

**THE
FERN SOCIETY
OF
VICTORIA**

Inc.

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NEWSLETTER

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FERN SOCIETY OF VICTORIA Inc.

POSTAL ADDRESS: P.O. Box 45, Heidelberg West, Victoria, 3081.

OFFICE BEARERS:

President:	Barry White	Phone	337 9793
Imm. Past President:	Robert Lee	"	836 1528
Vice President:	Terry Turney	"	807 4886
Secretary:	John Hooper	"	434 1239
Treasurer:	Don Fuller	"	306 5570
Membership Secretary:	John Oliver	"	879 1976
Spore Bank Manager:	Barry White	"	337 9793
Editor:	Robert Lee	"	836 1528
Book Sales:	Derek Griffiths	"	336 3157
(8 Susan Court, East Keilor, Vic., 3033)			

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PRESIDENT'S MESSAGE:

October Meeting: The coming meeting on Thursday 15th is one not to be missed. We will have the fern people from America with us, and the talks on the evening will include one by Chris Goudey on Australian Tree-ferns and one by Barbara Joe Hoshizaki (from the visiting group) on Ferns of Central America. Barbara is a botanist specialising in ferns and is the author of the book "Fern Growers Manual", as well as many other publications. This is a seldom available opportunity to hear a world-famous fern expert and I hope we will have good roll-up of members.

Fern Competition: With the Americans attending our meeting this month the fern competition category is a Victorian native fern. Bring along more than one fern and with a little bit of luck we will have a good range of our ferns to dress up the hall and to illustrate to the Americans the types of ferns to be found here in Victoria. It will be a fitting introduction to their tour of the Otways on the Friday.

Committee Matters: At the A.G.M. in August some of the Committee positions were left unfilled. Since then John Hooper, who was just elected to the Committee in August, has volunteered to take on the Secretary's job, Don Fuller has agreed to become Treasurer, and Bernadette Thomson has offered to continue on as an ordinary Committee Member. Our thanks go to these people for helping the Society out of a critical situation. There is still need for some additional new blood on the Committee. Now is a good time to come on to the Committee, as the main office bearers have been appointed and you can slip in as an ordinary Committee Member. Just let any member of the Committee know if you are interested.

'Rippon Lea': A new property manager and a head gardener have been appointed to 'Rippon Lea'. They have arranged a "Focus on the Fernery" event from the 10th to 25th October. The Society has agreed

(continued opposite)

NEXT MEETING

DATE: Thursday, 15th October, 1992.

TIME: Commencing at 7.30 p.m.

VENUE: The National Herbarium, Royal Botanic Gardens,
Birdwood Avenue, South Yarra.
(Melway Directory Ref. 2L A1)

TOPICS: FERNS OF CENTRAL AMERICA - by Barbara Joe Hoshizaki.
AUSTRALIAN TREE-FERNS - by Chris Goudey.

MEETING TIMETABLE

7.30 p.m. Pre-Meeting Activities:- Sales of Ferns, Spore, Books
and Special Effort Tickets ; Library Loans.

8.00 p.m. October General Meeting

8.20 p.m. Topics of the Evening

9.40 p.m. Fern Competition Judging
Fern Identification and Pathology
Special Effort Competition

9.50 p.m. Supper

10.15 p.m. Close.



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PRESIDENT'S MESSAGE: (continued)

to take part by conducting tours of the fernery over the weekend of the 24th and 25th, and we will put up a small exhibit promoting our Society. A location list of the main ferns in the fernery will be drawn up to assist in conducting the tours. A few volunteers would be helpful. Please let me know if you can assist.

Visit to Chris Goudey: Mark off Sunday, 22nd November in your diary. Chris will be having an open afternoon at his fernery for members of the Society - from 1.00 p.m. onwards. The visit to Chris's place is always popular and deservedly so.

Christmas Present: Are you starting to think of Christmas? If not, it is time, and if you are looking for an appropriate gift what could be better for a keen gardener than a membership of the Fern Society. A gift membership at Christmas will have the added bonus of continuing through to the middle of 1994. You pay for one year and they will get a year and a half's membership.

