

**THE
FERN SOCIETY
OF
VICTORIA**

Inc.

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NEWSLETTER

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Meetings are held on the third Thursday of each month except December and January at Victoria Bowling Club, 217 Grattan Street, Carlton. Melways 2B D8.

OUR SOCIETY'S OBJECTIVES.

The objectives of the Society are;

- *to bring together persons interested in ferns and allied plants
- *to promote the gathering and dissemination of information about ferns
- *to stimulate public interest in ferns and
- *to promote the conservation of ferns and their habitats.

FROM OUR PRESIDENT...

Greetings and salutations! I hope that you have been coping with the rigours of our Summer better than I have. The quantities of water I have drunk some days would suggest that the amount I have perspired would measure in the litres (Though the thought of measuring litres of perspiration is somewhat sickening!) Needless to say, a cold shower at the end of the day has been an eagerly anticipated event.

HELP!!

Now that I have your undivided attention, I would like to make a desperate plea

*for your assistance at our **annual show**. It is being held in conjunction with the Vireya Rhododendron Show again this year and is a most enjoyable event. BUT we do need your help to ensure that the weekend runs smoothly. We need your ferns for the display and competitions, we need your ferns for sale (but make sure you contact Bernadette ahead of time if you wish to bring plants to sell), we need help to set up on the Friday afternoon, we need help with all aspects of running the show over the weekend and especially with packing up at the end of the day on Sunday. We need your help in promoting the show (see leaflet enclosed in this newsletter) and we need you to come.*

(Continued on page 20)

1999 MEETINGS & EVENTS

General Meeting - Thursday 18th March at 8.00 p.m.



Fern Memorabilia

with *Mary Kenealy*

Mary and Reg are keen historians and collectors of antiques. They have access to some fascinating diaries and accounts of plant collecting expeditions in and around the Marysville area in its early days as well as many beautiful items which have been decorated with ferns and fern motifs.



Five-minute Fern Talk: Barry White.
Competition: A Deciduous Fern.



Show - Saturday 27th and Sunday 28th March

The Great Victorian Fern Show!!

Mount Waverley Community Centre

Competition: Lots of choices! See article (p 25) & Ian's column (p 18).



General Meeting - Thursday 15th April at 8.00 p.m.

Looking After Your New Fern.

A discussion chaired by Bill Taylor.

Five-minute Fern Talk: Dorothy
Competition: Deciduous Ferns.



and coming up in the near future.....

- ⇒ *The Fernery Crawl on May 2nd.*
- ⇒ *a new meeting venue*
- ⇒ *"Flora of Australia" books.*

GENERAL MEETING TIMETABLE:

7.30	Pre-meeting activities - Sale of ferns, spore, books, merchandise and Special Effort tickets. Also library loans.
8.00	General Meeting.
8.15	Workshops and demonstrations.
9.15	Fern identification and pathology, Special Effort draw.
9.45	Supper.
10.00	Close.

VENUE: Victoria Bowling Club, 217 Grattan Street, Carlton.

... FROM OUR PRESIDENT

(Continued from page 18)

Those assisting on the weekend will be admitted free but, even if you can't help, please come and bring some friends - the displays of ferns and the tropical Vireyas are really worth seeing.



A few items from the Committee:

- 1 A **Fernery Crawl** visiting the Barretts, Whites, Harrisons and Fullers has been organised for Sunday 22nd May starting at 12.00 midday. Bring a **picnic lunch** and come to see how other people get their ferns to flourish, enjoy some fantastic company and share the knowledge and enjoyment of ferns. Further details elsewhere in the newsletter.
- 2 We will be losing the use of our **meeting venue** at the Victoria Bowls Club - possibly as soon as the May meeting. We are urgently looking into other possibilities and hope to find a venue in a reasonably central location. There is a possibility that we will end up using the Kevin Heinze Garden Centre at least as an interim measure. Details of the venue for our May meeting will be in the next

newsletter.

- 3 Because of time constraints and the urgent need to arrange a new venue, we have decided that our **20th anniversary** celebrations this year would be even better if they were 21st anniversary celebrations **next year**. We will be starting to make arrangements over the next few months.
- 4 We have received a couple of terrific entries for the **cover competition** and an entry for the **logo competition** that shows promise but hasn't reduced as well as we would have liked so we are still working on it.
- 5 **Please** remember to fill in the **questionnaire** in the last newsletter and return it to any of our committee or bring it to the next meeting. Even if you only wish to respond to a few questions, it will be a big help to us.

There has been a change made for our March meeting. Terry Turney will be returning from London on the day of the meeting and seemed to think that giving us a talk on fern names that evening would make their names even more unintelligible than most people already think them. Mary (& Reg) Kenealy have agreed to give us a presentation on their fern memorabilia instead, which will be a different and interesting talk. Plan to be there. The competition category is a deciduous fern.

At our April meeting (the first after the show) Bill Taylor will chair a discussion on caring for your new ferns and the competition will be Adiantums. ***



MONTHLY COMPETITION WINNERS FOR FEBRUARY

A New Zealand fern

1. Ian Broughton's *Asplenium polyodon* (Mare's-tail Fern).
2. Ian Broughton's *Polystichum richardii*.
3. Who Brought 'im? (Sorry Ian, I missed it).

Exhibitors' Draw; Dick Kissane.

Special Effort Winners; Natalie, Jean Boucher, Joy Horman × 2. ***

Speaker Report - November 1998 General Meeting.

THE FAMILY "DAVALLIACEAE"

Davallia and Related Ferns

Terry Turney.

Davallia

The genus *Davallia* was named by J.E. Smith in 1793, in honour of either Swiss botanist, Davali or of English botanist, Edmond Davall.

There have been a couple of attempts at classifying Davalliaceae, the first in 1908 and 1927 by Edwin Copeland, (who was very famous for the work he did on ferns of the Philippines, many of which are extinct now) and the most recent by Nootboom.

