ASSOCIATION of

S.G.A.P. Fern Study Group

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Winter is here - usually a quiet time for gardeners and for most ferns. Ferns are best left undisturbed during this period of dormancy or less active growth. Repotting or transplanting is better deferred until there is more warmth in the air and more importantly, in the soil. Disturbance of ferns during mid summer should be avoided too, especially if it is a dry period. Early spring or late autumn are probably the best months for dividing and repotting ferns.

Generally growth slows as days get colder and winter approaches. There is a temptation at this time, to cut off any dead or dying fronds. Resist the urge to do so. Especially in cold areas, growth should be left in place as some protection against frost and cold winds. Cut off this old growth when spring arrives in order to enhance appearance and health. If old dead fronds are allowed to remain on ferns when the warm weather arrives, air circulation and light are restricted with possible distortion to new fronds. Some members choose to give their Adiantum species and Drynaria rigidula, somewhat harsher treatment at this time. It is argued that cutting off the older fronds stimulates growth. This process is best done as the warm spring days approach and could be accompanied by a side dressing of well composted manure.

At this time too, ferns should be carefully checked for diseases or other problems. One of the most intrusive and noticed in some Sydney fern collections recently, is scale. Scale are sap sucking insects which tend to gather on the underside of the fronds or along the rachis and the brown ones in particular are often difficult to see. There are at least half a dozen different types of scale insect which can damage ferns. They appear as small lumps which are waxy coverings of various shades of brown or grey. In cases where the outbreak of scale is not serious, remove them with fingers, or wipe or spray with a mild soapy water solution. For more desperate situations spray with white oil, with or without added maldison. Be careful if using white oil as some ferns, notably Adiantum spp are likely to be damaged by it. If resorting to chemical sprays on ferns the general advice is to use at half strength.

Asplenium attenuatum

The genus name comes from Greek a = without, and splen = spleen referring to the reputed medicinal qualities affecting the spleen. The species name attenuatum, comes from the Latin attenuatus meaning thinned, that is, drawn out; in this case possibly a reference to the point at the apex of the fronds. A. attenuatum is endemic to Australia and is reasonably common in its preferred habitat of rainforest or other shady places or closed gullies in eastern Queensland and New South Wales. It is usually found growing on damp rocks, sometimes on trees. Plantlets are produced at the tip of the fronds and it often forms large colonies linked together in a chain formation.