Regards,
Barry White

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ESTABLISHING A SUBURBAN RAINFORESTby Rob Hall

(Conclusion of Speaker Report from August General Meeting)

Rob showed many more samples of rainforest plants which have been found to grow well in Victoria:

The Weeping Fig (*Ficus benjamina*) is very popular as an indoor plant that also grows well outside. It is one of a wide range of members of this genus found through Australia and the Pacific islands. *Ficus microcarpa* 'Hillii' is an attractive weeping tree that thrives in full sun, especially with high humidity.

Cordyline stricta is one of a number of Cordylines native to Australia and is common in gardens. It has a slim stem and spreads to form a thicket, so it can be used in a similar fashion to bamboo, but it has the advantages of being not as rampant and bearing a purple flower.

The Crow's Ash (*Flindersia australis*) has leaves like those of the European and American Ash trees and bears white flowers. It grows very well in Melbourne and there is large, spreading specimen in the Botanic Gardens.

Rob's sizeable example of the Wheel of Fire Tree (*Stenocarpus sinuatis*) - which has been grown as a park tree in some areas of Melbourne - looked healthy after being in the same pot for five years. Rainforest plants seem not to mind being pot-bound or being planted out of pots at quite a large size. This is presumably because in rainforest conditions plant roots are very intertwined and competing for soil, so that plants in or ex pots are not deterred by a small root ball.

Natives are generally considered hard to transplant, but at Oakleigh they have moved many sizeable plants (to 2-3 metres) without problems. The shallow root systems of rainforest plants may explain why they transplant well. Quite large plants of *Toona australis* had root balls only 30 cm deep. Toonas also have an advantage in being deciduous; if subjected to shock they drop their leaves and then recuperate.

Only a few Victorian rainforest plants are available in nurseries. One such is the Water Gum (*Tristania laurina*, now *Tristaniopsis laurina*), which has attractive yellow flowers and loves wet conditions; it is a swamp or bog plant in nature. A Queensland rainforest relative of this is the Brush Box (*Tristania conferta*) which is remarkably resistant to dry conditions and has found wide use as a street tree in Australian cities. It has also been used successfully at Oakleigh to renew parts of the canopy. Plants were spaced only about a metre apart to induce rapid tall growth.

Another extremely hardy plant which does very well in cultivation is the Myrtle Beech (*Nothofagus cunninghamii*) which occurs from Tasmania to N.S.W. In nature, it acts as a host plant for the native Beech Orchid (*Dendrobium falcorostrum*).

The Victorian Christmas Bush (*Prostanthera lasianthos*), one of the Mint-bushes, is a magnificent plant with pale lilac flowers and an extremely fast growth rate. It tops out at about five metres but can

reach this in two years. As with other plants that grow very quickly, such as Wattles and Boronias, it tends to be short lived.

The Tree Correa (*Correa lawrenciana*) with cream tubular flowers is unspectacular but likes shade and is very useful as a background plant. A dull background plant tends to help emphasise a more colorful one nearby. *C. lawrenciana* is available regularly from nurseries.

One plant which looks poor in nature because its leaves are almost always shot-holed is the Victorian Hazel (*Pomaderris aspera*) which occurs in the Dandenongs and most moist forest gullies. If fertilised and pruned it produces attractive new growth. It is not available from nurseries but Oakleigh staff have grown it successfully from cuttings.

The Wonga Vine (*Pandorea pandorana*), a climber which is common in highland gullies and occurs throughout the Dandenongs, has cream bell-shaped flowers with purple spots inside. Its northern relative *P. jasminoides* has stunning yellow flowers and is well known in the nursery trade as 'Bower of Beauty'.

Among the useful under-storey plants are the Flax-lilies, *Dianella tasmanica* and *D. revolutum*, which grow in damp forest gullies and on shaded hillsides. *D. tasmanica* (Tasman Flax-lily) grows to about 1.5 metres and bears starry blue flowers which are followed by blue to violet berries.

The Creek Lily (*Helmholtzia glaberrima*) grows to a similar height. It loves wet conditions - actually growing in creeks in nature - and needs low light or the leaves will yellow.

An excellent background plant for landscaping is the Mat Rush (*Lomandra longifolia*) which grows in rainforests right up the east coast. It tolerates a wide range of conditions and is not prone to disease (Rob now uses it instead of Kangaroo Paws because of this quality). Its flower is not attractive but it works particularly well planted around rocks with more stylish plants nearby. There are Victorian and Queensland forms, the latter having very wide leaves; it should be avoided in Victoria.