There are two kinds of botanists; Lumpers and Splitters. The Lumpers lump sometimes quite diverse groups of plants together into large families, while the Splitters tend to read great significance in every tiny detail of a plant and end up with a great many families.

Copeland ended up with

- Araiostegia
- Leucostegia
- Davallodes
- Trogostolon
- Davallia
- Scyphularia
- Humata
- Parasorus

He also included

- Nephrolepis
- Oleandra and

Arthropteris, which are quite different to the ferns we recognise as Davalliaceae today. He was a splitter.

Over the years people have taken many of them out, based on the shape of indusia etc. but left the rest of Copeland's in.

Nootboom's list in 1992-4 included;

- Gymnogrammitis (1 species)
- Leucostegia (2)
- Davallodes (7) and
- Davallia (34+). He's a Lumper.

It's difficult to say whether one's right or the other's right. If you want to describe a fern eg. *Davallia* as being unique, it's got to have a series of characteristics in a combination that no other has. Now if you find another type of fern that's got that series of characteristics then you've got a problem - there's something wrong with the way you've described it, or you'll have to include the other fern. It causes endless problems. A classic case is that of *Davallia* and *Humata* which are exactly the same in the way we describe them so according to that, and the fact that there are intermediates between them, they should be members of the same genus. You can't put

them in one thing or the other so you really can't distinguish between them. This means that quite a few of the name changes that keep on occurring in scientific circles will occur again here in Davalliaceae

At present the family Davalliaceae contains 44+ species + many more varieties & cultivars (Nootboom, 1994).

They are commonly known as "squirrel's-foot" or "hare's-foot" ferns and are characterised by;

Long creeping rhizomes which are densely covered in scales.

Leathery textured fronds, which are usually 3-5 pinnate.

Marginal indusium which are attached across the base and up both sides to form a cup shape.

Usually epiphytes.

Habit and Habitat

They are often easily grown in baskets or pots. Some species are very hardy (*D. canariensis*), others quite tropical.

They're mainly epiphytic (growing on trees) though you often find them on boulders as well. *D. denticulata* and *D. leucostegia* live in the ground. Sometimes the rhizomes are aerial (In *D. pyxidata* they grow upwards into the air).

They live in the tropics of the Old World, mainly in Asia but also extend south to the sub-Antarctic. They are not found in South America or North America. They live on the edges of the rainforest, along streams, on cliffs. *D. tasmanii* lives near the sea.

Fronds are often deciduous (*D. denticulata*, *D. hymenophylloides*, *D. pulchra*, *D. trichomanoides*).

History, Migration and Development.

D. canariensis is from the Canary Islands and Spain. *D. denticulata* is found all through Africa and right across into the islands of the Pacific. It's quite interesting to look at the way the distribution goes out from west to east, which is the direction of the prevailing wind as the earth rotates. Obviously the spores have been blown across in that direction. Probably *D. denticulata* or its possible forebear originated in Africa and was blown all the way across to the Pacific. It may have been the original type of *Davallia* and the other ones have been

derived from it, with the exception of *D. canariensis*.

Q. Is it not possible that it could have been around before the continental drift?

Terry. Yes, it could also have happened like that but the drift wasn't straight out east like that, but quite different. We were joined with Africa but also with Antarctica and so was South America.

Q. But maybe the cold climatic conditions wiped it out in the southern states.

T. Well, why isn't it found in South America? If we were joined with Africa and South America at the same time it should have been around in all three continents.

I suspect it's fairly recent. It may only be five or ten million years old. I haven't actually looked at the fossil history of *Davallia*, but you can see the same type of distribution for the other *Davallia* species). You find most of the species in Asia - around Indonesia, Sumatra, the Philippines (or they were found there). A couple of them are really isolated like *D. speciosa* and *D. tasmanii*. One goes right down into Victoria and up into the Pacific. One interesting fact is that *D. repens* is found right down near the Antarctic and it also grows in northern Australia as a tropical fern. It's found in a whole range of different varieties. It looks as though *D. repens* is not just a single species but may actually be a complex of species which are closely related.

It's interesting that there's only one *Davallia* found in New Zealand, *D. tasmanii*.

Chris. I think that it might be an escape from someone's garden and not native. We know a chap right up in the northern tip of New Zealand who's got a huge patch spreading vigorously in his garden, near a forest.

T. What I can't understand is how *D. canariensis* got up into Spain from the Canary Islands. (It really is most distinct, with its great big thick rhizomes. It is usually terrestrial.)

Chris Once there was no sea where the Mediterranean now is, in fact all that region was dry, including off the coast of Africa, where the Canary Islands are, so that was joined, too.

T. Maybe it went up in that direction but the *Davallias* are no longer in northern Africa because that's the Sahara Desert.

(**Chris.** There was a time when there were elephants in Malta, too. **T.** Is that right?!)

Davallias in Australia.

There are four species known in Australia, one with two varieties;

- *D. denticulata*
N.E. Qld, also in tropical Asia and Polynesia
Very easily grown but frost tender.
- *D. pectinata*
Far Nth Qld, also from Burma to Polynesia
Very slow to establish and grow, needs heat.
- *D. repens*
Qld, south to Bundaberg, India, Asia, Mascarenes, Japan. Slow growing, needs heat.
- *D. solida* var. *solida*

N.E. Qld, also Malesia and Polynesia

Very easily grown, needs a heated glasshouse in Victoria.

- *D. solida* var. *Pyxidata*
Endemic to Qld, NSW and Vic. (Grampians)
Very easily grown and hardy.

Differences Within the Davalliaceae

Genera

It is often quite difficult to distinguish between the *Davallia* species as many of them look very similar - and they hybridise easily. Keying them out is nigh on impossible to anyone who is not extremely familiar with them.