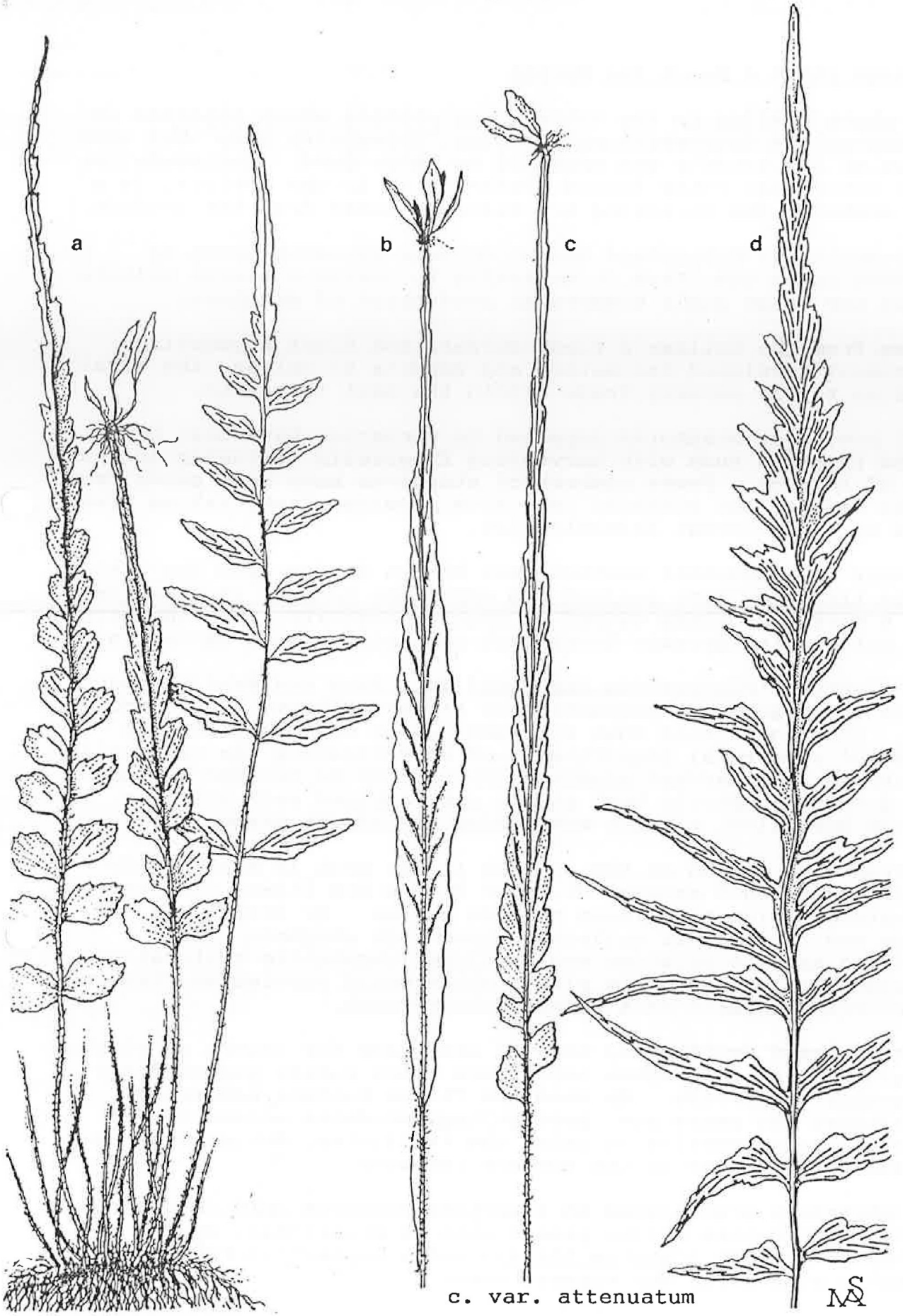
Erect or semi-pendulous fronds of A. attenuatum can reach 45 cm long and be up to 5.5 cm wide but are more usually only perhaps slightly more than half this size. Distinguishing features include tufted rhizome, dull green leathery fronds with acute apices and often plantlets growing at the tip.

The typical variety has a simple frond usually with just a few lobes at its base. The var. multilobum is an attractive fern with fronds divided into at least several lobes. On the other hand, var. indivisum, has entire undivided fronds. Most attractive is var. schneideri which is believed to be a hybrid between A.attenuatum and a form of A. polyodon.

In cultivation all varieties of A. attenuatum are said to be easy but slow growing and benefit from plenty of water. They do best in a protected position - Peter recommends keeping them away from the sun. Being epiphytic they require a coarse open potting mixtuure and make good pot or basket specimens.

A Sydney member has Asplenium attenuatum and another fern purchased as A.attenuatum var. schneideri growing together in a raised bed under heavy shade. The ferns were planted in 1988 on top of a piece of the trunk of an old tree fern which is buried just under the surface of the soil and close to the top of a rocky garden wall. Initially very slow the ferns have grown well this year after Peter's advice "keep them dark" was heeded and a large pot plant was moved next to the two Aspleniums to provide extra protection.

The silhouette at left is of a frond taken from the supposedly A.attenuatum var.schneideri. The lower pinnules appear short, rounded and closely spaced when compared with the var. schneideri which is illustrated in "Ferns of Queensland". See copy of sketch next page.



Asplenium attenuatum

a. var. multilobum b. var. indivisum d. var. schneideri

Drawing by Margaret Saul, taken from "Ferns of Queensland' by S.B. Andrews.

Staghorn First A Boost For Market

(The above heading is the title of an article which appeared in the Queensland University publication "University News" May 1992. A copy of the article was provided by Peter Jurd. Incidentally, Peter noted that Peter Brauns, referred to in the article, is a SGAP member. The following are extracts taken from the article.)

A University of Queensland Gatton College research group is believed to be the first in Australia to devise a tissue culture method for large scale commercial production of staghorns.

A team from the College's Plant Nursery and Plant Production Department developed the method and expects to release the first supplies to the nursery trade within the next 12 months.

Until now, most staghorns supplied to nurseries have been harvested from the bush with harvesters frequently following in the wake of loggers. Fewer numbers of staghorns have been grown from spores because the staghorn is a slow-growing plant, taking five years to reach normal saleable size.

Lecturer in ornamental horticulture Mr Ian Gordon said the timing of the tissue culture project was opportune because it coincided with a market shortage caused by greater scarcity. The industry also anticipated greater Government controls on bush harvesting.

