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DRYANDRA STUDY GROUP NEWSLETTER No. 75

AUSTRALIAN NATIVE PLANTS SOCIETY (AUSTRALIA)

The aptly-named *Dryandra proteoides*, north west of Tutanning Margaret

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DRYANDRA STUDY GROUP

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Hello and welcome to our latest newsletter. I am currently undergoing chemotherapy for lymphoma and fortunately the treatment seems to be having positive effects for me. I really do apologise for the lateness of this newsletter but will try my best to get back on schedule for 2019. My sincere thanks to Margaret for her understanding and her interesting articles about her travels. We can learn so much about the obscure and sometimes positively horrible places in which dryandras survive in the wild.

Margaret tells us about two dryandras, *D. anatona* and *D. arborea,* which are quite uncommon in cultivation. The first grows deep in the Stirling Range National Park and is apparently a shy flowerer. With leaves that look at times like *D. falcate* and at others like *D. cuneata,* it has been misidentified in the past and is rarely grown, despite lovely flowerheads and an interesting upright growth habit which has lead to the nickname "Cactus Dryandra". Many thanks to Sarah Barrett for providing the photographs. *Dryandra arborea* is likewise rarely grown, possibly due to lack of seed and the fact that it is the only tree *Dryandra.* I was fascinated by the habitat shown in Margaret's pictures showing trees seemingly growing out of hard ironstone rock. But grow they do and the flowerheads are also very attractive. They also saw several interesting Eucalypts with intriguing copper-coloured bark but they were ptobably too large for the average garden.

Brian Moyle's article gives us the background to the long fight by several groups to save the unique Helena-Aurora Range in the Yilgarn area. Let us hope that it will eventually receive the status of a Class A Reserve because if we are to judge from Margaret's pictures, it is really fascinating country with a flora worth preserving. Tim Darrington provided us with a picture of his *D. kippistiana* in flower. I am intrigued by the number of dryandras that our overseas members are able to grow and flower, even under adverse growing conditions. Keep up the good work. The approaching 40th anniversary of the establishment of our garden here in Ocean Grove prompted me to think about just how long some plants, and especially dryandras, can live in a garden situation. Some plants are nearly 40 years old and several dryandras are over 30 but as I explain, many dryandras do not grow old gracefully. But I have also set you a challenge - to check you own gardens and let me know how well dryandras live for you and which ones you regard as the most reliable. Please let me or Margaret know and I will publish your observations in the next Newsletter. And finally, Margaret recounts her visits to the Katanning area, looking specifically for several of the rarer species and especially *D. proteoides* and *D. fililoba.* I have used several of Margaret's great pictures of *D. proteoides* (*D. fililoba* didn't oblige) but it always surprises me that so many species flower irregularly or seemingly hardly ever in the wild. I sometimes wonder what hope we have in the garden!

All the best and please let us know about your reliable dryandras.

Tony

Dryandra anatona and *Dryandra arborea*

Early this year, Brian Moyle promised to take me to the Helena and Aurora Ranges, (see newsletter no. 66). We planned to leave here on 4th April for a 3 day trip.

I received notice of the next Albany Rare Flora Recovery Team meeting, which had been brought forward for the third year in a row, in order to visit the population of *D. anatona*, deep in the Sirling Range National Park. This year, as we have had little rain, it

***Dryandra anatona* habitat in the Stirlings** **Sarah Barrrett**

looked likely that the visit could go ahead. Unfortunately, for me, the meeting was for the 4th April.

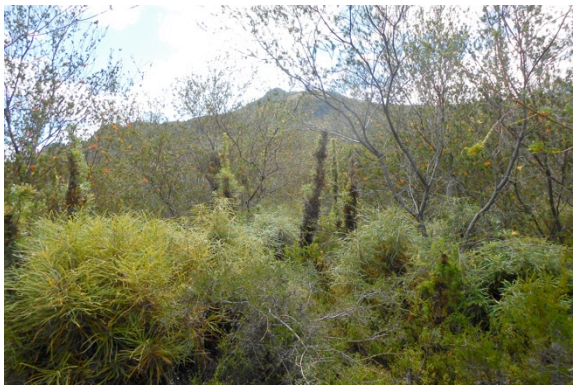
Sarah Barrett kindly provided some photos taken earlier. I was very interested to see the plants on the hillside. They have increased in number since Sarah took me to the site about 10 years ago. At that time the plants were quite small and flowering for the first time after fire had burnt out the population. Now, they are tall and "cactus-shaped" and spreading out up the valley.

