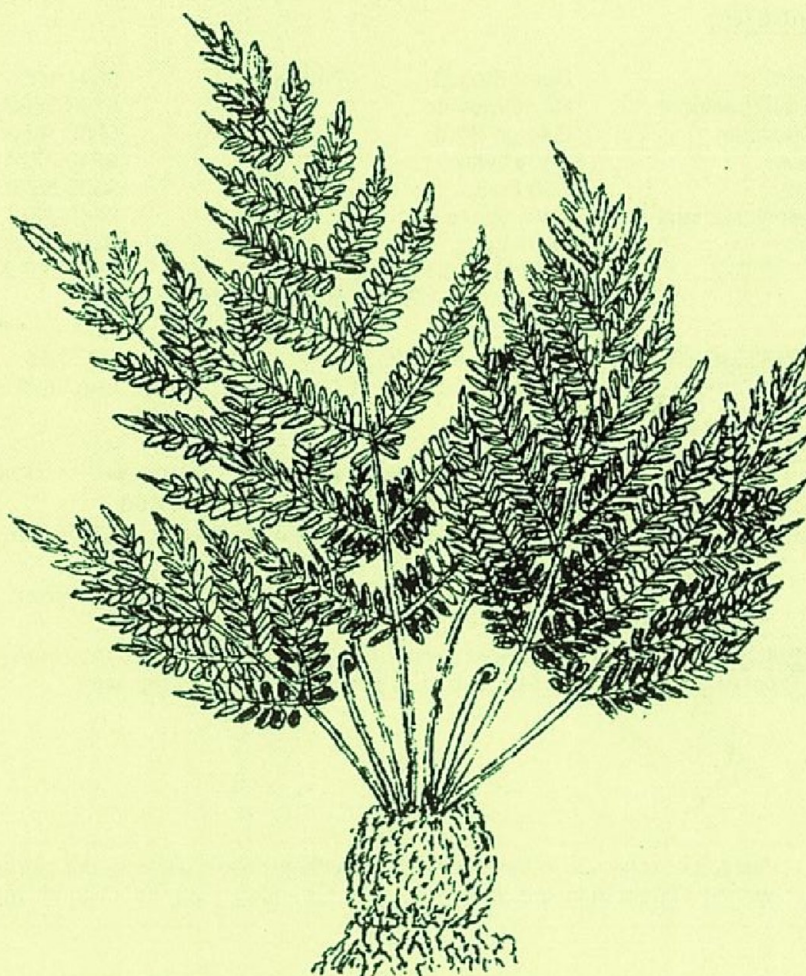


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NEWSLETTER



Todea barbara

VOL. 28, NUMBER 2
MARCH/APRIL
2006

FERN SOCIETY OF VICTORIA Inc.

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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.*

OFFICE BEARERS:

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Vice-President	George Start		5962 5059
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SUBSCRIPTIONS:

*Single	\$15.00	*Pensioner/student	\$12.00	*Family	\$17.00
*Pensioner Family	\$14.00	*Organisation	\$17.00		
*Overseas	\$22.00	(Payment by international bank cheque in \$A please. Sent by Airmail.)			

***Subscriptions fall due on 1st July each year.**

MEETING VENUES: The Kevin Heinze Garden Centre at 39 Wetherby Road, Doncaster (Melway 47; H1).
Other meetings at members' gardens or as advertised on the following page.

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.

Timetable for evening general meetings:

7.30	Pre-meeting activities - sale of ferns. Spore, books, merchandise and special effort tickets. Also library loans and lots of conversation.
8.00	General meeting
8.15	Workshops and demonstrations.
9.15	Fern identification and pathology, special effort draw.
9.45	Supper and another good yarn.
10.00	Close.

CALENDER OF EVENTS 2006

MARCH MEETING

Thursday the 16th at 8.00pm at the Kevin Heinze Centre Weatherby Road, Doncaster.

The nights subject will be a talk on Rippon Lea Fernery, including a review of its history and the FSV involvement in later years.

We are very fortunate to have Justin Buckley, not only a member but also a gardener at Rippon Lea who will be speaking to us, so for those members who took the opportunity to see Rippon Lea at our visit last year, this will be the opportunity to catch up and talk about all we saw. For those members who missed the visit and have not been, or those that have not been since the society was involved this is the chance to catch up with how the gardens have revolved since it's inception.

Competition category is Blechnums.

Update for those members who attended the August, 2005, meeting where we sowed spore, could you please bring your samples to this meeting.

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**Reminder there will be no meeting in April
instead we have the show and excursion to the Otways**

APRIL SHOW

Saturday 22nd - Sunday 23rd

Further information page 21

APRIL - OTWAYS

Saturday 29th - Sunday 30th

If you are intending to go and have not contacted Barry White can you please do so. All information can be found in Jan/Feb newsletter on page 11.

