

FERN STUDY GROUP - THE SOCIETY FOR GROWING AUSTRALIAN PLANTS

NEWSLETTER NO.6

AUGUST, 1978.

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Hon. Treasurer:
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FOR SYDNEY REGION MEMBERS:

WE are mounting a DISPLAY on behalf of THE FERN STUDY GROUP at the S.G.A.P. EXHIBITION - MacARTHUR GIRLS HIGH SCHOOL, MacArthur Street, PARRAMATTA - Saturday 2nd and Sunday 3rd September, 1978 - HELP IS URGENTLY NEEDED - particularly on FRIDAY 1st September to erect this exhibit. IF YOU CAN help would you please ring JOHN LEE at 95 1961. GEOFF EDWARDS has again volunteered to organize this but he cannot do it alone. If you have any ferns that can be used for this display, please let John know.

OUTING TO KATANDRA BUSHLAND SANCTUARY - SATURDAY 27TH AUGUST - Meet at the Sanctuary at 11.30 a.m.... This is a delightful reserve which has a variety of attractions... fern lovers should be able to see *Tmesipteris truncata* growing on *Todea barbara*, filmy ferns and *Psilotum nudum* without having to climb into difficult areas. Directions: From St. Ives travelling along Mona Vale Road towards the sea, pass the Baha'i Temple and Chiltern Road, then turn left into Lane Cove Road and enter the Sanctuary at the upper gate. From Palm Beach and Narrabeen travelling along Mona Vale Road away from the sea, pass the Cemetery and turn right into Lane Cove Road and enter the Sanctuary at the upper gate. Barbecue facilities are available.

NEXT MEETING - SUE MONTGOMERY'S HOME - 26 Plymouth Cres., KINGS LANGLEY. (Phone 624 5753). SEPTEMBER 24TH - 2 P.M.

A.C.T. ANNUAL EXHIBITION - 21st & 22nd October, 1978 - We have had a request from Tim Woodburn, Flower Show Convenor 1978 (Canberra), for assistance in mounting a display on ferns. We have offered a couple of suggestions and perhaps Canberra members could assist him? His address is 134 Dryandra Street, O'Connor. 2601.

LOCAL GROUPS: A local group is functioning well in Sydney - and another has just been formed in the Central Coast (NSW) Area... having meetings and outings. Similar groups could be started in other State Capitals. Any member wishing to help start a local group write to Steve Clemesha so that a note can be put in the Newsletter for interested members to contact you.

CORRESPONDENCE: Because of the immense size of this Group it is impossible for all members to write to the Leader, but you may select an address of a member in another area if you want to write to someone elsewhere.

A NOTE ON BRACKEN - One of the best known plants in the world is Bracken Fern. It is one variable species or about six closely related species which are not always clearcut. The present accepted general Australian name for the most widespread form is Pteridium esculentum. Two others are found in north Queensland. The name 'esculentum' means edible. This is not really true as it contains

poisonous properties. Young spring fronds are collected, dried and eaten in Japan, but that country has the worlds highest incidence of stomach complaints and it is thought this may be due to eating bracken. In New Zealand the Maoris dug up and roasted rhizomes but only those in certain favoured areas where the rhizomes were less tough and fibrous than they usually are.

Though famous and well known it is often confused with other ferns. It can be distinguished from them by its harsh feel and the sori which are marginal and protected by an overturned leaf margin. They are inconspicuous and easy to overlook. Brackens are found in a wide variety of well drained soils and they respond well to fires and are a pest in pastures. Control is difficult but repeated slashing and other agricultural practices will reduce it significantly.

I have never attempted to raise bracken from spore and would be interested to know how easy or otherwise it is. I have noticed it does not seem to come up as a ring-in in pots of spores. It leaves this to its close relative Histiopteris incisa and some species of Pteris and also of course other ferns less closely related to it. The curious paradox about this fern is that it is very difficult to cultivate and is one of the most difficult ferns to transplant.

RAISING FERNS FROM SPORES: A frequent request received is how to raise ferns from spores. A number of variations of the same basic way exist. Ray Best described his method in Newsletter No. 1, which many of the new members will not have, so below I will describe the method I use:

1. Container - A terracotta pot as this can be placed in the oven to be sterilized. If plastic is used the soil must be sterilized separately.
2. Soil - I prefer to fill most of the pot with peatmoss and top it with Sphagnum moss. If peat is unavailable garden soil or sand will do.
3. Sterilizing Soil - This is most important and without it I have no success. It can be done by putting the pot (if terracotta) in the oven at 250 degrees F. to 300 degrees F for about half an hour. The temperature is not critical - higher does no harm. If plastic pots are used the soil must be sterilized separately. With terracotta the pot complete with soil and sphagnum can be done.
4. Wetting - On removal from the oven after cooling the growing medium surface may be dry. If so, wet it with boiling water. Cold water will contain algae spores and undo the work the sterilizing has done.
5. Sowing - Scatter spores rather thinly and evenly over the cooled damp surface then cover the pot with a piece of clear plastic and tie this on with string or cut nylon stocking. Stand the pot in a saucer of water in a place that receives no direct sun but plenty of light. The more light the faster the growth will be.

BLACKING OUT - Some growers report that the pot should be blacked out with a sheet of black plastic for two or three weeks. I have found it to be no value whatsoever.

