



ASSOCIATION of

*S.G.A.P. Fern Study Group*

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### PROPAGATING PLATYCERIUM BY ROOT TIPS

RON ROBBINS

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How often have you tried growing Platyceriums, from spore, you will have found out that even though rewarding, it can be a very long, tedious and time consuming procedure that can take up to, perhaps years.

With the clumping or pupping varieties, of "elks" we are led to believe that if we are to cut a pup from a parent plant, it should be at least 20% in size of the parent plant for a quick and successful result.

These "Elks" normally produce the clumping effect by growing new eyes from root tips which come in contact with light and moisture.

I found by accident a quicker and much easier way to grow these plants, as alternative to growing from spore. This speedier procedure to propagate "elks" could be tried as follows,

Cut off a small, or smaller than usual pup, leaving on a healthy sized amount of pad, bed the pad into damp sphagnum moss and place in a sealed or semi sealed Container, an excellent one is a Yates Mini Greenhouse, place in a well lit and warm position.

After a period of time not only will you have a healthy pup, well attached to the sphagnum moss with a good root system but several small new growths, plantlets or pups on the outer edge of the cut pad. These are plantlets that have developed from the root tips,

This growth I find is considerably faster than the time taken with spore and can be equally as rewarding.

Please realize that although this has worked successfully for me, the procedure is open for discussion, but in my opinion it is worth a try.

"The bright colours of flowers are admired by the least intellectual but the beauty of form and texture of ferns requires a higher degree of mental perception and a more cultivated intellect for its proper appreciation. Hence we regard the growing taste for the cultivation of ferns as proof of mental advancement." Abraham Stansfield. 1858

*Could we be so bold as to say nothing's changed in 155 years? Ed.*



# DIGITAL MICROPHOTOGRAPHY OF FERNS

RON WILKINS

An scientist friend of mine once said to me that you never really see anything until you draw it. I think that is a true observation. The fern literature abounds in beautiful drawings, but they are the artist's interpretations of what he or she has seen. Photographs, on the other hand are not so selective in their subject matter, and often one can see interesting features that were not remarked upon in the original description. Digital technology also enables the construction of a computer image catalogue and database. However, the quality of photographs in the literature is very variable.

I recently invested in an integrated stereomicroscope/digital camera system. It is an Olympus SZ11 stereo zoom microscope with a trinocular head and C-mount video adapter allowing the attachment of an Olympus Camedia 4000 pixel digital camera. Viewing the structural detail of ferns with such an apparatus is, to me, a revelation. I tell my wife it's the best toy I ever had. The images are viewed on the monitor screen and software which comes with the camera allows one to perform a number of image enhancing operations, as well as expand, reduce or crop the image. The few examples I will show in monochrome give a very poor impression of the image quality in colour as seen on the screen.

The total magnification varies from 18 to 110 depending on the zoom magnification in the normal setup. For the general low power viewing of fern pinnules and the arrangement of the sori, however, an auxiliary 0.5X objective is mandatory as in the example below (Fig. 1).

The specimen of *Polystichum fallax* was taken from Peter Hind's garden on the occasion of our last Sydney study group meeting. I find it best to carry the portion of fern frond from the point of collection to the microscope, flattened between moistened tissues. Fig. 2 gives a more detailed view of a pair of sori of *P. fallax*. The almost black mature sporangia are covered by a pitted translucent indusium. In the next stage the indusia develop a white sugary texture and begin to crinkle like a potato crisp before their ultimate release.

Meanwhile, the exposed sporangia begin to open and to spray their spore contents with some violence. This is fascinating to observe. With a focussed light source, heat from the halogen lamp causes the sporangia to sort of unzip explosively making the taking of a photographic image somewhat uncertain.

