

"Look-Baby 1979 file"

S.G.A.P. - Fern Study Group - Newsletter

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During the year, letters arrived mentioning apparent changes to the names of some native ferns. Selecting a few such names, plus several which were unfamiliar to us, a list was compiled and sent to the Botanic Gardens for comment. Printed below is the list submitted, followed by the advice received, for which I thank Dr. Mary Tindale and The Director and Staff of The Royal Botanic Gardens.

FORMERLY

CYATHEACEAE

<u>CYATHEA</u>	AUSTRALIA
C.	BAILEYANA
C.	CUNNINGHAMII
C.	MARCESCENS
C.	REBECCAE
C.	ROBERTSIANA
C.	WOOLLSIANA
C.	LEICHHARDTIANA
C.	CELEBICA
C.	FELINA
C.	COOPERI

NOW

<u>ALSOPHILA</u>	AUSTRALIS
A.	BAILEYANA
A.	CUMMINGHAMII
A.	MARCESCENS
A.	REBECCAE
A.	ROBERTSIANA
A.	WOOLLSIANA
<u>SPHAEROPTERIS</u>	AUSTRALIS
S.	CELEBICA
S.	CONCINNA
S.	COOPERI

ATHYRIACEAE

<u>ATHYRIUM</u>	ACCEDENS
A.	ASSIMILE
A.	AUSTRALE

<u>CALLIPTERIS</u>	PROLIFERA
<u>DIPLAZIUM</u>	ASSIMILE
D.	AUSTRALE
?(D.	CORDIFOLIUM
?(D.	DIETRICHIANUM
D.	DILATATUM
?(D.	PALLIDUM
?(D.	SYLVATICUM

A. DILATATUM

THELYPTERIDACEAE

<u>CYCLOSORUS</u>	ARIDUS
C.	HISPIDULUS
C.	PARASITICUS
C.	PENNIGERUS
C.	TRUNCATUS
C.	HETEROCARPUS

<u>CHRISTELLA</u>	ARIDA
C.	HISPIDULA
C.	PARASITICA
<u>PNEUMATOPTERIS</u>	PENNIGERA
P.	SOGERENSIS
?(P.	COSTATA
<u>SPHAEROSTEPHANOS</u>	HETEROCARPUS
?(S.	UNITUS
?(S.	INVISUS

ASPLENIACEAE

<u>ASPLENIUM</u>	
A.	FALCATUM

?(<u>ASPLENIUM</u>	AETHIOPICUM
?(A.	AFFINE
?(A.	PARVUM
A.	POLYODON

<u>GONIOPHLEBIUM</u>	SUBAURICULATUM
G.	VERRUCOSUM

<u>SCHELLOLEPIS</u>	SUBAURICULATUM
?(S.	PERCUSSA

Dear Mrs Murray,

Dr. Tindale has considered your queries carefully. She is not accepting R. Tryon's classification of the Cyatheaceae but retaining that of R.E. Holttum. A number of fern specialists overseas and in Australia are not accepting Tryon's changes, although his groupings are being used at subgeneric levels in some cases.

Regarding the Athyriaceae, the changes accepted in Clifford and Constantine's "Ferns, Fern Allies & Conifers of Australia" should be adopted, although the world classification of Athyrium and Diplazium is most unsatisfactory. D. cordifolium, D. pallidum, D. sylvaticum and D. dietrichianum are all good species but are confined to the rainforests of north eastern Australia in this country.

In the Thelypteridaceae all the changes must be accepted following R.E. Holttum's revisionary work over the past decade in a long series of papers on this family. The latter papers have been mainly published in Blumea and the Kew Bulletin. The fern formerly known as Cyclosorus truncatus is now Pneumatopteris sogerensis. Cyclosorus nymphalis which is a very common fern in the Pacific Islands, New Zealand and Australia, is now known as Christella dentata but varies considerably over its range.

Pneumatopteris costata and Christella arida occur in the rainforests of north eastern Queensland. Incidentally Christella parasitica does not extend to southern Queensland and New South Wales but C. hispidula does (p.70, Clifford and Constantine).

Asplenium aethiopicum, A. affine and A. parvum are all good species, but the last two are rare and confined to the rainforests of north eastern Queensland. A. aethiopicum is rare except in the south west of Western Australia where it is fairly common.

Regarding the adoption of Schellolepis instead of Goniophlebium, Dr. Tindale will inform you at a later date.