"The staghorn (Platycerium superbum) is a fern and easily lends itself to large scale production by tissue culture," Mr Gordon said. It's surprising that not many people have realised the potential commercial significance of domesticating the species in culture as bush harvest supplies dry up. Up to 500,000 of the slow growing epiphytic bush plants are required each year for sale in Australia, without mentioning the export market."

Mr Gordon has worked on the project in the past 18 months with Plant Nursery unit manager Mr Peter Brauns and Tissue Culture Laboratory senior technician Mr Ross Bourne. Mr Brauns and Mr Bourne and their staff collected spore from staghorn plants, initiated aseptic cultures and developed vegetative cultural techniques to mass produce plants which would survive de-flasking and re-establishment in a nursery environment.

Mr Brauns said de-flasking was not necessary for export as plants in culture were in aseptic conditions which easily passed Plant Quarantine inspection. He said the Tissue Culture Laboratory, established two years ago, gave college students access to new technology and practice in using the facilities, making them immediately employable in the nursery industry.

The laboratory also played an important research role in domesticating Australian native plants such as grevilleas, staghorns and the koala fern (Caustis blakei) and a commercial role in producing plants for the nursery trade.

Deadline for Copy

Contributions to the Newsletter are ever welcome. Closing date for material for the September issue is 15 August 1992.

Collecting Spore

(This article by Joel Macher was extracted from the Newsletter of the Fern Society of Victoria and is published with thanks and acknowledgment to the Victorian Society.)

Enthusiasts of all plant varieties, whether they be Azaleas, lilies, trees, etc., propagate their own plants. Yet many, who claim to be fern enthusiasts, have not tried to propagate even the easiest grown ferns from spore, In part, this is due to an incorrect perception that growing from spore is difficult or complex. In fact propagating ferns from spore is easier done than described! Once successfully achieved you're hooked for life.

Fern spore is available from most fern society spore banks, including our own, at little or no cost. (SGAP-Fern Society members contact Jenny Thompson). Fresh spore is, however, preferable as it is more likely to be viable and will, in general, develop more quickly than when sowing old spore. The faster the growing process, the less likelihood of fungal attack or other problems arising. Collecting your own spore has the added advantage of being able to see the parent and enables you to 'pick a bit" when strolling through Nature's own or somebody else's garden.

Beginners should start with a fern whose ripe spore is obvious and which grows rapidly with a hardy habit. An ideal fern is Rumohra adiantiformis, the Leathery Shield Fern. In mature specimens most fronds will be fertile, the underside showing many round sori. The immature sori will be round and doughnut-shaped. They then develop a brown, flat protective lid (the indusium). Mature sori completely or partly shed their indusia, exposing a cluster of glistening, black, grape-like sporangia: the sori are now ripe. The frond can be picked and placed on a clean sheet of paper, the nature of which is of little consequence; the one you are reading now will do just fine. Another sheet placed on top reduces the draught and the whole lot is placed in a dry still place indoors. Inspecting the goods the following day will show the underside of the frond to be a glistening brown where the glistening sporangia used to be. This is the appearance of the spent sori; had the frond been picked at this stage no spore would have been obtained. On the paper there will be a black dust and some roughage from the frond. Holding on a 45 degree angle and tapping the underside will send the roughage cascading down the page, leaving behind the fine black spore. Performing this action in several different directions eventually removes all the roughage, leaving the pure spore still adhering to the page. Folding the paper in half and holding each end of the crease with paper vertical, tap the crease firmly on the table. You will be pleasantly surprised how much spore has gathered in the crease and can be poured into a small folded paper envelope. Spore tends to adhere to plastic, so never use plastic bags for this purpose. Always label with the name of the fern and date collected.

Once you have mastered the art with the above or some other easy fern and having witnessed the appearance of ripe spore,graduating to other varieties is easy. Not all sori look the same; in maidenhairs the sorus is marginal, reniform (i.e.,"kidney shaped") and has no indusium. The sori of Dicksonia sp. (e.g., Soft Treefern) have cup shaped indusia, which open up to expose

brown or yellow, not black. Regardless of format, the appearance of ripe spores becomes easily discerned. A magnifying glass is an invaluable aid.

