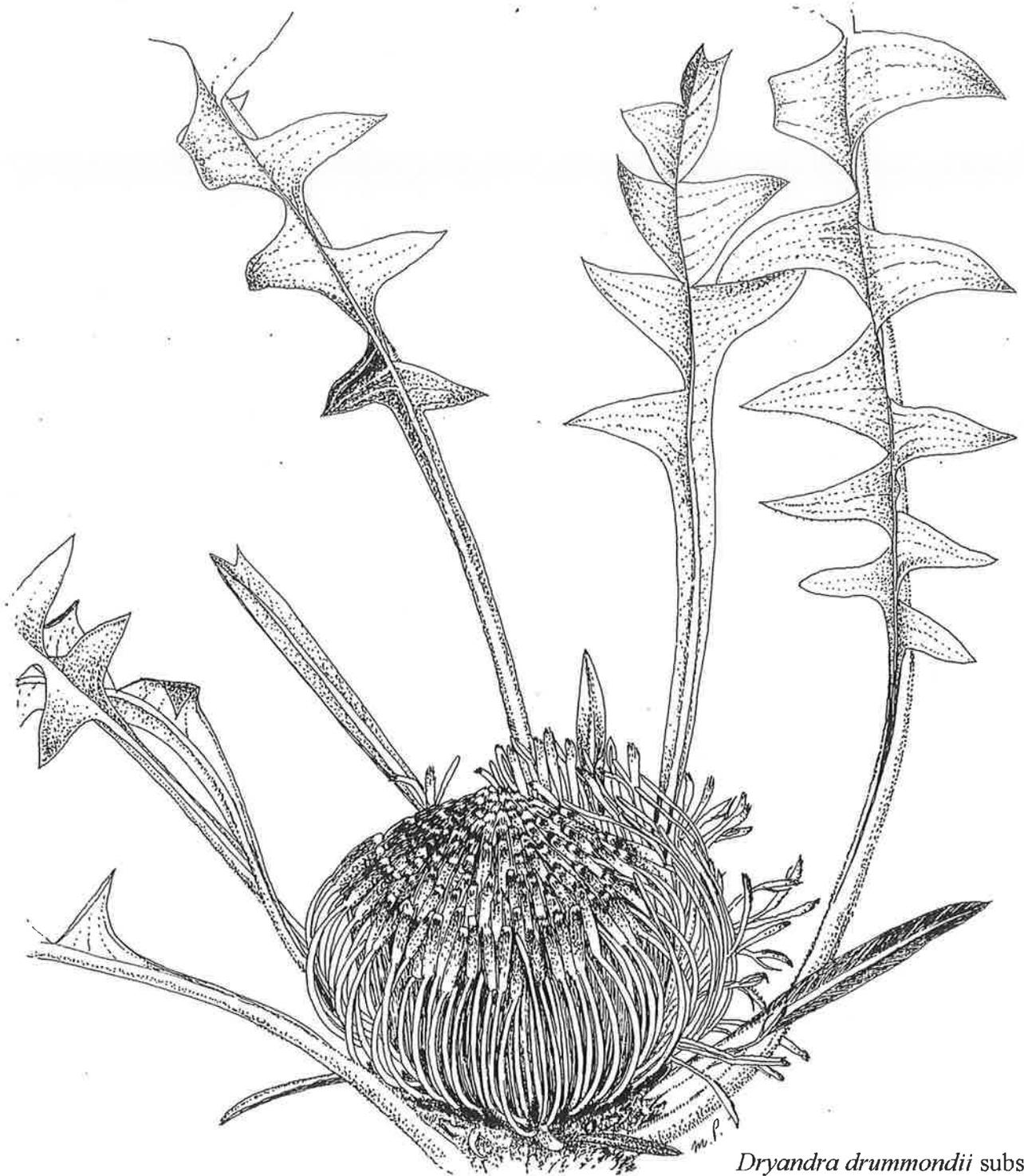


DRYANDRA STUDY GROUP
NEWSLETTER NO. 44



Dryandra drummondii subsp. *hiemalis*.

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ASSOCIATION OF SOCIETIES FOR GROWING
AUSTRALIAN PLANTS

Dryandra drummondii subsp. *hiemalis* Flowering in winter in cold parts of W A, this beautiful plant is a hardy garden subject. The magnificent foliage, generally less twisting than subsp. *drummondii* completely conceals the flowers when the plant is mature. The flowers, with glowing, golden-yellow perianths and rich, copper-coloured, long limbs cluster thickly at the base of the leaves, forming a mound as the plant grows.

DRYANDRA STUDY GROUP

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Welcome to the first Newsletter of 2003.

Thanks to everyone who has written to let us know of the progress of their dryandras. I have included excerpts and there are some useful comments and information. I was particularly interested in Lloyd Carmen's observation on scorching of young dryandras on very hot days. This is something that we have not had reports on previously and I am keen for any further observations. After this dreadful summer, I expect most of us will experience losses. Please let us know which dryandras survive and equally importantly, which ones have died. One species which has disappointed me recently is *D. conferta*. I have lost three young plants over the last two years, each was between 12 and 18 months old at the time. They do not appear to be able to withstand dryness unless well established yet I had a plant which lived for 15 years in a garden which eventually became part shaded but was always extremely dry. Based on this, I have always regarded *D. conferta* as "hardy and reliable". Perhaps this is not so – does anyone have comments or observations on *D. conferta* as a garden plant?

In this issue, Margaret has provided a feast of information on dryandras in the wild from her extensive travels during 2002. One of the problems with WA seems to be that the more you look, the more variation you find among the plants. *Dryandra* is no exception! Alex George has recently described several new taxa which are to be published in a forthcoming issue of *Nuytsia*, the journal of the Western Australia Herbarium. One of these has been given the manuscript name of *D. prionotes* ms and is the aff. *armata* discovered by Fred Hort near Cataby and discussed by Margaret in N/L 42, p. 2. The flower heads, while not spectacular, are unusual and the plants are generally less than a metre. The picture provided by Margaret is the first time that this plant has been illustrated. Her other pictures are of the intriguing new growth on *D. vestita* and that rare garden plant *D. shuttleworthiana*. Thanks again to David Lightfoot for scanning the photos and producing the colour page. As well as members' notes, I have updated the index to species in the Newsletters and it now covers from issue 27 to issue 43. I hope you find it useful.