The Gynea Lily (*Doryanthes excelsa*) from northern areas has large red flower heads which reach 4.5 metres. It has grown well in Victoria for a long time and is available commercially. The College nursery also has a smaller relative *D. palmeri* which grows well.

The Native Ginger (*Alpinia coerulea*), one of about fourteen native gingers in Australia, has nice foliage, spreads well and produces blue berries though the flower is not particularly striking. The Backscratcher Ginger (*Tapernocheilos ananassae*) has seed heads like pine cones, which dry out as hard as leather. It grows very rapidly when it takes hold.

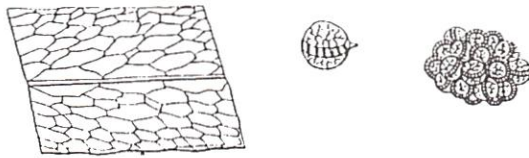
Plectranthus australis, a common rainforest plant, has purple leaves and a pink flower. It can be seen in the rainforest section of the Melbourne Zoo.

Ferns, orchids, creepers, palms, etc. all contribute to the rainforest environment. They have had little success at Oakleigh with palms just planted out in the ground.

Rob concluded by stating that establishing a rainforest in a suburban situation is not difficult; the essential factor is to have sufficient tree cover to shut off some light (and frost if it occurs) until plants are established. It is possible to have quite a small rainforest in a suburban garden with plants very close together. Deciduous exotics such as Claret Ash and Liquidambar serve well as tree cover and the rainforest plants do very well in the leaf litter.

The plants he had discussed were merely "the tip of the iceberg" and many more rainforest plants are suitable for growing in Victoria. Most of the plants shown during the talk were from the College nursery, which now produces considerable numbers of rainforest plants for commercial sale. Plants are also becoming more readily available from other commercial sources. Kuranga Native Plant Nursery of Ringwood is active in this area; they obtain all their rainforest plants from a nursery in northern N.S.W. Many other plants are being brought direct from Queensland and grown successfully; acclimatisation is apparently not needed.

President Barry White complimented Rob on the quality of his presentation and thanked him on behalf of the members present, who endorsed the thanks with acclamation.



NOTES ON THE STATUS OF AN INVASIVE AUSTRALIAN TREE FERN (*Cyathea cooperi*) IN HAWAIIAN RAIN FORESTS

(Being told during the August meeting that the Australian rainforest Silky Oak (*Grevillea robusta*) has been declared a noxious weed in Hawaii gave added interest to the above title of a paper in a recent issue of the "American Fern Journal". The paper was written by staff members from two Hawaiian National Parks, the National Tropical Botanical Gardens and the Biology Department of California State University after the completion of a study on the distribution of *Cyathea cooperi* in the Haleakala National Park on Maui Island.

The following article summarises extracts from the paper, giving the background to the study and the main findings. The paper quotes extensive references, including personal communications with some well-known Australian fern authorities.)

Tree ferns occur predominantly in two families, Cyatheaceae (700 species) and Dicksoniaceae (300 spp.), and less commonly in other families, e.g. Blechnaceae, Dryopteridaceae and Thelypteridaceae. In the Hawaiian Islands, native tree ferns occur in the families Dicksoniaceae with 5-6 endemic species in the genus *Cibotium*, Blechnaceae with 4-6 endemic species in the genus *Sadleria*, and Dryopteridaceae with several small species.

Tree ferns in the large cosmopolitan genus *Cyathea*, known in Hawaii as Australian tree fern, have been in cultivation in the Hawaiian Islands since at least the 1960's as ornamentals in homes and botanical

gardens. *Cyathea* is widely planted as it is a hardy, attractive tree fern, evocative of tropical settings and is faster growing and more tolerant of warmer, drier conditions than the native Hawaiian tree ferns. Hawaii's "Australian tree fern" has long been identified in Hawaiian botanical literature and the horticultural trade as *Cyathea australis*. Recently, however, the widely planted species in Hawaii and California was identified as *Cyathea cooperi*. The similar *C. australis* is also present in Hawaii but is limited to botanical gardens and a few private collections. *C. australis* is a subtropical to warm-temperate species growing in subtropical rainforest and tall *Eucalyptus* forests. It is much slower growing than *C. cooperi*.