Some other easy ferns to collect spore from include: Cyathea, Dryopteris and Polystichum species. Davallia species prove difficult. Microsorum sp. appear to have lovely bundles of ripe sporangia, but when picked, often produce nothing but roughage. Some of these ferns, for all their obvious sori, seem to produce little spore. One means of combating this problem is to pick a single pinnule and treat as described. If this proves successful, go back and pick more; if not, pick another pinnule at a different level of maturation. Although most fronds spit their spore within several hours after picking, some may take a `cuppla days´. Another method involves placing the entire living frond in a paper bag (dry weather and indoor only), tie at the base and wait until spore is shed.

Some Davallia and occasionally Adiantum species aren´t always obliging when it comes to splitting; the sporangia ripen nicely but then don´t appear to shed their spore. It may be necessary to scrape the areas appearing ripe and sow the scrapings. Some ferns, notably Todea barbara, Grammitis and Osmunda sp. spit green spore. The remaining spent sporangia then appearing a more normal yellow colour. The spore produced contains chlorophyll and is short lived. It should be sown as soon as possible. Angiopteris evecta is believed by some to require a fungus, associated with its roots, to be cultivated with its spore. Elk and staghorns ferns, in particular produce a spore pad which needs to be scraped, then becoming rough and fluffy. This fibrous material can be sown as is, but some growers prefer to gently sterilize with dilute bleach to reduce contamination or even seive through a stocking. When collecting spore from many cultivars of species, such as of Nephrolepis, remember that the resulting sporelings will more likely revert to the `au naturale´ ordinary form. In the case of hybrids - they are almost always sterile and so cannot be propagated from spore.

If collecting spore proves too difficult (but it shouldn´t), let Nature do it for you. Place a mature frond in an aquarium - this can be a bit of a challenge with Cyathea cooperi! - with crushed, dead elk fibre on floor and keep moist. If this doesn´t produce what is referred to as volunteer sporelings´, then do as I do - give up! Best of Luck.

Report on Outing, Pierces Pass, 21 March 1992

When the weather is perfect in the Blue Mountains, a day in the outdoors can be superb, and it was as 15 of us gathered at the car parking area prior to the fairly long, steep descent to the creek at the bottom of the gorge. Culcita dubia and Pteridium esculentum grew near the car park, then after a short walk we noticed Blechnum ambiguum emerging along a crevice in a rock face, and a little later Sticherus flabellatus and the delicate looking Lindsaea microphylla. This last named fern proved to be common in the area, a most attractive fern it´s a pity that it is quite difficult in cultivation. Nearer the bottom of the gorge we passed by Todea barbara, Sticherus lobatus, Blechnum cartilagineum, B. wattsii and Cyathea australis.

The sign near the creek read Fairy Grove, a truly delightful place, many ferns beneath a canopy of mainly sassafras and coachwood. Peter drew attention to two tiny filmies Hymenophyllum australe and H. cupressiforme and nearby Grammitis billardieri, Lastreopsis acuminata and Rumohra adiantiformis. But the outstanding fern was Leptopteris fraseri. Most of us had never seen so many of this, one of our most beautiful ferns, with fine lacy, membranous fronds.

Our Leader first took us a short distance upstream adding to our list Pellaea falcata and P.falcata var nana, Blechnum nudum, Asplenium flaccidum and A. flabellifolium. Down stream, we noted Lindsaea microsora, Blechnum patersonii, and finally after a scramble across the creek, Spaerocionium lyalli covering a wet rock face. This small filmy fern is only found outside of the Blue Mountains in the southern coastal ranges of N.S.W. and in New Zealand. Pyrrosia rupestris was the only other fern added to our list before we commenced the steep climb back to our cars. A special thank you to Ted and brother John for their many acts of kindness during the day.

After lunch, Keith Ingram invited us to see his Mt Tomah property. The invitation was gratefully accepted and we were shown a veritable wonderland full of fascinating plants including many unusual fruits and a host of ferns. Among these were the following all native to the area but not observed earlier on the walk. Polystichum australiense, P. proliferum, Diplazium australe and Dicksonia antarctica. Two ferns sighted which are not native to the locality were Dicksonia youngiae and Polystichum formosum.

Visit to Burrendong 4-5 April 1992

Support received from Sutherland, East Hills and Central Coast SGAP Group members, boosted our number to 24 workers on the Saturday and all but two of these devoted the day to weeding the shade area. Much was accomplished but not all areas were completed, and worse still we could almost see some of the weeds making a come back later in the day. There was general agreement on the need to mulch between the plants in order to suppress the weeds, but less unanimity on what material should be used. Old bale hay had been tried a few years ago but was not liked because it introduced many grasses and weedy plants.