The population is among several that are being treated for *Phytopthora* and the team is also growing *D. anatona* ex situ. Other actions, such as fencing have also been undertaken.

D.anatona was discovered, but not collected by a Victorian Study Group member, in the Stirlings, many years ago and Keith Alcock, then Study Group leader, had been given a rather vague indication of its location. It had been collected, previously and was nick-named the Cactus Dryandra because of the habit of the plant. Branches, from the main stem are more or less horizontal, at first but shortly afterwards make a right angle and grow vertically, quite close to the trunk. The form somewhat resembling that of a Saguaro cactus.

In 1986, on a memorable visit to the Stirling Range National Park, Keith and I re-located it growing at the back of what had been a gravel pit on Stirling Range Drive. We supposed that it would flower in winter or early spring but the following March, I got a phone call from a

friend who lived close by and who'd promised to keep an eye on the plants, to say that they were flowering.



Typical plant growth habit Sarah Barrett

I immediately arranged to go down to the Stirlings from Perth, where I was living and I photographed the plants and flowers, (see *The Dryandras*) and collected a specimen for the Herbarium. Keith was due to visit Perth from Victoria, so I thought I'd surprise him with the first flower. I hadn't told him I'd been down to the Stirlings. When I produced the specimen, Keith then surprised me with one from the Dryandra Living Collection, at Cranbourne.

The "Cactus" *Dryandra* Sarah barrett

The original population gradually declined and eventually succumbed, to die-back which had probably been introduced when the gravel was being extracted.

D. anatona has been mis-identified, in the past. Plants at the Australian Garden at the Cranbourne Annexe of the Royal Botanic Gardens, in Victoria that had been labelled *D. anatona* were, in fact *D. cuneata*. *D. cuneata* is widespread and common. It flowers over a long period and has smaller flower heads. The seedling leaves of *D. anatona* are entire at first, well before the typical, prickly-lobed leaves appear. The leaves are similar to those of *D. falcata*. The seed follicles, as is often the case, are the best identifying feature. They are woody and much larger than most other dryandras.

The delightful flowerheads Sarah Barrett

Brian and I set out early in the morning for the long drive to Southern Cross, where we stayed for two nights.

The days were sunny and warm – we were experiencing an "Indian Summer" and the drives through the vast Great Western Woodlands were delightful. There are several eucalypts that shed their bark in autumn and the colours of the trunks of the Salmon Gums, Gimlets and several other species were wonderful – satiny smooth or patterned with

some bark still clinging, they were an outstanding feature of the landscape. Salmon Gums matched the colour of the sandy soil. One eucalypt that I had never noticed before, *Eucalyptus sheathiana* was remarkable. Long, narrow streamers of bark were hanging from the branches, sometimes reaching the ground, twisting and swaying in the breeze. This species, unlike the Salmon Gums has dull green, not shining leaves and several of them were in full flower.

Eucalyptus sheathiana **Margaret**

Salmon Gums, note soil colour Margaret

We arrived at the ranges after passing through the mine site of Koolyanobbing and made our way to Bungalbin East. The original track, over the range is blocked to vehicular traffic but it can be walked. There was no need to walk far to see the *Dryandra arborea* trees, growing straight out of the rock and some of the other rare plants that are restricted to this area. *D. arborea*, the only tree dryandra, can be found in flower all year round. Brian has visited the area more than 25 times, in all seasons and has always found some trees in flower.

We drove back along the south side of the range and then up to the top and along to the eastern end, again. From here, there were wonderful views of the surrounding plains with a foreground of *D. arborea* trees, in the rocks. The magnificent *Grevillea georgeana* also grows here but it was not, of course, its flowering time. Many years ago, on a Wildflower Society trip with Kevin Coate, I visited Mount Jackson and the Die Hardy Range, to the east where *D. arborea* also occurs. It was in spring so I was able to photograph *D. arborea* as well as *G. georgeana*.