Yours sincerely,

Director. (Per. M.D.T.)

MORE ABOUT ANGIOPTERIS EVECTA: by Ray Best.

Having successfully grown a few plants of ANGIOPTERIS EVECTA from the base auricles (stipules) of a mature plant, I thought members may be interested in the details. They were planted in a normal fern mixture of unsterilised soil, about three years later, growth began from one side of the stipule, just prior to this, in desperation they were given a severe dose of seaweed fertiliser along with a little abuse about getting started which may have assisted. Both plants are now growing well with fronds about 6ft. long; no sign of spore formation as yet; fronds on a mature plant can reach 30 ft. long and over 6ft. wide at the centre, obviously mine are only babes as yet. Being a swamp fern they enjoy a damp situation, any moisture shortage causes immediate drooping.

An article appeared in the Los Angeles International Fern Societies Journal of Feb. 1979 from which I quote:-

"At Humber State College greenhouse in Eureka California it was discovered that ANGIOPTERIS EVECTA could be grown from spores. Root tips taken from an adult fern were mashed and used to inoculate a sterile planting medium. It took six (6) months for the spores to germinate (not unusual. R.B.) and two (2) years for sporophytes to appear. This procedure was successful apparently because the root extract contained a fungus that is necessary to the well being of the fern" end of quote.

Some time ago I received spore material of A.EVECTA and MARATTIA SALICINA from Queensland; unfortunately practically all was waste material and I would suspect aged. I tried the addition of crushed roots; no results to date (not expected due to poor condition of spore material). Barbara Joe Hoshizaki in her "Fern Growers Manual" states that commercial growers do not use agar solutions to grow spores. However with the increased usage of tissue culture which does use agar solutions; plus of course synthetic hormones, it could be useful to experiment with new methods of propagation. If most of the claims made for the efficiency of tissue culture are correct we need have no fear for the future of rare species.

In checking out material for this article I was surprised to find that every species of eucalypt that has been examined, has been found to have mycorrhizal roots (fungus associated). I have used sterile soilless mixtures (not agar) in spore propagation with considerable success over the years; perhaps certain species are exceptions to the rule and may account for failures. Some years ago I wrote to Kew Botanical Gardens about the use of sterile mixtures and received the following reply. Quote:- "Details of methods and any chemicals used in media sterilisation would be necessary to determine the amount of bacteria kill as well as soil infections; complete sterility in a mixture can be fatal to many forms of growth." Signed J.S. Keesing for the Director. Fortunately today, methods change rapidly, I consider Robert Riedl's suggestion a good one and look forward to hearing of results achieved.....Ray Best.

BOB JAGO wrote an interesting letter from Cairns, describing ferns in his garden and as observed in nearby Rainforest. Speaking of ACROSTICHUM SPECIOSUM he said "This species is common in northern Queensland and given a moist position will grow in full sun, it may also be seen growing along margins of Mangrove and Melaleuca swamp. My Plant, originally a foot high, grew in eighteen months into a large and beautiful specimen with fronds to 2½ metres. Unfortunately this fern and several others did not survive transplanting when sewerage connections were made, but spore had germinated and plants literally came up all over the place, wherever moisture and shade permitted; I am certain that this fern could take over my garden if allowed. To keep my A. SPECIOSUM in check I regularly remove old fronds, this keeps it looking attractive and results in the fern forming a large domed, trunk-like base, to a greater extent than any I have observed in the wild. PTERIS TRIPARTITA is basically, a fern of the larger creeks and rivers of the rainforest, fronds of about 1.5 metres are the norm around Cairns. My oldest garden specimen is a beautiful fern of this size requiring no maintenance except removal of old fronds. ASPLENIUM PALEACEUM is another attractive fern common to local rainforest, which spreads rapidly by means of bulbil plantlets. ANTHROPHYUM RETICULATUM is easily grown in a course potting mixture, but is very slow, the fronds wither and wrinkle very quickly if allowed to dry but will tend to rot if over watered. BELVISIA MUCRONATA is easily grown and thrives on neglect, while BOLBITIS QUOYANA is a beautiful species, one of the gems of local rainforest. I have a specimen growing in a pot but it seldom develops a fertile frond, nor have I ever observed ripe spore on any of the many fronds I have examined in the wild."

