

A.N.P.S.A. Fern Study Group

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From the Editor

Sad news - one of our most dedicated Queensland members, Claire Shackel, passed away on December 26, 2020. We offer our heartfelt condolences to her husband Don and her extended family.

Thanks particularly to our NSW members, and Steve in particular, I have a lot of newsletter material and will produce a second newsletter shortly, which will also include more of the SE Qld program, which has been partly planned but will be firmed up at our meeting next Sunday, 7th.

Vale Claire Shackel

Wendy Johnston

Claire was a good friend and fern mentor to those of us in the fern study group.

Claire enjoyed fern group excursions and missed very few. She was a keen observer and liked to see all the ferns along the way, so her role as official recorder was well suited.

A visit to Claire's home was a joy – lots of well-maintained native plants in every nook and cranny, even on and under the clothes hoist. For the fern-minded her garden was full of living treasures in pots and in the ground. Claire knew them all, where they came from and how they grew, and had them all labelled. There were 2 shade houses. One held an inspiring collection of ferns from all over Queensland growing in pots and baskets to show off their beauty. The other shade house held literally thousands of juvenile ferns, most in humidity-enhancing bottles. Claire was a genius at growing ferns from spore and nurturing the sporelings to become healthy stand-alone plants. These plants she generously shared among the members of the native plant community and so her memory lives on in many places, and closer to heart, in our garden and the Maroochy Regional Bushland Botanic Garden.

Claire was inspiring in her love of native plants, particularly ferns, and shared her passion and knowledge freely. She was a good friend and will be greatly missed.

Ed. As members will have noticed, Claire was probably our most prolific contributor to our newsletters. The following was received via Peter Bostock after her last trip home from hospital, with the cover note: "This is a rambling I started some time ago. I have made it home again from hospital but am not very good and will not make it to Bev's place. (ed. SEQ Christmas gathering) Hope you are doing better than I am".

Fern Update

Claire Shackel

After 30 years of trying to grow ferns from spore, I have learnt a lot about patience. Why some ferns are in commercial nurseries and some are not, is easily understood and it is not to do with saleability nor about rarity in the wild. Some of the rare in the wild are relatively easy from spore and some common ones difficult. One of my early successes was *Thelypteris confluens*, a rare fern found in permanently swampy areas on Minjerribah (North Stradbroke Island) and I still have it. *Dryopteris wattsi* and *Microsorium scolopendria* likewise have been no problem.

Obtaining viable spore can be difficult and it can take 6 months before you know if you have prothalli and that is only the beginning. Some spore have a very short time of viability and some are not shed when dried so have to be scraped off.

A number of years ago I went on a trip up Cape York and collected a fertile leaflet with an odd spore pattern. On returning to Brisbane and planting the spore, it formed a green covering on the spore tray. By the spore pattern it was Morse fern, *Taenitis pinnata*. In the winter, the prothalli lost its chlorophyll and became a fawny colour and I thought it did not like the cold. In spring it went green again and winter fawn again. On the third cycle there were a few little fern plants forming. One plant survived and was kept alive by sitting on the window sill in winter. It was never happy and eventually died.

More recently in summer 2016, I decided to have a serious attempt at *Arachniodes aristata* as it produces massive amounts of spore but previous attempts have failed. Having a good patch of this plant in my garden, spore was collected over a month from different leaves and planted immediately. Four plantings were made and two produced prothalli quickly. In winter they lost their chlorophyll and in spring greened up again. In summer 2019, there were a few tiny fern plants to pot on into separate pots. Time will tell if they are really *Arachniodes*. The contaminants can be as interesting as the fern you hope to grow.



Teratophyllum brightiae from Claire in our (Johnston) shadehouse. This is about its southern limit. We are continuing Claire's efforts to propagate this vegetatively. The only other specimen of this we have seen was in rainforest below the falls in Kondalilla National Park in the Sunshine Coast hinterland. I believe it climbs high into trees where its fertile fronds appear.

