not follow their logic, since any genus must originate from a species in another genus, and expecting that it would be a monotypic genus that manages to create such differentiation without going through an evolutionary process of differentiation at what we have created as species level is totally unreasonable to expect. We gave up on the creationist belief in spontaneous regeneration long ago. This theory belongs in the same scrap heap.

I can readily accept their premise that *Dryandra* is more closely related to one branch of the *Banksia* family. This does not preclude it being considered a separate genus based on sound taxonomic differences. It seems to me their objection to this is based on a fallacious theory that will ultimately not be supported by reasoned thinking.

I can see that this might be interpreted as a stick in the mud reasoning, but I have a long record of being ready to accept new lines of thought, even when they were not widely accepted so long as there was a reasoned explanation that seemed plausible with sound argumentation against the 'old' theory. I just have not been swayed in the least by the rationale put forward by the authors of this proposed change.

I'm looking forward to following the debate on this issue. I suspect that maintaining *Dryandra* as a genus will ultimately prevail though it may be a long battle against a new school that is looking to assert itself over time proven reason. The great thing about science is it is eventually self correcting.

Looking Back

While I was sorting out some of the Study Group correspondence recently, I came across 143 pages of letters I'd written between January 1985 and January 1987 from Perth to Keith Alcock in Victoria when he was Study Group leader. Keith had photocopied and collated them. It took me more than two hours to re-read them and to add the names of the dryandras that, at the time were merely numbers. I hope these extracts will give some indication of the exciting times I had during those years and the extent to which I was helped in my search for dryandras by people such as Keith, Alex George, Ted Griffin and all my wonderful travelling companions.

They were very enjoyable years when I began collecting *Dryandra* specimens for Alex George to help with his revision of the genus, photographing the plants and flowers and collecting material for the drawings for what eventually became *The Dryandras*.

Alex had given me photocopies of more than 50 Herbarium specimens of undescribed dryandras, many collected by Keith, and their locations. Keith had provided me with his notes on over 500 specimens or sitings with their number or name, a brief description and location from his own and other Study Group members collections. Botanist, Ted Griffin had nominated 10 undescribed taxa, A-J. Keith discussed these in his newsletter no. 12, December 1984. They were:

Sp. A - Now described as *D. mimica*

Sp. B - Intermediate between *D. patens* and *D. polycephala*. From the Moore River area.

Sp. C - The northern sandplain equivalent of *D. falcata*

Sp. D - Related to *D. nivea*. From gravelly hillsides on certain peaks north east of Lake King.

Sp. E - Related to *D. armata*. From the Stirling Ranges.

Sp. F - Related to *D. plumosa*. From atop Bluff Knoll.

Sp. G - Related to *D. carduacea* and *D. squarrosa*. From the Katanning area.

Sp. H - A distinct species related to *D. armata*. From the Kalbarri area.

Sp. I - Related to *D. patens*. From Badgingarra to Encabba.

Sp. J - Related to *D. serratuloides*. From Harrismith to Nyabing.

When I began collecting I used my own set of numbers so it becomes a bit complicated. Nevertheless, I have been able to put a name to them retrospectively.

My *Dryandra* collection in the garden in Attadale, a suburb of Perth, was growing and I was sending reports to, and requesting seeds from Keith. He had been publishing very useful leaf prints in the newsletters. Most of them were identified but some such as the 'pteridifolia' group were numbered from 1 to 5, giving yet another set of numbers. None of them were, in fact *D. pteridifolia* itself as it turned out.

Keith had given me a leaf and a few dried bracts which was all we had of a dryandra collected by (then) Victorian member, John Cullen 'near Pingrup'. I took it with me on my travels in the hope of finding the plants some day.

I have added the names of the plants in brackets and other comments in italics.

From letter dated 8th May 1985:

...I went up to the Badgingarra – Eneabba area with Anne Taylor and a group from the 'Banksia Atlas' program to look at, and be able to separate, the various 'sphaerocarpa' types. We spent all day Saturday on the floristically fabulous property of Don and Joy Williams. They have a stand of unique eucalypts as yet un-named (*E. leprophloia*) as well as other rare ones including *E. pendens*. As well as most of the *Banksia sphaerocarpa* types they have the rare *B. chamaephyton* and many more rare and interesting plants.