NEV. LITTER of Bulimba Brisbane would like to say that he has seen AMPELOPTERIS PROLIFERA growing in colonies in the Ipswich area on the Brisbane River. This is the second report to come to us of this fern occurring much further south than its recorded distribution. Nev. also mentions ACROSTICHUM SPECIOSUM growing in swampy ground on Bulimbah Creek, here the fern stands two (2) metres tall and the stipes show a tide mark at a height of about 90 cms.

ELIZABETH BAXTER writing from the Brisbane suburb of Kenmore, applauds the appearance in Newsletters of suggested places to buy ferns. Elizabeth also contributed the following item:- "I raise orchids from seed and have raised ferns from spore by the same procedure. So far I find spores are not harmed by being sterilised in calcium hypochlorite (4%), prepared as outlined in September Newsletter. At workshops conducted at the University of New England I learnt a method of handling spore which is guaranteed to eliminate all "Ring Ins".

- (1) Collect frond, carefully checking the stage of ripe-ness with a 10X hand lens. Without delay wash under a running tap for 1 hour.
- (2) Place pinnules in a small screwcapped vial and fill to brim with prepared calcium hypochlorite solution, or 1% household bleach. 1 drop of wetting agent such as agrel could be useful.
- (3) Leave for twenty minutes - set the timer. Results improve if shaken vigorously at intervals.
- (4) Pour off hypochlorite, rinse over with sterile demineralised water and tip out onto sterile filter paper, leave to dry or hasten with incandescent lamp.
- (5) The spores will be shed as the pinnules dry out, transfer aseptically to storage vial or onto media such as Knudson C. At the prothallus stage it is helpful, possibly essential to flood the culture with sterile water, leave a few minutes, then drain off. Such an aseptic technique is mandatory for sowing on nutrient agar media which contains sugar - but may be short cut when using peat sand mixture - which I pressure cook in an icecream container. Professor Sagawa, Director of Lyon Arboretum, University of Hawaii, advised that fern spores germinate better on a half strength formula and if the sugar is omitted, any contaminants which grow initially will soon die - and ferns don't need sugar. (Most ferns that is - is *Angiopteris evecta* perhaps, an exception?)

On ANGIOPTERIS EVECTA - my son Philip describes splendid specimens growing on Fraser Island in pure white sand, standing in clear running water. Many specimens are thriving at the Lyon Arboretum, Hawaii - along with many other successful imports from Queensland Rainforest! On propagation of ANGIOPTERIS - it seems the technique may have been mastered - Woolworths in Queensland had some four thousand for sale in 6" pots according to their Garden Supply Manager. They were a very even lot. I bought three and they are growing well - no spores yet! To conclude, I believe the threat of extinction has receded - and we could always import some back from Hawaii."

JOHN BLAKEMAN from Alice Springs in the Northern Territory writes:- "I am trying spore in those fairly new types of soft-drink bottles which are made out of very tough thin plastic - after washing the bottles I sterilise spagnum moss in the oven and then moisten it again with boiled water, I then blow the spore in onto the moss and replace the airtight caps, the bottles are laying on their sides. I am growing most of the common ferns which can be bought, such as NEPHROLEPIS CORDIFOLIA, DOODIA MEDIA and ADIANTUM - a local Botanist brought me ADIANTUM HISPIDULUM and a NEPHROLEPIS SP. from 180 miles due west of Alice Springs, where they grow in a sink in the hills - one of those places with hills all around and no drainage. Most of these ferns are in a general melee on the floor of the shade house - I have recently built a shade house where I am successfully growing ferns in pots this is preferable as ferns can be labelled; that is if you can come by the right name - one fern purchased lately is labelled NEPHROLEPIS GIAGANTICA and although this may be the correct name, as it is a very tall fern there is nothing in "Ferns and Fern Allies" about it. Selaginella grows well here and most people with greenhouses have a couple of Cyatheas, but I am yet to see one look lush in growth. Stags and Elks do well enough with some people - my Son-in-law who knows little about plants grows them far better than I do!"

Johns residence in Alice Springs is a Home, which the Sydney Morning Herald in a recent article described as a monument to "Flynn of the Inland." Stating that, Australia's only clerical folk hero has many memorials to him in Bronze, Brick or Stone, it claims that Johns Home, "OLD TIMERS" is a living memorial not just to Flynn, who died in 1951, but to all outback people, its residents (quote) "breathe the history and lore of the inland." Following is an extract from the article, which gives us some insight into the qualities of our fellow Study Group member.