Program for South-east Queensland Region

Helen Jeremy

Sunday 7 February 2021: Meeting at Susan Dowrie's home, 67 York St, Coorparoo, from 9.30 am. We'll commence with morning tea and remembering our friend Claire Shackel. Please bring a small plate to share if you'd like, or BYO if you prefer. Tea and coffee provided. We'll follow this with a meeting to finalise the program for the next six months, and discussion of some of the recent fern name changes. Having to embrace new names can be quite daunting - particularly for those of us who feel we have only just conquered the old names! We'll talk about the rationale behind the name changes so we can understand why things have changed, and then ease into learning some new ones by concentrating on mastering the Doodias. BYO lunch if you'd like to stay on for some social time. COVID requirements: please RSVP to Helen Jeremy at heljeremy@gmail.com and please do not come if you are feeling unwell, have any mild symptoms, or have recently returned from a hotspot, etc.

Program for the Sydney Region

Peter Hind

Saturday 20 February 2021, Meet from about 10.30 am for 11 am start at the home of Peter and Margaret Hind, 41 Miller Street, Mt Druitt. Study to be decided plus some more forward planning? Phone (02) 9625 8705

Please bring a plate to share for morning or afternoon tea.

Saturday 20 March. Meet from about 10.30am for 11am start at the Lamont's residence 158 Deepwater Road, Castle Cove. Take Castle Cove Drive (to the East) off Eastern Valley Way – its 3 mins off Eastern Valley Way. Study to be advised or perhaps decide on the day. To Register your attendance or if lost and need further directions or info phone Steve on (mobile) 0409 955 224.

Saturday 17 April, Meet from about 10.30 am at The Cascade Falls Picnic and Parking Area on the N. Side of the Illawarra Hwy. There is no Wheelchair access. Bring water, hat, sunscreen & food

for lunch. The walk is about 2 km return. According to The NPWS fact sheet ‘The easy and rewarding Cascades walk will take you through rainforest and tall eucalypt forest along a creek to the beautiful cascades. This rainforest haven is home to lyrebirds, platypus and goannas, as well as large native figs, lillypillys and lianas. Wander through the fern understorey.’ Take the Princes Highway and Southern Freeway to the Illawarra Highway turnoff at Haywards Bay. Travel about 14km along the Illawarra Highway, which veers right in Albion Park, to Macquarie Pass.

National Park and the Cascades picnic area. If coming via Robertson it is 8 km along the Illawarra Hwy below the Macquarie Pass. **IMPORTANT:** I could find no reference to Toilet Facilities. Phone Peter (02) 96258705 to register for the walk also check for current Covid19 restrictions if any.

Saturday 15 May, Meet from about 10.30 am at the suburban home of Margaret and Peter Olde, 138 Fowler Road, Illawong. We plan to study the NSW *Blechnum* spp. previously included in *Doodia*. **Travel instructions to 138 Fowler Rd, Illawong.** If travelling south along Alford's Point Rd, take the Illawong turnoff to the left, turn left at the next roundabout, drive approx. 1.5 km past the Illawong Village shops and at the top of the hill turn right into driveway of 134-138. To register your attendance or if lost please call Margaret on mobile 0432 187 025.

To help us comply with COVID19 restrictions phone the host if a house or leader if a walk, before the event. Restrictions are subject to change by the NSW Govt.

Expressions of interest, several days before any of the bushwalks should be given to whoever is leading the walk, by phone, email etc. If no positive indications are received, at least two days, where possible, before the event by the walk leader, the event will be cancelled.

Of course, if the weather is bad or there is any possibility of danger, such as bushfire, please do not turn up. If personal events change your plans, please let the leader know or send apologies via someone who is planning to go, so that we don't wait for you.

All outings are subject to weather conditions being favourable.

Sydney Group Meeting Reports

Steve Lamont

Sydney FSG Meeting 15 August 2020 with Speaker Matt Renner

The meeting at Steve Lamont's place was well-attended. This was because we were very privileged to have Matt Renner – research scientist at the National Herbarium of NSW with curatorial responsibility for (among other things) bryophytes and ferns – speaking, and because of Mel's (Steve's wife's) famous scones.

Matt was enormously interesting, informative and entertaining. He was also very patient with our questions.

Matt spoke about differences and similarities between ferns and bryophytes and their historical and pre-historical relationships (the latter was limited because mosses don't generally make good fossils). He spoke about an adaptation that involves genetic information that appears to have come from bryophytes (or a close ancestor) that gives ferns an evolutionary advantage and helps them survive in areas of low light.