My attention was constantly being diverted to the dryandras which were growing there in profusion, not in flower, of course, but most intriguing. Ted Griffin has visited the property so he has probably done a survey of the dryandras. A couple of them had me quite baffled. Don, by the way was recently on a recent ABC 'Country Wide' program talking about his conservation strategy on the farm and his eucalypts in particular.

One very attractive dryandra was growing thickly. The plants are, on average less than 1m high and Don assured me that it is *D. nobilis*. (*D. nobilis* subsp. *fragrans* – the area must have been burned some years previously as the plants grow to be much taller) The foliage, however is much finer and not untidy and prickly like the form in my garden and that I've seen at Dryandra and Tutanning. (*D. nobilis* subsp. *nobilis*) I enclose a leaf and some seeds.

Another common dryandra on the property Don calls *D. drummondii*. There was no sign of spent flowers and it doesn't look anything like the *D. drummondii* I have. (*D. drummondii* subsp. *drummondii*) The leaves are distinctly blue-green and shorter than mine. It forms a short stem like *D. ferruginea* rather than being mounded and the new leaves, though they couldn't be considered new shoot growth were as stiff as, and the same colour as the other leaves. The lobes are triangular, more so than my plant. They remind me of *Banksia baxteri* leaves because the sides of the lobes are straight rather than curved. (*D. catoglypta*). I can't wait to go back when they are in flower.

He has other, prostrate species and *D. speciosa*, (covered with buds), *D. shuttleworthiana*, *D. kippistiana*, *D. carlinoides* and probably lots more. (20 taxa, at last count). I think Ted Griffin intends to include this area in our itinerary for the September 29th long weekend but it will be a bit late for most of the flowers, I fear.

On the way home, I stopped at the hill near Moore River National Park to collect sp. B (*D. echinata*). The dryandra plants, especially *D. carlinoides* were looking the worse for the long, hot summer. *D. carlinoides*, on Don's place looked rather sickly, too and were covered with sooty mould.

Kevin Coate and I have worked out an itinerary for our (*Wildflower Society*) 14th-19th October trip and we will be passing Hatter Hill so might be able to find sp.D. (*D. viscida*). I don't suppose you know when it flowers?

The *Verticordia* Reference Collection is nearing completion and Alex George has

started to describe and name the many new species the project has turned up. The Banksia Atlas has had the same sort of success and I'm hoping we can all do the same for dryandras.

Our itinerary for the October trip will take in Tammin, Narambeen, Hyden, Lake Cronin, Frank Hann National Park, Lake King, Newdegate, Lake Grace and Tarin Rock but is flexible as we will be camping and are prepared to detour to see the best wildflowers. I would very much appreciate any information about dryandra localities you can supply. The area you marked on my map when you were here is a bit too far off the route unless we have to change it drastically to allow for variations in flowering of other plants because of the winter rains, (or lack of same!)....

From letter of 3rd July 1985

I've just come back from a couple of weeks in NSW to find 9 dryandras in flower in the garden. I've had time to draw *D. fraseri* for you. *D. mucronulata* is disappointing. The flowers, though numerous haven't opened up much. I think I'll wait till next year to draw it. *D. nobilis*, (subsp. *nobilis*) also flowering for the first time, is very good – not as deep a gold as those in the wild but better than I've seen in Perth gardens. I have photographed it but I can't cut a piece to draw without spoiling the bush.

I found that quite a few seeds had germinated while I was away. I sowed them months ago – February, I think. The seeds of Don Williams' ? *nobilis* ? *stuposa* (*D. nobilis* subsp. *fragrans*) came up in only a couple of weeks and almost every one germinated. They all have their second leaves already. I have two *D. preissii*, (*D. shanklandiorum*) two *D. arctodis* (probably *D. brownii*), two *D. ferruginea* (north of Hyden) (subsp. *chelemocarpa*) and one aff. *pteridifolia* (*D. pteridifolia* subsp. *pteridifolia*). I hope you have the same success with the Williams' ones.