We need your help

The text for the *Dryandra* book is progressing well and drafts of several of the early chapters and information on all the species have been completed. However, we are still lacking some horticultural information on a number of the new species. These are listed below. If you are growing or have information on any of the following, could you let Margaret or myself have the details. Specifically, approximate age, H x W, flowered, set seed, garden position and brief notes on horticultural potential and your garden soil, climate etc. The main species are:

D. acanthopoda, *aurantia*, *catoglypta*, *cynaroides*, *cypholoba*, *echinata*, *epimicta*, *erythrocephala* (both varieties), *fasiculata*, *ferruginea* (any of the complex), *fuscobracteata*, *hirsuta*, *horrida*, *ionthocarpa*, *insulanemorecincta*, *lepidorhiza*, *meganotia*, *pallida*, *platycarpa*, *pseudoplumosa*, *rufistylis*, *shuttleworthiana*, *trifontinalis*, *viscida*, *xylothemelia*.

In addition, Margaret is interested in species that appear to be self fertile, that is they can set seed with only one plant and do not require cross fertilisation. If you are sure that yours is the only plant in an area and it has set seed, can you let Margaret know.

Subscriptions for 2002-2003

These were due on July 1, 2002 and a number are still outstanding. The cost is \$8.00 and to ensure that you receive the next newsletter, please forward your cheque to Margaret if you are still unfinancial.

I hope that your gardens survive this terrible summer and that autumn will bring us some welcome and much needed rain. I think this year will be a real test of our native gardens.

Happy Dryandra growing
Tony

Travels in 2002

Our Botanical Artists Group has decided to feature pea flowers at our next exhibition in the spring. Not having any early-flowering peas in my garden, I was at a loss to decide on a species to paint until I suddenly thought about one of the most attractive and unusual ones - *Daviesia epiphyllum*. This is an autumn flowering, fairly rare plant that I'd never seen in flower, which is very common at Don and Joy Williams' property, 'Hi-Vallee', near Badgingarra.

Elizabeth George was available and keen to go with me on 27th May to spend three days on a leisurely (for once) trip to the area. On the way we stopped at Fred Hort's 'Patch', where he found the new *Dryandra* last year. Its buds were quite swollen but not yet showing the flowers, so we decided to return in about six weeks. The area is designated as a quarry reserve and we are concerned for the survival of the *Dryandras*

At 'Hi-Vallee', Joy took us up to the laterite ridge which is so rich in Proteaceae and where *Dryandra catoglypta* was well in bud, showing the rich, copper-coloured limbs on the tips of the golden flowers. I was hoping to find *D. shuttleworthiana* in flower as I needed good photos, but we were much too early.

Having collected and photographed a very good specimen of the *Daviesia epiphyllum*, we continued north to stay at Western Flora Caravan Park, north of Eneabba. The next morning, I began painting the *Daviesia*, as I was concerned about its keeping qualities - unlike *Dryandras* and *Verticordias*, it couldn't be expected to still look the same in three days time, when I returned home. After I'd painted several flowers and pencilled in the rest, we set off in the direction of Three Springs.

We have a copy of an excellent map, *Kwongan Connections, Wildflower Drives of the West Midlands Region*, produced with considerable in-put from local people and showing green borders on the best roads for natural vegetation. If you are planning a trip to the region, this is thoroughly recommended - the area and the map!

On Bunney road we were rather horrified to see that the Shire is clearing the verges on both sides of the roads, forming banks and pushing up the dead vegetation to the edges of the unspoiled bushland. They were busy doing the same on Nebru Road where we stopped to investigate the intriguingly named 'Cockatoo Canyon'. North of the road, after walking about 50m through interesting, low vegetation and small eucalypts, including *Eucalyptus pyriformis*, we found ourselves on the edge of a cliff, looking down on a dry creek bed and a wonderful view of the Eneabba sandplain.

Proceeding north on Bunney Road, I almost missed seeing the population of *D. stricta* at the Arrowsmith River as the roadworks have altered the terrain. We turned east on Hydraulic Road where the verge clearing had been carried out a year or so ago and immediately saw the benefit of this operation in allowing a good view of the re-sprouting plants, such as *D. lindleyana* subsp. *media* (not yet in flower) and a *Verticordia grandis* in full, glorious bloom. The clearing of these roadsides results in tourists getting a good view and good photographs of some of the most spectacular plants, but...do they all come back (re-seed as well as re-sprout) and for how long can plants sustain such treatment?

North of Three Springs, we drove to the gravel pit where, about 10 years ago Anne Cochrane and I had been shown a vast population of the three endemic *Dryandras*: *D. borealis* subsp. *elator*, *D. fraseri* var. *oxycedra* and *D. trifontinalis*. As I reported a few years ago, gravel is again being extracted and now the pit is much deeper and even the few plants we had seen growing around the edges have gone. We saw only a few plants of *D. borealis*, not yet in flower, unlike mine at home and none of the other two species as we drove back towards Three Springs.

On our way back towards Eneabba, again taking some of the back roads marked green on our map, we found a small population of *D. borealis* on Thomas Road. There are small, scattered roadside populations of this species in the Three Springs - Arrino area but the only place left, as far as we know, where all three endemics are protected is at Kadithini Reserve which is only accessible through private property.

On Dookanooka Road, we saw; *D. shuttleworthiana*, *D. platycarpa* and *D. lindleyana* subsp. *media*. Stopping for a 'cuppa' on Kangaroo Road, we discovered a real *Dryandra* 'hot spot', with *D. glauca*, *D. kippistiana*, *D. carlinoides*, *D. lindleyana* subsp. *media*, *D. shuttleworthiana*, *D. bipinnatifida* subsp. *multifida*, *D. fraseri* var. *crebra* ms. and *D. sessilis* var. *flabellifolia*. Travelling along Beekeeper Road towards Brand Highway, we were surprised to find another small, roadside population of *Daviesia epiphyllum*. When we stopped to photograph it, we found an amazing plant of *D. shuttleworthiana* right on the edge of the cleared road bank, perfect for photography. Its two main stems were crowded with open flowerheads, crammed so closely that many were pushed out of shape. The flowers of this species are mostly hidden within the two rings of shaggy bracts. The outer ring bends back and the inner one surrounds the flowers in a similar way to those of *D. speciosa*.

On our way back to Perth, we took the Watheroo West Road. We both wanted to see Dinner Hill, the source of quite a few herbarium collections. At Lang Lookout there is a small but very rich remnant of kwongan vegetation including most of the *Dryandras* seen at the Kangaroo Road 'hot spot', but with *D. stenoprion* instead of *D. lindleyana* subsp. *media*. All of the roads we explored will be sensational in a month or two especially since there has been some much-needed rain in this area.