Important differences are in:

Scales and hairs

shape of scales?

presence of hairs?

Indusium

present? (Is in all but one species)

indusium attached at base or along the sides?

Leaf shape

thick or thin texture?

broadest at base?

arrangement of pinnules?

Rhizome

thick or thin?

how scales attached?

Leucostegia

- Large (up to 2m long), attractive, finely dissected ferns (5-pinnate).
- Roots on all sides of rhizome, which indicate that it grows underground.
- Indusium reniform
- Pinnules anadromous
- Habitat on trees, rocks and in humus-rich soil
- Need good drainage in basket or pot. Prefers warmth.
- 2 species only
 - *L. immersa* -
India, Thailand, China, Malesia
Indusium attached by base only with scales + hairs.
 - *L. pallida* -
Malesia, Pacific
Indusium attached by sides & base with scales + no hairs.

Gymnogrammitis

- Single species, *G. dareiformis*
- Used to be put with *Ariostegia* sometimes
- Found in Himalayas, China, Indo-China
- Grows as an epiphyte in mountains
- Doesn't have an indusium (the only genus which doesn't)
- Spores quite distinct in shape (clavate, baculate)
- Scales quite distinct in shape (cau/ordate - lanceolate)

Davallodes

- Strongly dissected leaves, catadromous leaves narrowed at base
- Long, thin scales on rhizome and hairs on leaf
- Indusium often pouch-shaped
- Habitat - mostly epiphytic
- 7 species -
 - D. borneense* - Malesia.
 - D. hirsutum* - Malesia, Philippines. Grown in cultivation.
 - D. membranulosum* - India, S.E. Asia, China.
 - D. novoguineense* - PNG (1 collected only).
 - D. seramense* - Ceram, one of the islands in Indonesia. Finely dissected.
 - D. urceolatum* - Sumatra (2 collected only).
 - D. viscidulum* - Indonesia.

Very attractive basket fern which needs humid, airy conditions.

Relationships within the Genus *Davallia*

- ◊ **With *Humata***
 - *Davallia* - larger and indusium attached by sides + base
 - *Humata* - smaller and indusium attached by base only
 - But not in *H. heterophylla* & *H. griffithiana*
- ◊ **With *Scyphularia***
 - *Davallia* - often 3- or more divided pinnules
 - *Scyphularia* - undivided pinnules + black acicular scales
 - But - *D. falcinella* has acicular scales
- ◊ **With *Araiostegia***
 - *Araiostegia* - v. finely divided pinnules + indusium attached at base only
 - + cordate scales on small stalk
- ◊ **With *Trogostolon***
 - *Trogostolon* - acicular scales

The differences are so unsatisfactory and inconsistent that they have now all been incorporated into the genus *Davallia*.

Cultivation of Davalliaceae

- ◆ Most are very easy to grow
- ◆ Need very good drainage
- ◆ Are best underpotted - small root system
- ◆ Don't overwater in winter - rot easily
- ◆ Replace old mix - some resent disturbance (*D. repens*, *Davallodes hirsutum*)
- ◆ Prefer warmth, air movement and humidity
- ◆ Most are tropical - require heat in Victoria
- ◆ Some very hardy (*D. canariensis*, *D. pyxidata*, *D. trichomanoides* var. *bullata* and *mariesii*)

- ◆ Propagate from spore - rather slow growing Usually from cuttings

Scales in *Davalliaceae*

- ◆ Peltate scales
 - with curly hairs on edges (*D. canariensis*, *D. solida*, *D. corniculata*, *D. pentaphylla* etc.)
- ◆ Cor/audate scales
 - short with teeth on edges (*D. divaricata*, *D. embolstegia* etc.)
 - long with teeth on edges (*D. trichomanoides*, *D. heterophylla*, *D. denticulata*, *D. pentaphylla*)
- ◆ Acicular scales
 - (all *Davallodes* sp., *D. falcinella*)

Leaf Shape in *Davalliaceae*

- ◆ Simple (*D. simplicifolia*, *D. heterophylla* etc.) to 4- or 5-pinnate (*Leucostegia* sp., *D. falcinella* etc.)
- ◆ Frond shape usually deltoid except in *Davallodes* sp.
- ◆ Pinnules
 - Anadromous in *Davallia*, *Leucostegia*, *Gymnogrammitis*
 - Catadromous in *Davallodes*
 - Size can vary from 1cm (*D. repens*) to 1.2m (*L. pallida*)
- ◆ *D. solida* and *D. repens* vary very greatly in frond shape.

Indusia in *Davalliaceae*

Differences in attachment

- ◊ Only at base - reniform to cordate (*Humata* and *Ariostegia*)
- ◊ At base and partly up the side (*D. griffithiana*, *D. corniculata*, *D. falcinella* etc.)
- ◊ At base and completely up the side (*D. canariensis*, *D. solida* and most others)

Davallia solida

Varieties and Cultivars

Three recognised varieties + many cultivars.

Davallia Species

(As reported by Nooteboom)

- catadromous = having the first pinnule or vein pointing towards the rhizome
- anadromous = having the first pinnule or vein pointing towards the top of the fern

A very fine and interesting lesson was enjoyed by all members present. Thanks, Terry, for your thorough research and preparation for the night.

Speaker Report from October 1998's meeting
Multicrop Garden Products.
 Milton Dyer



Multicrop has been in business since 1971 and Milton has been with them for the past 15 years. He told us about some of Multicrop's new products, which we all found informative and helpful.

MAXICROP

Maxicrop was the first liquid seaweed plant food to ever be developed anywhere in the world, and Multicrop's first product. A particularly 'soft' seaweed variety from Norway is used to make Maxicrop. It can be processed using heat and pressure rather than harsh chemicals. Using this process, most of the nutrients it contains are made available to plants.