PRESIDENTIAL PERORATION

We had a very enthusiastic and interesting talk by Michele Adler (recently retired from Burnley Horticultural College) at our February meeting, but sadly this was only attended by a small number of members, partly due to a number of regular attendees having problems with illness at the time (either their own or that of family). We'll try to report the main thrust of Michele's presentation in a future Newsletter for the interest of those who missed it. A feature was the excellent examples of herbarium specimens and plant descriptions prepared by Michele's former students as part of their course requirements. She has very kindly offered to share with us the finer points of creating such materials should we wish to do some for ourselves.

We'll be reviewing the history and standing of the Rippon Lea Fernery and the fern collection there at our March meeting, and taking a look back at the involvement of FSV from the refurbishment of the Fernery in the Society's earlier days. Rippon Lea Head Gardener Justin Buckley will be with us. Please try to be there, as this will be the only evening meeting until May (the Fern Show and the Otways visit being the only events scheduled in the interval).

Gay & I thought that we'd share a few thoughts in an article for Newsletter readers about using rainforest trees and other plants to assist in providing a suitable outdoor environment for ferns. It's a route we took years ago with the encouragement of one of our fellow original Fern Society members, the late Albert Jenkins. There's been so many benefits over the years from observing and listening to other people with skills and experience in growing things in FSV and other societies. We wouldn't wish to be without the constant exposure to such people and their information. Always something new to learn.

Fortunately, the weather during most of February was much milder in our region than we may have been expecting after the heat of December/January. It certainly suited us better at home, as things were looking pretty battered until February. At least the work we did beforehand, as I mentioned last time, did help matters. We trust that your plants have come through well too.

Barry Stagoll

SOME COMMON NAMES OF STAGHORN FERNS

by Ralph Hughes, Florida, U.S.A.

What's in a name?

The phrase "staghorn fern" is a generally accepted genus common name for this group of plants in the United States, and the botanical name *Platycerium* is favoured the world over.

Other common names have come into use for some of the species as well, but not for by others, and in Australia the species common name is widespread apart from a reference to the genus.

For one interested in composition of words, an unabridged dictionary suggests derivatives of names that have become part of our everyday language. As an example, Webster (1975) refers to the staghorn fern as any fern of the genus *Platycerium* wherein stag is taken from the name of the

continued on page23

FERN AND VIREYA RHODODENDRON SHOW 2006

Saturday 22nd April - Sunday 23rd April.

When you receive this newsletter the Show will only be 5-6 weeks away so I hope that you have selected and started to prepare your ferns for the Show. Please make a special effort to contribute to both the display and competition.

A reminder of the Fern Competition categories (full details in the Jan/Feb newsletter).

- Cat. 1. **ADIANTUM**
2. **ASPLENIUM**
3. **DAVALLIACEAE** (restricted)
4. **BLECHNACEAE**
5. **POLYPODIACEAE** (restricted)
6. **FERN IN CONTAINER** 150mm OR LESS
7. **ANY OTHER FERN** (not covered by Categories 1-5)

Category 6 is especially for members who do not or can not have larger ferns.

ALL MEMBERS ARE URGED TO ENTER THIS CATEGORY.

Our feature display will be **ADIANTUM** and we are aiming to display as larger range as possible.

If you wish to contribute to the show but have a problem bringing your ferns to the Show please talk to any member of the Show Committee (listed in the last newsletter). Please ensure that your ferns are free of pests, correctly labelled and have some form of personal identification as this will help ensure that your ferns are returned to you.

We will commence setting up for the show on **Friday 21st April at approximately 11 -00am** and should be in a position to start accepting ferns for the competition, display and sales by 1 -00pm. If you are only able to bring in ferns after 6-00pm, or early Saturday morning, please contact Don Fuller (9306 5570). We need the participation of a large number of members to make the Show function effectively, so please let the Show Committee members know **when you can help**. We need people to staff the door, sales area and display area stewards. **We especially need people to help with the setting up on Friday and the packing up after the Show on Sunday.**

Another area where we need assistance is with transport of our props needed to stage the Show. If you have a normal trailer, or are able to tow a hire trailer, and are available on the Friday and Sunday, please contact Don Fuller (9306 5570).

Those wishing to sell ferns are reminded that they must contribute to the competition/display and that you must obtain a "booking form" from Bernadette Thomson (9399 1587) or myself. We also need a number of cardboard boxes suitable for fern sales. If you can help please bring them along.

The Fern Show is an important activity of our Society, as well as a great social occasion, so please give it your full support. Please publicise the Show wherever possible and Fern Show flyers are included with this newsletter for this purpose. Perhaps you can arrange for them to be displayed at such places as garden centres, libraries and community notice boards. If you belong to a garden club please promote it there. **We would especially like to see those members unable to attend our regular meetings so come along and participate.**

Hoping to see you all at the Show

Don Fuller

Ferns in a Rainforest

GAY & BARRY STAGOLL

We take great pleasure these days from the progress of the small "rainforest" area in our garden. This isn't just because it's the main part where we have ferns growing in the ground (in our situation, only pretty tough ferns such as the "Cape Form" of *Rumohra adiantiformis* and *Nephrolepis cordifolia* grow well in other parts of the garden). It's also about the many fascinating trees and shrubs from rainforests (mostly Australian) which we've planted in this area, and the character this little landscape is taking on. The gardening in our location is pretty tough, with a large amount of wind exposure and thin poor soils (although we've made some improvements to the latter) so the growth has been much slower than it would have been in a more favourable situation.