1/6/02

Six weeks later, I learned that the new *Dryandra* was flowering. I made two trips up to the 'Patch' in quick succession. Alex George and the *Dryandra*'s discoverers, Fred and Jean Hort went with me on 16th July. Its flowers are smaller than I expected and they were ravaged by insects. Fred had already noted that the pollen presenters lacked pollen. Almost all of the inflorescences were spoiled by a black, slimy substance and caterpillars inside them. Seed, too has been heavily predated and only three good seeds were found. Most of those not eaten were not viable. It had been very dry and the plants were already stressed. The flowers are quite pretty. The perianth is flushed with pink and the limb is green with a dusky pink tip and sparse white hairs. There was pollen on the anthers but it was not being picked up by the pistil as the flowers opened.

Fred showed us another part of the reserve near the working gravel pit. A previous pit had been filled and was being re-vegetated. There are a few beautiful, dense, mounded

plants of *D. kippistiana* var. *paenepeccata* growing there - not yet in bud and showing signs of black sooty mould which seems to strike plants that are stressed due to lack of rain. They were on their way to recovery, however. Var. *paenepeccata*, unlike var. *kippistiana* has a lignotuber and forms a lower, more sprawling shrub or, in the case of these ones, a neat, bushy mound, branching right down to the ground. It used to be considered fairly rare until Fred discovered several new populations. He rang me recently to tell me he'd found it near Armadale, an outer suburb south east of Perth. I knew it had been collected there in 1901 and, as far as I know, not since then. Alex had seen a few plants years ago but thought, as I did, that they would have been destroyed to make way for housing.

14/8/02

In mid-August, I returned to the 'Patch' with David Lightfoot and his parents, Paddy and Caryl, where we met Don and Joy Williams before going on to spend yet another delightful day in their company at 'Hi-Vallee'. The new *Dryandra* had finished flowering and *D. kippistiana* var. *paenepeccata* had no sign of buds.

David found many of his *Isopogons* and *Petrophiles* in flower on the way, and still more, including some recently named ones, when we got to 'Hi-Vallee'. Unfortunately, due, no doubt to the dry weather, *D. catoglypta* had finished flowering. *D. nobilis* subsp. *fragrans* was not quite as floriferous as in other years and *D. stricta* and *D. kippistiana* var. *kippistiana* were beginning to flower. It is always a joy to visit the Williams and to share the delight of first-time visitors to such a flora 'wonderland'.

Earlier this year, while sorting through the Study Group seed collection, I found an envelope of follicles labelled '*D. ferruginea* long leaves Cape Arid'. It had been collected by John Cullen, then a member, in 1983. John couldn't remember exactly where he'd found the plants except that, on the way to Mt. Ragged, he'd explored all the side tracks and it was growing with *D. obtusa* and other *Dryandras*. I already had two other reasons to want to return to Cape Arid. In 2000, Brian Moyle and I had attempted to reach a spot on the map marked 'The Diamonds Hill'. We had been forced to turn back, however, because the 4WD track (Fisheries Road to Israelite Bay) was so bad after the flooding rains of earlier that year. Near Hill Springs, at the foot of Mount Arid (see N/L No. 40), I had noted *D. falcata* on the lower slopes growing with *D. nervosa*, *D. nivea* subsp. *nivea* and *D. cuneata*. With Keith Alcock and Paul Kennedy, Brian and I re-visited the spot last year but it wasn't until I re-read the description in the *Flora of Australia* that I realised that *D. falcata* had not been collected so far east - no further than the Fitzgerald National Park. In October, with Tony and Liz Cavanagh we'd been unable to negotiate the 7 or so km of sandy track in their vehicle to reach Hill Springs.

Brian and I arranged our trip for six days at the end of August into September. We took two days to Duke of Orleans Bay and spent three nights there, then returned to Perth in two days. This gave us time for one or two diversions to seek out *Dryandras* to photograph and to discover other interesting plants and back roads. Near Wellstead Crossing, I photographed *D. brownii* in flower. I was hoping to re-locate a magnificent plant which had been particularly floriferous last year but was finished when we saw it in October. We were just a little too late. A roadside clearing crew had just reduced it to 5cm in height! Other plants were in flower and I noted that not all flowers are dark



Clockwise from top

Jean and Fred Hort with
D. prionotes ms at Cataby

New Growth on *D. vestita* 20/9/02

D. shuttleworthiana
Beekeeper Rd. 29/5/02

D. prionotes ms 16/7/02

pink. Some plants had pale yellow flowers and some were two-toned. The habit of the shrub, size of the flowers and leaf shape did not suggest any hybridization with *D. arctotidis* as has been observed elsewhere, however.

On Elvertdon Road, in the Ravensthorpe Range, I was very pleased to find an abundance of seedlings of *D. quercifolia* and *D. corvijuga* and possibly some new hybrids where the fire of summer 2000-2001 had devastated the most beautiful natural hybrid I'd ever seen. Let's hope that they will receive enough rainfall to keep growing.

South west of Munglinup, on Springdale Road I photographed *D. nivea* subsp. *nivea*. The inflorescences were dark pink, like *D. brownii* and had some filiform, hirsute 'bracts', which are typical of *D. brownii* but lacking in *D. nivea*. I wonder whether the two genera blend at the edges of their ranges - both east and west?

Further east, south of Munglinup we found some beautiful, compact and very floriferous *D. cuneata*. Leaves and flowers are smaller than usual but the number of flowers covering the shrubs more than made up for it. If it grows true to form it would make a much better garden plant than the straggly, few-flowered plant that I have at present. (Though it's an improvement on the one that **never** flowered).

We had perfect weather for our two days at Cape Arid, though strong winds and storms were forecast for the second day. We spent the first day, after a brief visit to the ranger and a quick look at the magnificent Tagon Beach and Fishery Cove, looking for John Cullen's *D. ferruginea* and collecting *D. falcata* at Mount Arid.

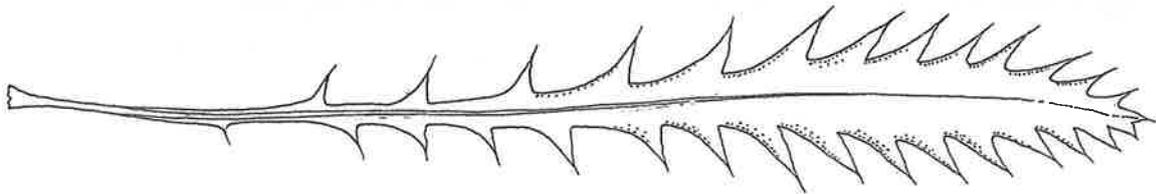
We stopped at several places on the way to Mount Ragged. *D. obtusa* is very widespread, in fact, everywhere we stopped, as is *D. cuneata*. At about a third of the way there is a cleared line of track going north west from the Balladonia Track, which we followed for several kilometres. Soon we found other *Dryandras*, namely *D. nivea* subsp. *nivea* and *D. armata* var. *ignicida*, as well as the other two. This was the only place that matched the description of the location of John's *D. ferruginea*. Unfortunately, we didn't find it.