My *D. speciosa* is beautiful. The flowers are red. (subsp. *macrocarpa*). I hope my close up photos will do it justice.

About a dryandra book – I think it would be a very good idea to produce a definitive one like Alex's Banksia Book and the verticordia one. Elizabeth thinks that Alex would be pleased to help with it. Between us all we should be able to do it. I would be happy to do the seed/follicle drawings, working in with you and Hartley Tobin. I don't know how much Ted Griffin has done but I know that Alex is about to do the dryandra revision. Incidentally, there will be about 50 new verticordias. Some will have a couple of subspecies. It doesn't look as though I'll be able to paint all the remaining ones this year, after all. I have a sneaking suspicion that the dryandras, for the amateur, at least, will be more difficult to separate than the verticordias even when both illustrated keys are published, but perhaps it's because, having painted and done drawings of dissected verticordias I'm more familiar with them. I look forward to being able to recognise the dryandras. Since I joined the Study Group, I'm expected to know them all when on excursions and I really don't know many yet.

I hope to get out to see and photograph *D. proteoides* one day this month.

I am waiting for a nice, sunny day to do some weeding in the garden and to pot on the

15 or so dryandra seedlings....

From a letter of 30th July 1985

I've been taking slides lately and I've decided that it might be a good idea to have a collection for myself. I have been taking two at a time so that I can send you a copy to keep. It is cheaper than getting duplicates which are never as good as the originals.

On Saturday, 12th July, Elizabeth Berndt and I went up to Geraldton for a few days. The object was to contact some of the collectors of verticordia specimens to arrange for them to send me some of the ones I still have to paint.

We had quite a leisurely trip and I was counting on finding some dryandras in flower. We knew there wouldn't be any verticordias in flower, of course. I wasn't disappointed as we saw about 10 dryandras flowering and I photographed quite a few of them.

The first one we stopped to look at was on the Carnamah - Mingenew road 7.5 km south of Arrino. We took some photos of the bushes and close-ups of the flowers. It was raining, unfortunately and there wasn't enough light to get all or even most of the flowers in focus but I'm happy with the others. We took a specimen as I didn't know what it might be. A few km further on, we came across a magnificent plant on the side of the road and photographed it. The light was still not good but the slides show it beautifully nonetheless. (*D. borealis* subsp. *elatior*). Soon after we left Mingenew, the rain came down in torrents so there was no more stopping till we got to Geraldton.

On Sunday afternoon the Geraldton branch of the Wildflower Society took us on an excursion to Wicherina Reserve where we found a sprawling plant that I thought was either *D. fraseri* or *D. ashbyi*. The leaves of some plants were very bluish but the flowers were identical. The flowers are smaller than those on my garden plant (*D. fraseri* var. *fraseri*) and all yellow not with a pink tinge like mine. (*The Wicherina plants are D. fraseri* var. *ashbyi*)

I've always wondered why some descriptions say that *D. ashbyi* has blue-green leaves and *D. fraseri* has green and other descriptions, the opposite. By now I am convinced that, like *D. ferruginea*, *Banksia sphaerocarpa* and perhaps other dryandras and banksias, both *D. fraseri* and *D. ashbyi* can occur with both leaf colour forms growing side by side. After all, some species, *D. nivea* for example, have different flower colour forms growing together.

On Monday night, Elizabeth gave a talk to the Geraldton branch on the 'new' verticordias and I spoke briefly about the dryandras we'd seen.