There are small amounts of about 60 trace elements occurring naturally in the seaweed Maxicrop use so any plants which are deficient in any of these will 'get a bit of a pickup' when it is applied. A bit like a botanical vitamin pill, but without the risk of overdose! This is why it is so suitable for our ferns.

Recently Multicrop have added some chemical nutrients to Maxicrop - trace elements, Nitrogen, Potassium and Phosphorus - so the product has now become more of an all-round plant food. Itb now gives plants all their basic needs for strong, healthy growth with resistance to disease, insects and other pests such as fungi. It is suitable for all the plants in our gardens. The one with the green label is the new one referred to. It is also the one featured on the new advertisement in our newsletter. Milton had a sample bottle for each of us to take home and try.

Multicrop calls all their range of seaweed fertilisers 'Maxicrop', but there are different analyses on the back of the packaging.

MULTIGUARD Snail and Slug Pellets

This is another new product. Multicrop try and work toward having environmentally safe products. Despite for years being asked about a snail killer by nurserymen, Multicrop were not interested, refusing to handle any of the really bad poisons. Then a professor from Melbourne University developed an environmentally friendly snail killer containing iron for them, and trials show just how safe and effective it is.

Safe for Pets...

Unlike all other snail killers on the market in Australia, Multiguard does not carry poison warnings on the pack - because it is effectively safe for dogs. Seven grams of Baysol or 150 g of Defender will kill a 10 kg dog whereas it would take at least 8 kg of Multiguard, which is impossible for a 10 kg dog to eat.

...But Not For Pests!

Trials show that this new product kills snails faster and kills more snails than any other product. In one trial against Baysol, (12 seedlings planted per day for 4 days) more Multiguard seedlings were eaten in the first day but by day 4 Multiguard was well ahead in performance!

Day 1	12 seedlings	Baysol 4,	Multiguard 5 eaten.
Day 2	24 seedlings	Baysol 17,	Multiguard 5 eaten.
Day 4	48 seedlings	Baysol 42,	Multiguard 7 eaten.

The slowly dying snails were still eating as they died but because of the quick killing time, only 2 Multiguard seedlings were touched after the first day. The snails were also laying eggs as they died so a quick death means less of the next generation to contend with. I suppose you knew that a snail lays about 500 eggs in a season? I didn't.

Also, unlike the other snail killers on the market, it will not harm earthworms, ladybirds, or birds, lizards etc which eat the dead snails. The reason, it is thought, is that snails, slugs and slaters (the three things this product kills) are blue blooded (which shoots down the Royal Theory!) and most other creatures on earth have red (haemoglobin) blood.

Though it has been available to home gardeners for six months or more, it is not yet commercially registered, which means it can't be supplied to growers except on a trial basis. Once that happens it will go worldwide and should take the world by storm as it is truly the snail killer of the future.

*Milton recommends that up to ten days before planting out seedlings, the prepared garden bed should be treated with snail pellets to reduce the population of hungry mouths before the food arrives.

*Multiguard costs less than other snail and slug pellets, the price dropping since they were first put on the market partly because it wasn't selling and partly because the amount of active ingredient needed has been found to be much less than was first thought.

*The problem of bran based pellets going mouldy and encouraging such problems as botritis as they break down in the humid atmosphere of a fernery was raised by both Chris and Ian and Milton answered that though no tests have been carried out regarding this problem, snails have been found to continue eating the product even once it is soft and breaking down whereas this doesn't happen with the other brands. I presume he's talking about next door's snails that have been lured in by the cuisine by that time, as most of our own would be dead by then.

*The RSPCA estimates that of dog deaths due to poisoning, about 10% are deliberate so even though it is a horrible way to die, obviously some people are looking

IV'S SHOWTIME! OUR FERN SHOW 1999



By the time you receive this newsletter the Fern (and Vireya) Show will be only a few weeks away and I hope that you have been

busy selecting and grooming ferns for the Show.

The eight competition sections are listed in the Jan - Feb newsletter and you will have noticed that there are three new sections;

- * Fern with crested fronds or rhizome
- * Fern with a colour other than green
- * Fern arrangement (1 fern and two non-fern plants)

Please give consideration to entering these and also the other sections.

Please ensure that your ferns are correctly labelled with their botanical and common names. Also include some means of identifying the owner which will assist in the safe return of your ferns.

Setting up will commence at 12.00 noon on Friday 26th March and we should be able to begin accepting ferns for the competition, display and sales by 2.00 p.m. If you would like to bring in ferns after 6.00 p.m. or early Saturday morning, please contact Don Fuller (9306 5570).

We also need people to help with the Show, especially people to do demonstrations, help with the light refreshments and people to assist in setting up the display.

The admission charge to the Show is \$3 and \$2 concession. However those who contribute to the competition or display, or act in an official capacity for a day will be admitted free.

Those wishing to sell ferns are reminded that they must contribute to the competition and/or display and that they need to obtain a "book-in" form from Bernadette Thomson (9399 1587).



The Show is a very important function for our Society so we therefore seek the full support of our members. Please publicize it wherever possible and come along and contribute to it. Included with this newsletter are two flyers which you can use to promote the Show in your area. Additional flyers can be obtained from Don Fuller (9306 5570) or at the March meeting. Please arrange to have them displayed in public places (eg., garden centres, libraries and noticeboards).

See you at the Show!!

Don Fuller



for the 'other' snail killers. Absolutely not recommended!

Pyrethrum Long-Life.

This is another new product developed by the same scientist. It is made from the Pyrethrum daisy and is a natural spray.

The problem with natural pyrethrum sprays until now has been that within a few hours of being applied to the garden, the UV rays from the sun have broken down the pyrethrum, rendering it ineffective. At best, they were effective for only a few days.