Plants use mechanisms that sense light intensity, direction, duration and quality to guide environmental responses, growth patterns and timing. Most of these mechanisms are sensitive to either blue or red light. Some ferns (including *Adiantaceae* and *Polypodiaceae*) have an unusual ability to combine red-sensing and blue-sensing mechanisms into a single system called neochrome. This seems to have provided an evolutionary advantage and means that ferns with neochrome can survive better in low light areas and can make better use of available light.

The genetic information for neochrome appears to have been transferred or borrowed from bryophytes or from an algae-like relative of bryophytes but not in the usual way. The means of transfer may have been related to the common property of bryophytes and ferns that means that both have male cells that can move fairly freely about the outside environment.

Matt also spoke about the sponge effect that means that mosses and other bryophytes retain moisture between rain periods and provide some protection from drying for germinating spore and for ferns generally. He also spoke about other physical relationships between ferns and bryophytes (see pictures).

Sadly, many of the questions we directed to a scientist dedicated to the preservation of bryophytes were about the best ways to kill liverwort but this was outside the scope of Matt's talk.

We walked around the garden and Matt identified lots of moss and bryophyte species and we looked at examples of the sponge effect (see figs 1 and 2) and other interactions including what seems to be *Davallia trichomanoides*' inability to hold onto rocks without the help of mosses (see figs 3 and 4) and the different growth pattern of *Blechnum penna-marina* grown with and without the presence of moss (see fig 5).

We recorded Matt's talk but our use of the technology was less than expert. Contact Kylie Stocks (or me) if you'd like a (not very good) copy.



Fig 1 – Ferns and filmy ferns that might normally be difficult to grow in a backyard – including *Leptopteris fraseri*, *Hymenophyllum cupressiforme*, *Notogrammitis billardiarei*, *Lindsaea microphylla*, *L. linearis* and *Sticherus flabellatus* – appear to be happy in a mossy part of the garden where the moss retains moisture and holds plants in place when relatively fragile roots might not be enough. (I suspect the moss also wicks excess moisture away because *Lindsaea* normally doesn't like wet feet.) It turns out that the mosses in this photo are *Pyrrhobryum paramattense* and *Thuidium furfuraceum* and the lichen is *Cladia aggregata*.



Fig 2 – In a garden where *Niphidium* spore is presumably fairly evenly distributed around the adult *Niphidium*, this is the only place where that spore germinates – on a particular moss.



Fig 3 – *Davallia trichomanoides* seems unable to grip the wall without help (there's a wire that holds it part of the way).



Fig 4 – The same *Davallia* plant where there is moss to help it hold the rock.



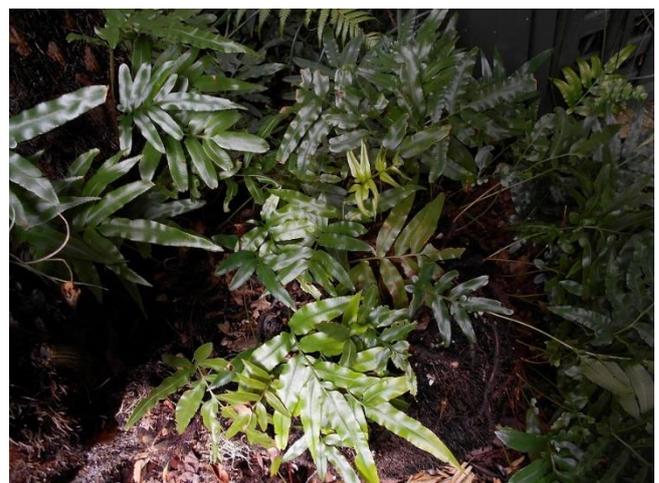
Fig 5 – The different growth habit of *Blechnum penna-marina* growing in moss.

Home of John and Natalie Wise / Mazzolani – Willoughby – 26 September 2020

Natalie and John's place is great to visit. Natalie has a talent for growing *Blechnums* and *Aspleniums* and John's speciality is *Platyceriums*. Highlights were: very healthy *Blechnum nudum* 'Forcett Feather', *B. indicum*, *Adiantum trapeziforme*, *Platycerium elephantotis* and magnificent *Asplenium pteridoides* (the real one) and *Davallia pentaphylla* (see picture).