Cyathea cooperi is native to Queensland where it occurs in gullies in rainforests. In its native habitat, *C. cooperi* acts as a pioneer, occurring along edges and in light gaps as well as along road cuttings and stream courses. It has become naturalised in south-eastern Australia in the Sydney region since 1942 and in western Australia at Bedfordale. Elsewhere, *C. cooperi* is naturalised on Mauritius Island in the South Indian Ocean where it has, especially in the last decade, invaded relatively undisturbed low stature rain forest and disturbed native heathlands and is replacing the native species *Cyathea excelsa* and *C. bourbonica*.

Cyathea cooperi is now naturalised in Hawaii on the islands of Kauai, Oahu and Maui, occurring prolifically in disturbed rain forest, in wet areas and along road cuttings. All plants on Kauai are thought to have come from five planted in a garden in the 1970's and those on Oahu resulted from an escape from an arboretum. The largest known invasive populations occur in the rain forests on Maui and one in the Haleakala National Park was studied to provide data for control efforts.

Twelve contiguous plots each 20 metres square were marked out and surveys made of the number, size and distribution of the plants of *Cyathea cooperi* in them. In total 747 plants were found, ranging in height up to 4 metres, although 59% were less than 0.25 metre. Some 77% were terrestrial, 20% grew on fallen logs and 3% were epiphytes on other plants. The paper contains analyses of the data in much greater detail and for a number of other factors.

The densest stands were conspicuously lacking in understorey species diversity and biomass. This was thought to be probably due to the thick layer of fibrous roots at the soil surface, extending up to five metres from large plants.

In Hawaiian rain forests, trunks of native tree ferns act as important sites in maintaining high local species diversity and as germination and establishment sites for larger tree and shrub species. *Cyathea cooperi* was found not to support the dense growth of epiphytic native species. An earlier study found more than ten times as many epiphytic individuals growing on the trunks of native *Cibotium* tree ferns as on the trunks of *Cyathea cooperi*.

The greatest threat posed by *Cyathea cooperi* to Hawaiian forests is displacement of native species where the fern achieves high densities. *C. cooperi* is a fast-growing species once established, capable in its native habitat of growing up to one metre in height a year and in Hawaii up to one-third metre per year. Allowing for establishment times, it was estimated that the plants in the survey area were 6-15 years old. During this period, feral pigs were uncontrolled in the area and their extensive and repeated turning of the ground probably

facilitated establishment of the *C. cooperi*. Even though pig populations were greatly reduced during the 1980's, *C. cooperi* continues to spread rapidly, perhaps due to abundant local spore production. *C. cooperi* produces spores more abundantly than other Australian species of *Cyathea*.

Although fern species are not commonly considered aggressive weeds, *Cyathea cooperi* is proving to be an invasive, disruptive species capable of radically modifying its habitat. In its native range plants reach heights over 12 metres with fronds up to six metres long. With this growth potential the population in the study area would eventually gain almost complete dominance of the site. The presence of substantial numbers of large plants shedding spores would make invasion of surrounding forests likely.

Another factor indicative of the invasive potential of *Cyathea cooperi* is its ability to disperse and establish across long distances into montane forests. The study site was some 12 kilometres from the nearest plant nursery, so the spores were presumably carried there by winds. It is too early in the history of the invasion of this species to determine its eventual distribution and abundance. However, enough is known to suggest that without some mitigative factor its impacts will be quite substantial. The species is moderately tolerant of dry conditions but is most prolific in wetter sites, especially those where ground disturbance is present.

Other species of *Cyathea* are present in Hawaii as ornamentals but are not known to be naturalised. Within the Haleakala Natural Park an attempt is being made to control *Cyathea cooperi* before it becomes established even more extensively. Larger plants are being felled and their growing tips severed, while smaller plants are removed entirely.

The authors concluded by recommending "that *Cyathea cooperi* be recognised as an aggressive alien species in native Hawaiian ecosystems and controlled where encountered" and also "that *Cyathea cooperi* be designated by the State of Hawaii's Department of Agriculture as a Noxious Weed and its horticultural trade be discontinued".