The following day was cloudless and warm but the wind was ferocious. The storm forecast was still being given for the rest of the south west of the state but for Esperance, it was now 'rain increasing'.

There were still many 'water jumps' on Fisheries Road, and by-passes and by-passes around by-passes, but not quite as bad as in 2000. The worst one was where we had decided to turn back the last time! We found the un-signed track to the Diamonds Hill, thanks to our good maps, Brian's GPS and most importantly, his skill at using it to pinpoint our position at all times. The track, though obviously un-used was dry and easy to negotiate. It petered out after turning east and then north, at about the middle of the eastern slope of the hill. We had been expecting that the track would finish at the top. A gravel pit, marked on the map is apparently long since overgrown, as there is no sign of it.

Keeping an eye on the sky for rain clouds, as it could have been risky returning along Fisheries Road after heavy rain, we started to walk up the slope where we were

thankful to be sheltered from the wind. After a short distance we found *D. longifolia* subsp. *archeos* - masses of it! When we'd noticed that the boulders higher on the hill and the scree slope are quartzite we wondered whether we might find it there. Subsp. *archeos* had only been collected from Mount Ragged, so we realised that The Diamonds Hill is probably pretty much unexplored, botanically. No-one could possibly miss seeing the *Dryandra*. It appears to be more prevalent than at Mount Ragged. As we climbed higher, the plants became more numerous and eventually, as I'd hoped, we found a few plants in late flower. (It flowers in May - June). While photographing the *D. longifolia*, I noticed a strange-looking *Dryandra* next to it. Flowers were finished and last years seedheads had grubs in them but we realised that it must be a hybrid of subsp. *archeos* and *armata* var. *ignicida*. Last year, at Mount Arid, Keith discovered a very similar plant - probably *D. longifolia* subsp. *longifolia* X *armata* var. *ignicida*. This latter species was flowering on the hill, though rather sparsely as well as the bright purple-pink *Isopogon heterophyllus* among many other species. A pale band of vegetation about half-way to the top turned out to be a lovely, tall, open *Leucopogon* with large white flowers and pink buds. There are some interesting mallee eucalypts and *Grevilleas* and, no doubt many other plants we'd have liked to have found but reluctantly, as the rain clouds appeared, we had to leave.



Supposed hybrid *D. longifolia* subsp. *archeos* x *armata* var. *ignicida*

As we were leaving the hill, we noticed that two large rocks at the top were almost identical in size and shape - like two diamonds lying on their long sides. Is this why it's called The Diamonds Hill?, we wondered.

Every time I visit Cape Arid National Park - and I have been there in the months of April, May, June, August and October since 1996 - the heathland (kwongan) is a mass of colour with so many different species each time. Some, such as *Isopogon heterophyllus* can be seen in flower from April until October, perhaps longer. Near the coast, on the lower slopes of Mount Arid and growing in areas of deep, white sand, inland, *Banksia speciosa* always has some flowers, although the peak is in summer. Bushes of the palest blue Smokebush, *Conospermum distichum* were flowering among low-growing *B. speciosa* and many other shrubs on the northern and eastern lower slopes of Mount Arid, looking like a large flock of sheep, quietly grazing. Brian saw this species flowering later, in November, two years ago when the *Banksia* was also in full flower. In October, last year, the plains to the north of Mount Arid were a mass of pink and white shrubs.

10/9/02

Footnote: Alex George will take the specimen of *D. falcata* to Kew where he will compare it to the one collected by Robert Brown in 1802 at Lucky Bay. It has not been seen there since.

In September, I had just a few days to fit in a quick trip to the Stirlings and a couple of nights at Mount Barker. The Collins' 'Banksia Farm' was looking splendid and Kevin and Kathy were busy preparing for the opening of their new building - a shop, gallery and tea room and coping with a record number of visitors.

I had arranged to meet Sarah Barrett from CALM, Albany, to go to the south boundary of the National Park, where she has discovered a new population of *D. ferruginea* subsp.? On the way, along North Woogenillup Road we made a stop where Kevin had found *D. ferruginea* subsp. *ferruginea*, several years ago and, finally, found it in flower. The inflorescences are quite large but almost completely hidden in the dense mound of foliage. Plants are about 1m X 1m, and similar in size and shape to *D. drummondii* subsp. *drummondii*, with which it grows, among small, mallee eucalypts and other small to medium shrubs.

We had to hurry to get to the Stirlings as rain was threatening and Sarah is not permitted to use the tracks in wet weather. The rain held off, however and we had a beautiful day for photography. The first population of the *D. ferruginea* is in an area burned quite recently and the plants were small, with flowers almost at ground level but further on, in a spot where all the vegetation is very low, with no trees, the *Dryandras* although less than 1m high were prominent. They also were dense, mounded shrubs with flowers almost hidden but quite a bit smaller than those on North Woogenillup Road. The inflorescences are smaller, also.

We drove along Stirling Range Drive to look at *D. ferruginea* subsp. *pumila*. Sarah was concerned about many deaths of these plants. Since the most recent fire, they have hardly grown, the flowers are very sparse and small and, indeed they are not recovering at all well.

The *Dryandras* in the new population, further south are quite variable in leaf shape and size (see N/L No. 41). I wonder whether they are intermediate between subsp. *pumila* (in the middle of the Stirling Range) and subsp. *ferruginea* (at North Woogenillup Road). They are about mid-way, geographically.

On 20th September, Brian and I had a day trip to a range of quartzite hills, north of Moora where we'd been told there is some different and interesting flora. Among many plants of *Regelia megacephala* (not yet in flower), a beautiful pink, pom-pom *Kunzea*, *K. praestans* and masses of purple *Calytrix ?lechenaultii* were *D. sessilis* var. *sessilis* and a few *D. fraseri* var. *fraseri*.

On the way back to Perth we detoured around some back roads between Moora and Gillingarra and were very surprised to find a group of three or four mature plants of *D. vestita* on a weed-ridden road verge. The number of long spikes of new growth, covered with soft, hairy scales spiralling around them was very striking. Some of them were more than 30cm long. There were numerous hairy buds on all of the plants but no seed follicles appear to have been formed. The isolation and small number of plants would seem to be hastening their demise. Even if seed was produced, seedlings would have to struggle among the thick weeds. We wondered whether fertiliser or some

other spray drift from the adjacent paddocks would account for the abnormal new growth.

24/9/02

In October, Elizabeth George and I spent three days at Harrismith and Newdegate, helping to identify *Verticordias* and *Dryandras* for local botanists and enthusiasts.