Natalie also makes terrific chocolate fudge slice.

Natalie's *Davallia pentaphylla*



The topic was epiphytic, lithophytic and hemiepiphytic Australian ferns. Peter Hind provided some notes. A summary follows.

The two genera with the highest proportion of fully epiphytic ferns are, first, *Platynerium* and, second, *Pyrrosia*.

Most *Aspleniums* are epiphytic. Notable exceptions are *A. appendiculatum* (which is more-or-less terrestrial) and *A. difforme* and *A. decurrens* (which are semi-marine, often tolerating saltwater at high tide).

Aglaomorpha / *Drynaria* – these live mostly on rocks and trees. As with *Asplenium australasicum* and *A. nidus*, they also often act as host for other epiphytes such as *Asplenium polyodon*, *Haplopteris* (ed. formerly *Vittaria*) spp. and *Goniophlebium* spp.

Psilotum spp. and *Ophioglossum pendulum* etc are not exactly epiphytes being always embedded, usually in larger epiphytic root masses such as those of *Asplenium australasicum*, *Drynaria rigidula*¹ and *Platynerium bifurcatum*.

Belvisia mucronata, *Elaphoglossum* spp., *Antrophyum* spp., *Dictymia brownii*, *Davallia repens* and *D. pyxidata* are all epiphytic or lithophytic. *Davallia denticulata* is a geotropic terrestrial.

Impromptu Safari – Robertson – 6 November 2020

Steve Lamont recently read *Ferns of the Port Hills: Photography and Fossicking*² and fell in love with *Hymenophyllum demissum* (from New Zealand – see picture from the book below). Peter Hind suggested that *Hymenophyllum bivalve* was very similar and was a lot closer than New Zealand. That's not completely true – it is a bit similar – but a safari sounded like a good idea anyway.

George Hardy was also available at short notice. Dwayne and Cameron Stocks also planned to join in along the way but had a disagreement with their navigatrix and didn't make it.

The group met at Peter's place (it's not exactly on the way but it was a great excuse to look at his fern collection and to borrow a few small pieces of rhizome – including some *Colysis ampla* and *Davallia repens*) and headed for Robertson on the Southern Highlands (about two hours from Sydney). Peter said he'd seen *Hymenophyllum bivalve* there years ago in a gully near Knights Hill.

The gully is now part of a farm. We saw beautiful farm country, nice bush tracks that were a bit overgrown and hard to navigate, lots of nice patches of *Blechnum nudum* and *Sticherus flabellatus* but no *Hymenophyllum bivalve*. We did find a giant *Asplenium flabellifolium* that seemed to have a tendency to be a bit bipinnate toward the base and we did find the pie shop that sells great pies and good coffee.

George's stories along the way were enormously entertaining and Pete's running commentary about passing flora and pioneer botanists was inspiring and very interesting and the drive was just as pleasant as the exploring and fossicking. But no trophy this time.

The elusive *Hymenophyllum bivalve*



Hymenophyllum demissum



¹ Supplied as *Aglaomorpha rigidula* but this is not accepted by Australian Herbaria (ref. <https://biodiversity.org.au/nsi/services/APC>).

² It's written by [Rosemary Koller](#) and [Sally Tripp](#) and was provided via Pat Acock of the BPS.

Sydney Group Christmas meeting – Ian Cox’s place – Kenthurst – 21 November 2020

Ian’s place is fabulous – just about every Australian *Blechnum* that exists (including a few that we thought didn’t exist like one from King Island that looks a bit like Forcett’s Feather but is quite different and very attractive (see picture) and an unusual *B. brasiliense* that stays mostly green), lots of unusual *Adiantums* and a great pond / rockery / bushland setting (see picture).

Ian told us that his fern garden was devastated last summer with three days around 45 degrees, but the high rainfall since February has brought it back to life again. He has planted more *Cyathea cooperi* to provide extra protection from the sun. The garden in North-west Sydney is on Hawkesbury Sandstone, so the garden dries out rather quickly. He has a sprinkler system in the fern garden but only turns it on manually when needed.