"John Blakeman, the first Manager of Old Timers is now a resident himself. He is an authority on the trees, shrubs and plants of the Northern Territory, and one of its leading citizens. Before managing Old Timers he had a vocational role, looking after a centre for problem boys in a Rural Region of Victoria. The Rev. Fred McKay, then Superintendent of the Australian Inland Mission, brought him to Old Timers, where he found "problems" of a different kind. Old Timers have often led solitary, lonely lives, prior to coming to the Home, and John Blakeman found initial communication difficult. Mr. McKay told him to ease himself gently into the new job, and suggested, "there's a big shed up there. Spend a week cleaning it out, and while your doing this, don't have much to do with the old chaps. Let them find their way with you." John Blakeman did just that, and it brought results. "Each day, as I worked, I looked across at this old chap seated not far away. No one ever spoke to him, no one ever went near him - he sat by his cottage surrounded by empty tins of tobacco. After about five days I walked across and sat down beside him. I didn't say anything he didn't say anything. Then he said "hello", and I just grunted and looked the other way. From then on we were firm friends. His name was Archie. He knew everything that grew - anything and everything about herbs and plants, and what was good tucker and what was bad."

BURRENDONG ARBORETUM: Our October visit proved to be well worthwhile, we thought the general scope of the Arboretum impressive and the development of a rainforest area an inspiration. The shade area to contain rainforest plants is established in a large gully which lies roughly east-west; it is narrow in the western section and widens to the east, a creek bed with interesting rock formations runs along its length. The gully sides are suitably sculptured into planting areas and walking paths are fashioned to lead the visitor to wooden bridges constructed across the creek. A plastic spray system is in use and in 1981 a solar powered pump to recycle water in the creek is to be installed. Spanning this gully, which measures about one quarter acre, is a vast web of square meshed steel designed and erected by students and staff of the University of New South Wales (Dept. of Landscape Architecture), steel materials worth \$3,200 were donated by B.H.P., through Australian Wire Industries. The mainstay of this steel mesh canopy is the perimeter, formed by a heavy steel hawser, anchored in concrete blocks at various points around the gully, total value of material donated was \$8,600, all labour was voluntary. Brush, laced through the mesh, provides shelter from the extremes of inland temperatures. Ten Sydney Group Members returned to Burrendong on the last weekend in November with thirty TODEA BARBARA ferns and a handsome collection of about eighty mature mixed ferns, which were donated to the Arboretum by Keith Ingram. Using light picks, shovels and forks we planted in excess of two hundred ferns making Todea barbara the link feature down the creek and placing other ferns into colonies. We still have a lot of gully to plant and plan to return in March to tackle one of the upper slopes, using ferns that can stand a hot position e.g., HYPOLEPIS MUELLERI. There will be losses from our initial planting and until the shade area is fully planted and stabilised, we will have to make replacements and perhaps rethink the location of some species. The concept of a "RAINFOREST IN THE WEST" offers a challenge and opportunity to the Fern Study Group to be involved in a constructive venture. Ferns wanted for planting in March include BLECHNUM INDICUM, B. PATERSONII, B. WATTSII, DOODIAS and PTERIS UMBROSA. If any member has a fern to donate please ring 6381084 and we will collect. For

the benefit of our members who would like to join the Burrendong Arboretum Association I will include one of their enrolment forms.

KEITH LANGFORD of Warrandyte Victoria writes: Previous Newsletters have included some information on how to recognise that fertile fronds are ready to be collected, I still find this confusing. Would some experienced member please supply more information as to the appearance of Sporangia in different species when the spore is ripe and ready to be collected?

MICHAEL GARRETT of Tasmania writes that he has collected what appears to be variegated HISTIOPTERIS INCISA - any comments?

Sydney members have decided on an initial excursion in 1981 and will meet at the Lawson Memorial on February 22nd at 10.00 a.m. for a bush-walk, lunch and Meeting. Hopefully the drought will have eased and the ferns will be lush and abundant.

ADDITIONAL SPORE IN BANK:

- LASTREOPSIS DECOMPOSITA
- LASTREOPSIS SMITHIANA
- LASTREOPSIS HISPIDA
- LASTREOPSIS NEPHRODIAIDES (LORD HOWE ISLAND)
- POLYSTICHUM FORMOSUM

I would like to thank all members who have donated such interesting items to our Newsletter during this year.