The marvellous flora reserves around Harrismith were looking very colourful with many species in flower, despite the dry year. Several 'wildflower trails' have been established and plant labelling is getting under way. The area is rich in *Dryandras* and other Proteaceae, being mostly heathland on gravel and sand and gravel. *Dryandras* that can be seen on the tracks, particularly near the landmark water-tank are: *D. ferruginea* subsp. *ferruginea*, *D. vestita*, *D. cynaroides*, *D. fililoba*, *D. conferta* and *D. purdieana* / *cirsioides*. The latter, the dominant species in the area, is one of the 'problem' *Dryandras* which seems to be intermediate between *D. purdieana* which occurs to the north, e. g. east of Wongan Hills and *D. cirsioides* in the south, e.g. Jerramungup. Leaf variation among the plants is quite noticeable and the population appears like a huge hybrid swarm. The *D. conferta* is also atypical, with smaller leaves than var. *conferta* and small follicles more like var. *parva* in shape.

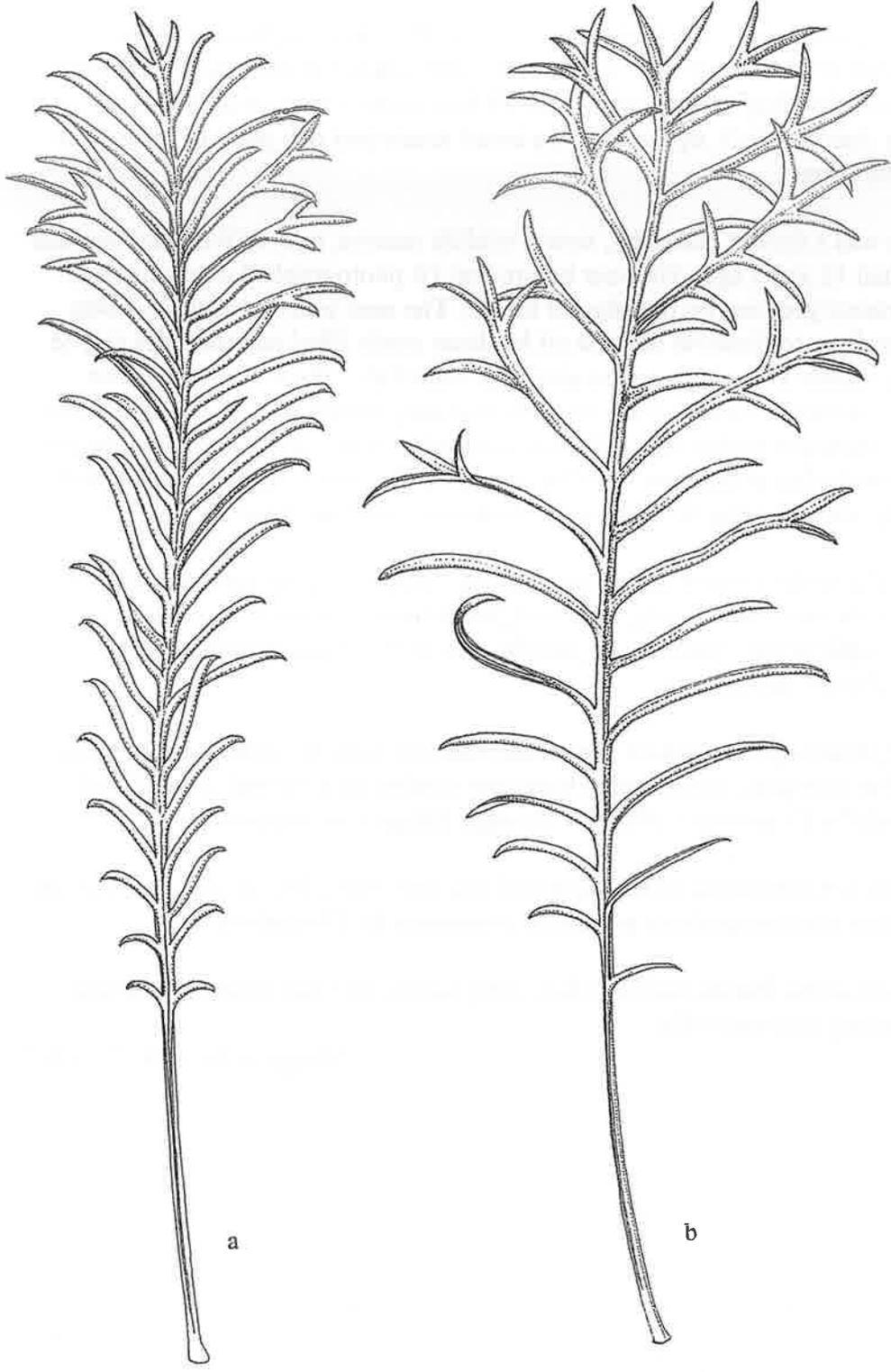
Along the railway line, west of the town and not on one of the official 'trails', I pointed out *D. rufistylis* which can best be distinguished by the follicle which is like that of *D. seneciifolia*.

Moving on to Newdegate, we were joined by a group of friends from there and as far afield as Ravensthorpe and Ongerup for a day out, north west of Newdegate. After a picnic lunch and a count of the plants of the rare *Verticordia staminosa* subsp. *cylindracea* on a granite rock on the property of one of the group, we looked at some *Dryandra* locations on the way back. We found; *D. ferruginea* subsp. *ferruginea*, *D. pallida*, *D. xylothemelia* and *D. erythrocephala* var. *erythrocephala* in kwongan and in woodlands, we saw *D. octotriginta*. Further east, we discovered a small population of *D. No. 14* which, I believe, Alex intends to make a subspecies of *D. pteridifolia*. It has blue-grey leaves with narrow, revolute lobes. The leaves, arising from underground stems are spirally twisted. The plant resembles subsp. *pteridifolia* but the inflorescence and the miniature floral leaves are similar to *D. fililoba*.

Returning home, along Tarin Rock North Road, we pulled in to what I thought was a gravel pit on the top of a hill, for a 'cuppa'. The track led into a farm past a wonderful strip of remnant heath. We found many large, healthy *D. foliosissima* with *D. ferruginea* subsp. *ferruginea*, *D. fasciculata* and *D. ?cirsioides*. *Grevillea insignis* was also prominent as well as *Isopogon gardneri*.

I have been drawing the inflorescences in section as well as the single flowers of a species from each of the series in *Dryandra* (26 in all) and I still had three left to do. Plans to visit Mount Barker in October fell through so Brian kindly offered to take me to collect one of them, *D. preissii* on 19th October.

We had several locations in mind, to look at, around Woodanilling. Because of the lack of rain, I thought the western-most populations would be the best prospect. Near



Dryandra preissii a. Western form b. Eastern form

Crapella Road, off Albany Highway, plants were very small and the few flowers had long finished. Alex had told me about this spot and that he'd seen several *Banksia laricina* and a *D. speciosa* there, that someone had planted. We found the *Banksias*, all dead and the *Dryandra* which is flourishing.

