



ASSOCIATION OF

S. G. A. P. Fern Study Group

Newsletter *Number* 73

ISSN 0811-5311

DATE - JUNE 1996

LEADER: Peter Hind, 41 Miller Street, Mount Druitt, 2770

SECRETARY: Moreen Woollett, 3 Currawang Place, Como West, 2226

TREASURER: Joan Moore, 2 Gannet Street, Gladesville, 2111

SPORE BANK: Kyrill Taylor, 16 Elizabeth Crescent, Yagoona, 2100

The Fern Book

The idea of producing a book on ferns, or rather a series of books on ferns, emerged twelve years ago. Bill Payne long time Editor of 'Australian Plants' proposed that the first book should comprise articles on propagating and growing ferns, together with photos, descriptions and cultivation notes on three of the better known fern genera together with the genus Cheilanthes.

Our Group circulated members and obtained information and slides for the three popular genera selected for the first book - *Playcerium*, *Blechnum* and *Drynaria* and a Committee was appointed to handle the project. When Peter became Leader the original material was made factual and complete and the format was rearranged. Slides and descriptions for all the previously missing species of the three popular genera were obtained and the revised manuscript was delivered to the Publisher.

The report from the Publisher was disheartening. The reviewers were quite impressed with the material in the book but considered that it was not likely to be viable based on only three or four genera - the book needed to be expanded to cover at least several more of the most popular genera. By this stage the Committee had shrunk and consisted of only our Leader and Secretary. Neither had the time or enthusiasm to tackle the required expansion of the project.

Now member Calder Chaffey from the SGAP-Far North Coast Group. Calder has agreed to rewrite the script and act as writer and editor for the additional material. In fact consideration is being given to including all Australian species. The book is unlikely to be published without the very substantial work that Calder has agreed to perform. However, he cannot complete the tasks without assistance. In particular Calder will need information from members about the results achieved with the various fern species, the situation and aspect of ferns grown in the ground or in pots, etc., whether under shade cloth, soil / potting mix used and details of any fertilisers. In short, anything that may be of interest to others wanting to grow those fern species. Apart from the three genera already in the draft manuscript, colour slides of all species will be required. Any material or slide could be forwarded direct to Calder at his address "Redfox", 13 Acacia Street, Wollongbar, 2477. Alternatively, contributions could be sent to our Leader or Secretary. Peter has agreed to review articles or slides which become available from Sydney members before forwarding material to Calder

OBITUARY: It is with great regret that we report the passing of two of our best known members, Russell Cullen and Fred Rogers.

Vale Russell Cullen

Russell died on 3 May 1996 after a recent period of illness. Russell and his wife Irene have been members of the Fern Study Group for many years. Irene was the real "fernie" having been the organiser and reporter for the South-Eastern Queensland Fern Study Group ever since its formation in 1983. Russell was Irene's number one supporter, Here in Sydney we knew Russell as a past Secretary and Treasurer of SGAP-Queensland and a regular representative and tower of strength at ASGAP Conferences. He was a big man in every sense and his warm cheerful disposition made him many friends. Future ASGAP Conferences will be very much the poorer for his passing. We extend our heart felt sympathy to Irene and family.

Vale Fred Rogers

Fred Rogers of Horsham, Victoria, aged 68 years, died on 16 March 1996. Fred has been a long standing member of the Fern Study Group and was one of SGAP's most enthusiastic and knowledgeable members. He was honoured during his life by many awards. On the occasion of the Ballarat ASGAP Conference last year, Fred delighted and inspired all participants as tour guide to Mt Arapiles and Little Desert and then with wife June, as co-host and guide to their renowned garden. Fred's patience and helpfulness endeared him to all, he will be sorely missed. Our heartfelt sympathy is extended to June and family.

Harvest & Export of *Dicksonia antarctica*

In the last two Newsletters there has been reference to the export of ferns from Queensland forests. This time there is a report from Victoria, a proposal to harvest and export 20,000 live *Dicksonia antarctica* from a 158 ha logging coupe in the Shire of Colac / Otway. In support of the proposal it is said that,

*"The aim of this business is to provide the nursery trade with an ecologically sound and sustainable supply of *Dicksonia antarctica* for the present and the future. The long term aim is to be able to source all tree ferns from managed plantations :*

- specifically planted tree fern plantations
- understorey crop from timber plantations
- managed bush areas from farms.

*The efficient use of current scavenging operations combined with an export market is required for the industry to achieve this end. Sustainability of *Dicksonia antarctica* has to be confronted. The industry requires scientific data on personal observations and assumptions. We therefore aim to collect data from our trials to improve our knowledge on tree ferns. We have also agreed to donate some proceeds from export sales to the University of Tasmania to assist their research project.*

*The significance of *Dicksonia antarctica* needs to be recognised. It is a product currently sourced from the farming and timber industry and then marketed by the nursery industry. The sources consider it to be an insignificant weed, while the nursery industry considers the *Dicksonia antarctica* a unique and popular Australian species. We therefore aim to lift the significance of the tree fern with the sources. We have offered higher royalties for export ferns (which has worked most effectively). There is no room on the domestic market to lift royalties due to current anomalies in the Victorian / Tasmanian systems which you would be aware of. We also aim to support all those within the industry with the above goals to achieve this end."*

It seems ferns are contributing to Australia's export income - hopefully they will get around to confronting the sustainability before it is too late to save the ferns still growing in the wild.

Fern habitats of New Caledonia

by Calder Chaffey

During the lower Cretaceous period, commencing about 140 million years ago, intense tectonic movement began in Gondwanaland. This was in the vicinity of the present east coast of Australia, which at that time, extended about 1 000 km further seaward. The continent, later to become Australia, was attached to Antarctica. Although it was near the south pole, the climate was warm and tropical, due to a period of greenhouse effect. The ancestors of our present day rainforest flora flourished. These included ferns which have persisted to this day or given rise to the present ferns and fern allies. Gondwanan flora spread by short distance land dispersal to territory which later became the islands of Tasmantis.

Due to this tectonic activity a rift developed, about 86 million years ago and Tasmantis slivered off. As it grew wider, sea water flowed in, opening up the Tasman Sea. At first, the rift split between Australia and Tasmania which commenced to move away but this soon resealed leaving Bass Strait. Pressure between the two crust masses of Tasmantis and the Pacific Plate caused many foldings, dislocations, and metamorphic changes. Tasmantis was fragmented and largely submerged giving rise to a series of islands stretching from the east of Mackay to the Southern Ocean. These included New Caledonia, Lord Howe Island, Norfolk Island, Kermadec Islands, New Zealand, Chatham Island and the numerous islands south and south east of New Zealand. Since that time there has been a complete absence of land connection with New Caledonia.

There followed a series of submersions and elevations of the New Caledonia island mass leading to strata of sedimentation. This was most active during the Palaeocene to middle Eocene of the Tertiary period, 65-38 million years ago.

Late in the Eocene, 42-38 million years ago, Australia began to rift from Antarctica and to move away to the north and east. The relative position of Australia and the islands of Tasmantis was maintained although they grew further apart. During this time outpouring of peridotites covered all New Caledonia to 2 000 m. Further pressure effects, caused by the collision between the Pacific Plate and Tasmantis, resulted in deep folding, forming the Chaîne Central and New Caledonia assumed its present form. Ultramafic rocks composed 1/3 of the surface rocks. These were deficient in potassium, phosphorus and calcium but there was an excess of manganese, chromium and nickel. The outpouring of these rocks began under water and was completed in air, 38 million years ago. The sea, surrounding the island, was warmer than today and the first reef formation commenced. Off the coast of New Caledonia the emergence, submergence and sedimentation of small islands occurred. These gave rise to a series of distant vegetation stepping stones but with long periods of isolation. Some ferns and other flora were exchanged with Lord Howe Island and New Zealand to the south.

Mountain building, during the Miocene period, was followed by rock weathering and erosion, leading to the production of soil. This process has continued to the present day.

Three thousand five hundred years ago the first humans settled on New Caledonia and immediately set in train a series of activities which had far reaching and devastating effects on the native fauna and flora. At that time, the island was inhabited by two giant flightless megapods, one resembling a mallee fowl and the other a swamp hen. There were also crocodiles and goannas. Due to hunting for food, the megapods immediately became extinct, followed by the crocodiles and then the goannas. Fire was used to clear areas in the coastal bush and this spread into the adjacent rainforest and up the steep mountain sides. Captain Cook gives a graphic description of such fire in his "Journal of the Resolution" September 7th 1774. *"I observed several old plantations laying in fallow....of which they were beginning to dig up, the first thing they do is to set fire to the grass..."* *Melaleuca quinquenervia*, which naturally occurred in the bush, is somewhat fire resistant. It began to spread in the clearings following

the fires and outgrew other vegetation, forming thickets. These thickets could not be cleared by fire and changed the natural aspect of the coastal flora while more bush land was burnt for human use

New Caledonia is a long narrow island, 1600 km east of Mackay and 1600 km north west of New Zealand. It is 350 km long and 50 km wide, extending from NW to SE. The northern tip lies at 20° S, 164° E, the southern tip at 22.5°S, 167°E, just inside the Tropic of Capricorn and half way between New Zealand and New Guinea. The land area of the main island is 17 000 square kilometers. There are a few small off shore islands. A mountainous spine, the Chaîne Central, with several peaks to 1600 m, stretches down the centre of the island. The mountain chain is surrounded by a coastal plain, narrow in the east and a few kilometers wide in the west. The whole island is surrounded by a coral reef enclosing a lagoon up to 10 km in width. The prevailing wind is easterly so that the rainfall is high in the east and the vegetation here is largely rainforest. The west coast has less rain and the vegetation is dry woodland with large areas of *Melaleuca quinquenervia*.

Due to long isolation there has been much genetic change in the flora so that a large number of endemic species now exist. Table 1 below illustrates this.

Table 1. Proportion of endemic species on New Caledonia

3 000 seed plants, 600 genera, 80% endemic
 43 species conifers, 25 restricted to serpentine, 3 non-serpentine
 c. 236 fern species, 77 genera, 27 families, 96 species endemic
 - 40% species endemic

From Table 2 it can be seen that there are many fern species in common with Australia and New Zealand suggesting that they originated in those areas.

Table 2. Ferns in common with Australia and New Zealand.

| | | | | |
|--|--|--|--|--|
| 75 species, 32% in common with Australia | | | | |
| 45 genera, 58% " " " " " | | | | |
| 20 families, 74% " " " " | | | | |
| 25 species, 10.6% " " " New Zealand | | | | |
| 17 genera, 22% " " " " " | | | | |
| 13 families, 48% " " " " " | | | | |

Of the seed bearing plants there are twice as many in New Caledonia as in New Zealand. It is significant that all species are Gondwanan in origin, and that none are in common with the American continent. Amongst the flora there is a high incidence of endemism and an abundance of species. This has resulted from the poor nutrient value of soil in much of New Caledonia. In better soils vigorous species outgrow weaker plants, reducing the overall variety. Just as important, the prolonged period of isolation, when new elements could only have been introduced by long distance transport, also produced a high rate of endemism. This long isolation also explains the absence of many typical Australian taxa such as *Eucalyptus* and *Banksia*. During the periods of the ice ages the vegetation zones were some 500 m lower than today, with a sea level 100 m lower. The montane forests were then only just above the present sea level with the middle altitude forests below this. The temperature and displacement interfered with and sometimes delayed the evolution of some flora species.

As far as is known, there were never large land mammals, except bats. Animals need a certain amount of territory to contain enough food to support them. Much more is needed for carnivora than herbivorous animals. Just as importantly, the land mass must be large enough to support a breeding number. In each case New Caledonia was not large enough to fulfill these

requirements. However, its size could support a number of slow moving animals using less food than high energy animals. There was a species of crocodile and a horned land turtle. Both are now extinct the former being killed out by the human invasion and the latter dying out previously.

The flora of New Caledonia was greatly modified by human activity. Fire by the original inhabitants, the Kayaks, has already been discussed. The advent of Caucasians modified the flora further. Agriculture was introduced and required large areas of cleared land. Cattle for beef and milk production demanded even more land than agriculture. Grasses had to be introduced and also came the inevitable weeds. Latterly came mining for chromium and nickel, a significant amount of the world supply of both being in New Caledonia. Mining also led to further land clearing but mainly to erosion in the mountains where most of the ore exists. As wages were high in the mines, many workers left the farm land and market gardens which became neglected. *Melaleuca quinquenervia* spread quickly and much land became unuseable. Both "bush" and rainforest was unable to regenerate because of this. Its fire resistance and the difficulty of clearing has, at present, made much coastal land unuseable.

There are two main types of soils on New Caledonia, those derived from the serpentine rocks and those from extruded volcanic rock. There are two main types of vegetation, the coastal scrub and the rainforests. The coastal scrub vegetation on serpentine soils is usually quite different from that on the primary volcanic soils. However, in the mountains, the species of the rainforest vary very little from one type of soil to the other.

The serpentine covers about one third of the southern part of New Caledonia and numerous areas of the north west coast. It was formed under the sea from the oceanic crust. It is very rare for rocks of the crust to be brought to the surface and this only occurs in a few parts of the world. When it happens, metals are usually brought to the surface in concentration in the rocks. In New Caledonia nickel, which is very toxic to living things, chromium, magnesium and manganese occur in high concentrations.

Although there are several varieties of soil derived from the serpentine these fall into two types. One is a brown eutrophic soil, rich in magnesium, with a strong cation exchange. It is slightly acidic with a pH 6.6 and is low in calcium, potassium and phosphorus. The most characteristic flora of the serpentine is on the brown eutrophic, which is the least developed soil. There is no grass, but although the vegetation is sparse there is much speciation. Because of this it burns less readily although most of the flora is distinctly xerophytic.

The second is a red ferralitic soil, not strictly but often called laterite. It has a poor cation exchange capacity, and at pH 5, it is quite acidic. This type of soil is low in magnesium, and very high in nickel and chromium. The texture is thin and it is nutrient poor. Captain Cook described it as "*a scorched and rocky waste*" and Tim Flannery in 'The Future Eaters', called it "*on first appearance a barren moonscape*". Due to its poor nutrient value there are a large number of species, about 1 500, of high endemism, 90%. About 60%, 900 species, are confined to serpentine soils only. These species exhibit an extreme adaption to soil infertility and are sparse, chiefly small-leaved and often xerophytic. Also quite noticeable is an extreme adaption to subtly different soil types and to the toxic elements contained in the soils. Nickel tolerant plants have evolved but few grow into trees. The absence of forests is due to this nickel and chromium toxicity as well as the high permeability of the soil. A complicating factor is increased mineral toxicity due to leaching from the mountains above.

This scrub area of the coastal serpentine is known as the maquis and the predominant species is *Acacia spirorbis*. *Melaleuca quinquenervia* does not usually grow on serpentine soils. The rainfall in the south east maquis is about 2 500 mm annually.

Table 3. Ferns commonly found on the maquis.

Blechnum obtusatum- along moist stream banks and in the water
Blechnum gibbum- along stream banks often in the water

- Adiantum hispidulum*- on stony or dry, often stony soil
Davalliasolida- as an epiphyte, lithophyte or terrestrial fern in leaf mulch
Pyrrhosia confluens- as an epiphyte, occasionally a lithophyte
 (always a lithophyte on Lord Howe Island)
Pteridium esculentum- in poor infertile places
Dicranopteris linearis- " " " - pandemic* and a pioneer
Schizaea dichotoma- " " " - pandemic*
Lindsaea moorei- pandemic*
Sphenomeris deltoidea- pandemic*
Lygodium reticulatum- pandemic* as a twiner
Christella parasiticus- usually in moist places- pandemic*
 (* pandemic on the island except in the rainforests)

On the nickel high soils, some seed bearing plants accumulate nickel into their sap. There are 47 plants with absorbed nickel greater than 1 000 $\mu\text{g/g}$ in their dried leaves (0.1%). Nine have about 10 000 $\mu\text{g/g}$ in the dried leaves (1%) and of these three are on the maquis while six are in the rainforest. One tree, *Sebertia acuminata* has sap which is coloured blue and is almost pure nickel citrate. It is found commonly in the Rivière Bleue district. Mining prospectors occasionally do a preliminary check by noting the presence of these trees, which often indicate a nickel lode below.

The rainforests of New Caledonia are often on red soil which is very deep, being from 50 to 100 m. This is especially so in the mountain area. It is an open sandy texture with extreme permeability. However upon the mountain sides rainforests occasionally occur in serpentine soil. In these situations there is very little difference in the rainforest flora on volcanic or serpentine soils. Table 4 illustrates the rainforest flora compared with the total native flora of the island.

Table 4. Comparison of rainforest and total native flora.

| | Seed Plants | 46% species | Ferns | about 90% | | |
|--------------------|-------------|--------------|---------|-----------|-----------|---------|
| | | 46% genera | | | | |
| | | 59% families | | | | |
| | Species- | endemic | Genera- | endemic | Families- | endemic |
| Rainforest flora | 1499 | 1345 | 365 | 82 | 108 | 5 |
| Total native flora | 3256 | 2476 | 787 | 108 | 182 | 5 |

The rainforests may be divided into coastal rainforests, middle altitude and montane rainforests. Coastal rainforests extend from sea level in the east to 400 m. In the west they do not extend below 400 m. Here, due to the relatively dry climate, they are replaced by *Melaleuca* woodland or serpentine scrub. The drying winds and fires prevent regeneration. These rainforests are usually on good soil, rarely on serpentine. A representative list of ferns found in the coastal rainforests is given in table 5 below.

Table 5. Common ferns of the coastal rainforests.

- Histiopteris incisa*- on the edge of the rainforest
Hypolepis neocaledonica- on the edge of the rainforest
Oenotrichia maxima
Nephrolepis cordifolia
Pteristripartita
Adiantum diaphanum
Christella parasitica
Tectaria pseudosinuata
Cionidium moorei
Blechnum orientale
Bolbitis lonchophora

The middle altitude rainforests are above 400 m and extend to 1 000 m. The rainfall is between 1 500 and 3 500 mm annually. Here, it is very much steeper and there is extensive leaching to lower levels. A higher rainfall compensates for drying winds in the west. The soil is skeletal clay, richer than the maquis but lacking high nutrients due to leaching. This has given rise to a species rich flora. As mentioned already there is very little flora distinction between serpentine and other soils in the rainforests of this region. In many places fires, which are frequently lit on the coastal verge, burn up the slopes to the mountain tops carried by the winds and updrafts. These destructive fires have existed from the first human invasion and were described by the early Pacific navigators. Following this destruction any rainforest regeneration is exceptionally slow and on the serpentine soils is usually replaced by maquis type vegetation.

The middle altitude rainforests are of a tropical nature. The trees average 15 to 25 m in height and usually have large leaves. The canopy is topped by Gymnosperms. Growth is dense and shrubs, climbing plants and epiphytes are few. The understorey consists predominantly of ferns with a few bryophytes and lichens. Table 6 lists the more common ferns of these forests.

Table 6. Common ferns of the middle altitude rainforests.

Marattia attenuata
Angiopteris evecta
Asplenium nidus- an epiphyte
Asplenium australasicum- an epiphyte
Drynaria rigidula- an epiphyte
~~*Cyathea albifrons*~~
~~*Cyathea vieillardii*~~
~~*Cyathea novae-caledoniae*~~
Histiopteris incisa- on the edge of the rainforest
Hypolepis tenuifolia- on the edge of the rainforest
Nephrolepis hirsutula
Dictymia mettenii- an epiphyte
Belvisia micronata- an epiphyte
Microsorium punctatum
Teratophyllum wilkesianum- with trimorphic fronds
Lindsaea- species
Schizaea- species
Adiantum- species

The conifer and montane rainforests are over 1 000 m above sea level. These mountain tops are often in cloud and the rainfall is high, usually 3 500 mm or more. The temperature often falls to 0°C. The trees are commonly 8 to 15 m in height with sclerophyllic leaves. In this region Gymnosperms are well represented. Tree trunks are covered with epiphytic ferns, orchids and mosses while bryophytes and lichens are common. Table 7 lists the common ferns in this region.

Table 7. Common ferns of the montane rainforests.

Epiphytic ferns-
Tmesipteris lanceolata- grows on tree fern trunks
Dictymia mettenii- an epiphyte
Belvisia micronata- an epiphyte
 Terrestrial ferns-
Tmesipteris vieillardii- the only terrestrial *Tmesipteris* fern on the island
Cyathea albifrons
Dicksonia baudourini
Dicksonia thyrsopteroides
Lycopodium deuterodensum
Lycopodium voluble

Selaginella hordeiformis
Leptopteris wilkesiana
Microlepia strigosa
Antrophyum alatum
Elaphoglossum vieillardii
Grammitis deplanchei
Ctenopteris- 4 species
Blechnum contiguum

On New Caledonia, particularly in the maquis, some ferns act as pioneer species. These appear soon after clearing or burning of the vegetation. See table 8.

Table 8. Pioneer ferns of the maquis.

Pteridium esculentum
Dicranopteris linearis
Schizaea dichotoma
Lindsaea moorei
Sphenomeris deltoidea
Lygodium reticulatum
Lycopodium cernuum

Finally, one fern is found in mangrove areas, mainly in the north east. This is *Acrostichum aureum*, a fern which is wide spread in the Pacific.

Pyrrosia confluens - A Further Note

Contributed by Merle Goadby

On Sunday, 18 February 1996, Geoff and I were surprised to see a large, very healthy terrestrial clump of *Pyrrosia confluens*. The clump was about 2 metres by 3 metres and growing in shade provided by a remnant patch of littoral rainforest. The few epiphyte specimens growing on nearby trees were relatively sparse in comparison. The *Pyrrosia* was growing on a shelf about 2 metres above some mangroves on the beach edge, just a few metres away. Soil is probably a sandy loam.

We were in the SGAP-Redlands Branch on a field trip to MacLeay Island in Moreton Bay. The trip was lead by SGAP member Rosalie Eustace who is also a Greening Australia officer with the Redlands Shire Council. The ferns were in a small reserve at Cow Bay. The Council has purchased this land because there is not much littoral rainforest left.

Other ferns noticed in this reserve were *Acrostichum speciosum*, *Adiantum hispidulum*, *Calochlaena dubia*, *Doodia caudata* and *Pteridium esculentum*.

The Spore Bank & *Cyathea cooperi*

Our Spore Bank Curator, Kyrill Taylor, is keen to build up the stock of fresh spore and would be grateful for donations of spore of any of our native ferns. Well almost any. There is a question mark over *Cyathea cooperi* which is tending to takeover in some areas. At a recent meeting our Leader suggested that it should not be grown in gardens adjacent to natural bushland. The following extract taken from "Fern World" the journal of the San Diego Fern Society mentions *Cyathea cooperi* when referring to introduced plants which have become naturalised in islands of the Hawaiian chain. The article by Robin Halley includes the following:

Some of the escapees are still localised. However, some plants such as Microsorium scolopendrium, Blechnum occidentale, and Cyathea cooperi (Australian tree fern) have spread very rapidly since their introduction and can be found throughout all the islands. In fact the Australian tree fern, native to the Queensland rain forests, has become a pest. Though fern species are not commonly considered aggressive weeds, Cyathea cooperi is proving to be an invasive, disruptive species capable of radically modifying its habitat .. it is predicted that without intervention, this population will rapidly mature and gain almost complete domination of the site.

Notes from the Mid North Coast

Compiled by Steve Clemesha

Outing to Gibraltar Range

We chose the Gibraltar Range for our outing on 28-29th October as this is the time that the waratahs bloom in this area. There were not many flowers this year, but those we saw were beautiful. The waratah population at Gibraltar Range was classed as Telopea speciosissima, the same as the Sydney Blue Mountains population, but more recent studies have shown numerous minor differences and it now is referred to as Telopea sp Gibraltar Range.

We have visited this park before on a longer outing. On this two day outing we visited Dandahra Falls and the Needles. Most of the ferns we found grew under rainforest on the way to the Needles. The exceptions were Lycopodium deaterodensum, which grew in heathland, and Lindsaea microphylla, which grew beside a track in dry Eucalypt forest.

A lot of wildflowers were out and this made the walks interesting. In all it was a most pleasant time in a beautiful National Park.

FERN STUDY OUTING 28-29 OCTOBER 1995GIBRALTAR RANGESpecies List

| |
|------------------------------------|
| <i>Adiantum silvaticum</i> |
| <i>Arachniodes aristata</i> |
| <i>Arthropteris beckleri</i> |
| <i>Arthropteris tenella</i> |
| <i>Asplenium australasicum</i> |
| <i>Asplenium flabellifolium</i> |
| <i>Asplenium polyodon</i> |
| <i>Blechnum cartilagineum</i> |
| <i>Blechnum minus</i> |
| <i>Blechnum nudum</i> |
| <i>Blechnum patersonii</i> |
| <i>Blechnum wattsi</i> |
| <i>Calochlaena dubia</i> (Culcita) |
| <i>Cheilanthes sieberi</i> |
| <i>Cyathea australis</i> |
| <i>Cyathea cooperi</i> |
| <i>Cyathea leichhardtiana</i> |
| <i>Davallia pyxidata</i> |
| <i>Dictymia brownii</i> |
| <i>Diplazium australe</i> |

| |
|---------------------------------|
| <i>Doodia aspera</i> |
| <i>Gleichenia dicarpa</i> |
| <i>Histiopteris incisa</i> |
| <i>Hypolepis glandulifera</i> |
| <i>Hypolepis muelleri</i> |
| <i>Lastreopsis decomposita</i> |
| <i>Lastreopsis microsora</i> |
| <i>Lindsaea linearis</i> |
| <i>Lindsaea microphylla</i> |
| <i>Lycopodium deuterodensum</i> |
| <i>Microsorium scandens</i> |
| <i>Pellaea falcata</i> |
| <i>Platycterium bifurcatum</i> |
| <i>Pteridium esculentum</i> |
| <i>Pteris umbrosa</i> |
| <i>Pyrrosia confluens</i> |
| <i>Pyrrosia rupestris</i> |
| <i>Sticherus flabellatus</i> |
| <i>Sticherus lobatus</i> |
| <i>Todea barbara</i> |

Outing to Border Range National Park

From the 22nd to the 25th January 1976 the Mid North Coast group visited the Border Ranges National Park north of Kyogle. Much of the area is rainforest and has a large range of ferns.

Along Sheepstation Creek we found Polystichum formosum, Lastreopsis acuminata and other common rainforest ferns. A few plants of Lastreopsis smithiana grew on a wet rockface near the creek. This mainly is a Queensland species but has been found at Wiangaree State Forest. It is related to L. acuminata, but its fronds are larger and more divided. Further upstream, plants of Doodia heterophylla grew on a vertical bank and near the creek. This species has not previously been recorded from NSW as far as I know.

An Adiantum in the area had the five fingered habit of A. hispidulum but otherwise was like A. silvaticum. Pneumatopteris sogerensis grew in full sun among blady grass and weeds in a small creek bed.

A rockface had names carved in it by Cedar-getters from 1886 onwards. We wondered how long it takes for graffiti to become a valuable historical record.

Next day we visited Bar Mountain (1100 metres altitude). Antarctic Beech (Nothofagus moorei) forest covers its higher parts and temperate and subtropical rainforest covers the lower parts.

Under the Nothofagus forest and the neighbouring rainforest Lastreopsis silvestris grew. This mainly is a species of the MacPherson Range and Lamington Plateau and the presence of a good population of it at Bar Mountain, which is well away from the border, is significant. Near the mountain top a colony of Dicksonia youngiae grew and near it was a large patch of Arthropteris palisotii growing on trees and rocks. Another reasonably large patch of it grew lower down on the mountain. This species has only been found twice in NSW. One specimen is from Lismore - no date or collector known - and the other is from Comboyne (1934) and may be a hybrid as the scales of the rhizome are mid-way between those of A. palisotii and A. tenella. A. tenella and A. beckleri were common on this mountain as they are in many other areas.

Arthropteris species are hard to establish in cultivation unless they are covered with a plastic bottle or given terrarium conditions for a few months until they form roots.

Asplenium australasicum was plentiful in the area and on some rock faces the related A. harmanii grew. The plants were a good match for Queensland specimens of the species.

Doodia media grew on wet rock faces. Hymenophyllum flabellatum grew on old Antarctic Beech trees and so did Phymatosorus pustulatum. We also saw Macroglena caudata on tree ferns.

Our next stop was the Pinnacle - a narrow finger of hard rock that juts out into the valley. The first part of the track to it is rainforest and we saw some common rainforest ferns and also Asplenium harmanii.

Further along the ridge under Eucalypt forest, large grass trees grew. Some plants of Phymatosorus pustulatum grew on these. Rumohra adiantiformis was present also, both on grass trees and in rock crevices.

Our remaining walk was from the Antarctic Beech picnic area for 5 km following Brindle creek. Patches of Antarctic Beech grow along the creek. We expected to find Lastreopsis silvestris in this area. L. microsora was plentiful and we only saw one small patch of L. silvestris. Patches of Dicksonia youngiae grew along this creek. This species grows both at reasonable altitudes in this area and also under more subtropical conditions near Minyon Falls. There is an old record of it from Coffs Harbour but I have never seen it in the area.

Although the areas we were in were elevated, no plants of Dicksonia antarctica, Blechnum minus, Asplenium flaccidum or A. bulbiferum were seen.

Ferns identified at BORDER RANGE NATIONAL PARK

| | SS | Bar | Brin |
|------------------------------------|------|-----|------|
| <u>Adiantum aethiopicum</u> | X | | |
| <u>Adiantum diaphanum</u> | X | | X |
| <u>Adiantum formosum</u> | X | X | |
| <u>Adiantum hispidulum</u> | X | | |
| <u>Adiantum silvaticum</u> | X | | X |
| <u>Arachniodes arlata</u> | X | | |
| <u>Arthropteris beckleri</u> | X | X | X |
| <u>Arthropteris palisotti</u> | | X | |
| <u>Arthropteris tenella</u> | X | X | X |
| <u>Asplenium attenuatum</u> | X | | |
| <u>Asplenium australasicum</u> | X | X | X |
| <u>Asplenium flabellifolium</u> | | Pin | |
| <u>Asplenium harmanii</u> | | X | Pin |
| <u>Asplenium polyodon</u> | X | X | X |
| <u>Blechnum cartilagineum</u> | X | X | X |
| <u>Blechnum nudum</u> | | | X |
| <u>Blechnum patersonii</u> | X | X | X |
| <u>Blechnum wattsi</u> | | | X |
| <u>Botrychium australe</u> | X | | |
| <u>Calochlaena dubia (Culcita)</u> | X | | |
| <u>Christella dentata</u> | X | | |
| <u>Cyathea australis</u> | | X | |
| <u>Cyathea cooperi</u> | X | X | X |
| <u>Cyathea leichhardtiana</u> | X | X | X |
| <u>Davallia pyxidata</u> | X | X | X |
| <u>Dennstaedtia davallioides</u> | X | X | X |
| <u>Dicksonia youngiae</u> | | X | X |
| <u>Dictymia brownii</u> | X | X | X |
| <u>Diplazium assimile</u> | Booy | X | X |
| <u>Diplazium australe</u> | X | X | X |
| <u>Diplazium dilatatum</u> | | | X |
| <u>Doodia aspera</u> | X | X | |
| <u>Doodia caudata</u> | X | | |

| | SS | Bar | Brin |
|------------------------------------|------|-----|------|
| <u>Doodia heterophylla</u> | X | | |
| <u>Doodia media ssp. australis</u> | | X | |
| <u>Doodia squarrosa (X)</u> | Booy | | |
| <u>Grammitis billardieri</u> | | X | |
| <u>Histiopteris incisa</u> | | | X |
| <u>Hymenophyllum flabellatum</u> | | X | X |
| <u>Hypolepis glandulifera</u> | X | X | X |
| <u>Hypolepis muelleri</u> | | | X |
| <u>Lastreopsis acuminata</u> | X | | |
| <u>Lastreopsis decomposita</u> | X | X | X |
| <u>Lastreopsis marginans</u> | Booy | X | X |
| <u>Lastreopsis microsora</u> | X | X | X |
| <u>Lastreopsis munita</u> | X | X | |
| <u>Lastreopsis silvestris</u> | | X | X |
| <u>Lastreopsis smithiana</u> | X | | |
| <u>Lunathyrium petersenii</u> | X | | X |
| <u>Macroglena caudata</u> | | X | X |
| <u>Microsorium diversifolium</u> | | X | X |
| <u>Microsorium scandens</u> | X | X | X |
| <u>Pellaea falcata</u> | X | X | X |
| <u>Platycterium bifurcatum</u> | X | X | X |
| <u>Platycterium superbum</u> | X | | |
| <u>Pneumatopteris sogerensis</u> | X | | |
| <u>Polyphlebium venosum</u> | | | X |
| <u>Polystichum formosum</u> | X | | |
| <u>Pteridium esculentum</u> | X | | |
| <u>Pteris tremula</u> | X | | |
| <u>Pteris umbrosa</u> | X | X | X |
| <u>Pyrrosia confluens</u> | X | X | |
| <u>Pyrrosia rupestris</u> | X | X | X |
| <u>Rumohra adiantiformis</u> | | Pin | |
| <u>Todea barbara</u> | | X | X |
| <u>Vittaria elongata</u> | X | | X |

SS: Palm Loop, Sheepstation Ck. Brin: Brindle Creek.
 'Booy': extra species found during quick walk along the Booyong Track.
 Bar: Bar Mountain. 'Pin': extra species found at the Pinnacle.

NOTES FROM THE SYDNEY AREA

Report on Outing to Royal Botanic Gardens, 17 March 1996

(Contributed by Joan Moore)

About fifteen of us met at the entrance to the Fernery on a fine morning. We followed Peter around the path that goes through the plantings, doing our best to catch all the information that he was giving us. This was not easy, as there was so much, and so much to look at as well.

The construction of the Fernery was only completed three years ago - it was opened officially in September 1993 - but the ferns all look so well established. They are from subtropical and temperate regions, plus a few tolerant species from the tropical. The roof is a high dome of slatted steel, letting in obviously the right amount of light: it is by no means gloomy in the Fernery. A sandstone wall about eight feet high surrounds the area, and most of it has been there since 1924, when it enclosed an earlier fernery. Many of the blocks are believed to have been cut by convicts and used in the building of Governor Darling's bathing house on Farm Cove in 1826.

We started from the "Interpretive Area" just inside the gate: various informative notices line it, and there is room to gather. The first to catch my eye were the Todea barbara on the right, two or three very large specimens. This is the Osmundaceae area. The ferns are grouped in their families: there are signboards to indicate which, with a short description. Nearby we saw selaginellas on the ground, Psilotum nudum on the rocks and Lycopodium phlegmaria clinging to a tree trunk with other epiphytes. Everything is planted so to give a very natural effect, while yet allowing all to be seen from the path. There are two ponds in the centre part that the path circles, they are linked by a "stream". The beds rise quite high in the middle and the taller and larger ferns are planted there, with smaller or lower-growing closer to the path. Huge baskets of Goniophlebium subauriculatum and Nephrolepis spp. hang from supporting pillars. Great clumps of elkhorns grow on rocks and logs around the lower pool, and near the bridge over the stream stand two Cyathea brownii, their fawn scales contrasting with the very dark brown scales of a striking Cyathea nearby, Cyathea cv. Brentwood, a form of C.cooperi.

It would be possible for a visitor to make a complete list of the ferns here as they are all labelled: I am mentioning those I particularly noticed only, like the Blechnum wattsi. Its fronds were about three feet high! I thought of my poor little ones at home which look more like groundcovers. And what cannot be passed over is the magnificent Angiopteris evecta near the upper pond, with fronds about eight feet long. (Yet this is not as large as the one in a bed outside, near the restaurant and close to the creek. Don't miss it if you can visit the Gardens.) Moving back towards the entrance we passed more blechnums, then ferns like Aracniodes aristata, Christella parasitica and numerous diaplaziums, many with little trunks. In the centre section are numerous scrambling ferns like Microsorium howense clambering over rocks or up trees.

Then we came to the tree ferns: it seemed to me an immense variety, both native and exotic, most growing well. I say "most" because there was one not very well at all Cyathea robertsiana. This specimen has a very thin trunk which has been protected by a hessian wrapping: Peter explained that its natural habitat in North Queensland is a slender tree fern growing in very damp conditions. It is very difficult in cultivation. Other Queensland specimens are doing well, like C. rebecca and C. baileyana. We all saw the "wig" on the latter when Peter pointed it out. He also showed us a spectacular C.marcescens from Victoria, whose dead fronds persist like a skirt. This, Peter says, is thought to be a natural cross, maybe C.australis with C. cunninghamii.

The Fernery is not the end of the ferns, in the Gardens, Nearby are beds of Nephrolepis hirsutula and Goniophlebium subauriculata and the old Cryptogam House now opened again, displaying begonias and ferns including a Humata repens I did not see it in the main display. Then after lunch we went up to the Glasshouses, The Pyramid is now given over entirely to tropical Australian plants, including naturally many ferns, while the Arc displays exotic tropical plants. After all this we did not have time or energy to explore the outside beds for the ferns there - this will be for another day. Our grateful thanks to Peter for his guidance.

Report on Meeting at Mount Druitt, 27 April 1996

After attending to correspondence and arranging the forward program, Peter introduced the most important item of business, Calder Chaffey's agreement to take over the task of writing and editing the Fern Book (reported elsewhere in this Newsletter).

In the 'A Member's Fern' segment of the meeting,, Betty Rymer then told the 20 members present of her success in growing a Davallia species in four different parts of the Rymer property. Betty concluded that if adequately protected against direct sun and wind, the Davallia tolerated lengthy dry periods without watering. Betty with husband Eric's assistance has been gathering information about the vase life time of different fern species. She said that her tests indicated that Davallias generally lasted only about four days. However, Betty told us not to despair and pointed out another feature - the range of colours and attractive appearance of the dead and fading fronds and the use that could be made of these in floral arrangements.

Peter led the Study Session dealing with Tree Ferns of North Queensland. Peter elected to follow the classification used in S.B.Andrews book "Ferns of Queensland". At our previous meeting, consideration had been given to all Australian tree ferns that occur in areas other than North Queensland. This left a number of Cyathea species and one Dicksonia, D.herbertii. Dealing with D.herbertii Peter said that it was confined to the rainforest of North Queensland and was once confused with D.youngiae dealt with previously. However, D.herbertii has fronds which are duller, paler looking and the stipe hairs are duller, brittle and irritant.

Peter did not produce his usual comprehensive key for the identification of the Cyatheas. He explained that a key was not important provided that the fern's location was known because there is little over-lap of the confusable species subject to our study. Andrews divided these Cyatheas into two groups subgenera Cyathea and subgenera Sphaeropteris, largely because of differences in the scales on stipe bases. In the Sphaeropteris group the stipe scales are narrow with little hooks along the margins, all cells pointing towards the apex. The North Queensland Sphaeropteris are C.celebica, C.felina and C.cooperi. C.celebica has fronds that are pale underneath and differs from the other two ferns in this group because of its prickly spines at the stipe bases. These spines are similar to those of C.leichhardtiana dealt with at the previous meeting along with the southern Tree Ferns. C.leichhardtiana extends only as far north as the ranges west of Mackay. Curiously, both C.celebica and C.leichhardtiana are somewhat difficult to cultivate, although both will withstand a fair amount of frost.

C.felina has scales which have an almost glossy appearance. Superficially it resembles C.cooperi but is much less hardy. C.felina is a fern of the coastal lowlands. It does not occur south of the McIlwraith Range on Cape York Peninsula, is intolerant of cold conditions and may succumb to frosts in the spring when fluctuations in temperature encourage it to resume its growing cycle. C.Cooperi does not extend as far north and is not found in the area where C.felina occurs.

In the *Cyathea* subgenera the scales have a thickened mid portion with cells running in different directions and are eroded at the edges. This group includes *C.australis*, and *C.cunninghamii*, two ferns which extend only as far north as South-eastern Queensland (*C.cunninghamii* to one gully on the Lamington Plateau near O'Rielly's guest house). Peter listed North Queensland ferns *C.baileyana* and *C.rebecca* - both of these are bipinnate and both incidentally, generally grow only slowly in Sydney's mild climate. *C.robertsiana*, *C.wollsiana*, *C.australis* and *C.exilis* are tripinnate or tripinnatifid.

C.exilis the most recently described tree fern is easily distinguished. It has wedge shaped, basal segments somewhat similar in appearance to those of *Adiantum* species. It has spines on stipe bases, is slender trunked and multi-stemmed and occurs in soaks and along stream banks in rainforests of the Sir William Thompson Range, north of Iron Range, Cape York Peninsula.

C.robertsiana is notable for its slender trunk. In the garden situation it must have a constant supply of water. Peter has most of the ferns discussed growing in pots and when taking his *C.robertsiana*, outside the glass house (for example to our meeting), he keeps it in a plastic bag. *C.robertsiana* has attractive lacy fronds with soft hairs underneath. The fronds grow to 1.5 m long.

C.rebecca has dark green glossy fronds and the habit of suckering. It is very green under the fronds and is fairly common in both nature and cultivation. *C.baileyana* may be distinguished by its wig-like lower pinnac which forms an outgrowth at the top of the trunk. Its fronds are often glaucous underneath. Peter described it as a fern that does not like the strong light and in southern areas, it needs protection from frosts. He said that *C.baileyana* did not require much watering but it did need a fair amount of protection.

C.wollsiana resembles *C.australis* but without the latter's persistent stipe bases. It grows to around 5 m tall. The apical spines on scales at the base of the stipe are long and woody. In the Sydney area, it grows fairly easily provided it is protected from the heaviest frosts.

Our thanks again to Peter and Margaret for hosting the meeting and letting us see their super collectors garden.

Report on Outing at Fox Ground, 18 May 1996

The early morning shower and the mist hanging through the trees made a perfect setting for our visit to Ann and Geoff Long's cottage in the rainforest. An early start gave us the opportunity to hear Calder tell us of his and the Longs recent visit to New Caledonia. Thanks to some notes provided by Calder, a summary of his talk is reported elsewhere in this Newsletter.

The clouds lifted and the sun shone for our short drive and walk to the top of the escarpment. Firstly magnificent views up and down the coast, then a walk under the cliff line into Fox Ground. Numerous ferns in an altogether magical place. After lunch a discussion regarding the Fern Book, a short talk by Geoff, "Helping God's Rainforest Garden". Then just enough light left in the day for a quick view of the property and the 27 different fern species and to see the sensitive way in which nature has been encouraged to repair the property's previous owners "improvements". We greatly admired the new pathway that blended perfectly with the rainforest. Our thanks to Geoff and Ann for hosting the visit and providing us with a memorable day in enchanting surroundings.

NOTES FROM SOUTH EASTERN QUEENSLAND

Contributed by Merle Goadby

Report on Outing to Moggill State Forest, 3 March 1996

A small group of eight members and two guests assembled in Graham Nosworthy's garden at Pullenvale, before setting out for the nearby Moggill State Forest. Road works were in progress on the access road on account of new land development to the north of the State Forest. Lush growth of Drynaria rigidula covered the hillside above sections of the road.

We walked down the creek which was wetter than usual. There were large patches of Asplenium attenuatum on some creek banks, probably as a result of the best summer rains for five years. Other ferns observed were Adiantum aethiopicum, A. formosum, A. hispidulum, Asplenium australasicum, Christella dentata, Doodia aspera, D. caudata, Pellaea paradoxa, Pyrrosia confluens, P. rupestris, and Pteris tremula. A disappointing feature was the huge crop of feral weeds - Lantana, shade loving weeds and many others. When we ran into the native stinging vine up to two metres high, Tragia novae-hollandiae, we deferred further search for the fern hybrids reported to be in the area. Later, towards the northern border of the State Forest we saw Platynerium bifurcatum and Lastreopsis microsora. While waiting for the road to be clear on the way back, some members salvaged rhizomes of Drynaria rigidula from the spoil beside the road.

Report on Meeting at Capalaba, 14 April 1996

Our thanks to Ray and Gwen Norris for hosting our meeting. Fourteen members attended and there were five apologies. We extend a warm welcome to new members Leith and Peter Woodall. Peter Bostock lead the wide ranging discussion on growing ferns. Some time was spent considering pest problems on hanging baskets and Platynerium spp. Peter mentioned that basal fronds of Drynaria and Platynerium spp. provide lining material that outlasts the wire of the hanging baskets! Dicksonia antarctica and Brisbane's climate are not compatible.

After the discussion ended, the group admired the plants and hanging baskets in our hosts' bush house. The meeting concluded with a guided ramble through the young garden, which has participated for two years in the Open Garden Scheme. Most of the terrestrial ferns are recent plantings and suffering more than the longer established plants from Brisbane's unseasonal Summer drought. Fourteen members attended and there were five apologies. We extended a warm welcome to new members, Leith and Peter Woodall.

Has Your Subscription Been Paid?

A reminder to anyone who has not yet paid the \$4 (\$10 for overseas members) subscription for the 1996 calendar year. If a red cross appears opposite, it means that according to our records, your payment has not been received.

When paying please make the remittance payable to the Fern Study Group. Sometimes there is a problem (depending it seems on the Bank Teller's mood) with Group cheques drawn in the name of P.Hind. Payments should be made out to the Fern Study Group, and forwarded to the Treasurer, Miss J.Moore, 2 Gannet Street, Gladesville, 2111.

Deadline for Copy

Contributions to the Newsletter are always welcomed. How about boasting a little about some success or perhaps, ask for advice about something that may have gone. For the September Newsletter, articles should be forwarded to reach the Secretary by 15 August 1996.

FORTHCOMING EVENTS : IN SOUTH EASTERN QUEENSLAND

Sunday 16 June 1996, Study at Algester

Meet at 9.30 am at the home of Irene Cullen, 220 Ringwood Road, Algester. By popular request the topic is to be "Identification".

Sunday 21 July 1996, Excursion to Paradise Creek Gorge

Meet at 9.30 am in park on Western outskirts of Gatton. Take Gatton exit from Toowoomba Road. Drive through town to meet at park. The excursion area is a sheltered amphitheatre about 30 minutes drive further on.

Sunday 1 September 1996, Meeting at McGregor

Meet at 9.30 am at McGregor High School, McGregor. Enter at the Springfield Street Gate. Topic: (1) Make final arrangements for the Fern Study Group display at the SGAP annual flower show, Redeemer Lutheran College, Rochedale on the 7 & 8 September 1996. (2) Discussion topic - Fern Oddities and Allies.

For any enquiries regarding South Eastern Queensland events phone Peter Bostock (07) 3202 6983 or Irene Cullen on (07) 3273 1055.

FORTHCOMING EVENTS : IN THE SYDNEY REGION

Sunday 23 June 1996, Meeting at Yagoona

Meet from 11.30 am at the home of Kyrill Taylor, 16 Elizabeth Crescent, Yagoona. Meeting to commence at 1 o'clock with Peter telling us more about Tree Ferns, this time, the Lord Howe Island species. A Members Fern will be presented by Geoff Long and to conclude Fred Johnston will show slides. Bring lunch (you are welcome to use the Taylor's barbecue) and a plate for afternoon tea. Enquiries to Kyrill 644 5531.

Saturday 13 July 1996, Outing to Holgate / Matcham

Meet from 11 am at Dot and Graham Camp's property 'Palomar Park', RMB 6154 Toomey's Road, Holgate / Matcham. Take F3 Freeway from Sydney, go past first Gosford turn, stay on Freeway until reaching the Ourimbah 80 km per hour zone, turn right at the roundabout into Pacific Highway, travel through Ourimbah cross the railway line and take the next turn to the left into Macdonald Road. Follow Macdonald Road into the Ridgeway for about 2 km and you will see Tapley Road on your right. At the top of Tapley Road turn left into Taylor Road. As you pass Katandra Lookout you will hit the dirt road. This is Toomeys Road, ... nearly there ... stay left and pass the 'No Through' sign (do not go down Maidens Brush Road which veers to the right). Travel about 1.5 km on the dirt road and you will find Palomar Park on the right. See map on back page of this Newsletter. Enquiries to Dot (043) 67 6368.

Friday to Sunday 16 to 18 August 1996, SGAP Exhibition Rouse Hill

Owing to the number of members committed to working for this major SGAP Exhibition, no Study Group activity planned for August. If you are not already signed up to help, Moreen phone 528 4881 would be pleased to get you a place on the roster.

Saturday 14 September 1996, Outing to Wheeny Creek

From Sydney travel along Bells Line of Road until Kurmond, turn right into Comeroy Road. After 8 km road divides, don't take Blaxland Road keep to the left towards Upper Colo until you reach Wheeny Creek. Meet at the Creek, there is a Toilet Block to the right. Meet from 9.30 am for a 10 o'clock sharp start. Easy walk but bring a towel as we may have to paddle to cross the Creek. Enquiries to Peter 625 8705.

Saturday 19 October 1996, Outing to Newnes

Meet from 9.30 am at Clarence Railway Station on the Zig Zag Line ready to move off at 10 o'clock sharp. Travel by convoy to the start of the walk along the old coach road. The planned walk is short and relatively easy in a scenic area. A few may want a longer walk which takes you through the Glow Worm Tunnel - bring a torch if wanting to participate in the more strenuous alternative. Carry lunch and ensure that you bring water. Enquiries to Peter 625 8705.

FORTHCOMING EVENTS : IN THE MID NORTH COAST , N.S.W.

Our next outing is to Papinbarra on the 1st and 2nd June. For details contact Charlie Charters, phone (065) 86 1088 .

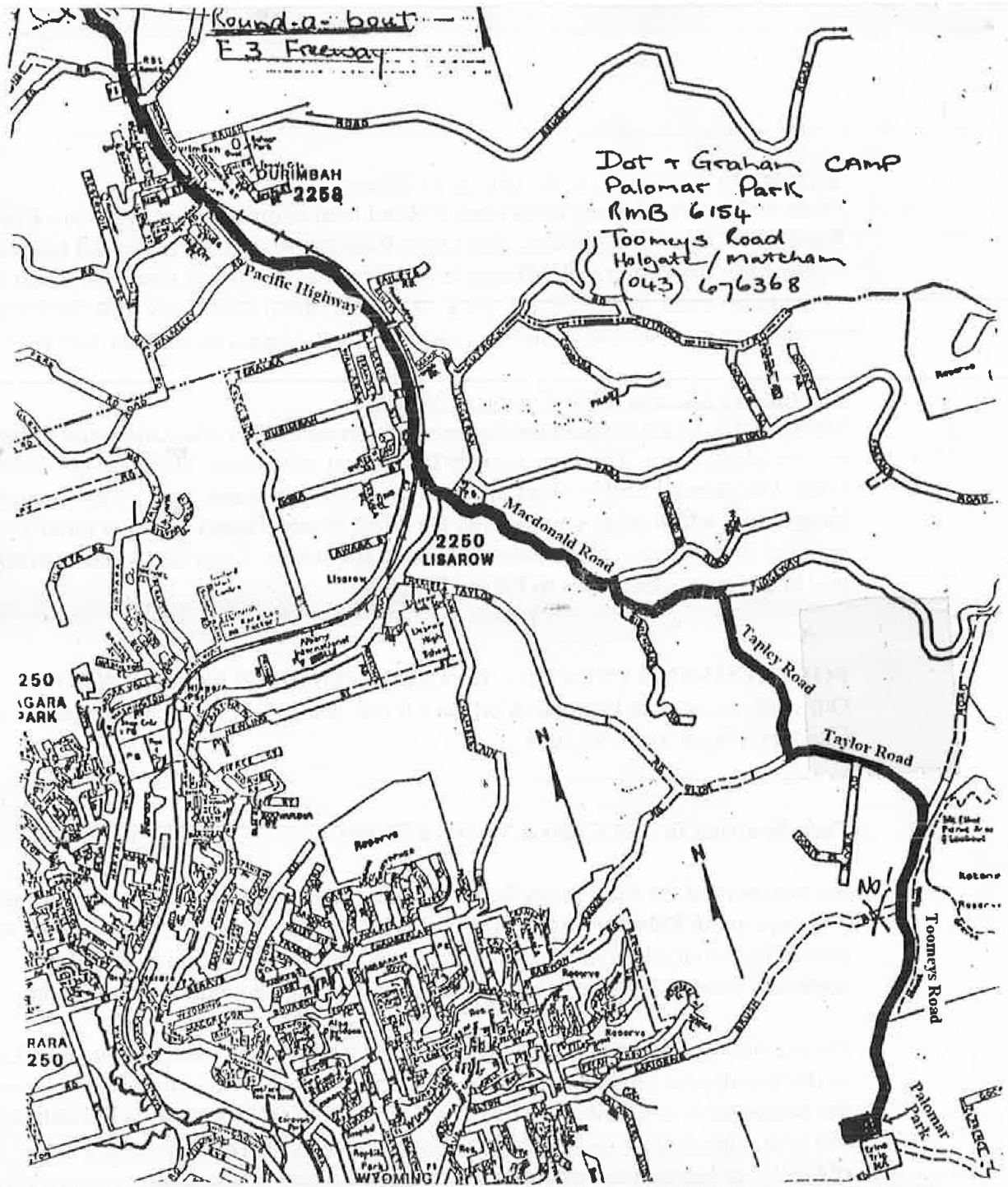
Fern Spotting in The Central Western Slopes

Six members of the Fern Study Group were among a group of SGAP'ers who spent five days in the Rylstone District in April. The outing was organised by Ted Newman who in his inimitable style had thought of everything. The area is outstanding scenically even though very dry. All of us vowed that we would be back again.

On one outing contact was made with SGAP member, Ted Daniels a one time Leader of the Eucalyptus Study Group. Ted took us to one of his favourite areas of bush, off the beaten track and seldom visited. Two ferns growing beneath a rock overhang in this area, Gleichenia rupestris and Lindsaea microphylla are not recorded in the "Flora of NSW" as having been collected in the Central West Slopes area.

On another occasion in search of some aboriginal cave paintings, we walked into a gully and found large patches of Blechnum nudum (again not being recorded as being collected in the Central West Slopes) and Asplenium flabellifolium. Hypolepis rugosula and Adiantum aethiopicum were two ferns in this same gully which were not sighted during our subsequent more extensive searching of the Fern Tree Gully. In this area some of the locals were busy at work installing toilets, improving paths and developing a picnic area. The Gully, in reality an easily accessible, long, winding series of gorges, was the highlight for our party. In spite of the long period of drought, the Gully was still moist and the extensive patches of ferns still looked fresh and healthy.

The following ferns were identified in Fern Tree Gully: Adiantum hispidulum, Asplenium flabellifolium, Blechnum cartilagineum, Calochlaena dubia, Cyathea australis, Dicksonia antarctica, Doodia aspera, Histiopteris incisa, Hypolepis glandulifera, H.muelleri, Lastreopsis acuminata, Phymatosorus scandens, Pellaea falcata, Polystichum australiense, Pteridium esculentum and Todea barbara.



If undelivered return to:
 3 Currawang Place
 Como West NSW 2226

Print Post Approved
 PP245358/00018

**SURFACE
 MAIL**

**POSTAGE
 PAID
 AUSTRALIA**

**Mr R & Mrs S Bachhouse
 Mount Sampson Road
 Closeburn
 Queensland 4520**