There wasn’t really a topic, everyone was too busy looking at the garden. There was also lots of food. Our meetings are really more like cake meetings than fern meetings



Blechnum nudum from King Island



View of Ian’s garden with pond



Blechnum wurunuran from Ian’s garden



Blechnum nudum x *Doodia*



Blechnum minus

South-east Queensland Group Meeting Reports

Like many other activities, South-east Queensland meetings and excursions have been seriously impacted by the Covid pandemic, with numbers at excursions certainly affected. Again, like others, we replaced 2 of our in person meetings (August and October) with Zoom meetings, ably organised by Helen Jeremy. At the October meeting, there were Powerpoint presentations on our lightly attended September meeting (report below) and Victorian ferns (from a visit there by one of our couples). We invited Victorian members to this meeting and one Victorian member did participate.

Ninox Reserve and Maroochy Regional Bushland Botanic Garden

Dan Johnston

Just 4 members met at Ninox Environmental Reserve on 6th September, 2001. This is a relatively new reserve. Landholders in the Sunshine Coast Council pay an “Environmental Levy” as part of their rates, and this is a purchase made with these funds. We met at a point where a power line traverses the reserve and the trees have been cleared. There was fairly dense soft bracken, *Calochlaena dubia*, along the mown track under the powerlines, with a little true bracken, *Pteridium esculentum*, also present and *Blechnum cartilagineum* under the bracken in places. Some way up this track, a pad off to the left has been marked by flagging tape and once into the trees, this descends within about 10m to a flatter area along a creek. On the slope on one side of this descent, a fairly dense mixture of *Adiantum hispidulum* and *A. silvaticum* was observed, while on the other side *Doodias* were present. *Doodia heterophylla* is endemic to the Sunshine Coast region and is rather common in moist forests in the area. High on palms near the creek, small specimens of *Pyrrosia* and *Platycterium* epiphytes were observed, and on the flatter, more flood prone area near the creek, *Arachniodes aristata*, *Adiantum diaphanum*, *Christella dentata*, *Christella parasitica*, and *Lastreopsis microsora* were seen. *Christella dentata* is common in less developed areas around Buderim, being perhaps the most common fern on our house block, and around Buderim it is not uncommon to see *C. parasitica* near *C. dentata*. To the right is a photo of the two together, taken on an exploratory trip to Ninox Reserve. *C. dentata* has the lower pinnae on the fronds reducing to a quite small size while the lower pinnae on the *C. parasitica* frond are much larger. Also, *C. dentata* is clumping while *C. parasitica* is long-creeping.



Doodia heterophylla



Christella dentata & *C. parasitica*

Ferns seen at Ninox Reserve: *Adiantum diaphanum*, *Adiantum hispidulum*, *Adiantum silvaticum*, *Arachniodes aristata*, *Blechnum cartilagineum*, *Calochlaena dubia*, *Christella dentata*, *Christella parasitica*, *Doodia aspera*, *Doodia heterophylla*, *Lastreopsis microsora*, *Nephrolepis cordifolia*, *Platycterium bifurcatum*, *Platycterium superbum*, *Pteridium esculentum*, *Pyrrosia rupestris*.

From Ninox Reserve, we went to the nearby Maroochy Regional Bushland Botanic Garden for lunch and to view the fern glade there. The most spectacular features of the fern glade are the King Ferns, *Angiopteris evecta* but there are also smaller specimens of the other King Fern, *Todea barbara*. Other obvious features, as one might expect are the stags *Platycterium superbum*, elks *Platycterium bifurcatum*, crow's nests *Asplenium australasicum* and the tree fern, *Cyathea cooperi*. Among the many smaller ferns is *Adiantum diaphanum* which seems particularly happy here.



Apple Tree Park, Springbrook, SE Qld

Peter Woodall

On the 1st November 2020, the Brisbane fern group outing was held at Apple Tree Park, Springbrook. This is an entry point to the Gold Coast Hinterland Great Walk, a 54km walk through the Springbrook rainforest. Needless to say, we meandered down just two sections at the beginning. The weather was fine and sunny and not too hot.