In the afternoon, we headed west, again following the range and drove up to J5, a high point with large boulders and some very old *D. arborea* trees with enormous trunks. The pale grey, small shrub covering the ground, here is *Ptilotus obovatus*, which is prevalent in ironstone country.

The high point with *D. arborea* **Margaret**

Continuing westwards after leaving the range behind, we then travelled south to Bullfinch, from where it was a short distance on the highway, back to Southern Cross.

When the Botanical Artists Group of WA was commissioned to provide 6 paintings for the *Curtis's Botanical Magazine* in 2003, the choice, for me was between *D. arborea* and *Verticordia grandis*, both of which were growing in my Attadale, (Perth) garden. I decided that because both flowered all year round, I could pick my moment top paint them. The only *Verticordia* that had previously appeared in the magazine since 1787, was *V. nitens* whereas several dryandras have been featured. So, I chose to paint the *Verticordia*.

Growing among the rocks on East Bungalbin Hill Margaret

D. arborea grows very well in sandy soil and, as a rule plants, such as this that grow in cracks in rocks, are hardy. Kevin Collins, at the Banksia Farm has not had much success with it so far and I have not tried it in the gravelly clay, here in Denmark. Several years ago, Tony saw it growing well at Myall Park, in outback Queensland. It is well worth a place in a large garden.

Many thanks to Brian Moyle for taking me on the trip and helping to prepare this article.

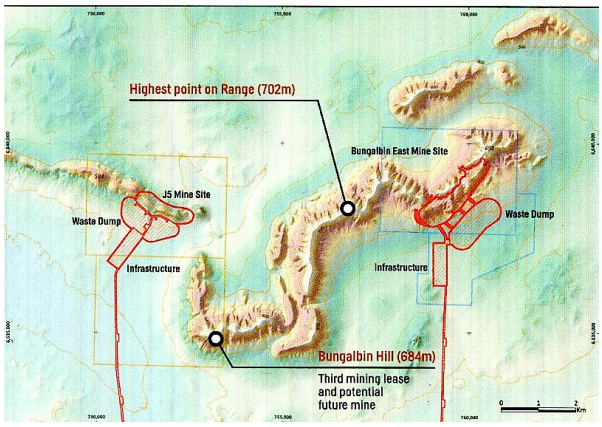
Margaret Pieroni 21/5/

State Government preserves unique Helena-Aurora Range

(Reprinted from the Wildflower Society Of WA Newsletter, February 2018).

With the headline shown above on Thursday 21st December 2017 the Minister for Environment Stephen Dawson announced that long awaited outcome for this special banded ironstone formation (BIF) range in the Yilgarn region. On the same day he also approved mining, with conditions of another BIF range, in the mid-west east of Morawa, the Blue Hills but that's a story for another time.

In addition to rejecting Mineral Resources Limited (MRL) proposal to mine at the locations J5 and Bungalbin East Minister Dawson said "I will now begin working with my ministerial colleagues to investigate options for creating a Class A reserve over the Helena Aurora Range to ensure that this unique location is preserved for future generations".



This is a wonderful outcome. People from within government and the wider community have been calling for this for decades. The area was explored for iron in the 1960's on a very small scale but the large high quality iron ore reserves in the Pilbara lured the miners. At the beginning of this century Portman Limited started to develop a proposal

to mine the range but walked away because of the conservation values of the area and the likely difficulty in obtaining approval to mine. In September 2013 Polaris Metals a subsidiary of MRL referred an exploration proposal to the Environmental Protection Authority (EPA) . The EPA set a Public Environmental Review (PER) level of assessment and Polaris decided to bypass exploration and develop a mining proposal for J5 and Bungalbin East. The EPA under the then chairman Dr Paul Vogel assessed this project as environmentally unacceptable using the information the company provided. On appeal Albert Jacob the then Environment Minister referred the proposal back to the EPA for assessment with a PER. There were 1487 submissions to the PER almost all opposing mining. The EPA now with Dr Tom Hatton as chairman again found the proposal environmentally unacceptable in June 2017 based on the high biodiversity, landform and social values of the range and the proposed impacts were not considered manageable. Following an appeals process on the 24th November the Environment Minister Stephen Dawson agreed with the EPA, dismissed the appeals and then on 21st December made his final decision as required under the Environmental Protection Act.