(A botanist friend from Queensland who was in Hawaii recently commented that *Cyathea cooperi* is seen "everywhere" there now. - Ed.)

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FERN IDENTIFICATION SERVICE

Late last year a fern identification service for country members was instituted in response to a request received through our Suggestion Box.

So far we have had only one or two samples sent for identification, so a reminder of the existence of the service seems in order.

Details of the planned method of operation (we haven't had a chance to refine it!) were given in the November, 1991 edition of the Newsletter. Members who have joined the Society since then can obtain details from the Secretary.

FABULOUS FERNS IN THE LAMINGTON NATIONAL PARK - QUEENSLANDby Diana Mayne

The Lamington National Park is located in the Macpherson Ranges on the New South Wales border, 100 km southwest of Brisbane. In July I had a bushwalking holiday there, staying at O'Reilly's Guesthouse at Green Mountains. It was my seventh visit over a 30-year period, but this was the first time I really looked at the ferns - to the extent that other bushwalkers asked was I a botanist! ("No, just a very amateur Fern Society member who was a beginner in fern knowledge.")

This sub-tropical rainforest is a fern-lover's paradise. There are more ferns per square metre than in the Otways. In five days of bushwalking it would be no exaggeration to say I saw over 1,000 Bird's-nest ferns, some huge, some planted near the guesthouse (diameter 9 ft) but most up in the trees and on rocks. There were heaps of magnificent Staghorns and Elkhorns, Kangaroo ferns, filmy-ferns, epiphytes by the millions!

The terrestrial ferns included many which are plentiful in Victoria - Blechnums, ground-ferns, shield-ferns, brackens, *Todea barbara*, *Histiopteris incisa* - I was glad a few names had stuck in the memory since the Marysville and Otways trips. There were absolutely masses of *Adiantum formosum* (Queenslanders call it the Giant Maidenhair rather than the Black Stem) and rasp-ferns (*Doodia maxima*, *D. media*, *D. aspera*, *D. caudata* and *D. squarrosa*). *Sticherus lobatus* (Spreading Fan-fern) was easy to recognise. One you don't see in Victoria - a close relative of the Bird's-nest Fern but growing on rocks with a rhizome coming out along the ground - is *Asplenium harmanii*, named after Colin Harman, the developer of the Botanic Gardens near the guesthouse. It has only recently (1988) been differentiated from *A. australasicum*.

The tree-ferns were also fantastic - at least as numerous as in the gullies of the Otways and around Marysville and Healesville. The two most common in the sub-tropical rainforest areas are *Cyathea cooperi* and *C. leichhardtiana* (prickly) with some *C. cunninghamii* (even taller than the one we saw in the Grey River Reserve last November). In the higher, cooler, wetter areas where there are patches of temperate rainforest more like Victoria (including Antarctic Beeches) there were some *Cyathea australis* and *Dicksonia antarctica*.

The guesthouse library has two books containing fern fronds collected in the area and labelled. Studying these greatly increased my fern knowledge, though there were still lots I couldn't identify when out on the track. The guide didn't know nearly as many fern names as some of our Fern Society members.

The rainforest was, of course, wonderful for the birds, trees, vines, waterfalls, mountain views, etc., as well as the ferns. The accommodation and food (cheapest full board is \$95 a day, including guided bushwalks, bird walks and evening entertainment) are excellent and the sort of people who go there are always good company. I couldn't recommend it highly enough. I brought back a 45-minute video made there a few months ago - "Rainforest: The Amazing World Within" - if anyone would like to borrow it. As well as the ferns, trees, etc., the bird photography by Glen Threlfo, one of the guides there, is wonderful.

SPRING GARDEN FESTIVALby Barry White

The Spring Garden Festival, organised by the Holmesglen College of Technical and Further Education and by the Royal Horticultural Society of Victoria, was held at the Waverley campus (ex Victorian Schools' Nursery) in Glen Waverley on the 4th to 6th September.