Subsequent to our visit, Hazel and Gai obtained a small quantity of discarded hessian-type underlay from local carpet layers. This together with newspaper and layers of leaves has been used to cover much of the weeded areas. Hazel said that since the work was completed, a number of visitors have remarked on how lovely the shade area is looking.

A letter has been received from the Burrendong Arboretum Association thanking the Study Group and all those who participated in the successful working bee. The prosperity of the Arboretum relies greatly on voluntary labour and donations and the Association is always most appreciative of any assistance. On this occasion, two of our Group who were unable to make the working bee made substantial donations as an expression of their support.

Report on Meeting at West Pymble on 17 May 1992

Nola and Bill Jones were hosts to 24 members who gathered at their home situated on a block that made most of us envious - in a leafy suburb and with dense bush side and back and enough moisture to cause ferns to volunteer throughout their property. It was a day notable for serious study relieved only by breaks for sustenance and another giant raffle thanks to the generous donations of a large number of ferns by Bea and Roy Duncan, Rose Bach and Joan Moore.

The study was heavy going as Peter took us through the key to the Aspleniums of North Queensland - not an easy task as most of us had never even seen many the species discussed. Fortunately, Peter had first hand experience of most and even brought a number of potted species to the meeting.

At our previous meeting we had considered Aspleniums which have simple fronds. Peter now mentioned those with fronds one pinnate or pinnatifid. These he divided into two groups, the first ferns with the midrib of pinnae grooved above. Only one of these, A.parvum has a thick covering of hairs along stipe and rhachis, while the others, A.pellucidum and A.polyodon, may have a few scales or else be more or less glabrous. These last two named ferns can be separated according to whether the lower pinnae is not or is only slightly shorter, than the middle pinnae - if the fern fits this specification, then it is A. polyodon. On A. pellucidum the lower pinnae is much shorter than the middle pinnae.

Turning to the group which do not have grooved midribs, Peter mentioned two ferns which have the lower side of the lower pinnae cut away. A.excisum has pinnae at right angle to the main rhachis its lower pinnae are longest. In contrast the pinnae on A.unilaterale are at an angle to the rhachis and apart from a few at the top, the pinnae are almost the same size. A.unilaterale is widespread Africa to the Pacific, India, China and Japan, but has been seldom collected in Australia.

Stipe length compared to lamina length was the next feature considered. Four ferns which have stipes which are at least half as long as the lamina are A.tenerumoides, A.wildii, A.athertonense and A.capitisyork. A.tenerumoides has an erect rhizome and the pinnae gradually and then suddenly reduce towards the apex of the lamina. The other three ferns have creeping rhizomes. Two are diminutive ferns with fronds no more than 20 cm long. A. wildii has stipe and rhachis which are more or less glabrous, while the stipe and lower rhachis of A.athertonense is scaly. The other fern, A.capitisyork has fronds which can reach 60 cm long and stipes densely covered in scales.

"Ferns of Queensland" listed A.normale as having stipe less than half as long as the lamina. Peter had brought a fern labelled A.normale to the meeting but not only was the stipe to lamina length wrong compared with the published data, it did not conform to the description of a fern with fronds up to 40 cm long, glabtous stipe, up to 45 pairs of pinnae, lowest pinnae hardly reduced but somewhat more distant and pointing downwards and upper pinnae gradually reduced. The other fern in this group with stipes less than half as long as the lamina is A.bicentenniale,

a tiny tufted fern no more than 23 cm high and having stipes densely covered with scales.

At this point the study was adjourned until next meeting.

Notes from South Eastern Queensland Fern Study Members

(Contributed by Irene Cullen)

One meeting to report - the "What Fern Is This" discussion which was held at Murray's home in March, was very popular and generated a lot of discussion among those present. It seemed that many members become both confused and frustrated when trying to identify their ferns. An example of this is Cyathea cooperi, often referred to as the "Coin-spot Fern". Many botanists cite it as a characteristic of Cyathea cooperi. Whereas in reality, it is only seen on the trunk of very tall, apparently old specimens. The average garden grown plants will not have these markings. Instead, the old fronds break off leaving only a pattern of stubs on the trunk. So the novice looking for "coin spot scars" believes that the fern is not Cyathea cooperi. Despite this, most of us came away a little more confident in our ability to put a name to some of the ferns brought along for identification, due mainly to our leader, Peter Bostock for patiently and clearly pointing out features of each plant. Rainfall has been good and we look forward to the forthcoming excursions to Canungra and the Conondales.