Twelve members met at 9.30am in the picnic area and our leaders for the morning, Graham and Beth McDonald, gave us an introduction to the area. This part of the track is on rhyolite, unlike the basalt found at higher elevations at Springbrook. Graham told us that ferns were prolific here but with a fairly limited diversity and this proved to be the case as we moved through the area.

Most of the ferns seen were common and easy to identify. One that caused a little more discussion was a species of *Lastreopsis*. Thanks to the wonders of technology, photographs of it were sent back to Peter Bostock at his home and he soon replied, indicating that it was *L. decomposita*. We verified this by observing the short-creeping rhizome and the bullate scales on the lower surface of the rachis.

As we moved along the paths, it was evident that Graham and Beth have a deep knowledge of the plants of this area, extending well beyond the limits of ferns, and they identified many of the other plants for us. We returned to the picnic area for lunch, having recorded 14 species of ferns, grateful to Graham and Beth for an excellent outing.

Ferns seen:

Adiantum silvaticum,
Asplenium australasicum
Asplenium polyodon
Blechnum cartilagineum
Calochlaena dubia
Cyathea australis
Davallia pyxidata
Doodia aspera
Lastreopsis decomposita
Platycterium bifurcatum
Pyrrosia confluens
Pyrrosia rupestris
Pteridium esculentum
Sticherus lobatus



Other Articles

Betty's Fern Garden

Ian Cox

At the Hills Council's Community Environment Centre (CEC) at Annangrove, Sydney, where I work as a volunteer, there's a garden affectionately called "Betty's fern garden".

Now, the Betty mentioned is Betty Rymer. Betty will be well-known to some of the long-term members of the Fern Study Group, as she was a very active member until a few years ago. Indeed, Betty was a very active, respected and knowledgeable member of APS NSW, and was the main organiser of the fabulous Wildflower Spectacular Shows at Castle Hill and Rouse Hill in the 1980s and 1990s that sadly don't happen anymore. These shows attracted many thousands of visitors and created tremendous publicity for native plants. For her efforts Betty was honoured in 1991 by an award of life membership by APS NSW.

At the CEC there are demonstration native plant and vegetable gardens, and we give presentations to residents about sustainability, growing native plants, soil improvement, composting, and various other environmental topics.

When Betty moved away from Annangrove about ten years ago, she donated some of her ferns to the CEC, and these form the basis of her fern garden. The garden is along the northern side of the CEC building, and now comprises mainly *Blechnum cartilagineum*, *Microsorium diversifolium*, *Pteris umbrosa* and *Doodia aspera*. There may have been other ferns that haven't survived. It's part of the native garden demonstration area.

As you can see from the photo (right) the ferns are thriving. This is despite receiving very little care, living through drought and heatwave conditions, and being partially sheltered from rain. It just shows how resilient some ferns are.

Last year I had the pleasure of meeting up with Betty and her daughter Vicki. Betty is active for her age – well into her nineties – and is still voicing her opinions about things and buying plants for her garden. She is very resilient just like her ferns!



Rod Pattison's *Drynaria rigidula* cultivars

Tony Clarke

As Rod is reluctant to be seen as promoting his achievements, I feel it is necessary try to record some of the amazing *D. rigidula* cultivars he has found in the wild. Rod has emphasized to me that he would not have achieved what he has without the support of Peter Bostock. Peter was a botanist at the Queensland Herbarium during Rod's explorations, and as a curator of ferns and fern allies, provided valuable scientific information. Peter also organised the relevant permits to enable Rod to take specimens from the wild for lodgement at the Herbarium. [As most of these names have still not been formally described, citation herein of unpublished cultivar names chosen by Rod is not intended as formal publication. As such, these cultivars are treated here as informal names, indicated by the abbreviation "Hort." after the names. This abbreviation, when used in to qualify a botanical name, stands for the Latin *hortorum*, meaning "of gardens" or *hortulanorum*, "of gardeners"].

What is most important is that ALL the cultivars that Rod has found have not come from artificial means (such as mixing spore or irradiation), but were growing naturally in the wild of S.E. Queensland. All these cultivars were found within a day's drive from Brisbane. I have seen *D. rigidula* growing in Thailand, West Malaysia (the Malayan Peninsula) and North Qld. They typically grow in clumps on trees or clump on large rocks. However in S.E. Qld they flourish in what is best described as rocky screes, that is, an area of rocks naturally mounded and sprawled. In these places the rhizome can wander under and over these small rocks providing protection and a refuge of moisture. Massive colonies of *D. rigidula* can be found in these areas. These areas may exist in North Qld but I haven't seen the massive colonies of *D. rigidula* there like they exist in S.E. Qld.