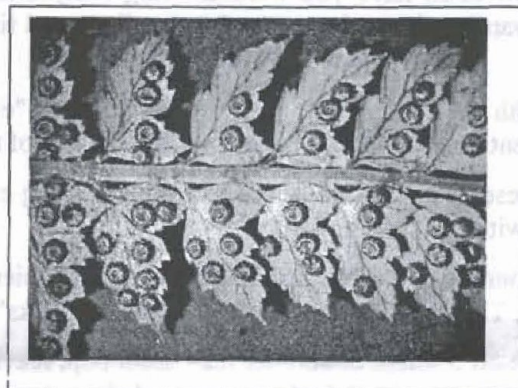


Figure 1

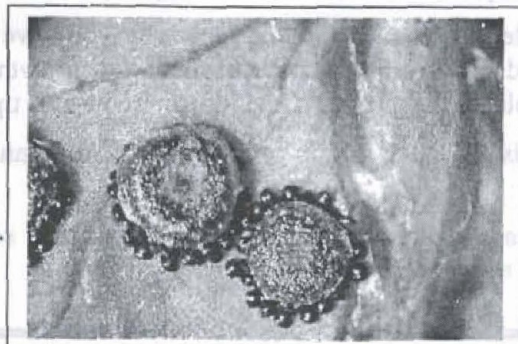


Figure 2



The epi-illuminator I use has a built-in heat-insulating filter. The sporangia still 'unzipper' but more slowly, and the spores may be flung out in clusters, partly retaining their arrangement within the sporangia. With careful choice of illumination conditions, degradation of the specimen during photography can be largely avoided. In the accompanying photo (Fig. 3) spores, and some sporangia are seen littering the frond surface around the mature sori of *P. fallax*.

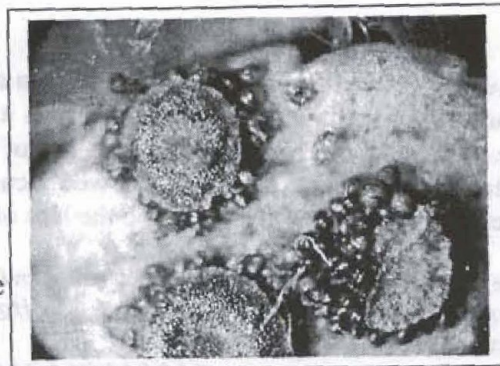


Figure 3

The prothalli of ferns are very interesting to observe but in general are difficult to photograph because of their three-dimensional nature and small size. Fig. 4 shows a prothallus of *Pseudodrynaria coronans* which is of rather large dimension ( about 1 mm diameter).

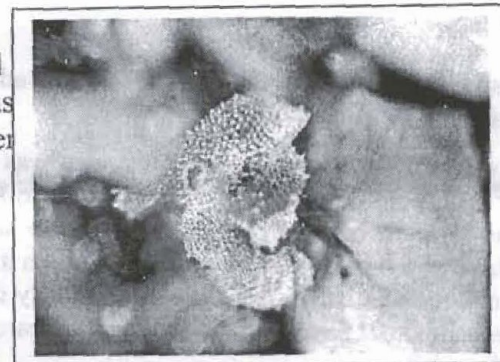


Figure 4

Although the sexual organs can be seen, they are difficult to photograph with this microscope. The hair-like root growths or rhizoids which attach it to the underlying quartz grain are faintly observable. I detached one of these prothalli and photographed it side on to better display the rhizoids (Fig. 5). The original photo shows the pale green prothallus on the right with pale brown rhizoid filaments streaming off to the left. The software allows the image to be viewed in monochrome with the selection of maximum contrast.



Figure 5

Having written this little piece I can't wait to get back to the microscope to take some more photos.

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**From the former South Florida Fern Society Inc. Newsletter Dec. 2000**

**IN EARLY TIMES PEOPLE BELIEVED IN MANY FERN MYTHS ....**

- The bracken fern (*Pteridium aquilinum*): a cross section of the stem of one of these plants shows a curious arrangement of the plant's ducts' tissues, which looks like the letter 'C'. Superstitious folk thought that, because the root bore Christ's initial, the plant protected them from witches and goblins. Some Scots, however, saw in these tissues the mark of the devil's hoof.
- Other legends tell about seed ferns. They were reputed have had dainty blue flowers that bloomed only one night a year. Just at the stroke of midnight on Midsummer's Eve, these blossoms ripened, and their shining 'seed' dropped to the ground. If one could catch some of this 'seed' on a white cloth, he would henceforth possess magical powers. If a pinch were put on the shoes, their wearer was supposed to be invisible and to travel anywhere without being seen. It was also thought that fern 'seed' gave 'second sight' to look into the past and future, find lost things, and know where to hunt for buried treasure.



- The moonwort (*Botidchium lunailum*) was known as Blasting Root People thought that the strongest locks would give way if brought into contact with it, and that it could even unshoe horses. The shape of its leaves showed it to be 'under the influence of the moon', and so it was believed that if the plant were gathered by the light of the moon, it would cure lunacy.
- The maidenhair fern was supposed to stop the loss of hair and make new hair grow on a bald head.

These are just a few of the myths that surround the mystique of ferns, excerpted from an article by Arm Herrington of the Southwestern Fern Society. (ref. The How and Why Wonder Book of Mushrooms, Ferns, and Mosses, by Amy Elizabeth Jensen.)

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## NOTES FROM STH. EAST QLD. FERN STUDY

Compiled by Irene Cullen

Visit to Mt Cootha Botanic Gardens - The advertised visit to Brown's Creek was cancelled at the last minute - this time by rain.