The Wildflower Society has been involved in the case for promoting protection of the range from the beginning and for a few weeks back in 2004 it looked like a Class A reserve would be made over the Helena and Aurora Range when Judy Edwards was Environment Minister but the State Cabinet of the day changed its mind. At Judy Edward's direction the EPA by 2007 produced a very important report under section 16 (e) of the Environmental Protection Act titled Advice on areas of the highest conservation value in the proposed extensions to the Mount Manning Reserve. This was Bulletin 1256 and the Helena and Aurora Range was number one in order of conservation value for nine areas assessed in the report. The Carpenter Government in 2007 also released a Strategic Review of the Conservation Values of the Banded Iron Formation of the Yilgarn Craton and one of the commitments was for "Class A nature reserve or national parks over the Helena-Aurora Range, Die Hardy Range and the Mount Manning Range (as generally recommended in Bulletin 1256)". This review was left on the shelf by the Barnett Government. It was described as "dated".

In 2010 the Society along with Shapelle McNee a botanist with a passion for the range formed the Helena and Aurora Advocates (HARA) as an incorporated body to advocate for the protection of the range. It has website (helenaaurorarange.com.au) with extensive information about the range as well as the campaign to save it. In 2013 The Wilderness Society joined the action. For several years they had been running a Great Western Woodlands (GWW) campaign. The Helena and Aurora Range is in the North west corner of the GWW and in October 2013 the three organisations WSWA, HARA and TWS launched a *Proposal for the creation of the Helena Aurora Range (Bungalbin) 'Class A' National Park*- a jewel in the Great Western Woodlands. The group have also been very ably supported by the Environmental Defenders Office (EDO) in opposing in the Mining Wardens Court the granting under the Mining Act a General Purpose Lease and a Miscellaneous Licence to Polaris. This case went on for nearly three years. In more recent times Birdlife Australia and the Western Australian Family Bushwalking Club joined the opposition to the mine. This coalition has worked as a team to help get the range saved from mining. Along the way the support of thousands of Western Australians and some from further away have become a powerful voice for the cause. Social media has been used extensively plus newspapers, The West Australian and Kalgoorlie Miner as well as other media. Meetings have been held with most state politicians. More than fifty scientists signed a Science Statement testifying to the science basis of the biodiversity and conservation values of the range. Following Minister Dawson's decision he told the ABC Country Hour "the range was a "Jewel in the States Crown". "People have been out there and seen the beauty and pristine nature of the place". He had received more than 9500 pieces of correspondence in

favour of his eventual decision and only 170 against.

There is no doubt that it was community support which convinced Stephen Dawson and doubtless the other ministers he consulted that he had to make a decision to disallow mining of the Helena and Aurora Range so thank you so much to everyone who helped. As you can see every little bit counts.

Some views taken during Margaret and Brian's recent visit

Now all we need is get the change in land tenure but this may still take a little time.

Brian Moyle

News from Members

In the last Newsletter, Tim Darrington told us his *D. kippistiana* was in bud for the first time. Here it is in flower. Well done, Tim.

How long can dryandras live in the garden?

This Christmas, we will celebrate 40 years of living on our one acre block here in Ocean Grove. I have lost count of the number plant species we have tried but it certainly runs into the many hundreds. This includes around 30 dryandras, most of which have flowered and which I will list later. We have all gone through the drama/?trauma of trying to establish a new garden and sometimes, nature seems to conspire against us. Our land was previously farmland, I think used only for grazing, and to help break up the soil (clay-loam over clay), we had the block ripped with a D9 Caterpillar tractor to a depth of around 30 cm at a spacing of around 0.75 m. This certainly helped water to penetrate the soil, almost too well as our house construction was delayed for several months after a heavy storm when the builder could not move his equipment onto the site!