On Tuesday, we left for Eneabba. The man in charge of the 'rehabilitation' of the mined areas at Allied Eneabba Mineral Sands was keen to show us over the site. They are putting back the clay, sand and topsoil to the way it was, as far as possible and the re-growth is quite good. Their methods weren't always successful, though. They've learnt that there are no short cuts and that nature's way is best. On one site where the clay had not been put back, a lot of plants had died during the summer including all of

one species of dryandra, (aff. *falcata*, sp. C, I later found out.) (*D. glauca*)

On our way to stay at a friend's property further south, we'd seen a huge, shaggy dryandra 1 km north of the Greenhead turn-off on the Brand Highway, right on the side of the road. We photographed the plant which was covered in buds in the leaf axils and took a close-up of the few flowers we found at the base of the plant. Once again, I didn't recognise it. (*D. stricta*)

Our guide from the mine took us in a 4WD to see a good patch of verticordias, on the western side of Brand Hwy, along Rocky Springs Road, about 5km north of the mine. After looking at the verticordias, he took us to a spot where there are several dryandras growing very thickly in a laterite outcrop. We saw *D. carlinoides* and *D. kippistiana* plants, the latter in bud and lots of the shaggy one. Although I couldn't find any buds open, I collected a specimen of it. (*D. stricta*)

We spent the next day with friends at Warradarge, not far from the Williams. They, too have set aside a wonderful wildflower area on the property. It was overcast all day and I had to use the flash for a couple of photos. We climbed the hill behind the house to look at the marvellous array of plants, there. I had been looking for a *D. shuttleworthiana* that still had some flowers on it but all the ones I'd seen only had spent flowers. Then, among dozens of plants I found just one that had two flower heads and even a couple of buds. I had to use the flash for the close-up of the flowers which were well hidden in the bush.

The 'nivea' type there is quite prostrate, as you can see from the slide and there were different flower colours – some yellow and some more bronze-coloured. (*D. stenoprion*). I discovered quite a few *D. nana* which I could identify from the amazingly long styles on the spent flower heads. Also present are: *D. bipinnatifida* (subsp. *multifida*), *D. kippistiana*, *D. vestita* and, and (I think) *D. arctotidis* var. *tortifolia*. (*D. tortifolia*). The other dryandra I photographed was the aff. *falcata* (*D. glauca*). All of these are on the sand mine company's dryandra list.

Don and Joy Williams came over on the Tuesday night and we had an enjoyable chat about verticordias, dryandras and banksias. I can't wait to go back in September when I hope to visit the Williams on the Monday after to see their (aff?) *nobilis* in flower. (*D. nobilis* subsp. *fragrans*). We hoped to see and photograph *D. speciosa* too, but ran out of time. It doesn't occur on the property we stayed at and there wasn't time to visit the Williams or even to go out along Tootbardi Road to see it, before coming back to Perth.

I'm looking forward to seeing *D. nana* in flower, too. I see from the newsletter that you're short of seed. Don might be prepared to collect some from his property.

When I got home, I tried to key out my three unidentified specimens with no luck. Then I read through the descriptions of Ted Griffin's 'new' species. The aff. *falcata* agrees exactly with the description of sp. C, (*D. glauca*) even to the suggestion that it could be confused with the local *D. sessilis* – except for the flowers. I should have taken Ted's descriptions with me.

My second specimen, the 'shaggy' one is obviously sp. I (*D. stricta*) but the first one had me baffled until I read through all the descriptions of Ted's species, later. I wouldn't have considered it an aff. *armata* because of the long bracts but when I read the description of sp. H (*D. borealis* subsp. *elator*), there was no doubt about it. It was really quite a coincidence that we happened on three of the un-named ones on the same trip.

Last Sunday week, with my friend, Shirley Loney, I drove out to Lupton Road Reserve on Brookton Hwy to see *D. proteoides* in flower for the first time. I took a print film as well as a slide one. It was a real thrill to see the flowers at last, even though they're almost all completely hidden inside the bushes. If it wasn't for the torn flower heads strewn all over the ground after the cockatoos had been there, we wouldn't have known that they were flowering.

I was very lucky because the only time the sun came out, all day, was for the half hour or so that I was photographing. I used up most of both films. (*The cover photo of 'The Dryandras' was one of the slides*).

The top of the hill above the *D. proteoides* which was the dominant species among the Wandoo trees, was covered with *D. nobilis* (subsp. *nobilis*), just starting to flower. The flower heads are much more attractive just before the flowers open.