Multicrop's Pyrethrum Long-Life will last for 20 days because it is protected by a 'sunscreen' (or at least that is a simple explanation of the effect, rather than the process), remaining active for that long. It is triple the strength of the normal pyrethrum sold, so it will now kill earwigs and ants.

For Clay Soils

Two litres of Clay Breaker is the equivalent of about eighty kilos of gypsum - and is an awful lot lighter and a lot easier to use. It will break up your clay, giving it better penetration and better aeration of the soil.

A big advantage of this product is that it doesn't need to be dug in - is just watered onto the surface. This means that it can be applied to an established lawn or garden bed.

Clay Breaker is effective for the depth to which it penetrates so it is a good idea to apply it after good rains, when it will go down further through the damp soil. If applied at the recommended coverage, one application will usually be enough, though if the soil is still a bit hard, a further treatment can be applied a bit later on.

A molecule of clay is about 200 times smaller than a molecule of sand. Each molecule carries a small negative or positive electrical charge. Clay Breaker can be described as an ion exchange resin. It alters the electrical activity in heavy clay soil so that the fine particles clump together, forming bigger particles which then allow the air water etc. to flow through between them. The soil has become 'lighter'.

This treatment is said to last for about four years, though the information on the packaging guarantees it for only one year. Maxicrop is deliberately conservative in its claims.

For Sandy Soils.

Maxicrop recommends two of their products for sandy soil; Deep Watering Granules and Liquid Soil Wetter. It is important for us to understand just how these and similar products work, so they can be used efficiently.

Sometimes if a potplant has dried out the potting mix then repels water and it can also shrink away from the pot, leaving a gap. When you water it, you think you have done a thorough job but in fact the water has run across the surface of the potting mix, down the gap and away. If you were to examine it, you would find that

most of the potting mix around the roots was dry. Some potting mixes and all sandy soils are prone to drying out and are very hard to re-wet. Both these products allow them to re-wet easily.

The recommended way of using the liquid product is to mix it with water at the recommended rate in a rubbish bin and immerse the pot until the medium is underwater. When bubbles no longer rise from the medium it is saturated and can be lifted out. For the next six to twelve months that potting mix or sand will completely wet when it is watered.

It also helps the water hold in that soil because the evaporation rate is slowed down. You can actually cut your watering rate down, though do so with caution because as a general rule most people under-water.

Milton was asked whether the solution could be used to moisten potting medium before it goes into the pots, to which he replied that it could be, though Deep Watering Granules would be the best option.

Multicrop's granules contain core fibre which holds about 80% of the two types of wetting agents used (different wetting agents suit different soils and potting mixes) against about 30% of a competitor's. This means you need to use much less, and Maxicrop Deep Watering Granules are cheaper to buy anyway, so they mean a significant saving all round.

Lawn Rejuvenator

Lawn Rejuvenator contains Maxicrop, Clay Breaker and Nitrogen. The Maxicrop seaweed works on the lawn's root zone, the Clay Breaker breaks up any hard and compacted soil and the Nitrogen greens up the lawn. It promotes growth (which can mean more frequent mowing) at any time of the year that the lawn is growing at all and in summer it keeps the root zone moist for longer so less frequent watering is needed.

As we have heard many speakers say, if you get your plants' roots healthy and vigorous then the plants will be healthy and vigorous, too.

Scat Pest Repellent.

This powder is a pest repellent which repels possums, blackbirds, rabbits etc. by tasting repulsive and in the case of birds tossing mulch around or eating fruit, stinging their eyes (It is temporary and harmless, but very irritating to them). It also emits a smell which possums don't like, though is probably not strong enough to offend dogs and cats.

The powder is mixed with hot water, allowed to cool and sprayed over your roses, mulch, fruit and anywhere else you have animal or bird pests. It will stop them damaging anything that is treated. It takes persistence though because a bird or animal is generally looking for food if it is pecking, scratching or biting things in the garden and these animals have to encounter a repulsive taste long and consistently enough to become convinced that what was once food, now isn't.

Fruit which has been sprayed with Scat can be

(Continued on page 27)



FERNERY CRAWL

Sunday 2nd May, 1999 from 12 noon.

Meet at Jack Barretts, 7 Charles Street, Ascot Vale. Melways map 28, F10.

Lunch at Barry Whites, 24 Ruby Street, West Essendon

Please BYO picnic lunch & there will be some barbecue facilities available.
Tea & coffee will be provided.

On to Fran & Ray Harrisons, 4 Croft Street, Essendon

Afternoon tea at Margaret & Don Fullers, 21 Summit Avenue, Oak Park. We would appreciate a plate of goodies to share. Tea & coffee provided.

All members welcome!

Contact person is Barry White, 9337 9793.



leaf curl blackbird snails Buisson aphids slugs shrip sheavy clay possums drys omelets slaters blacks o prabbis

(Continued from page 26)

washed and eaten the next day. It has a withholding period of one day. All Multicrop products are either organic or very low toxic - this is one of the low toxic ones. It lasts on sprayed surfaces for about 14 weeks but can be washed off immediately any time. If your garden has a heavy downpour of rain you will need to reapply it.

Keep Off Dog and Cat Repellent.

Based on natural, aromatic oils, this one is quite pleasant to humans but dogs and cats do not like it at all. If, after you have applied it your (or the neighbour's) pet is doing its business or urinating in that spot, you'll know it's working - they're using any trick they know to overcome the smell of the repellent. It only lasts for four days so you must be sure to re-apply it frequently so the animal's habit is finally broken, whether it has persisted in using a certain spot in your garden to bury bones, defaecate or sleep.

It is only applied sparingly, but multiple applications are necessary. If it doesn't seem to be working there are a few strategies Multicrop can recommend, such as hosing down the area to try and remove the animal's smell before applying Keep Off.

Once again, the product is mixed with hot water to

make up the spray.