We established our first garden over the Christmas holidays of 1977-78 and at least two Proteaceae from that planting are still alive and flowering – *Banksia media* and *Banksis bauerii,* so we know that these two Western Australians can survive up to 40 years in an Eastern garden. As I did not keep detailed records, I am not able to say specifically how old my oldest *Dryandra* would be but three candidates for over 30 years are *D. longifolia* sub. *longifolia, D. brownii* (the real thing) and a very prostrate form of *D. lindleyana* which Keith Alcock called "Little Tufty". I think a very lonely little *D. cirsioides* in a shaded bed which has not flowered for many years could be well over 20 years old.

My 30+ year old *D. longifolia* Tony

As you will see from my list below, many of the species I tried are no longer with us. Some had a short life of a couple of years and others, despite several attempts in some cases, simply did not want to grow for me. We all know that a garden is not static and conditions change over the years – formerly good beds become choked with roots, the "small" gum we planted turns out to be a monster and beds become heavily shaded, and many plants reach their "use by" date and simply die of old age. Another characteristic I have noticed with my surviving dryandras is that most of the really old ones no longer flower so you may well ask why bother to keep them. It is probably more related to shading as *D. longifolia* sub. *longifolia* which is still in a fairly sunny position, provides a yearly display of delightful yellow flowerheads. The plants also tend to become scruffy and sprawling, eg my 30+ year old *D. brownii* now looks like six plants spread over three metres rather than the single plant that it is.

Believe it or not, this is my original plant of *D. brownii* Tony

Having made a pretty good case that dryandras do not grow old gracefully, how do the species that we often consider "hardy" perform? This is fairly subjective but I would include *D. formosa, D. praemorsa, D. fraseri* and forms, *D. lindleyana, D. nivea, D. cirsioides, D. cuneata, D. nervosa, D. sessilis, D. obtusa.* You well may have other favourites. I still have plants of all of these and most grow for 10 to 20 years. My problems now are that with shading and root competition and crowding, I now have little room for trying out new species. Perhaps I should pull out some of the old ones!

So here's a challenge. How long do dryandras grow for you? Please let me know for the next Newsletter the species that you consider are hardy and long-lived in your garden, together with your estimates of approximately how long they usually survive and their characteristics as they age. That way, we can all hopefully learn more about this wonderful genus and be encouraged to try other species.

List of Dryandras grown in Ocean Grove since 1978:

(Key - * = still growing; F = flowered at least once).

*anatona*F , *baxteri**F , *brownii**F , *calophylla**F , *catoglypta*F , *cirsioides**F , *cuneata**F , *ferruginea* sub. *ferruginea* , *ferruginea* sub. *chelomacarpa*F , *foliosissima**F , *formosa**F, *fraseri* var. *fraseri**F , *fraseri* var. *ashbyi**F , *hirsuta*F , *ionthocarpa**F, *lepidorhiza*F , *lindleyana**F , *longifolia* sub. *longifolia**F , *longifolia* sub. *calcicola** . *mucronulata* sub. *retrorsa** , *nervosa**F , *nivea* sub. *nivea**F , *nivea* sub. *uliginosa*F , *nobilis*F , *obtusa**F , *plumosa**F , *porrecta* , *praemorsa* var. *praemorsa**F , *praemorsa* var. *splendens*F , *pteridifolia* form*F , *quercifolia**F , *sessilis* var. *sessilis**F , *sessilis* var. *flabellifolia*F , *subulata*F.

Tony Cavanagh, Oct. 2018.

Trip to the Katanning Area

Back in the early eighties, I photographed my first *Dryandra proteoides*. The bushes at Lupton Reserve, west of Brookton, were flowering better than I have seen them anywhere since then. Flower heads grow directly onto the old wood and are usually completely hidden within the bush, often downward facing. The only sign that they were in flower was that the ground was littered with complete and partial flower heads as a result of a feast by cockatoos.