At the restored gravel pit on Orchard Road, west of Woodanilling there are fewer plants of *D. preissii* than there once were. Here, once again, we were too late for the flowers. On Woodanilling West Road, where I'd first seen *D. preissii* and where Shirley Loney discovered *D. lepidorhiza* we could locate just one plant of the former and none of the latter.

Our last hope was a former gravel pit, now a wildlife reserve, east of Woodanilling that I had last visited 12 years ago. The year before that I'd photographed a magnificent plant of *D. preissii* growing on the edge of the pit. The next year it was dead. I was delighted, therefore, to discover that the pit has been partly filled and the sides sloped so that plants, mostly *Dryandras* are re-growing beautifully. There are many more large clumps, a metre or more across, of *D. preissi* and, though almost all had finished flowering, we managed to find two inflorescences still in bud - just as I needed for the drawings. Plants in this population have leaves with wider, more spreading lobes and larger flowerheads with long thread-like points on the involucre bracts.

Other *Dryandras* in the reserve are; *D. armata* var. *armata* and var. *ignicida*, (I have a photograph of the two side-by-side, in flower, taken here on a previous visit), *D. rufistylis*, *D. conferta* var. *conferta*, *D. fililoba* and, in woodland surrounding the gravel pit, *D. fraseri* var. *fraseri*.

One of the *D. fililoba* plants looked somewhat different from the others. It had dark green instead of blue-grey leaves which were also smaller than normal. I wondered whether it could be *D. preissii* x *fililoba*? Stranger things have happened!

So, yet another trip turned out to be successful and very enjoyable, providing extras in the way of other interesting plants and range extensions for *Dryandras*.

Many thanks to all the friends and travelling companions for your much appreciated excellent company and hospitality.

Margaret Pieroni 25/10/02

Notes from Members

(From Lyndal Thorburn, Queanbeyan, New South Wales)

A few years ago, I stayed with Margaret and during a walk along the river near her house, I collected a few seeds of *Dryandra sessilis* (var. *cygnorum* – Margaret). One of these is now grown and is about half a metre high. We had it in the igloo the previous winter but last autumn transplanted it into one of our tubs for good drainage. It has shown no sign of frost tenderness despite being out in minus 7 °C this July.

We also have *D. ferruginea* (probably var. *chelomacarpa* – Margaret) which I think we got from Woods and Forests in South Australia. It too has been out in the frosts in a tub. It seems healthy, its leaves are still a glossy dark green and it is about 30 cm in diameter so far.

We made the mistake of planting our *D. quercifolia* out in the garden when it outgrew the pot. Sadly, it is not doing well – leaves have gone yellow, I think it is short of some essential nutrients. With our shaly, water-repellent soil, it is a wonder that all our plants don't look like that! It has flowered but not well. We will feed it this spring and hope it improves.

(Thanks for this information, Lyndal. I was particularly interested in your experience with frosts – that is two more plants to add to the list of those dryandras which are frost resistant. Does anyone else have experience with frosts and could recommend other species which can stand various degrees of frost? I do hope that the *D. quercifolia* picks up – editor).

(From Pam and David Shiells, Violet Town, Victoria).

At last we are settling in to our new home. We have plenty of scope with 8 acres, situated on the edge of town, backing onto a creek.

Our early plantings of dryandras comprise some of the more commonly available: *arctotidis*, *formosa*, *nivea*, *nobilis*, *obtusata*, with *praemorsa* and *quercifolia* still to be planted out. When we think of the species we used to grow, and all the new ones, we have a long way to go!

If you can spare any seed it would be most appreciated. One of my favourite plants (about 20 years ago), was *D. stuposa* which we found to be quite a tough plant, similar in some ways to *D. formosa*.

(I envy you with the 8 acres, David, but I know that you will steadily fill them up. I would be interested in your dryandra's progress as we have few records for this part of Victoria – editor).

(From Hugh Seeds, Beverley, W.A.)

The colour photographs in the Newsletter are excellent.

Margaret identified for me the plants growing off Mercer Road, Talbot Brook, York as *D. drummondii* subsp. *hiemalis*. There is a good stand of the plants there and the area should be listed as a natural habitat of this subspecies. I raised three plants from seed collected there for Mike Montague's seed orchard on North Road, York. The most vigorous is the open one on a hilltop, the other two are under *E. camaldulensis* down the slope. Those at Mercer Road are in Wandoo woodland.

Seedlings I raised of *D. armata*, *D. sessilis* and *D. squarrosa* all went yellow in the leaf when I potted them on from the tray. They recovered after I repotted them with lateritic gravel in the mix and in the bottom third of the pot. One seedling that I planted out in lateritic gravel on the edge of a driveway grew on well.

Tony's article is so interesting as well as covering so many spectacular spots in the south west. Denmark is a good area for dryandras – *D. nivea*, *D. squarrosa*, *D. quercifolia* and *D. formosa* all grow there. Mt. Lindsay is good for the last named. A dryandra that does not get much mention but is very suitable as a cut flower because the flowers are at the tips of the branches is *D. stuposa*. It is very like *D. nobilis* and grows wild near York. Pat and Bruce McGregor have it growing naturally on their farm on Boyercutty Road.

(Thanks for this information Hugh, especially about adding laterite gravel to pots. I assume that this assists with drainage but it is good that it apparently cured the yellowing problem. It is interesting that both you and David Shiells have recommended *D. stuposa*. It is a nice plant and the flowers are quite spectacular although not as bold as *D. nobilis* which, surprisingly, grows better for me. My *D. stuposa* has suffered severely from our extended dry period and I am hoping that it will survive summer. Does anyone else have *D. stuposa* and has recommendations for growing it successfully? - editor).

(From G. Paul Stain, Bibra Lake, W.A.)

I had an unusual experience with my last not-very-successful attempt at raising seedlings and I wonder if anyone else has had a similar experience. Most of the seed of *D. conferta* var. *conferta* (blue leaf form) germinated but with **three** seed leaves instead of the usual two. None of these survived very long and only one with two seed leaves did any good. It would be interesting to know if this is common with this group of plants.

Anyway, after a trip down south and seeing Kevin Collins' place, I now feel inspired and would like to try again with the following species if the seed is available:

D. conferta var. *conferta* (blue leaf form), *D. subpinnatifida*, *D. xylothemelia*, *D. ferruginea* subsp. *tutanningensis*, *D. preissii*, *D. nivea* "Morangup", *D. carlinoides*, *D. mucronulata* subsp. *retrorsa*.