Thanks also to Faye Low who handles our finances and always manages to pay our bills - to Gwen Hardwick who runs the Spore Bank as well as typing for the Newsletter - to John Lee who so efficiently despatches the hundreds of Newsletters to our members in all States and Overseas. They and I, wish you the Compliments of the Season, Good Health and Happy Gardening in 1981.

Molly Murray LEADER.
FERN STUDY GROUP.

ALTERATIONS TO MEMBERSHIP LIST...1/12/80.

NEW SOUTH WALES:

ADD: Mrs. J.E. Grout, 31 Cheyne Walk, Castlecrag. 2068.
Miss J. Moore, 2 Gannett St., Gladesville. 2111.
J.E. Stuggs, Centrepoint Aquarium, Ternagion St., Nyngan. 2825.
DELETE: Mr.P. Grey, 23 the Outlook, Bilgola
REPLACE: Mr.P. Grey, 337 Lower Plateau Rd., Bilgola Plateau. 2107.
DELETE: Mrs. M. Gorten, 1 Willow Dr., Baulkham Hills. 2153.
REPLACE: Mrs. M. Zacher, 42 Joseph Banks Dr., Kings Langley. 2417.
DELETE: Mrs. T. Overstone, Lot 4, Sackville St., Hilltop. 2691.
DELETE: Mrs. A.J. Ward, 66 Cecil St., Gordon. 2072.
ALTER: Mrs. G.Hardwick, 2/ Nowill St., Rydalmere. 2116.
Mr. & Mrs. K. Hardwick, 21 Nowill St., Rydalmere. 2116.
ALTER: Mr. A. Sharp, 20 Kirby St., Rydalmere. 2116.
Mr. & Mrs. A. Sharp, 20 Kirby St., Rydalmere. 2116.

TASMANIA:

ADD: Mrs. M. Melbourne, Bass Highway, Chasm Creek. 7320.
DELETE: Mr. B. Robinson, 23 Cleburne St., Kingston. 7150.
REPLACE: Mr. B. Robinson, R.M.D., Dilston. 7252.

COMPLIMENTARY:

ADD: The Hon Treasurer, Burrendong Arboretum Assn., "Moonee-Nyrang"
Wellington. 2820.

A.C.T:

DELETE: Mrs. M. Hinchey, 14 Burgan Place Rivett. 2611.
REPLACE: Mrs. M. Hinchey, 9 Bisdee St., Hughes. 2605.
NEW ADDRESS: Society for Growing Australian Plants, Canberra Region
Inc. P.O. Box 207, Civic Square. 2608.

SOUTH AUSTRALIA:

DELETE: Mr. D. Koop, 1 Rensley Ave., Newton. 5074.

VICTORIA:

DELETE: Mr. F.J.C. Rogers, 79 Wawunna Rd., Horsham. 3400.
REPLACE: Mr.F.J.C. Rogers, P.S. 4697 Baillie St., Horsham West. 3400.

QUEENSLAND:

DELETE: Mr.J.W.Wright, 216 Neptune St., Maryborough. 4650.
REPLACE: Mr.J.W.Wright, 80 Avenell St., Bundaberg. 4670.
DELETE: Miss C. Brosnan, 84 Boundary Rd., Indooroopilly. 4068.
DELETE: Mrs.R.King, C/- Beaudesert Shire Council, Beaudesert. 4285.
REPLACE: Mrs.R.King, 88 Marquis St., Greenslopes. 4120.
ADD: Mrs.A.J.Ward, "Reevesdale" Fahey Rd., Mt. Glorious.
DELETE: Mr.R.L.Jago, P.O. Box 3, Martynvale, Cairns. 4870.
REPLACE: Mr.R.L.Jago, P.O. Box 92, Manunda. Cairns. 4870.

OVERSEAS:

DELETE: Mr.J.T.Cash Jnr. 2006 West 43rd, etc. Houston Texas.
DELETE: Mrs.B.M. Timms, Zool.Dept., Canterbury UNI Christchurch.
REPLACE: Mrs.B.M. Timms, 87 Avondale Rd., Cooranbong. N.S.W...2265.
DELETE: Mr.Lawrence R. Sayne, 192 Tharp Drive, etc. Motaga. U.S.A.
REPLACE: Mr. Lawrence R.Sayne, P.O. Box 338, Rough & Ready, CA.
95975 U.S.A.

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