I took a full reel of both slide and print films. When I got the prints and slides processed, I immediately decided that one of the slides would be ideal for the cover of our proposed book, (then 20 years in the future). It wasn't until I showed it to Keith Alcock, the Study Group leader at the time, that he noticed a blurry streak across the flower head, probably a leaf in front of the lens that I hadn't noticed. It was disappointing and from that moment I tried to duplicate the shot – straight on and with and without the flash and with and without the sun every time that I found flowers on *D. proteoides* or any of the *D. ferruginea* forms. I never succeeded in this but, by the time that the book was published, there was the means to edit the photo and get rid of the streak.

When I got my digital camera about 10 years ago, I once again tried to get good pictures of *D. proteoides*. On every trip in winter, to the areas where it grows such as: Dryandra Forest, Tutanning Reserve and Strathmore Hill Reserve, I would look for flowers. Only on a few occasions did I find plants in flower but the flower heads were not suitably open or were distorted or finished.

In mid June, I finally managed to arrange a trip with my friend, Julie to visit the property of Jill, a friend of Wildflower Society friends who live near Katanning. One of my main aims was to find and photograph the flowers of *D. fililoba*. We found plenty of plants in the areas we visited but the flowers were long finished. All of the plants were of the form that grows at Strathmore Hill Reserve that I have written about previously. That is they are smaller in size – less than a metre tall and wide and the leaves are smaller over all than those at Tarin Rock, Harrismith and on 101 Gate Road where most of the population was destroyed as a result of road widening.

The property is not far from Strathmore Hill Reserve and I was promised plenty of dryandras. Jill was very excited to tell me that she had recently found a dryandra new to her, that she had identified from The Dryandras as *D. octotriginta* on a nearby property. Just before reaching the spot on an unmarked road, south of Strathmore Hill Reserve we found *D. acanthopoda* in flower. Where we

found the *D. octotriginta* plants, which were flowering a month earlier than usual, we also found *D. fililoba*, *D. armata* var. *ignicida*, *D. rufistylis* and *D. nivea* subsp. *nivea.* Only *D. octotriginta* was flowering and it was on my list of dryandras I had yet to photograph.

We went to another of Jill's properties, hoping to find any or all of the three prostrate dryandras that often occur together: *D. lepidorhiza*, *D. porrecta* and *D. preissii*. We didn't find them in the remnant woodland on the property but, walking back along River Road (the one south west of Woodanilling) I re-located some plants of *D. lepidorhiza*. I hadn't been along this road for quite a while and hadn't remembered the richness of the roadside vegetation. There is a good patch of *D. acanthopoda*, *D. stuposa*, *D. nivea* subsp. *nivea* and *D. nobilis* subsp. *nobilis* occurring together.

We drove along Orchard Road to Dinwoodie Road where Jill had found the underground-flowering *D. porrecta* (western form) in flower. After some excavating, we found a few solitary flower heads on a couple of plants and I photographed one that had tiny flowers – only about 2cm long. This was in an area where we failed to find flowers on the plants when we were collecting leaf samples with Kevin Theile and Francis Nge in 2016. (See Newsletter no. 71).

The western form of *D. porrecta* doesn't seem to flower nearly as prolifically as the eastern form and I'm beginning to think that it was the latter that I had in my garden in Perth and is the one depicted in *The Dryandras*.

***D. proteoides* habitat near Katanning and (below) one of Margaret's successful shots of the flowerheads.**

After spending the night in Katanning, Julie and I returned to Jill's place but, as we had plenty of time, I decided to look for *D. proteoides* at Garstone Reserve, on the way. We were delighted to find that a few of the plants were flowering sparsely. We found some good ones to photograph and, after showing the photos to Jill who wasn't familiar with the species, we took her back to see it. With more time and an extra pair of eyes we found several more lovely flower heads. *D. proteoides* grows in distinct habitats in woodlands. It doesn't usually occur with other dryandras but *D. sessilis* var. *sessilis* grows with it, at this reserve.

It was a very successful trip and although we didn't find *D. fililoba* in flower, it was great to find *D. octotriginta* and share the knowledge of the area with another dryandra enthusiast, such as Jill.

Margaret Pieroni 28/6/1