Notes from N.S.W. Mid North Coast Fern Study Members

(Contributed by Charlie Charters)

The Group's most recent outing was held over the week end of 4-5 April. We started at lunch time on Saturday visiting the area adjacent to the Grandis Tree - tallest Flooded Gum in NSW. This giant tree is situated about 6 km off the Pacific Higway north of Bulahdelah. Saturday night was spent at Smiths Lake. Then the next day we travelled along a forestry road north west of Bulahdelah stopping first at Tallowood Forest Park and then visiting the Strike a Light Camp area. We listed 21 different fern species on Saturday and 25 and 17 respectively at the two stops on Sunday and that's not counting the bracken.

The following is the list of ferns identified.

Adiantum hispidulum, A.silvaticum, Arthropteris tenella, Asplenium australasicum, A.polyodon, Blechnum cartilagineum, B.patersonii, Christella dentata, Culcita dubia, Cyathea cooperi, C.australis, Davallia pyxidata, Dennstaedtia davallioides, Doodia aspera, Hypolepis punctata, Lastreopsis acuminata, L.decomposita, L.microsorum, Microsorum scandens, Ophioglossum pendulum (Ed: that's an exciting find - any Sydney members planning a trip to Bulahdelah?), Pellaea falcata, P.paradoxa, Platycerium bifurcatum, Pyrrosia confluens.

Subscriptions Overdue

Fern Study Group subscriptions for 1992 were payable in January. An X appearing in the space opposite means that our records show your subscription has not been received. We value your membership but this will have to be the last Newsletter we send pending payment of the subscription.

FORTHCOMING EVENTS

In the Mid North Coast of N.S.W.

Week end 13-14 June 1992, Outing at Coffs Harbour
Visits to ferny areas led by Steve Clemesha. For details and meeting place contact Steve, phone (066) 56 1937.

In the Sydney Region

Saturday 20 June 1992, Outing to the Watagans
Meet at the Duncan's, leaving from there no later than 10 am for Heaton Lookout. Lunch at cars after 4 km circular walk. From Hornsby it takes 50 minutes (at maximum speed limits) to the turn from the Expressway to Morisset. Proceed towards Morisset as far as the first roundabout where you turn left, follow Freemans Road past the two caravan parks, over bridge, No. 167 is the second driveway on the left. Park inside the Duncans' property. If weather is doubtful phone the Duncans (049) 77 1482.

Saturday 25 July 1992, Meeting at Camperdown
Meet at the home of Ann and Geoff Long, 23 Fowler Street, Camperdown. Arrive from 11 am, study session before lunch will conclude Asplenium of North Queensland. In addition we are trying a new feature, "A Member's Fern", and as a reward for suggesting the session, on this occasion the presentation will be by Betty Rymer. Bring lunch and a plate for afternoon tea. Enquiries regarding directions 519 5536.

Saturday 22 August 1992, Outing to Wheeney Creek
Directions from Sydney, along Bells Line of Road until Kurmond, turn right into Comeroy Road, after 8 km road divides, don't go to the right - that is Blaxland Ridge Road, keep left towards Upper Colo until you reach Wheeny Creek. Meet at the Creek, near Toilet Block on the right. Late lunch at cars, carry a snack and drinks, an easy walk through patches of rainforest alongside the Creek and maybe across it - perhaps a change of shoes? If weather doubtful phone Peter 625 8705.

Sunday 18 October 1992, Meeting at Joseph Banks Reserve, Kareela
Note September to be a free month. We failed to complete satisfactory arrangements for proposed plant sales days - look forward to September 1993. Details of Kareela meeting next Newsletter.

In South Eastern Queensland

Sunday 5 July 1992, Outing to Conondale
Excursion to Peter's Creek area, Conondale. Meet at 9 am at the Bridge on the southern outskirts of Kenilworth. We will move on as a convoy from there. Full day excursion.

Sunday 9 August 1992
Meet at Russell and Irene Cullen's home - 39 Sunningdale Ave, Rochedale at 9.30 am for discussion and garden visit. Morning only, however those who wish may bring lunch and visit nearby fern nurseries afterwards.

Week end 19 & 20 September 1992, Queensland Region Flower Show
Meet at Redeemer College Rochedale on Friday 18 September 1992 at 3 pm to help with erection of the Fern Display.