(Can't say that I have seen seedlings with three seed leaves, Paul, but lets see if anyone else has had a similar experience. I have no idea why this might affect the survival of the seedlings – editor).

(From Barbara Buchanan, Myrree, Vic.)

It has been an interesting year in the garden. There actually was a beautiful spring flowering, but short because of the early bursts of heat. Right now it is so hot that I barely put my head out of doors if I can help it. The flowering was probably helped by the fact that at last I am learning to prune and cut back. Also, big areas have been opened up to more sun due to loss of plants and I have heard the theory that plants are flowering in a panic to create seed before they die due to drought. We have had more rain than most of the state but the ground at the moment is bone dry and this last heat wave has done a lot of damage. Through it all, *D. drummondii* subsp. *hiemalis* has put out a lovely crown of new growth and the Kamballup dryandra (*D. ionthocarpa*) has flowered for the first time that I have noticed. It is in one of the areas now greatly opened up to morning sun. That's about the end of the good news. None of last year's seedlings survived this winter as we had a few really cracking frosts. I have a few from another batch but not many to replace the losses.

(I also had very short and even aborted flowering this year on many plants, Barbara. They would start out with lots of buds, quite early in many cases, but the buds often dried out before they fully opened. This was particularly noticeable with *Isopogon formosus* and several darwineas. On the other hand, I probably had my most successful year with dryandras flowering, some for the first time in over ten years. Some younger dryandras and banksias are now suffering and some I doubt will survive the summer, including *D. conferta* which I have always considered a very tough plant. Maybe it is tough when established – editor).

(From Lloyd Carmen, Eden Hills, South Australia)

This is a short update on our dryandras following a recent heat wave which climbed to 42 °C. Some of the dryandras were scorched in varying degrees while the remaining 28 species in the garden appear to be unaffected.

D. aurantia was badly affected and I don't expect it to survive, very sad.

D. brownii, about 8-10 years old, and around 0.5m high by 1.2m wide, had the whole upper surface leaves scorched.

D. foliolata about 4 years old and 0.8m high by 0.5m wide, has attractive foliage and form. It is currently in flower (December) with light brown flowers about 2cm across and had some leaves scorched.

D. ferruginea subsp. *pumila* is about three years old and 30cm high. It was growing nicely but has suffered about 80% scorching.

D. stiposa about three years old and 30cm high suffered about 30% scorching.

We are pleased with:

D. falcata is about three years old and around 0.8m high. It suffered from yellowing of the foliage but since treating the soil around it with iron chelates, iron sulphate and Epsom salts, it has greened up nicely.

D. speciosa subsp. *macrocarpa*, about three or four years old and 0.5m high by 0.6m wide, has flowered profusely with about 80 to 100 flowers showing. Also, the bush has a nice, compact appearance.

(It is good to know, Lloyd, that many dryandras seem to be resistant to severe damage from heat; most of the ones you listed about as having suffered leaf scorch I think are mainly plants from forested or lightly shaded areas and I suppose 42 °C was really too much. There must be something in the air or soil in Eden Hills for you to get *D. foliolata* to flower well as such a young age. My plant must be at least 15 years old and although it is in part shade, I don't believe it has ever flowered. This year looked its best effort yet but what I took to be buds turned out to be the beginning of new shoots. The *D. speciosa* subsp. *macrocarpa* sounds fabulous; it seems like it would make a great rockery or large tub plant – editor).

(From David Lightfoot, Surrey Hills, Vic.)

Things are moving along with the garden. The *D. formosa*'s you gave me are looking amazing and hopefully will flower this year. *D. longifolia* is struggling. Others in the garden doing well are – *D. polycephala*, *calophylla* (x2), *obtusata*, *ferruginea*, *fraseri* and *lindleyana*.

(Sorry to hear that *D. longifolia* is struggling, David – must be the year, as I lost a couple of small plants recently. They steadily browned off and died, although I am sure they had enough water. Let's hope the *D. formosa* does the right thing and flowers in spring – editor).

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- nivea* s. *nivea* 27/9.27/10.28/3.28/7.29/4.29/6.31/15.32/3.32/4.32/6.32/7.32/8(i).33/3.(?)33/5.34/16.35/2.35/5.35/8.35/9.35/10.35/11.35/13.36/6.36/7.36/11.36/15.36/16.36/17.38/2.38/11.38/13.38/14.39/2.39/3.39/7.40/3,4.40/14,15,16.41/12.42/10,12,20.43/4,9.
- nivea* s. *uliginosa* 31/4.31/5.31/6.31/7.31/11.32/7.32/8(i).41/7.42/9,13,20,21.43/3.
- nivea* v. *Morangup* 34/6.37/4.37/5.41/13.42/20.
- ?*nivea* *Wooenillup* Rd. 34/6.36/16(i).36/17.
- nobilis* s. *nobilis* 27/4.27/9.27/10.28/11.29/6.31/12.33/3.33/4.34/6.34/16.35/2.35/12.36/11.38/2.40/9,10.40/13,16.41/11,13.42/13,20.43/3.
- nobilis* s. *fragrans* 27/4.27/9.28/7.29/4.34/6.34/8.35/7.36/11.36/13.37/8.38/4.40/16.42/19.43/2.