Many of the plants come from Australian coastal rainforests situated well to our north. Others come from our general latitude, and some from cool Tasmanian rainforest. A few come from similar environments elsewhere in the southern hemisphere, for instance New Zealand. Understorey plants, apart from the ferns, include *Vireya* rhododendrons which bloom sporadically throughout the year.

Although we'd grown a few of these plants earlier, we were first introduced to the idea that it would be feasible to plant a "mini-rainforest" (his term for it) in a Melbourne garden by a fellow original Fern Society member, the late Albert Jenkins. Albert had established a most successful one for himself on a quite small plot of suburban land in Watsonia. About the same time we found a paperback publication which also promoted the idea - the author clearly having locations like Sydney more in mind than Melbourne, however.

So we took up the idea when we moved to a larger property, and the opportunity to create a new garden from scratch, to include a rainforest area.

Years ago there seemed to be a pretty general assumption that Melbourne's winters were too cold to grow things like *Buckinghamia celsissima* (the Ivory Curl Flower tree) and *Stenocarpus sinuata* (the Firewheel tree), and many nice members of the large family of *Syzygium* (Lilly Pilly) in Melbourne. Our warmer general temperatures over recent years

(together with the impacts of increasing urban density and increased heat output from higher energy consumption) have put paid to this feeling, if it was ever soundly-based, which I tend to doubt. Although it was probably only people with our interests who took much notice of them, we knew that there were rainforest plants thriving in the Royal Botanic Gardens, Melbourne, and also in various municipal gardens such as those in Auburn, and numbers of private gardens in suburbs throughout the east of Melbourne. Mind you, these sorts of plants from natural origins well north of Victoria do not like frosts, so some of them are not so happy when they're planted in areas further from the sea where frosts are experienced.

Many Australian rainforest trees and shrubs are very attractive in their own right - whether or not they produce conspicuous flowers (which some certainly do). However, if you want to grow ferns in the ground, rainforest plants can also make a very useful contribution to creating or improving an appropriate micro-climate for this purpose.

The overwhelming majority are broad-leaved trees (or shrubs), but unlike broad-leaved trees from the northern hemisphere most are not deciduous (or only slightly deciduous). So they offer year-round shade, which is an advantage in our circumstances where we tend to have clear skies - admitting plenty of solar radiation - pretty much at any time of the year.

They generally have quite compact root systems relative to their size (rainforest trees mostly rely on intermingling root systems with other close growing plants for their stability, and in nature do not need to send roots far from their base just to find adequate moisture for themselves (because they occur in relatively well-watered locations). I've demonstrated this to my own satisfaction numbers of times when moving quite well-grown plants (having formed the opinion that a change in planting location would be an advantage). As a generality, in our experience, you can take a quite small root ball (maybe in volume not much more than a quarter what might be appropriate for similar sized plants not originating in rainforests).

continued page 24

My favourite fern No. 9

Polypodium vulgare 'cornubiense'

By Keith Hutchinson

A schizophrenic fern!

At random it produces three different frond forms..

The normal frond, then secondly ones that filigree with divisions trident or even quadripinnate, a poor mixed up unity!!!!

It makes an interesting little fern growing to about 20 cm, quite hardy in a semi shaded position in the forefront of your fernery.

Given a well drained soil it will soon spread into a neat clump, and also it makes a good pot specimen.

An occasional feed of maxicrop will keep it in excellent condition.



Common names of staghorn ferns

Continued from page 20

full grown deer or the male of some other animals, such as the caribou, and horn is drawn from the antler of a deer, which is shed annually - the common name "staghorn" so-called because in one or more of its several species the fertile fronds fork in such a way as to resemble the antlers of a stag.

The term "elkhorn fern" for the genus seems a less popular contribution to our horticultural heritage and according to Webster's definition is less precise, merely that elkhorn fern is a fern that resembles the horns of an elk. More often the term "staghorn" refers to the genus *Platycerium* and the name "elkhorn" to a species (Olson 1977). There are exceptions, of course. For species indigenous to Australia, as noted previously, a common name for the genus is omitted and the terms "staghorn" and "elkhorn" are species within the genus (Jones and Clemensha 1978). In Florida, on the other hand, elkhorn is a local name for *Polypodium polycarpon* 'Grandiceps'.

Additionally, in the case of staghorn, its genus name contrived from the Latin is also a common name, as *platycerium* or *platycerium* fern for *Platycerium*, or as the nickname "platy", or as a common name in the vernacular as "stag" on occasion too, a common name of the genus in one region may be the species elsewhere, as for example in Australia noted above, staghorn is *Platycerium superbum* and elkhorn is *Platycerium bifurcatum*. In common, everyday language they are respectively, stags and elks.

Continued on page 26

This is an advantage in plantings near buildings or other structures, as in general their roots are less likely to cause damage than, say, eucalypts. However, it's still best to research the particular trees under consideration for planting in close proximity to buildings. Certain species of native fig occur in coastal rainforests, for instance, and these develop massive roots which in time will spread through a large area of ground.