As Rod has collected over 80 different cultivars it would be tedious, perhaps monotonous, to include them all in these articles so I have used those that Rod favours. Most of these cultivars are desirable for horticulture as, while they are pleasing to the fern lover they are quite hardy and can take some neglect, particularly underwatering. *D. rigidula* 'Whitei' (rediscovered by Rod and others) has found its way to Thailand and the USA and is highly sought after. A lot of Rod's cultivars are highly desirable to the fern grower and it is important that an attempt is made to record them. This is such an attempt.



Drynaria rigidula 'Cristata'
(published by S.B.Andrews in *Ferns of Queensland* (1990), based on *Polypodium rigidulum* var. *cristatum* F.M.Bailey)
Photo: Tony Clarke

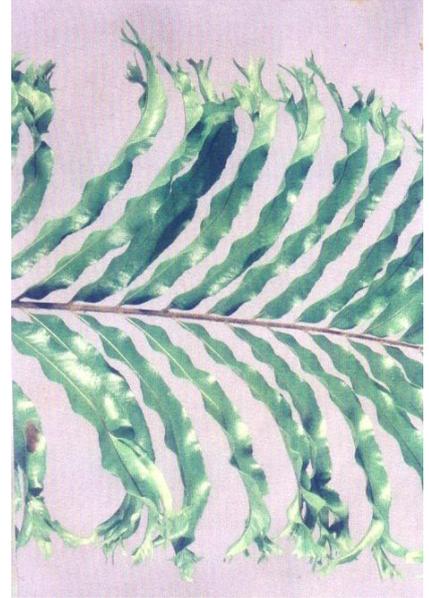
The *Drynaria rigidula* cultivars presented over these 2 pages are just the start of a presentation that will be continued in a future newsletter or multiple newsletters. NB: Images are from Rod's colour print collection, except where attributed to Tony Clarke.



D. rigidula 'Angustifolia' Hort.



D. rigidula 'Bifida' Hort.



D. rigidula 'Cristata obtusa' Hort.



D. rigidula 'Cristata' Somerset Dam form



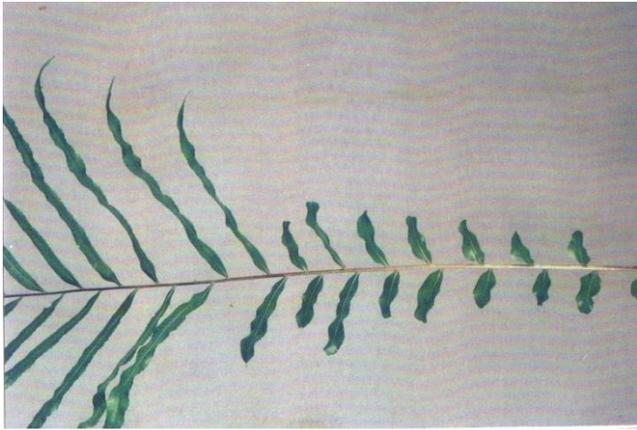
D. rigidula 'Dansiae' Hort. (photo: Tony Clarke)



D. rigidula 'Dansiae' Hort.



Pinnae of *D. rigidula* 'Dansiae' Hort. (photos: Tony Clarke)



D. rigidula 'Dimorpha pinnata' Hort.



D. rigidula 'Distortum' Hort.



D. rigidula 'Diversipinnae' Kulangoor form

(*D. rigidula* 'Diversipinnae' is based on *Polypodium rigidulum* var. *diversipinnae* F.M.Bailey, and was named as a cultivar by S.B.Andrews in *Ferns of Queensland*, published in 1990).



D. rigidula 'Diversipinnae' Mt. Nebo form



D. rigidula 'Erosum' Hort.



Pinna of *D. rigidula* 'Juliae' Hort.



D. rigidula 'Juliae' Hort.

(lowermost two photos: Tony Clarke)