One-Wrap Plant Ties.

Made of double-sided 'velcro', this plant tie comes in a strip (a 25 metre length is available commercially) which you cut up to the lengths you need. It will last for years, is exceptionally strong, can be used time and time again and is much easier to fasten and untie than stockings!

Cocide Fungicide

Cocide is a copper fungicide for leaf curl, black spot etc. on peaches or roses. It uses the same chemical as Bordeaux but without the problems of the sprayer blocking because it is ten times finer. Because the spray is a very fine mist rather than blobs, it covers the leaf thoroughly and actually uses less of the product to do a better job.

Another thing is that it has a longer 'shed' life. Bordeaux does not store well from one season to the next. You would not notice any difference but if any moisture has got into it it will have gone off. Cocide will not because it has no lime in it.

One pack of two sachets makes ten litres. 🍷

PARADISE REVISITED.

Paradise Falls is located on a tributary of the King River about 7 kilometres from Whitfield in N.E. Victoria. The way is well sign posted and it is also well worth a visit if just to look at the spectacular cave.

The Society visited it a number of years back and among the ferns noted were *Sticherus tener* and some large clumps of *Todea barbara*. Both of these ferns were not present on later visits. The *Sticherus tener* may have died off but the disappearance of large clumps of *Todea barbara* must have required human intervention.

In October 98 I visited the falls again to see how the area had responded to good winter rains after an extremely dry period.

Usually there is only a slim flow of water over the falls but this time the flow was good, and there was lush growth of many ferns. Even the bracken (*Pteridium esculentum*) looked impressive with the mass of young green fronds and there were large swards of fresh *Adiantum aethiopicum*.

The ferns noted in the area below the falls were:

Cheilanthes austrotenuifolia,
Pteridium esculentum,
Doodia media,



Asplenium flabellifolium
 Necklace Fern

Pteris tremula,
Adiantum aethiopicum,
Asplenium flabellifolium,
Pellaea falcata,
Polystichum proliferum and
Calochlaena dubia.

There was one large patch of very attractive *Doodia media* with marked reddish colouring of the fronds.

I had not previously looked at the area above the falls but did so on this occasion. The terrain is quite different with a slow flowing stream through scrubby woodland. In this area there were hundreds of dead plants of *Blechnum nudum* lining the banks of the creeks, with just four or five plants showing any signs of regeneration. There were also patches of dead *Gleichenia dicarpa* and dead *Sticherus urceolatus* (a new species only recently split off from *Sticherus tener*). The long dry period had obviously had severe effects on this area. A few live pieces of *Calochlaena dubia* and *Pteris tremula* were noted and eventually two small pieces of live *Sticherus*, and just over the edge to the falls a patch of live *Gleichenia*. It will be interesting to see how well this section re-establishes itself.

Despite a long search there was no sign of any *Todea barbara*.

Barry White



Doodia media
 Common Rasp Fern.

From Here and There.....

Willow Roots.

I have been intrigued by a notice which pops up in South Australia's Fern Society newsletter about once a year (it seems) announcing details about an excursion to gather willow roots.

At last all has been revealed. I came across an old issue of their newsletter in which Betty Weaving explains their use to her. The article reads:

"As I have had many inquiries from interstate and overseas members as to why we gather willow roots, I'll tell you how I use them. I would guess that only approximately 25% of our members use them, only because of lack of knowledge.

"I have great success with ferns growing in baskets lined with willow roots; first put them to soak for several hours in a bucket. I add 1 teaspoon of Phostrogen to 2 gallons (9 litres) of water, but fish emulsion or any fertilizer would do. The roots are much easier to work with when soaked and will mould to the shape of the basket. Make sure to roll it over the top wire of the basket to prevent the fronds or the rhizomes being damaged by the wire.

"Another way I use them is to put them in the sun to dry until brittle and then crumble into potting mix used for basketing.

"I'm sure you will have success if you use these natural resources besides saving lots of money".

(Good one!! So often now these 'natural resources' are choking our waterways and damaging the environment. I always enjoy making use of a 'pest'. If you can get onto your local Landcare group when they are clearing rivers or creeks of willows, you might be able to save the hard work of harvesting them, too!

Just last week I was at a basketmaking session in our local creek (we're still having a drought) and noticed the thick mat of roots around the willows there. I understood for the first time how they could be used just like a commercial basket liner. Sometime when the weather is a bit cooler and I'm feeling particularly energetic I'll have a go.... -Lyn ***

Contact Lenses and Insecticides Don't Mix.

Contact lenses can be a hazard when working with insecticides etc., because lenses can absorb chemical fumes and prolonged contact with the eye surface can cause irritation of the eye tissue. Irritants can also be trapped between the lens and eye surfaces. Removing contact lenses can be difficult if there are spasms

in the eye muscles and flushing with water won't easily rinse away the substance trapped beneath the lens.

Hobbyists with contact lenses should use protective shields over, or spectacles instead of, them when handling chemicals. When the job is done, they should wash their hands meticulously before handling their contact lenses.

These warnings were part of an article for workers in the horticultural trade in the Flower Growing report, San Diego County, U.C. Cooperative Extension and reprinted from LAIFS Journal Vol. 16 #2, February 1989. ***

"Bonehead Fernstory"

Bob Needham, Reno Nevada USA (from Fernet)
(This was written about a year ago when Bob was still trying to understand, and grow from, spore for the first time. He described prothalli as being "like Daffy Duck toes", which I think is pretty apt.)

I took two weeks off over the holiday. I brought my fern babies through the airport in a 6" X 6" dia. pot snuggled under my field jacket (next to my body for warmth!). I walked right through the magnetic detector, of course, but no-one even asked about the huge bulge (it could have been 5lb of plastic explosives!). I took my babies home and proudly showed them off to all, then I uncovered and forgot them for about 24 hours. Wood heat. Humidity about 3-6%. AAAahh-hghh!