Depending on the precise choice of plants and your taste as to the effect you want to create, you can get a fair number of plants into a pretty small space, as they have evolved to live in a densely populated forest. Some of the smaller stature ones are happiest by choice as understorey plants (some suffer leaf-burn readily, particularly when juvenile, for instance), and may be more difficult to establish unless there is shelter from larger plants, so may be best as fill-in plantings later in a rainforest project. But generally it is OK to plant a range of species down to as little as, say, 1½ to 2 metres apart (with some sensitivity to locating species which can in time become large, spreading trees - assuming you wish to use these at all). Quicker growing, easier species can be used as "pioneer" plantings - some of these can be treated as expendable if this is preferred as the favoured plants make growth.

Apart from offering the shade of broad leaves (not necessarily dense shade - which would not suit all ferns - because the range of plants allows plenty of choice as to the shade density), rainforest plants also assist in maintaining a higher level of humidity in their vicinity as they transpire moisture through their leaves readily. By the time they're large enough, many are also hospitable hosts for epiphytic plants, and when these are installed this can make a further contribution to air humidity.

In dry weather, of course, provision of the moisture upon which this humidity relies will need to be by watering, but then if you are keen to grow ferns, whether in the ground or in pots, in such weather they will need to be watered in any case. The amount of water you'll have to supply the plants will vary with the location and the surroundings, in particular how much wind is experienced. But once a "grove" of rainforest trees has passed its initial establishment phase and some of them have made heights of a few metres, ferns planted amongst them can enjoy a pretty satisfactory natural "shadehouse" with elevated humidity, and they will be buffered from rapid changes in moisture levels around their roots by being planted in the ground beneath - preferably well-mulched. By comparison with plants in pots, they can be better protected from suddenly drying out.

I mentioned earlier that our location does not offer a naturally favourable climate for growing ferns, but to us the proof of the suitability for rainforest plants for creating a micro-climate acceptable to ferns is the experience of seeing that many of the native ferns growing in our mini-rainforest have succeeded in propagating themselves from spore. These have included *Blechnum nudum*, *Todea barbara*, *Doodia media*, *Cyathea cooperi*, *Histiopteris incisa*, *Rumohra adiantiformis*, and *Calochlaena dubia*.

Establishing a Rainforest Area

If your soil is reasonably deep and loamy, you may not have to go to a great deal of trouble to establish rainforest species successfully. However, you should still bear in mind that these plants prefer a situation where the top 15 to 20 centimetres at least are very well drained, as in nature the top layer of the soil profile in which they grow consists of a deep composting detritus of leaf and twig litter, along with the decaying residue of fallen trees. We'd suggest, as a minimum improvement to the top, say, 150mm of soil, mixing through a generous amount of composted leaves and preferably also shredded twigs and garden prunings after composting. If the latter is unavailable, then composted coarsely chipped pinebark might be substituted. The alternative of using chipped hardwood is not so attractive, as this will cause a very heavy nitrogen drawdown as it decomposes. If you may be able to get hardwood chips which are already partly decomposed, it might be possible to use these with the addition of liberal blood and bone to counteract the nitrogen drawdown.

At the same time, we recommend adding liberal quantities of sharp sand (such as used in propagating mixes), the coarser the better, as another contributor to improving the draining of the top layer. Finally, if below the topsoil the subsoil begins to contain a visible clay content (easy to check if it's not obvious visually by digging up a spadeful and wetting it to see how sticky it gets), then it's best to scrape back the topsoil layer in sections as you go and dig through spadefuls of gypsum, before mixing in the added ingredients to the top layer and putting it back in place. The gypsum will improve the draining properties of the subsoil (and also, incidentally, make more calcium available to the plant which can assist in its growth). This treatment will also reverse to a useful extent compaction of the subsoil.

If the natural level of soil in the area is somewhat low in relation to its surroundings, then it would be best to build the intended "planting beds" up in height more deliberately, perhaps by incorporating some additional soil or bulk potting mix. Make sure that this is free-draining too, though.

continued on page 27

QUESTION FROM SHERRY PRINCE FROM TASMANIA

Sherry Prince some of our members might remember her from a question she had last year on potting mixes which can be found on page 88 November/December issue.

A reply was supplied by Gay and Barry Stagoll which can be found in the last issue .

Sherry has come back to ask another question from our members.
The question is:-

Firstly, many thanks for your (Barry & Gay's) response to my questions about potting mix for ferns. At present they (the ferns) are all growing quite well, so we won't be doing anything to them just yet. But I have another question.... hope you don't mind.

Just had a lady ring up seeking advice about her man fern (*Dicksonia antarctica*). She has a lot growing and they have been there for about 10 years. She also has smaller different species growing under the fern canopy. However, one of the man ferns has started to narrow (into a point) at the crown and she is wondering if it is dying. I asked her if it was in full sun or in a windy position and she said it probably was the most exposed of all her man ferns. She was planning on digging it up, taking about a foot off the bottom (its about 6 feet tall), and moving it into another more sheltered position.