Along with about 60 other organisations the Fern Society of Victoria displayed its wares. The weather was generally lousy, making it difficult to comment on numbers attending. The first day, a Friday, was poorly attended by the public but on Saturday the turnout was reasonable and on Sunday good. The layout of the Festival meant that virtually all visitors had to pass by our stand. Although no new members were signed up during the Festival, numerous pamphlets were distributed and Doug Thomas's booklet sold well - at a special show price. The success of the show is difficult to evaluate - tangible benefits can be assessed by membership applications over the next month. However, there are also intangible benefits in stimulating interest in ferns and in keeping the name of the Society before the public, and the intangible benefits may be converted into memberships over a period of time.

The timing of the Festival was not good for ferns. Winter had completed its harmful effects but the benefits of Spring were not yet present. It was therefore difficult to put on a good display, and incorporating a sales component would be difficult if we were looking to increase our effort next year.

Despite the difficulties in putting on a display a very creditable one was mounted, thanks to the contributions of Don Fuller, Jack Barrett and Gay Stagoll (and the writer - Ed.). The positioning of the display adjacent to Kevin and Gloria Tinker's stand helped create a better overall display of ferns. Thanks also go to those who helped man the display over the weekend - Jack Barrett who was there for all three days in addition to helping to set up on the Thursday, also Don Fuller who was there for most of the three and a half days, and to Eric and Nancy Perry, Norma and John Hodges, Lexie Hesketh, Terry Turney and Bernadette Thomson.

Although it is too early to draw any firm conclusions, the timing of this show does mean that it is not suitable as a full alternative to the Nunawading Show. However, if the Spring Garden Festival continues to develop and the number of people attending continues to grow, our attendance in future years on a similar basis to this year may well be justified.

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VISIT TO BADGER CREEKby Barry White

Despite fifteen wet days in the first nineteen days in September, the weather remained fine for our excursion to Badger Creek Weir on Sunday, 20th September. However, cloud and the possibility of showers may have been enough to deter some members and the roll-up was modest.

This well-kept reserve is run by Melbourne Water and the weir helps

provide water to Healesville and Melbourne.

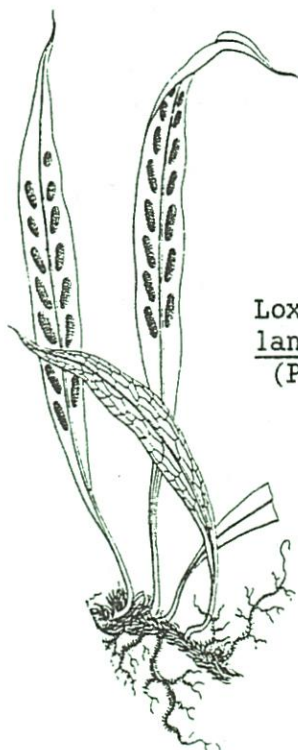
As indicated by the fern list published in the September Newsletter, this site is rich in ferns and what, without ferns, would have been a half-hour stroll turned into a two-and-a-half hour meander and discussion, with frequent detours off the track to pinpoint the identity of a particular fern.

We observed all of the ferns on the list with the exception of *Gleichenia microphylla* which George Start, who used to work there with Melbourne Water, told us is not really present in the reserve. *Blechnum fluviatile* was not observed but George assured us that it was in the area out of bounds to visitors, and as he had forgotten his key we just had to take his word. Four ferns not on the list were also observed - *Pteris tremula* (Tender Brake), *Sticherus tener* (Silky Fan-fern), *Tmesipteris parva* (Small Fork-fern) and the filmy-fern *Macroglena caudata* (Jungle Bristle-fern). Other information lists *Hypolepis glandulifera* (previously *punctata*), *Hymenophyllum cupressiforme* (Common Filmy-fern), *Lycopodium scariosum* (Spreading Club-moss) and *Tmesipteris ovata* (Oval Fork-fern) as also present in the reserve.

One of the delights of the visit was not a fern but a helmet orchid, *Corybas dilatatus*, which was growing on the trunks of *Dicksonia antarctica*. *Corybas dilatatus* is a dwarf terrestrial orchid with a solitary small, dark reddish-purple flower which is pollinated by fungus gnats. It is good to see that the fungus gnats serve some useful purpose and don't spend all their lives chewing up prothalli.

After the walk another pleasant hour was spent over afternoon tea with Betty Duncan's book and a hand lens checking on identity of the ferns, comparing notes and general gossip.

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(Presl.)



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