A visit to Mt Cootha Botanic Gardens was arranged instead. A curtesy bus took our party to the Lookout area. From here we were able to visit the Rainforest area around the Lake. A pleasing number of native ferns were recorded from this area. There was time for a brief meeting and lunch before the bus arrived to take us to the newly opened Fern Garden at the base of the Gardens. Although there are not a great variety of native ferns in it - they are spectacularly displayed. There are a good variety of Tassel Ferns and the fern walls of small ferns such as Doodias - create much interest. The vast shaded area is a cool oasis and much worth a visit

The April fern study of the Genus *Cyathea* was moved from the Goadbys home to Graham Nosworthy's. Reason being that Graham had a good number of *Cyathea* growing in pots and also that it would probably be the last opportunity most members would have of visiting Graham's Pullenvale acreage. In all there were eight potted specimens of *Cyathea* - they were *Cyathea baileyana* - *C. brownii* - *C. celebica* - *C. cooperii* *C. elaxis* *C. leichartiana* - *C. marcesens* and *C. rebecca*. So we had species from Nth Qld to Victoria and all looking well. As usual Peter Bostock was on hand to describe the botanical differences. It was a session appreciated and enjoyed by all. Final arrangements were made for next month's excursion to the Bunya Mts. and Graham was wished all the best in his forthcoming move. He in turn once again had a number of ferns to give away. We all left much enriched.

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### REPORT ON MEETING OF SYDNEY GROUP, 2003

At the March meeting (held at Peter Hind's home instead of Kyrill Taylor's as was announced in the previous Newsletter) Peter described the *Polystichum*-..in Australia. There are four mainland species only - he has them all in his garden - and two species on Lord Howe Island. Peter has one of these growing too.

*Polystichum australiense* and *P. proliferum* are both prolific and so easy to distinguish from the other two (*P. fallax* and *P. formosum*, which are not. To distinguish them from each other is rather difficult from the descriptions in the Flora of Australia, involving the measuring of the densely packed shiny scales on the rhizome and the stipes, and a study of the colours of the spore which are described as "dark brown" for *P. proliferum* and "brown" for *P. australiense*. Peter pointed out that spore cases will shed their spore when picked, even if the spore is unripe, and so display the wrong colour. The lamina of both ferns is described as coriaceous, but to *P. australiense* is added "harsh" and "rigid". Your reporter has found that if she runs her hands up the fronds *P. australiense* it will scratch a whole lot more than *P. proliferum*! The common name of the former: "Harsh ground Fern" is a guide.

*Polystichum formosum*, like all the others, has a densely scaly rhizome, scales uniformly coloured and dull. Its fronds are not as long as those of the two prolific ones and are comparatively quite glossy. *Polystichum fallax* also has dull scales. Peter's plant (which came from Mt. Kaputar) is still quite small, but had a frond with ripe spore cases on it, looking very black, probably the colour of the case only, as the Flora says the spore are fawn. Rose Bach, our champion at germinating spore, took some of these. So - in time! we might all own a little *P. fallax*! Peter says *P. fallax* is not found in southern N.S.W. nor on the coast; it prefers the northern tablelands, and is not very common even there.

Reported by J. Moore.







### Fern-print linens

Here's a tip from Martha Stewart for creating a delightful table by transferring the delicate shape of ferns to table linens. Begin with plain white linen or cotton napkins or a tablecloth. Place on a smooth floor or sturdy work surface, and slip a piece of heavy paper underneath. Arrange the fern fronds on top and cover with another piece of paper. Hold the paper in place so the layers **don't** slide about, and hammer firmly along the lines of the ferns. The pounding releases chlorophyll into the fabric to create the image. The linens can be washed and ironed; over time, the vivid green will fade to a lovely brown.

### *Pleurosorus rutifolius* - Blanket Fern

*Pleurosorus rutifolius* is a very small fern that is widespread (particularly inland) grows among rocks on the drier areas and in exposed situations. It is exceptionally hardy with the ability to recover from drought conditions and survives only where a couple of xeriphytic ferns can.

The fronds are soft dark green when growing in deep crevices and usually about 6cm (2.4") in length and are frequently less than half that size when exposed to sunny conditions. The pinnae are covered thickly with hairs. This plant has been observed growing among rocks in grassland under a sparse tree cover, on a north-facing (sunny) bush position in SE Australia. It is always found in rock crevices. The fern is reported to be easy to grow but dislikes too much water and humidity!