Her question was..... once the trunk has narrowed at the top, is it possible for it to re-gain its wider girth, and secondly, do man ferns (and others) have a certain life span, or do they go on for ever as long as conditions are right.

Dicksonia antarctica

Soft Tree-fern

GENERAL APPEARANCE

A tree-fern with a stout, often curved, trunk, up to 5x0.7m, covered by masses of brown, aerial roots. The fronds, forming a dense crown at the trunk apex, are lanceolate, to 3xlm.

FRONDS

Tri-pinnate. Fertile and sterile pinnules dissimilar. Sterile pinnules sessile, oblong to 8x4mm, glabrous or with a few crooked hairs along midvein of lower surface; margins toothed. Fertile pinnules of similar dimensions but with markedly recurved margins. Rhachises brown to green, those on upper parts of frond with thin line of hairs. Stipe glabrous but cov-

Also, is it still OK to refer to them as 'man ferns' which is how I have always regarded them.

Regards Sherry Prince

If you have any suggestions, please let me know and I will print them in the next issue of the newsletter.



ered with a mat of fine, glossy, coppered coloured hairs at the base, persistent bases fragile and apparent only on the upper trunk.

SORI

Spherical, about 1mm diameter, marginal, initially protected by a recurved marginal flap which joins to a cupped indusium. Sporangia brown.

DISTRIBUTION

Common throughout most of the region but rare or absent from the lowlands around Lilydale, Berwick and Pakenham.

ENVIRONMENT

Cool, wet, sheltered gullies and slopes of hilly country. Alt 80-1250m.

Continued from previous page
Dicksonia antartica

VEGATATION

Montane Forest, Subalpine Riparian Scrub, Cool Temperate Rainforest, Wet Sclerophyll Forest.

NOTES

The dominant fern of gullies in wet forests of the region. Its thick, fibrous trunk forms the substrate for many species of epiphytic bryophytes, ferns and orchids. Some tree species, such as *Atherosperma moschatum* (Sassafras) and *Pittosporum bicolor* (Banyalla), often begin their lives as seedlings on *Dicksonia* trunks. New frond bases are very starchy and were eaten by Aborigines. These and young fronds are also eaten by parrots and brush-tail possums. The genus has about 25 species worldwide, 3 in Australia and 1 in Victoria. It is named after James Dickson (1738-1822) an English seedsman and botanist.

Common names of staghorn ferns

Continued from page 23

Common names are available from countless sources and the list is not exhaustive. The Fern Dictionary (Olson 1977) is the basis in this article for the genus common name "staghorn fern", this representing its widespread acceptance in the United States (Bailey and Bailey 1977, Graf 1978, Hoshizaki 1975, Kelsey and Dayton 1942).

An earlier work, Standardized Plant Names (Kelsey and Dayton), had coordinated and standardized the species common names in publications prepared by personnel of the United States Department of Agriculture for whom the author of this article was a plant scientist during the period 1946-1974. A stated goal of the committee for Standardized Plant Names (or SPN) as first constituted in 1915 was to encourage the use of a standardized Latin name and a standardized common name for all plants throughout the world. Its second and final edition was published in 1942 and comprised 675 pages.

Accordingly, SPN is favored in the disposition to follow of species common names on the principle that priority should prevail. Disposition is based on an array of the 18 generally recognized species (Hoshizaki 1972, Hoshizaki 1975). Ranking of Latin names is alphabetical. Assignment of common names is according to priority, reasoning, and usage.

Platyserium Desv. species names from SPN are:

Latin Name

1. *angolense* Welw. ex Baker
2. *bifurcatum* (Cav.) C. Chr.
3. *coronarium* (Mueller) Desv.
4. *hillii* T. Moore
5. *stemaria* (Palisot) Desv.
6. *superbum* Jonch. et Hennipm.
7. *wallichii* Hook.
8. *willinckii* T. Moore

Common Name

- Angola staghorn
Common staghorn.
Disk staghorn
Green staghorn
Triangle staghorn
Giant staghorn
India staghorn
Java staghorn

AUSTRAL FERNS
Wholesale Propagators.
Phone (03)5282 3084.

|| Specialising in supplying retail nurseries with
a wide range of hardy ferns; no tubes.



continued on page 28

Ferns of a rainforest

Continued from page 24

Aside from these steps to open and improve the draining of the topsoil, to improve its nutritional properties we'd recommend digging in decomposed cow or sheep manure, and a little blood and bone before planting.

Longer-term, we fertilise from time to time by spreading composted pulverised cow manure; the seaweed fertilisers we pour over the ferns also get applied to the leaves of smaller plants, and occasional applications of sulphate of potash are said to be helpful to formation of stronger woody parts of plants as well as, more obviously, encouraging good flowering.