When I found them they had melted into a sad little green puddle. I covered and watered them and these little 1.8" guys (girls?) (sexless?) sprang back to near normal!

Am I lucky or what?! Fern-angels?

On the way back to work this Monday in Reno (I work in San Jose, about 300 miles away) my flight was delayed so I decided to spend the time in Reno earning money by returning airport carts. I stashed my babies behind a monitor in the airport so I wouldn't have to juggle so I wouldn't have to juggle both them and the carts at the same time.

When they called my flight I forgot my babies! I called my son later that night from San Jose and had him go on a "Mission Impossible" run with the cell phone for a fern rescue at Reno airport!

My fern babies are now safe at home in Reno! (as safe as they can be in clutches of my wife: "Brown Thumb Janet"). Aaahhh!

The following article is taken, with thanks, from "Pteridologist" 2, 6 (1995), a publication of the British Pteridological Society. The author is from the Royal Botanical Garden, Edinburgh.

YET ANOTHER USE FOR BRACKEN

Adrian Dyer

Bracken, in its vigorous forms, is common in many parts of the world and, where it spreads aggressively to form dense stands, it is well known as a troublesome weed of upland grazing land, poisonous to domestic cattle and a haven for ticks. It has, however, also many uses (Rymer, 1976) and records of bracken being harvested and sold for one or another purpose date back to the 15th century. There are references in the literature to its importance as a source of potash for soap and glass, and to its use as fuel (especially in brick kilns), as thatch, animal litter, floor covering and compost. It has also been used as animal fodder, human food (both as starch from the rhizome and as a green vegetable) and as an anthelmintic (a cure for gut parasites). There are records of its use as a hop substitute in beer, as an insect deterrent, a source of dye and as a packing material for storing fruit. It is difficult to imagine that bracken could have been put to any use not yet described, but a chance observation on a holiday in November 1991 revealed one.

While spending a week on the island of Porto Santo, 50 km north-east of Madeira, I entered an abandoned one-storey, tile-roofed farmhouse near the small village of Campo de Baixo towards the west end of the island. The house contained two separate-roomed dwellings. It has not been possible to date its construction, but it is of traditional style, unlike the holiday homes spreading all around it. It was abandoned comparatively recently. There were broken pieces of furniture and domestic utensils inside, and the stones marking the rim of the circular threshing floor are still in place beside the farm house. Yoked pairs of oxen, sometimes accompanied by a donkey, were driven around within the circle to thresh the grain, mainly barley, which was grown, until recently, in adjacent fields. All the island's windmills are now disused, but a few still have their furled canvas sails confirming that their inactivity, and the abandonment of cereal growing, were recent.

Inside the farmhouse, an integral wall separating the two rooms of one dwelling was disintegrating to reveal its internal structure. It consisted of a framework of canes attached horizontally each side of stout vertical posts. The canes were probably of the giant reed, *Arundo donax*, which grows on Madeira. Two of the posts formed the frame of a

doorway. On each side of the wall, the outer surface was covered with a layer of smooth plaster which was then painted (pink). Beneath this, rough plaster had been spread over and between the canes. Between the two layers of canes and plaster was a central cavity tightly crammed with bracken which had apparently been harvested as dry, brown fronds at the end of their growing season and placed within the wall before it was plastered. The purpose of this might at first sight appear to be insulation but, because the climate of Porto Santo is equable, rarely hotter than 25°C or colder than 10°C, heat insulation in an inside wall is unlikely to be necessary. Another possibility is that the bracken provided sound insulation between the two rooms but, because the wall included an inter-communicating door, much of the benefit would have been lost. An alternative and more likely explanation, suggested to me by Stuart Lindsay, is that the bracken was packed into the wall in order to hold the wet plaster in place as it set, in the same way as wooden laths are used in Britain.

It was not possible to discover whether this use for bracken was widespread on the island. The only published record I can find for the use of bracken in Macaronesia is a source of flour for human consumption in the Canaries (Lindley, 1838). Bracken itself is not common in Porto Santo. The island is made largely of limestone and arid, lacking the high central mountains that cause the rain on Madeira. I saw no bracken in the vicinity of the farm; the only population I found (*Pteridium aquilinum* ssp. *aquilinum*) occupied a small area on a dry, south-facing hillside about 2 km away in the centre of the island beside the chapel of Nossa Senhora da Graça. Perhaps this population was sufficient to provide all the island's construction needs before the tourist building expansion. Alternatively, bracken may have been previously more widespread. Either way, it would appear that bracken was used for this purpose in preference to barley straw which was likely to have been much more readily available locally. Perhaps the many secondary compounds in bracken protect it against fungal attack and deter insects, making it more durable and hygienic than straw.

If bracken was not available in sufficient quantity on Porto Santo, it could have been harvested and

imported from Madeira, perhaps together with the canes. Bracken is locally abundant on Madeira, particularly in the cooler, wetter mountain area inland. Near Santo da Serra in the east, it contributes noticeably to a landscape reminiscent of Perthshire, complete with pine trees, sheep, grassland and dry-stone walls. Bracken is also common in the moorlands of the Paül da Serra in the west.