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### FORTH COMING EVENTS

#### STH EAST QLD A.S.G.A.P. FERN STUDY GROUP

**SUNDAY June 1st.** Meet 9.30 a.m. at the home of Wendy and Dan Johnston - 14 Bank Road - Graceville.  
The Study for the day will be Gleichenia

**SUNDAY 6th July** - Excursion to Lacey Creek Road Mt. Glorious - meet as prearranged . For further particulars on this excursion or other Fern Study matters Contact Peter Bostock on phone Home 07 3202 6983 Work 07 3896 9508

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#### PROGRAMME FOR SYDNEY FERN STUDY GROUP MEETINGS 2003

**SATURDAY May 17<sup>th</sup>.** Visit to Wheeny Creek. From Sydney take Bell's Line of road, go through Kurmond. About 1.5km beyond the village turn right into Comberoy road. Follow this for about 8.0 k.m. where there is a turn off to the left down hill. [This is just before the Comberoy road makes a long sweeping turn to the right]. Go down this Wheeny creek road [not bitumen] to the creek. There is an open area with a toilet block the only building. Meet here at 11 a.m. Do not drive across the creek, it may be as well to take gum boots if there is more rain.

**SATURDAY June 21<sup>st</sup>** Meet at Betty Rymer's home, 48 Annangrove road. Kenthurst. At 11 a.m. We will inspect Betty's ferns in her extensive garden and discuss tree ferns with Peter leading the discussion.

**SATURDAY July 19<sup>th</sup>.** Meet at Ron Wilkins home 188b Beecroft road Cheltenham 2119.at 11am. We will discuss the microscopy of ferns.

**SATURDAY August 16<sup>th</sup>.** Meet at the home of Kyrill Taylor 16 Elizabeth Crescent Yagoona at 11am. Subject for discussion ;Lycopods.

**SATURDAY September 20<sup>th</sup>.** Meet at the home of Joan Moore 2 Gannet street Gladesville PH.98175487. Subject of discussion ; Lastreopsis.

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## SPORE BANK

**ORDERING SPORE:** Spore is available free of charge from Barry White, 24 Ruby St., West Essendon. Vic. 3040 **When ordering please include a stamped self-addressed envelope.**

All types of spore are welcome including fresher samples of ones already on the list. There is no necessity to separate the sporangia from the spore. The whole, or part, frond may also be sent in, all is acceptable. Please include date of collection and, if collected in the bush, the area. In the list, the month and year of collection is shown. The letter B indicates collected in the bush. The area of collection is available on request.

### CURRENT SPORE LIST

Arachniodes aristata 5/00  
 Asplenium australasicum 2/02  
 Blechnum articulatum 1/02  
 Blechnum camfieldii 9/02  
 Blechnum cartilagineum 2/02  
 Blechnum minus 5/02  
 Blechnum wattsi 5/02  
 Cyathea cooperi 5/02  
 Cyathea leichhardtiana 11/00  
 Cystopteris filix-fragilis /00  
 Dicksonia antarctica 5/02  
 Diplazium australe 6/00  
 Doodia aspera 1/02  
 Doodia media 4/03  
 Histoapteris incisa 5/02  
 Hypolepis glandulifera 1/02  
 Hypolepis rugosula 5/02

Lastreopsis acuminata 10/02  
 Lastreopsis decomposita 12/00  
 Lastreopsis microsora 12/00  
 Lastreopsis munita 8/02  
 Lastreopsis rufescens 12/00  
 Lastreopsis tenera 12/00  
 Macrothelypteris polypodioides 4/01  
 Microsorium pustulatum 1/02  
 Pellaea falcata 3/03  
 Platycerium bifurc. cv German Hybrid 9/01  
 Platycerium bifurc. cv Lemoinei 9/01  
 Platycerium bifurc. cv Roberts 9/01

#### Contributed by Barry White

Platycerium bifurc. Mt. Lewis 9/01  
 Platycerium bifurc. ssp. veitchii 9/01  
 Platycerium bifurcatum 5/02  
 Platycerium superbum 5/02  
 Polystichum australiense 3/03  
 Polystichum fallax 4/02  
 Pteris comans 10/00  
 Pteris tremula 3/03  
 Pteris umbrosa 1/02  
 Pteris vittata 3/03  
 Sticherus urceolatus 5/02  
 Thanks for spore donations from Ron Wilkins and Lorraine Deppeler ☐

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**NEWSLETTER CONTRIBUTIONS SOUGHT** – Thanks to those who sent articles this quarter. However, I would still like to appeal to individuals or groups to send articles, Biographies, mquestions on their favourite plant, an interesting spot they may have visited, a tip on how to grow, or propagate plants, or problems you might be experiencing with growing Questions have generated a deal of interest in the past.

#### DEADLINE FOR COPY:

**Closing date for the Sept. 2003 Newsletter is Aug. 15<sup>th</sup>, 2003.**

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**If undeliverable return to:**  
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