Whilst r

ainforest species obviously enjoy water applied by spray, drip irrigation is an effective method of watering and more economical in water usage. Especially for newly-planted additions, it's wise to check often that individual drippers have not become blocked if you're relying on them to keep plants from drying out. Whilst it can be necessary to give some supplemental water to the plants during dry spells at any time of the year, particularly when they're young - just as with a great many different types of garden plants - when they're well established it might rarely be necessary to do much watering except in hot dry periods. If you're growing ferns underneath, and watching out for them drying out, then generally you should be able to use them as "indicator" plants for when the whole area may be too dry for comfort. Regular and heavy mulching is a vital adjunct to watering. Watch out when placing additional mulch that the previously applied layers have not fused into a water-repellent mat which may prevent moisture from penetrating underneath. If so, break this up with a weeder or similar tool first.

A pond or two can also be a good aid for maintaining humidity. Keep ponds stocked with fish to

avoid boosting the mosquito population.

Some species to consider

(Just a sample, but these are all pretty easy to grow - note that we describe those that generally grow to less than 15 m. as 'medium' trees, but most would not reach maximum potential size in a garden situation in a southern location such as Melbourne - probably at most they more likely to grow to around two thirds of their maximum potential).

***Eleocarpus reticulatus* (Blueberry Ash)** Small to medium tree, with small fringed white or pink flowers followed by blue berries. Leathery green leaves with small marginal serrations. Open foliage cover.

***Backhousia citriodora* (Lemon-scented myrtle)** Medium sized understory tree or shrub, with creamy white flowers and lovely pale green, lemon-scented leaves. Other species of *Backhousia* also, all of similar size and all with aromatic leaves, include *B. anisata* and *B. myrtifolia*.

***Pararchidendron pruniosum* (Snow-wood)** Single-trunked tree to 10m. (sometimes more shrublike) with open foliage of small mid-green pointed leaves. Bears showy cream flowers with prominent fluffy anthers, followed by interesting spiral seed pods. Appreciates some shade protection.

***Eucryphia lucida* (Leatherwood)** Tall-growing, strikingly columnar tree from Tasmanian rainforests, with small oval shaped leaves. Variegated leaf forms available, but note that these are not as hardy in drier conditions.

***Syzygium* species (various)** This is a very large genus, with many Australian species and also a growing number of good horticultural cultivars. Most are medium-sized, but there are also larger examples. The most recognisable feature of them is shiny, fairly robust leaves, and the fact that newly-emerging leaves are coloured in various shades of cream, pink, red or plum/purple in strong contrast to the greens of adult leaves. Many also have very showy blooms, which like members of many other native plant groups (for instance, eucalypts) do not present obvious petals but rather stamens as the main display feature. Typically provide somewhat heavier shade than the plants mentioned previously. They are commonly referred to as Lilly Pillies. Some of the very large flowering ones are, unfortunately, unable to cope well with our minimum temperatures, but there are plenty of worthy ones to choose from. Interesting species for our gardens include *S. paniculatum* and *S. moreii*, and hybrids such as 'Cascade' and 'Orange Twist' are very decorative.

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continued page 28

Ferns of a rainforest

Continued from page 27

***Waterhousia* species** (Also commonly described as Lilly Pilly trees). Similar in general appearance to *Syzygium*, but foliage tends to be much more dense, and the undulating leaves hang down. Established trees are useful for windbreak uses.

***Davidsonia pruriens* var. *pruriens* (Davidson's Plum)** Medium size tree with huge, serrated and veined leaves arranged in successive whorls. Bears edible fruits.

***Nothofagus* species (Southern Beeches)** There are numbers of species, several being Australian. *N. cunninghamii* is the small-leaved species endemic in Victoria and Tasmania. They are deciduous to a very limited extent, shedding a certain amount of their leaf covering in cooler months, but never bare. Tall growing, and needing moist soils. *N. moorei* has much larger, although similar leaves. It is tougher. Both species have red new foliage, but it's more noticeable in *N. moorei*.

***Toona australis* (Australian Red Cedar)** An interesting species, being one of the very few remaining deciduous broadleaved trees of Australia, and very beautiful with its leaves arranged in graceful sprays on long curving stems. Its endemic habitat extends as far south as the Illawarra rainforest in coastal NSW. In ideal conditions, it grows into a very large tree

with a somewhat spreading crown. However, like most of the trees originating in the northern rainforests, few will reach anything like their optimum natural size in a southern garden.

Smaller companions for the larger rainforest types Obviously these include ferns. However, a couple of other suggestions for smaller plants to help create a true rainforest atmosphere are -

Dendrobium speciosum* and *D. kingianum Native flowering orchids, grow well and without much, if any, attention if planted in tree fern logs or offcuts.

Dianella tasmanica Flax-like leaves growing upright to about 1 metre, bright blue flowers with yellow anthers, followed by blue globular fruits. Good amongst rocks, or next to water features.

Researching rainforest plants further

Good general reference books have been published in recent years to make individual research possible, for instance a large number of Australian rainforest plants are described in *Australian Native Plants* by John W. Wrigley & Murray Fagg (Reed New Holland, first published 1979 but now in a fifth edition). As to nurseries which can help in supplying plants, in Victoria we've found Kuranga Native Plants Nursery (now in Mount Evelyn) a good source. There are also nurseries situated in places like Wollongong, Coff's Harbour, etc. close to coastal rainforest source material, which can be visited on trips interstate or who will handle mail order sales.