- obtusata* 27/10.28/11.29/6.33/10.34/6.34/14.34/16.35/3.35/4.35/8.35/11.35/12.35/13.36/7.36/11.38/11.39/4.40(4).40/12.41/12.42/8.42/op8(i),13.43/3,7.
- octotriginta* 27/8.27/9.28/7.31/4.31/6.31/8.33/3.36/5.36/7.36/11.36/15.40/14.
- pallida* 28/7.31/2.38/14.41/12,13.43/8.
- platycarpa* 27/4.28/7.33/3.34/6.35/6.35/7.36/11.40/16.42/2,18.
- plumosa s. plumosa* 27/5.27/6.27/8.27/11.29/6.33/4.34/14.35/7.36/6.36/7.36/11.38/13.39/5.39/6.39/7.41/11.41/12,13.43/7.
- plumosa s. denticulata* 34/6.39/5.
- ?plumosa x pseudoplumosa* 39/7.39/8(i).
- polycephala* 27/2.27/9.27/10.28/11.29/4.34/6.34/14.34/16.35/6.35/11.36/7.36/11.37/9.38/2.38/5.38/10.38/13.40/16.41/4,5,11,12.42/12,13,19.
- porrecta* 27/5.27/16.28/7.31/16.34/6.36/cover(i).35/2.35/4.35/8.36/11.36/17.37/6.38/4.38/12.38/13.39/7.40/12.40/13.40/14.41/8,op8(i).
- praemorsa v. praemorsa* 27/9.28/11.29/6.31/13.33/10.33/13.34/6.34/14.34/16.35/8.35/11.35/13.35/15.36/7.38/4.38/5.38/13.40/11.41/11,12.42/12,13.43/3.
- praemorsa v. splendens* 29/4.33/3.33/12.34/3.34/6.34/16.35/5.35/6.35/12.35/14.36/7.36/11.37/4a(i).38/4.38/5.38/10.42/12,13.
- preissii* 27/5.27/12.29/5.29/6.35/4.35/8.35/13.36/7.36/11.36/17.41/8,op8(i).41/10.42/8.
- proteoides* 27/9.28/7.33/10.34/14.35/11.35/13.36/7.36/11.38/2.38/9.41/5,11,12.42/8,12,15,21.43/3.
- pseudoplumosa* 27/5.27/7.27/16.27/19(i).33/4.34/6.35/10.39/4.39/6.39/7.40/13.41/2,41/13.
- pteridifolia s. pteridifolia* 27/9.31/2.31/15.33/10.(?)33/13.34/6.35/2.35/4.35/11.35/13.36/15.37/6.38/11.39/2.39/3.39/4.41/11.43/8,9.
- pteridifolia s. vernalis* 27/4.28/5.28/7.31/4.31/6.31/8.31/16.33/3.34/6.35/4.36/14.40/16.41/12.42/2,19.
- pulchella* 27/11.34/16.35/6.35/8.36/11.40/15.42/17.
- purdieana* 36/4.36/11.38/3.40/15.16.42/17,18.
- quercifolia* 27/9.29/4.29/6.31/2.31/16.33/10.34/14.35/8.35/11.35/13.35/14.35/16.36/6.36/11.37/5.37/6.37/8.37/9.38/13.38/15.39/10.39/11.40/11.41/4.41/11,12,13.42/13.43/3,7,8.
- rufistylis* 28/7.33/7.36/15.36/17.
- sclerophylla* 27/4.34/14.38/13.39/3.40/16.42/10,19.
- seneciifolia* 27/6.31/4.31/6.31/10.34/6.34/14.41/3,12,13.43/6.
- serra* 31/5.31/6.31/11.31/16.34/6.36/6.38/5.38/14.42/15.
- serratuloides s. serratuloides* 27/2.27/4.27/14.27/19(i).28/5.31/4.31/6.31/10.34/14.35/6.35/7.35/13.36/12.37/4.38/14.39/3.41/12.42/11,20.43/2.
- serratuloides s. perissa* 27/2.27/14.27/19(i).29/4.31/4.31/6.31/9.36/12.40/16.42/19.43/2.
- sessilis v. sessilis* 27/5.27/6.27/7.29/6.31/16.33/3.33/10.34/9.35/2.35/7.35/10.35/13.36/12.36/17.37/6.38/13.38/16.39/7.40/9.41/5,6,11.42/2,13.43/3,5,6,7.
- sessilis v. flabellifolia* 34/2.35/8.36/12.40/16.42/18,19.
- sessilis v. cordata* 35/2.37/7.41/7.42/21.
- sessilis v. cygnorum* 28/7.34/6.34/14.35/2.36/12.38/6.38/13.41/12.
- shanklandiorum* 27/9.27/12.28/7.31/16.34/14.35/2.35/5.36/7.36/12.41/8,11,12.42/17.
- shuttleworthiana* 27/3.27/4.27/12.28/7.34/2.34/14.35/13.36/14.38/14.39/3.40/16.41/11.42/2.42/10,19.43/2,3,6.
- species "Morangup"* 32/7.32/8(i).
- speciosa s. speciosa* 27/4.27/9.29/6.33/10.34/2.35/7.35/11.35/13.36/7.37/9.38/11.38/13.40/11.41/11,12.42/9.42/11,15.43/2,3,6.

<i>speciosa s. macrocarpa</i>	33/cover(i) .34/6.35/13.36/7.36/12.38/13.40/16.41/12.42/op8(i). 42/19.43/2.
<i>squarrosa s. squarrosa</i>	27/10.27/11.27/16.28/7.33/3.33/13.35/2.35/7.35/13.36/6.36/7.36/12. 38/2.38/14.40/13.16.41/11.42/12,13,20.43/3,4.
<i>squarrosa s. argillaceae</i>	28/5.28/7.31/4.31/5.31/6.31/10.34/7.41/7.42/9,13,21.
<i>stenoprion</i>	28/7.32/5-6.32/8(i) .35/4.35/7.35/13.36/12.38/2.41/13.42/10,19.43/4.
<i>stricta</i>	27/2.27/4.28/5.28/7.31/4.31/6.31/9.33/7.34/7.35/2.35/5.35/7.35/8. 36/12.41/4,13.42/18,19.43/2.
<i>stuposa</i>	27/9.29/5.33/3.33/10.35/7.35/13.36/6.36/12.36/15.38/2.38/13.38/14. 39/4.40/13.41/12,13.42/13.
<i>subpinnatifida v. subpinn.</i>	27/11.28/3(i).33/3.34/7.34/14.35/13.36/12.39/6.40/13.41/4.42/8.
<i>subpinnatifida v. imberbis</i>	32/6.32/7(i).34/7.35/7.35/8.36/12.36/16(i).38/14.39/6.40/13.41/13.
<i>subulata</i>	27/10.28/7.29/5.38/3.38/13.39/cover(i).40/16.42/19.43/2,3.
<i>tenuifolia v. tenuifolia</i>	27/5.27/7.29/6.31/13.33/6.33/10.33/13.34/7.34/9.35/9.35/10,35/14. 35/17.36/12.36/15.38/13.39/3.39/5.39/7.40(4).41/3,11,12.42/13. 43/6,7,9.
<i>tenuifolia v. reptans</i>	27/7.27/8.28/7.34/7.35/6.36/12.37/cover(i) .38/4.39/3.41/4.43/8.
<i>tortifolia</i>	28/7.32/5.32/6.32/8(i) .34/8.35/4.35/8.36/12.38/13.40/16.?41/12. 42/10,19.
<i>tridentata</i>	34/7.34/15.35/7.36/12.38/cover(i).38/4.38/13.40/16.41/4.42/10,19. 43/2.
<i>trifontinalis</i>	27/2.27/3.27/14.27/19(i).28/7.29/cover(i) .34/2.35/13.36/7.41/13. 42/18.
<i>vestita</i>	27/4.33/3.36/4.40/16.42/2,19.43/2,6.
<i>viscida</i>	28/7.29/4.29/5.31/6.31/10.34/7.34/14.35/2.38/14.41/12.43/2,6.
<i>wonganensis</i>	36/6.36/12.40/15.42/17.
<i>xylothemelia</i>	28/7.35/2.38/13.43/8.