RING-INS: Despite all precautions you take and even if you never open the cover, ring-ins may occur. If germination of planted spores is good they will be few and obvious or nil; but if germination is sparse - say 20 prothalli or less - suspect them. Probably they are on the fronds when the spores are collected.

FUNGUS INFECTIONS: If these occur they will spread gradually across the prothalli killing off the prothalli as they go. Benlate used at recommended strength will stop it. It is harmless to prothalli but use it VERY carefully as it has recently been found to be dangerous to man.

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At a recent committee meeting the question arose as to just what was a "Saprophytic Spore" - so for our information Steve Clemesha and Ray Best provide the following -

SAPROPHYTIC PLANTS AND FERNS:

Most plants produce chlorophyll from the time the seed or spore germinates and it continues throughout their lives. Some plants however are saprophytes. These are plants that feed by absorbing organic food from dead and decaying material. They contain no chlorophyll and do not carry out photosynthesis. When their food supply is exhausted they die of starvation as they have no other means of feeding themselves.

Most fungi are saprophytes (the exceptions are parasites). Common examples are toadstools, mushrooms, the dry rot fungus that destroys wood and the mould which grows on bread. They are valuable as they convert dead organic material to humus which becomes a part of the soil.

Some more primitive ferns have prothalli which are said to be saprophytic e.g. Ophioglossum, Botrichium, Schizaea, Marattia, Angiopteris and probably Helminthostachys. In the case of these the prothallus is devoid of chlorophyll and often fleshy. It is not a simple saprophyte like fungi but it lives in an extremely delicate relationship with a fungus that obtains its food for it and feeds the developing prothallus. The relationship is very delicate and so far has not been successfully copied in cultivation.

A number of orchid species are saprophytic and live in a similar relationship to that mentioned above. Again the relationship is a very fragile one. People sometimes attempt to cultivate saprophytic orchids but in all cases the result is the same ... after transplanting all root growth stops because of the delicate relationship with the fungus being lost and the plant lives on its stored food until it dies. It may even flower before this if it is a species with a large root system. Some orchids are complete saprophytes with no green parts at all. They are underground plants which only appear above ground as a leafless flower stem. Some even flower underground and only the seed capsule grows above ground level. Other saprophytic orchids have a few to a lot of green parts but not enough to sustain them.

All orchid seedlings on germination are invaded by a fungus for the first stage of their life and are dependent on it to begin growth as it supplies sugar. It is easy to understand these lapse into becoming saprophytes all their lives. The roots of most (if not all) non saprophytic orchids contain a fungus (probably the one required for the seed to germinate) and it presumably has some beneficial effect on the plant.

It is probable that some species of the fern genus Schizaea are at least partial saprophytes but others, especially S. rupestris are not. This would not be surprising as some orchid genera have a few (or numerous) saprophytic species e.g. Cymbidium, Dipodium, Eulophia, Prasaphyllum and Cryptostylis while other genera are wholly completely saprophytic, e.g. Gastrodia and Neottia.

APOLOGIES to BOB COVENY ... we have been spelling his name wrongly! Please note corrected spelling... and whilst on this matter.. I (Gerry Parker) must apologise for any other misspellings or typing errors... they do seem to creep in under the pressure of trying to fit many things into a limited time budget.

COLLECTION OF SPORES - Ray Best who looks after our Spore Bank has asked if more members could send him spores.. to MR. RAY BEST? 21 Orana Road, KENTHURST. NSW. 2154. His advice on collecting spores is reprinted from our first Newsletter -

Materials required: Squirrel or sable hair brush (most suitable), a good magnifying lens, some sheets of smooth white parboard and a small container.

As most spores occur on the back of mature fronds, this is where we must look, before removing leaf make sure (with magnifying lens) that the spores are ripe. Then remove the frond, bend one sheet of card in half, place sample spore side down on sheet. Attach with scotch tape. If you wish, bend flap over, leaving air gap, place in a warm but not hot position inside the house free from wind or draught. Leave for a day or two when you will find beneath the frond the exploded spores. Remove the leaf and carefully with the hair brush move the spores to the centre groove. You can assist this by gently tapping the back. Prepare receptacle and tip card up. Tap until spores fall into the container. Often you will obtain both spores and exploded springs. As long as spores also are present this does not matter. Some spores are almost colourless and difficult to see. When brushed together they become visible.

Note that not all but most of the blechnum species produce spores on centre young fronds that grow solely for the purpose and take a different form to the ordinary frond. Todea barbara also produces spore on the young centre fronds. These spores throw very quickly and are green. Once cast they leave brown receptacles like egg shells. As it is an advantage to plant spores while they are fresh please send them in as soon as collected.

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BACK COPIES OF NEWSLETTERS - Any new members wanting earlier copies of newsletters can have these for the price of \$1.00 (to cover cost and postage). Write to Fay Low (address above) or John Lee, 76 The Bulwark, Castle Crag. List those you require. No.1 is not being reprinted as the information in that is out of date or has been repeated in later Newsletters, however Ray Best's original pamphlet which was sent out with this has been reprinted and will be included.

AT SYDNEY'GROUP's last meeting we discussed the Adiantum genus - it was intended to examine in detail only diaphanum and hispidulum which are similar in form and could be confused. However, Ray Best brought along beautifully hand painted illustrated charts and diagrams of all the species and we had good specimens of all local species. It was a most interesting session and certainly a good way to get to know ferns. We can recommend this method to other groups.

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