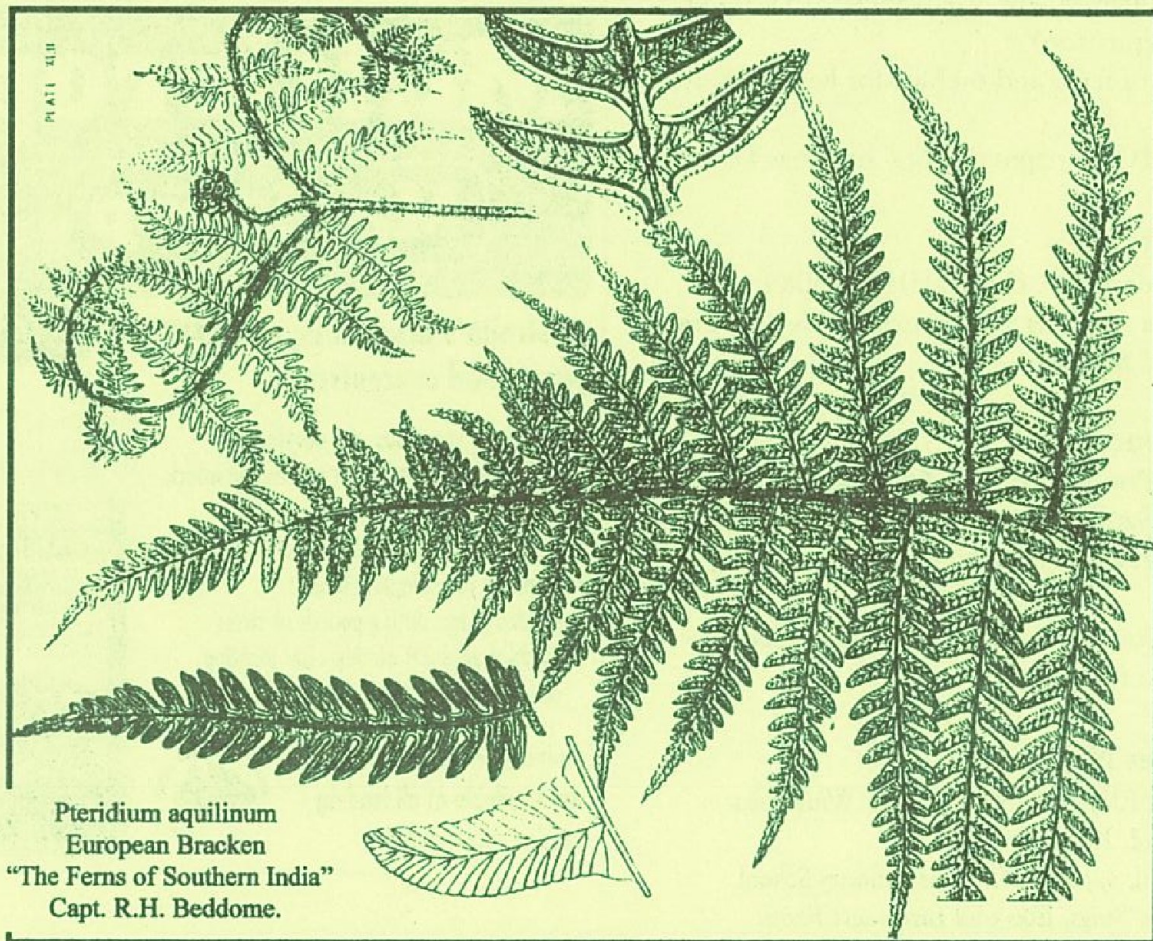
It may be that the tradition of using bracken as a filling for cavity walls started in these cool, bracken-rich areas of the mountains of Madeira and later spread to Porto Santo and elsewhere. In the mountains of Madeira, the increase in heat insulation might have been an additional advantage, even if the subsequent use of the practice on Porto Santo was of little benefit in this regard. A discovery of bracken within cavity walls made of wood or stone rather than plaster would suggest that insulating properties were important. It would be interesting to know whether there is any record of bracken having been used similarly in Scotland, Wales or anywhere else where there would have been a similar resource.

Alternatively, this use of bracken might be absent from Madeira. If it was particularly associated with the construction of walls made entirely from plaster and cane, it might be uncommon in Madeira where lime is less available than in Porto Santo. The inclusion of bracken in hollow plaster walls in other parts of the world where lime-rich areas coincide with a source of the fern would reinforce the suggestion that the main purpose of the bracken filling was to support the wet plaster.

My next visit to Madeira will have to include a tour of derelict houses. In the meantime, I would be very interested to hear from any members who have information that would throw further light on this use of bracken.

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 Rymer, L. (1976). The history and ethnobotany of bracken. *Bot. J. Linn. Soc.*, 73: 151-176.



**Opinions expressed in this newsletter are the personal views of the authors and are not necessarily endorsed by the Society, nor does mention of a product constitute its endorsement.*

BUYERS' GUIDE TO NURSERIES.

NEW SOUTH WALES:

Kanerley Fern Exhibition and Nursery
Wholesale and Retail. Phone (049) 872 781.
204 Hinton Road, Osterley, via Raymond Terrace,
2324. By appointment.

QUEENSLAND:

Moran's Highway Nursery
Wholesale and Retail. Phone 075 442 1613.
Bruce Hwy, Woombye (1 km north of Big
Pineapple; turn right into Kiel Mountain Road).
P.O. Box 47, Woombye, 4559.

VICTORIA:

Andrew's Fern Nursery / Castle Creek Orchids
Retail. Phone (03)5826 7285.
Goulburn Valley Highway, Arcadia 3813 (20 km
south of Shepparton).
Large range of ferns and orchids for beginners and
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Austral Ferns

Wholesale Propagators. Phone (03)5282 3084.
Specialising in supplying retail nurseries with a wide range
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Coach Road Ferns

Wholesale. Phone (03) 9756 6676. Monbulk 3793.
Retail each Saturday and Sunday at Upper Ferntree
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74 F5.
Wide selection of native and other ferns. Fern pot-
ting mix also for sale.

Fern Acres Nursery

Retail. Phone (03)5786 5031. 1052 Whittlesea -
Kinglake Road, Kinglake West.
On main road, opposite Kinglake Primary School.
Specialising in Stags, Elks and Bird's-nest Ferns.

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Wholesale and Retail. Phone (03)5235 8444.
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