Common names of staghorn ferns

Continued from page 26

Of these, four common names relate to an obvious feature of the plant itself, i.e. 'common' (ubiquitous), disk (alluding to its separately stalked semi-circular fertile spore lobe), green (color), triangle (a somewhat vague reference to shape of the fertile frond), and giant (size), and three refer to country of origin, i.e. Angola, India and Java.

Two species common names are drawn from Tropica (Graf 1978), as noted below:

Latin Name	Common Name
9. andinum Baker	American staghorn
10. wandae Rac.	Queen staghorn

One species traces to its South American origin in Peru and Bolivia, and the other to Queen Wilhelmina of the Netherlands with sovereignty over its point of origin in Dutch New Guinea.

One species common name is taken from Australian Ferns and Fern Allies (Jones and Clemensha 1978), as follows:

Latin Name	Common Name
11. veitchii (Underw.) C. Chr.	Silver staghorn

This is the silver elkhorn of Australia of which the term "silver" appropriately distinguishes a unique feature for yearlong appearance of the entire plant.

HUPERZIAS

CULTIVATION AND PROPAGATION

Researched and Collated by Ron Robbins

Huperzias, or tassel ferns as we commonly refer to them, need not be the bogeyman of fern growers. These ferns are relatively easy to grow and certainly are not to be classified as being difficult to propagate.

The species *Huperzia* belong to the Fern Allies classification of ferns dating back to the carboniferous age, approximately 300 plus million years ago. Over the ensuing period of evolution they have developed from what were evidently very tall and large specimens to the *Huperzias* of the present day.

Huperzias are epiphytic growing mainly in tropical rain forests on trees, or lithophytic growing on rocks, with many to be found at high altitude growing among mosses and other epiphytes.

CULTIVATION

Tassel ferns require a soil-less open potting mix, with good drainage, good air circulation, humidity, and filtered light with protection from direct sunlight and winds.

A soil-less mixture of various grades of treated pine bark, peat and charcoal can be used, granulated styrene can be added for aeration, plus diatomite and treefern fibre could be added at the growers discretion.

REMEMBER NO SOIL IN THE POTTING MIX.

These tassel ferns, unlike other ferns that can be propagated easily from spore, are according to most, unable to be grown in this manner by us as growers, but evidently can be by mother nature whom we can simulate but cannot duplicate.

According to botanists and various authors, in nature these ferns can take as long as seven years or more to germinate, during which period they lie dormant in total darkness. If, and when germination takes place, they rely on a mycorrhizal fungus that assists the prothallus to take up nutrients for growth.

Being a layman fern grower keenly interested in these ferns, I have over several years collected various techniques of propagation used by specialized growers, thus enabling me to propagate a variety of these ferns

We find that *Huperzias* can be propagated by division, tip layering and stem propagation.

I truly believe that if a fern is crowded, shows signs of definite individual growths, that these can be carefully, I emphasize carefully, divided and transplanted into an appropriate medium.

Layering and stem propagation are individual techniques; most growers develop their own method of successfully achieving this. Basically methods of propagation would be similar, but with variations due to growing and climatic conditions.

continued page 30



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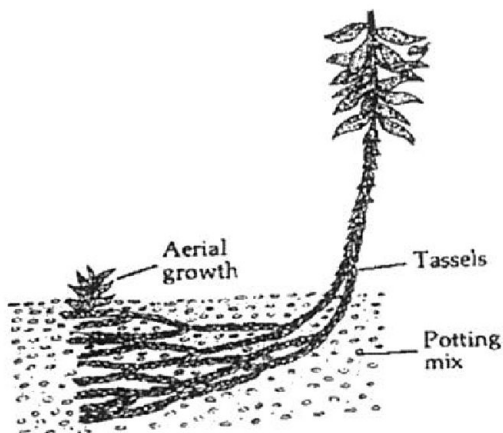
After some experimentation with various propagating mediums, I find that an appropriate mix for my own use is a mixture of fine diatomite, fine charcoal, elk peat (mulched and put through a 7min sieve); this I find to be an excellent base for both layering and stem propagation.

Huperzias have different characteristics to identify as to when one should propagate, learned experienced growers can readily observe when is the correct time to achieve this.

With stem propagation, in some varieties, we find that the stem or apical section can kink or bend upwards (as in a bent elbow), usually having a minute root that can be observed on the underside of the bend, this then can be placed, preferably still attached to the parent plant on to the appropriate medium, pegged down using plastic coated wire bent into a "U" shape.

After a period of time, and if conditions are right, roots develop allowing the plant to grow to some maturity. Some growers prefer to leave the stem remaining attached to the parent until the new growth has developed enough to be self supporting. At this stage the plant can be severed, leaving approximately 70-80mm of the old stem attached, this then can be potted into an appropriate growing medium.

Another method of growing, is by tip layering, this being relatively easy. To do this, take the stem with the stroboli or tassels attached and showing signs of spore, lay the tassels on to a suitable medium, spreading out to a fan shape, covering lightly with a fine layer of the medium to weigh down, or pegging down as previously mentioned. Eventually the tips develop firstly as leaves, then plantlets.



Aerial growths on tassel fern (layered on potting mix)

When these have attained the required development, they can be severed as I have described earlier, then potted on.

Learned growers of these ferns have indicated that if spore is prevalent on the tassels, there can be an excellent chance of success with this type of propagation.

I find that these techniques can be more advantageous, if carried out using a thematically controlled propagator to ensure an ideal growing atmosphere, also preferably a well lit area, boosted at regular intervals with use of Gro-tubes.

Tassel propagation can be a rewarding exercise. These ferns are relatively easy to grow in the temperature range of 3 - 35 deg. Celsius. If one can simulate if possible, their natural environmental conditions of a well lit and warm area with adequate air circulation, one should succeed.

For illustrated reference to stem propagation of Huperzias refer to page 138, Encyclopaedia of Ferns by D. Jones.

These perceptions are only as I personally decipher their requirements and should be deemed to be a basic guide only. Opinions of others will probably differ dramatically to my own, use your own discretions as all growers should do.

Acknowledgements

for information collated D.L. Jones Encyclopaedia of Ferns - Greenworld Ferns. C. Bauer - 1 Maher - P. Appo and R Kupke.

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TODEA BARBARA

The massive, erect trunk may be as tall as 1.5 m, ; it is very fibrous, covered with matted roots, and broken winged stipe bases, and it may bear numerous crowns of fronds borne in spiral. Fronds are bright green, pinnate or bipinnate, and as long as 2 m. The stipe is usually smooth. Sporangia occur in groups on basal pinnules and are naked on the veins.

Spores ripen nearly simultaneously are released when green.

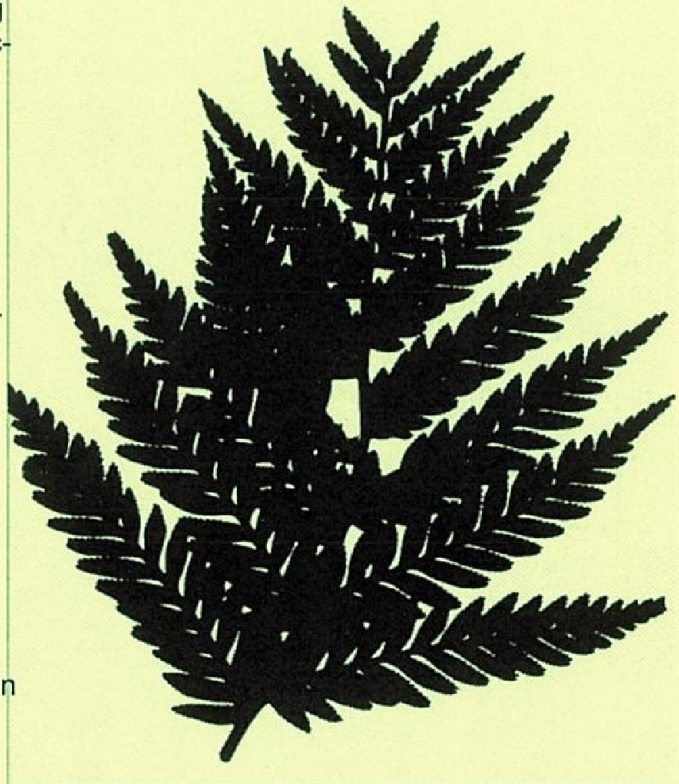
Distribution: Southern Africa, Australia (Queensland, New South Wales, Victoria, Tasmania and rare in South Australia), and northern North island, New Zealand, in open locations, scrub, dark gullies, rock crevices, shaded wet areas in rain forest -and forest clearings, swamps, and on stream banks.

The largest plants of *Todea barbara* grow in shaded areas. This tree fern is slow-growing, long-lived, and excellent for cultivation in containers in warmer areas, or easily grown in cooler areas with some protection. It is frost tolerant but can be damaged.

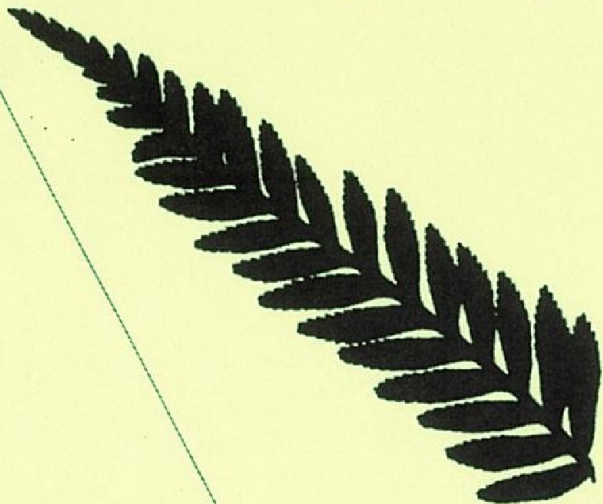
Spores are green and short-lived.

References

Fern growers manual - Barbara Joe Hoshizaki
Tree ferns - Mark Large, John Braggins



Fronds *Todea barbara*



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