After lunch we went on to Boyagin Rock and then through the Reserve where I'd seen several dryandras last year on our Tutanning trip. We stopped at a dryandra patch to look at one, similar to *D. nobilis* but smaller and with finer foliage. Shirley discovered that it was in flower though I had trouble seeing them until I looked through the camera viewfinder. I have since checked its identity, *D. seneciifolia* (*D. columnaris*). *D. nobilis* (subsp. *nobilis*) and the mound 'nivea' (*D. nivea* subsp. *nivea*) were growing with it.

I will be taking more slides, two at a time, on my trips, from now on and I hope to build up a good collection. I am pleased that I am able to recognise more dryandra species, with every trip. At the last meeting of the Wildflower Society in Perth, I had taken in seven of the nine dryandras that were flowering in my garden and I was asked to speak about them. I was happy to share what little I know about them and look forward to knowing them better and having enough slides to show them one day.

I hope these slides will be useful for the Study Group. Let me know if there are any that you want particularly and whether we can look for some on our October trip. I will look for sp. J (*D. meganotia*) at Dongalocking. Greg Keighery doesn't remember ever having seen it but is interested in looking for it when we go there....

To be continued

Margaret Pieroni 9/4/08

A.S.G.A.P. Dryandra Study Group
List of members as at 30/06/2008

Keith Alcock, Kalamunda, W.A. 6926
Ian Anderson, Hughes, ACT 2605
John Armstrong, Rye, Vic. 3041
Barbara Buchanan, Myrree, Vic. 3723
Lloyd Carman, Eden Hills, S.A. 5050
Tony Cavanagh, Ocean Grove, Vic. 3226
Kevin and Kathy Collins, Mt. Barker, W.A. 6324
Dennis Craig, Bunbury, W.A. 6230
Val Crowley, Darkan, W.A. 6392
Max Ewer, Avenue Range, S.A. 5273
Alex George, Kardinya, W.A. 6163
Elizabeth George, Alexander Heights, W.A. 6064
Melinda Johnson, Aptos, California, USA
David Lightfoot, Surrey Hills, Vic. 3127
Randall Linke, Davenport, California, USA
Neil Marriott, Stawell, Vic. 3380
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Bob O'Neill, Wandin, Vic. 3139
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David Randall, Cobram, Vic. 3644
Peter Ray, Mahogany Creek, W.A. 6073
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Christene Wadey, North Eltham, Vic. 3095
Don Weybury, Bacchus Marsh, Vic. 3341
Don & Joy Williams, Badgingarra, W.A. 6521

Other groups and organisations

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Library, Australian National Botanic Gardens, Canberra
Library, Deakin University, Geelong, Vic.
Library, National Herbarium, South Yarra, Vic.
Editor, *Australian Plants*, Sydney, N.S.W.
Editor, *Native Plants for New South Wales*, Sydney, N.S.W.
Editor, *ASGAP Newsletter*
Editor, *Australian Plants On-line*, and ASGAP Webmaster, N.S.W.
Study Group Co-ordinator

S.G.A.P. Regional and State Groups

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Canberra, A.C.T.
Fleurieu, S.A.
Maroondah, Vic.
New South Wales.
Queensland
South Australia.
Tasmania.
Victoria
W.A. Wildflower Society

DRYANDRA STUDY GROUP

FINANCIAL STATEMENT 1/7/07 – 30/6/08

| | | |
|-------------------------|------------------------|------------|
| Cash at bank 1/7/07 | | \$ 1750.03 |
| Income | Member's subscriptions | 324.00 |
| | Donations | 38.00 |
| | Bank interest | 7.90 |
| | | 369.90 |
| | Total | 2119.93 |
| Expenses | Newsletter expenses | 550.00 |
| | Total | 550.00 |
| Cash at bank at 30/6/08 | | 1569.93 |

A.S.G.A.P. DRYANDRA STUDY GROUP

SUBSCRIPTIONS FOR 2008- 2009

The group's year runs from July 1, 2008 to June 30, 2009. 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.

Name: _____

Address: _____

COMMENTS OR SUGGESTIONS FOR INFORMATION:

