

**THE
FERN SOCIETY
OF
VICTORIA**

Inc.

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NEWSLETTER

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FERN SOCIETY OF VICTORIA Inc.

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PRESIDENT'S MESSAGE:

A report on the very successful Wangaratta weekend appears elsewhere in this Newsletter. The thanks of the Society go to Mary Frost for all her work in organising the weekend. It would be good to see more Society events held in country areas. Suggestions on locations and type of activity would be welcome.

Our meeting this month features Terry Turney talking on *Pteris* ferns. Terry on *Pteris* sounds an appropriate title. Terry has asked for assistance from members in providing a good range of ferns from this genus. He would also be pleased to receive examples of *Cheilanthes*, *Dennstaedtia*, *Lindsaea* and *Pellaea* which were formerly grouped with *Pteris* in the family *Pteridaceae*.

FERN COMPETITION. As an added incentive to bring along ferns, the Committee has decided to reintroduce a fern competition. A certificate and a fern will be presented to the best fern from one of the above genera. Chris Goudey has kindly consented to be judge, which means that we not only get a very knowledgeable person as judge but, being devious, we also open up the field for all other members.

However please do not be deterred from bringing along ferns because you feel that yours are not up to competition standard. The main aim is get as many ferns as possible to help Terry illustrate his talk, and to add to the interest of the evening. The competition aspect is secondary. Bring along as many ferns as you like; the more the better.

The fern competition will be an ongoing event. Where possible the group of ferns selected for the competition will be related to the speaker's topic for that meeting.

With regard to the visit by the American fernists there has been a slight alteration to the itinerary. They will now arrive here on Thursday, 15th October, the trip to the Otways will be on the Friday
(continued opposite)

NEXT MEETING

DATE: Thursday, 16th July, 1992.

TIME: Commencing at 7.30 p.m.

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

TOPIC: *PTERIS* FERNS

SPEAKER: Terry Turney

MEETING TIMETABLE

7.30 p.m.	Pre-Meeting Activities:- Sales of Ferns, Spore, Books and Special Effort Tickets ; Library Loans.
8.00 p.m.	July General Meeting
8.30 p.m.	Topic of the Evening
9.40 p.m.	Special Effort Competition
9.45 p.m.	Supper
10.00 p.m.	Close.

A Request from the Speaker:

Terry would like to have a wide range of examples of *Pteris* ferns to illustrate his talk and has asked members to assist by providing what they can.

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DON'T FORGET YOUR MEMBERSHIP RENEWAL

President's Message: (cont'd)

and they will visit fern nurseries and fern areas around Melbourne on Saturday. Anyone interested in joining the Otways trip or the Saturday excursion please contact me. Barbara Joe Hoshizaki, author of the book "Fern Growers Manual", is one of the leaders of the tour and she has agreed to give a short talk to our Society on the Thursday evening.

Further to my comment last month about the need for new blood on the Committee, both our Treasurer, Marilyn Wood, and our Secretary, Bernadette Thomson, will not be available to continue on the Committee. Both these ladies deserve our special thanks, Marilyn for stepping into the Treasurer's shoes when she had just joined the Society, and Bernadette for her many years of dedicated service. But now their positions will need to be filled. As I said last month, please think about a position on the Committee; without a good Committee the Society just cannot function.

Barry White.

WANGARATTA SHOW REPORT

by Barry White

The weekend at Wangaratta on the 30th and 31st of May was most successful thanks to the work of Mary Frost.

The show on Saturday was attended by 227 persons, which compares very well with the attendance at the Melbourne show. The display ferns were contributed by Mary Frost, Dorothy Forte, Norma and John Hodges, and by those selling ferns - Chris and Lorraine Goudey, Kevin and Gloria Tinker, Les and Rosemary Vulcz, Roy and Lorraine Pratt, and Bob Moon. Although there were not as many ferns on display as at Nunawading, the opportunity to spread the ferns out and to fully display individual plants allowed the ferns to be better appreciated. At Nunawading the beauty of individual ferns sometimes gets lost in the mass of ferns.

The highlight of the display was the setting on the stage arranged by Brian Payne, a professional flower arranger from Albury. He had prepared a spectacular and eye-catching display using perspex stands, pieces of driftwood, coloured gourds, large scarlet toadstools with white gills (collected by Mary from the pine forest) and fern fronds from Mary's fernery.

The show was opened by the Mayoress of Wangaratta, Val Gleeson, who was presented with a staghorn and mounting board by Gloria and Kevin Tinker.

A fern was raffled off every half hour with the tickets remaining live throughout the day, and the \$2 entrance fee included a cup of tea or coffee with biscuits.

Door receipts totalled \$454, the raffle contributed \$41 and Val Sidebottom who sold garden accessories donated \$15. Expenses were \$85 for the hire of the hall and \$38 miscellaneous expenses, giving a net profit of \$387. Many application forms for membership of the Society were handed out and hopefully some will bear fruit (or should one say spore). Some of the costs were covered by friendly arrangement between Mary and other local garden lovers.

The show was reasonably well attended by members from Melbourne and there was a good turnout of country members. Also in attendance were a number of locals who had been members of the Society and had dropped out because distance made it difficult for them to get full benefit from the Society, but who were still very interested in ferns. Bus loads of garden club members from surrounding towns helped swell the numbers.

At the conclusion of the day a rapid cooperative cleanup restored the hall to its pristine condition and allowed about 26 members to gather for tea at the Pinsent Hotel for an excellent meal and discussions on ferns, the Society and its members.

On the Sunday morning members gathered at the fernery in Merriwa Park gardens in the centre of Wangaratta. This area was established largely due to the work of the Wangaratta Garden Club. Although there is a good stand of tree ferns, unfortunately vandals and acquisitive fern growers have made frequent forays on the fernery and it is a constant battle to maintain a good display of ground ferns. A six-inch layer of lupin straw mulch had been recently laid to help control weeds and to nourish the ferns.

Garnet Frost led the way out to the Frost's home at Peechelba, where members had an opportunity to inspect Mary's excellent collection of ferns (all looking in very good condition), to purchase ferns at bargain prices and also buy some honey. After some refreshments Mary and Garnet led the way to Beechworth, where on Mary's advice the group descended upon the local pastry shop. The shop was a hive of activity with about 12 girls behind the counter trying to cope with a crowd three or four deep. The popularity of the shop was reflected in the quality of the pies, pasties and cakes in which the members indulged and would have over-indulged if not herded on by Mary.

After lunch the group travelled out to the old Wallaby gold mine which is located off the Stanley road. It was here that Mary found the variation of *Adiantum aethiopicum* described on page 30 of Chris Goudey's book "Maidenhair Ferns in Cultivation". The gold mine has been long abandoned but there are still the remains of a large shaft and ferns are flourishing within the protection of the collapsed shaft. The pine forests in the area had a bountiful supply of the red toadstools which Mary Frost said were edible, but no-one had enough confidence in Mary's assurances to ingest any. The very dry summer, with rains occurring only a fortnight prior to our visit, meant that there was not a good display of ferns. The *Adiantum aethiopicum* variant was not to be seen but *Cheilanthes austrotenuifolia* and *Pellaea falcata* were reappearing while *Dicksonia antarctica*, *Polystichum proliferum* and *Blechnum minus* flourished in the old mine shaft.

After a cuppa and a vote of thanks to Mary members dispersed to wend their own way home. On the way I encountered a relative in Myrtleford who had just collected two buckets full of orange-coloured mushrooms (tops and gills). She said they came from the pine forest and were the true pine mushrooms, which she ate regularly, and that the red coloured ones were poisonous and fit only to be admired.

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FORTHCOMING EVENTS

ANNUAL GENERAL MEETING & AUGUST GENERAL MEETING

Date: Thursday, 20th August.
Time: Pre-meeting Activities begin 7.30 p.m.
Venue: The National Herbarium, South Yarra.
Guest Speaker: Mr Rob Hall from Holmesglen College of TAFE.
Topic: Creating a Suburban Rainforest.

SEPTEMBER ACTIVITY:

There will not be a meeting in the Herbarium hall in September. A day trip to the Badger Creek area is planned instead, probably on Sunday, 20th September. Confirmation of the date and other advance information will be in the August Newsletter.

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SPEAKER REPORT - GENERAL MEETING - 18TH JUNE, 1992

Speaker: Kevin Handreck, CSIRO Division of Soils, Adelaide.

Subject: POTTING MIXES AND FERNS

Kevin began his talk with a review of the basic properties of potting mixes and then moved on to specific information about fern cultivation gained in a series of experiments he carried out some two years ago.

Components:

The main components used in the formulation of commercial potting mixes in Australia are pine bark, sand and sawdust. Materials such as peat, soil, perlite, vermiculite, scoria, brown coal, rice hulls, styrofoam, compost, etc. are used in smaller amounts. Mixes tend to vary between states depending on local abundance of the components.

Most mixes in Victoria consist primarily of pine bark and sand with sometimes a little peat or brown coal. Kevin regards pine bark as an excellent material for potting mixes as it breaks down only slowly and with beneficial effects. Sawdust is used a lot in mixes in N.S.W. and Queensland but it has the disadvantage of decomposing quickly and the bugs responsible use up a lot of the fertiliser nitrogen.

Physical Properties:

Both air and water must be present in the spaces between the solid particles of a potting mix if plants are to grow, and the size of the solid particles must be chosen so that air is present even when the mix is at its wettest, e.g. during winter or wet periods when evaporation is low. Plants roots are prone to rot if they stay in conditions where they do not have sufficient air.

The finer the average size of particles in the mix, the greater will be the proportion of water relative to air at the point of maximum wetness. A fine-textured mix might have 25% of the volume occupied by solids, 65% by water and only 10% by air. At the other end of the scale, a very coarse mix, such as that used for epiphytic orchids, might have the same 25% solids but with 45% water and 30% air. The proportion of air space will increase as the plant uses up the water.

It is important that we have some knowledge of the proportion of air in a mix at its point of maximum wetness. Kevin described a simple test to measure the property called "air-filled porosity", which is the percentage of air in the mix at the time it has just finished draining. Take a milk carton and cut four drainage holes in the bottom that can be sealed off by the fingers. Then fill it with potting mix to the height of the pots that will be used, following your normal potting technique, soak in water and allow to drain. This settles the mix as it would in a pot with a plant in it; watering from the top a few times is also desirable. Then soak the mix again in water just up to the top surface, close off the holes in the carton with your fingers and remove it from the bucket. Allow to drain completely over a container and measure the volume of drained water, which is equal to the volume of the air space now in the mix. The air-filled porosity is this volume calculated as a percentage of the total volume of mix.

Air-filled porosity levels in the range 15% to 25% give good performance with general potting mixes; a higher figure may be needed

for epiphytes. The balance between water and air is the important factor; there is no one right range or figure. As the percentage of air space increases, more frequent watering will be needed to prevent the roots being damaged by drying out. Kevin urged everyone to try the air-filled porosity test on their own potting mix; the information will be a valuable aid for either improvements now or, if the present mix works well, as a reference in possible future troubles.

The height of mix in a pot has a major influence on the average wetness of the mix. Just as a towel hung on a line dripping wet stays saturated much longer at the bottom, so too does the bottom part of the mix in a pot. The height of the saturated layer is constant for a given mix, irrespective of pot height. Hence in a shallow pot the proportion of the mix that is saturated is higher than for the same mix in a tall pot. A mix that performs well in a tall pot may need to be made more open for use in a shallow pot to avoid drowning the roots. Conversely, in a tall pot it may be desirable to make the mix a little finer to avoid the need for frequent watering. Note that the height of the pot is the only factor that counts; the diameter is of no significance. Squat pots can have an advantage for shallow-rooted plants that do not like their roots drying out, such as begonias.

Biological Properties:

Root rot and other problems can be caused or aggravated by the presence in the mix of disease-causing pathogens. Other factors that put the plant under stress, such as being too wet or too dry, level of salts too high, etc. will intensify the effect of the pathogens. Because of the danger from pathogens, it is important not to mix garden soils with good quality potting mix; if soil is used it should be pasteurised first. Most mixes sold now are soil-less.

There are many other organisms in potting mix which are either benign (neutral) in their effect on plants or positively beneficial. These latter either attack pathogens or do other things beneficial to the plant roots. One of the advantages of soil-less mixes is that some decomposition is continually going on and many of the fungi and bacteria causing the decomposition (especially those involved in the decomposition of pine bark) suppress the growth of pathogens.

In spite of the advantage just mentioned it is still important to work in a hygienic way to reduce contamination of the potting mix, e.g. clean garden soil from trowels and other tools, do not water with a hose nozzle that has been lying in soil without cleaning it, etc.

In response to a question about the possibility of getting legionnaire's disease from potting mix, Kevin advised that he did not consider it a factor to worry about, particularly in Victoria. No cases of infection have ever been reported from areas with cooler climates and the use of mixes containing bark could be a benefit.

Chemical Properties:

The main chemical property considered in potting mixes is the level of nutrients present. All plants need a range of essential elements. The "major" nutritional elements are nitrogen (N), phosphorus (P), potassium (K), sulphur (S), calcium (Ca) and magnesium (Mg). There are also a number of micro-nutrients, chiefly iron, copper, manganese, zinc, boron and molybdenum. The major elements are needed in greater quantities, especially nitrogen and potassium which most plants accumulate in the leaves in greater concentrations than other elements.

A typical leaf analysis would be something like 3% N (on dry weight), 3+% K, 0.4% P, 0.4% S, 0.5% Ca and 0.3% Mg.

All of these major elements are essential for plant growth. If any one of them is missing from the growing medium the plant will not grow, even if the others are present in abundance. There also has to be a balance in the quantities of these elements present and the optimum balance varies somewhat for different types of plants. This point is brought out below in Kevin's experiments with lime-loving ferns.

There is no need to worry too much about supplying the micro-nutrients. A potting mix formulated to meet the Australian Standard will contain sufficient of these for two to three years growth and most good mixes (i.e., not made to meet a price) will have plenty for normal use. The micronutrients are not flushed out of the mix by watering - except possibly boron, but this is present as a contaminant in most fertilisers and will be replenished through normal fertilising.

LIME-LOVING FERNS

A few years ago Kevin gave a talk to the Fern Society of South Australia and was asked his opinion on the practice of putting crushed oyster shells and limestone in the mix for ferns that were classed as needing basic (alkaline) conditions; the Society members said they could not grow these ferns well without the additives. They referred him to Barbara Joe Hoshizaki's book "Fern Growers Manual", which has a section on 'Limestone-loving ferns or ferns of basic soil (pH 7-8)'.

All this started a train of thought and experiment, as Kevin's experience with potting mixes had been that when pH rose above 6.5 many plants could not extract sufficient iron from the mix. Many lime-loving ferns come from habitats where they grow in pockets of humus amongst coral and other alkaline rocks. Kevin theorised that probably in a lot of these cases the actual growing medium was near neutral rather than alkaline because of the accumulation of organic material.

He set up an initial experiment with two ferns listed as not needing alkaline conditions (*Adiantum hispidulum* and *Asplenium bulbiferum*), one classed as needing a basic medium (*Adiantum raddianum* "Fragrans") and *Asplenium milnei*, which grows on Lord Howe Island in basic soils derived from corals. These were grown at pH levels of 5.4, 6.0 and 6.6 and two levels of iron concentration.

Most plants grew well at all pH levels, except that *Adiantum raddianum* started going yellow at pH 6.6 and the lower iron concentration, showing classical iron deficiency syndrome. But the so-called basic-loving ferns had grown well at the lower pH levels - so more experiments were called for. (In hindsight, Kevin realised that the basic-loving ferns had grown well because there was plenty of calcium in the mix which satisfied the ferns' need for it.)

The major experiment was then conducted using *Asplenium ceterach* and *A. scolopendrium*, which were said to prefer basic conditions, and *A. trichomanes* "Incisum" which was said to require acid conditions (various cultivars of *A. trichomanes* have a range of requirements). Five plants of each were grown in each section of the experiment. The variables investigated were (a) pH and (b) the ratio of calcium to magnesium in the mix (Ca/Mg ratio):

- (a) Media were prepared at pH 4.5 (very acid), pH 5.5 (moderately acid), pH 6.5 (slightly acid) and pH 7.5 (slightly alkaline).

- (b) At each of the pH levels five different Ca/Mg ratios were imposed by repeatedly leaching through the pots with solutions of calcium and magnesium nitrates in the appropriate ratios (ranging from all calcium with no magnesium to all magnesium with no calcium).

Initial levels of all other nutrients were adequate and the same for all plants. The plants were then grown for twelve months under carefully controlled watering and fertilising conditions. During the period ammonium-based fertilisers had to be used to avoid disturbing the calcium and magnesium concentrations. This caused a downward drift in pH which was corrected by additions of appropriate liming materials.

At the end of the growing period the plants were scored for visual quality by a member of the S.A. Fern Society and the results are summarised in the table below. The top score of 10 means that all five plants in a set were in excellent condition; a score of zero means that all plants died.

		Quality Score				
	Ca/Mg Ratio	pH	4.5	5.5	6.5	7.5
<i>Asplenium trichomanes</i> "Incisum"	lowest		9.6	7.0	5.6	0.2
			10.0	10.0	9.2	3.2
			9.6	8.9	7.6	4.8
	↓		10.0	9.6	8.3	7.6
	highest		10.0	10.0	8.4	6.4
<i>Asplenium ceterach</i>	lowest		2.8	1.0	0	0
			4.4	5.8	4.8	6.0
			4.6	8.0	7.6	7.2
	↓		5.0	9.0	8.8	9.0
	highest		6.0	10.0	10.0	10.0
<i>Asplenium scolopendrium</i>	lowest		4.0	7.2	0	0
			5.1	9.3	8.5	9.5
			5.8	10.0	10.0	9.2
	↓		7.0	10.0	10.0	10.0
	highest		4.5	8.0	7.8	7.2

With *Asplenium trichomanes* "Incisum" all plants were very good at pH 4.5 for all Ca/Mg ratios. Quality then deteriorated as the pH rose, particularly at the low calcium levels. At pH 7.5 and the lowest calcium level all but one of the plants were dead from iron deficiency. This is a true acid-loving plant and cannot be grown well at high pH; Ca/Mg ratio has only a minor effect. Presumably it has evolved under acid conditions and has not had to develop a mechanism for extracting iron from alkaline soils.

Asplenium ceterach showed lower scores at pH 4.5 and very low at the lowest Ca/Mg ratio (particularly at higher pH, where all plants died). Quality improved with rise in pH and especially with rise in Ca/Mg ratio. As long as enough calcium was present the plants were good even at the moderately acid pH 5.5.

Asplenium scolopendrium showed a similar pattern to *A. ceterach* with the notable exception that plant quality worsened at the highest Ca/Mg ratio; these plants were starting to suffer from magnesium deficiency.

Apart from this there was a large range where quality was excellent in the pH range 5.5 to 7.5.

Plants which grow in soils of higher pH have developed a mechanism for obtaining sufficient iron by excreting acids or chelating agents from their roots to dissolve the iron from the soil. Some have been found to increase the acidity by as much as two pH units in the vicinity of the roots.

Analysis of fronds from some of the healthy plants for calcium content showed:

<i>Asplenium trichomanes</i>	0.3 - 0.4%
" <i>ceterach</i>	0.5 - 0.7%
" <i>scolopendrium</i>	0.6 - 0.8%

All other elements checked were at relatively constant levels.

The conclusion derived from all the above is that there are ferns which favour basic conditions but that what these plants really need is plenty of calcium. It would thus seem possible to grow all ferns in a mix of pH 5.5 - 6.5 with the correct fertilisers. In practice, most fern nurserymen successfully use the one mix for all their plants.

Practical Applications:

It is clearly worthwhile to try to establish in advance what class the fern to be grown falls into. If it one classed as basic-loving, adding crushed shells or coarsely-crushed limestone to the mix is worthwhile, though not absolutely necessary if the right balance between limestone and dolomite is used in the first place.

Most of the fertilisers that will be used, particularly the Osmocote and Nutricote ranges and including most of the soluble fertilisers which are dissolved and applied as liquids, have a somewhat acidifying effect with continued use. In places like Adelaide which have hard water the effect is not serious, but where the water supply is relatively soft and pure, as it is in Melbourne, the pH will definitely trend down. An initial pH of 6.5 may drop to 4.5 in a year or so. Under these circumstances the addition of shells and coarse limestone with basic-loving ferns is definitely worthwhile to maintain pH and at the same time maintain the calcium content of the mix.

(The balance of Kevin's talk and the active question time which followed will be reported in the next edition of the Newsletter.)

At the conclusion of the talk our President Barry White thanked Kevin on behalf of the members present for an informative and stimulating evening and presented him with some Society glasses. Members supported his remarks with enthusiastic applause.

Kevin's experimental work on basic-loving ferns was described in more detail in an article in "Australian Horticulture" magazine which was reproduced in the November, 1991 Newsletter. It was also published with full scientific details in a paper in "Scientia Horticulturae", 50: 115-126 (1992). A copy of this is available on request.

Much information about potting mixes is given in a CSIRO booklet "Potting Mixes and the Care of Plants Growing in Them" which was also written by Kevin. It is readily available through bookshops or from CSIRO and a copy is in our Library..

SOMETHING TO THINK ABOUT

The following item from a Neighbourhood Watch bulletin was received some time ago. Now seems an appropriate time to publish it.

A Sad Loss

Neighbourhood Watch Area C33 was saddened to hear of the death this week of one of the area's most valuable members: Someone Else.

Someone's passing creates a vacancy that will be hard to fill.

Else has been with Area C33 since its beginning. He did far more than a normal person's share of the work. Whenever there was a job to be done, a social function to attend, funds to be raised or a meeting to attend, one name was on everyone's lips: "Let Someone Else do it".

It was common knowledge that Someone Else was among the largest contributors of his time to the area. Whenever there was a need for volunteers, everyone assumed Someone Else would be in it.

Someone Else was a wonderful person, sometimes appearing superhuman, but a person can only do so much. Were the truth known, everybody expected too much from Someone Else.

Now Someone Else's gone! We wonder what we are going to do.

Someone Else left a wonderful example to follow, but who is going to do the things Someone Else did?

When you are asked to help, remember: WE CAN'T DEPEND ON SOMEONE ELSE.

DON'T FORGET YOUR MEMBERSHIP RENEWAL

SPECIAL EFFORT WINNERS June General Meeting

Mavis Bryant

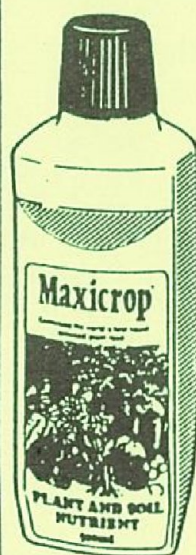
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* * * * *



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Opinions expressed in articles in this Newsletter are the personal views of the author and are not necessarily endorsed by the Society.

BUYERS' GUIDE TO NURSERIES

VICTORIA:

Andrew's Fern Nursery - Wholesale and Retail.
Melbourne Road, Arcadia, 3613. Ph: (058) 26 7285.
Large range of ferns for beginners and collectors.
Open daily 10 am - 5 pm except Christmas Day.

Austral Ferns - Wholesale Propagators. Ph: (050) 82 3084.
Specialising in supplying retail nurseries with a wide range of hardy ferns; no tubes.

Dingley Fern Market - Wholesale and Retail. Ph: (03) 551 1868.
233 Centre Dandenong Road, Dingley, 3172.
Specialising in Ferns, Palms, Indoor Plants, Orchids and Carnivorous Plants. Open daily except Christmas Day.

Fern Acres Nursery - Retail.
Kinglake West, 3757. Ph: (057) 86 5481.
(On main road, opposite Kinglake West Primary School).
Specialising in Stags, Elks and Bird's-nest Ferns.

Fern Glen - Wholesale and Retail. Visitors welcome.
D. & I. Forte, Garfield North, 3814. Ph: (056) 29 2375.

R. & M. Fletcher's Fern Nursery - Retail.
62 Walker Road, Seville, 3139. Ph: (059) 64 4680.
(Look for sign on Warburton Highway, 300m east of Seville shopping centre). Closed Tuesday, except on public holidays.

Ridge Road Fernery - Wholesale and Retail.
Weeaprounah, 3237. Ph: (052) 35 9383.
Specialising in Otway native ferns.

Viewhaven Nursery - Wholesale and Retail.
Avon Road, Avonsleigh (near Emerald), 3782. Ph: (059) 68 4282
Specialists in Stags, Elks, Bird's-nests and Native Orchids.

NEW SOUTH WALES:

Jim & Beryl Geekie Fern Nursery - Retail. By appointment.
6 Nelson Street, Thornleigh, 2120. Ph: (02) 484 2684.

Kanerley Fern Exhibition and Nursery - Wholesale and Retail.
204 Hinton Road, Nelsons Plains, via Raymond Terrace, 2324.
Ph: (049) 87 2781. Closed Thursdays and Saturdays.
Groups of more than 10 must book in advance, please.

Marley's Ferns - Retail.
5 Seaview Street, Mt. Kuring-gai, 2080. Ph: (02) 457 9168.

QUEENSLAND:

Moran's Highway Nursery - Wholesale and Retail.
Bruce Highway, Woombye (1 km north of Big Pineapple; turn right into Kiel Mountain Road). P.O. Box 47, Woombye, 4559. Ph: (074) 42 1613.