

FERN SOCIETY OF VICTORIA NEWSLETTER

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May/June 2014



In this issue:

- Don Fuller on *Nephrolepis*
- June excursion to Royal Botanic Gardens, Melbourne

Fern Society of Victoria Inc.

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Objectives of the Fern Society of Victoria

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

To promote the conservation of ferns and their habitats

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Subscriptions

Single	\$17.00
Pensioner/student	\$14.00
Family	\$19.00
Pensioner family	\$16.00
Overseas	\$25.00 (overseas subscription payments by international bank cheque in \$Aus, by airmail please)

Subscriptions fall due on 1 July each year

Meeting venues

The Kevin Heinze Garden Centre, 39 Wetherby Road, Doncaster [Melway 47 H1]

Other meetings as advertised in this Newsletter

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 Workshops and demonstrations

10:00 Close

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 endorsement.

President's Note

The Society trip to Fern Acres Nursery, the Mason's Falls locality in Kinglake National Park, and the Wirrawilla Rainforest Walk near Toolangi held last weekend was well attended, and well enjoyed in fair weather. We are very grateful to Eddie and Robyn for agreeing to have us visit (and Robyn's dad John, who helped to host us whilst we toured the nursery and had our picnic lunch before moving off to the Park).

The forest areas have by now well recovered from the huge fire event in early 2009, and the damage to visitor amenities fully dealt with. The ferns are abundant, especially along the Wirrawilla Rainforest Walk, where the huge trees, especially the *Nothofagus* ("Southern Beech") and *Athosperma* ("Sassafras"), but also many eucalypts, host a great many ferns – as well as other plants – growing epiphytically, which makes for a spectacular display to complement the prolific populations of treeferns and ferns in the understory.

We're including (in a coming issue) some photos which should serve to attest to the attributes of the sites we visited in terms of fern viewing – fully representative of our good fortune in hosting "the best treefern populations in the world" (my description, anyway!).

We hope for similarly uplifting viewing experiences during the forthcoming excursions to the Otways this month, and the Royal Botanic Gardens Fern Gully in June (more details in this Newsletter).

Barry Stagoll

Membership Renewals Now due

Membership subscription renewals for the year 2013-4 are now due and prompt payment would be appreciated as our financial year commenced on July 1st.

Please use the renewal form included with the July-August newsletter. If you have prepaid a note to that effect would have been enclosed in the July-August newsletter.

Members may also renew their memberships online if they have a Paypal account; instructions are provided on the Society membership web page <http://home.vicnet.net.au/~fernsvic/Member.html>

Cover image: *Nephrolepis cordifolia*. Location: Maui, Kapalua. Photographers: Forest Starr and Kim Starr; image licensed under a Creative Commons Attribution 3.0 License.

Editor's Note

Thanks are due most obviously this issue to Don Fuller for his thorough and informative treatment of *Nephrolepis*. I must admit Don's article piqued my curiosity, especially his emphasis on the propensity of *Nephrolepis* to generate so many varieties, cultivars and other morphological variants. Thus I did a bit of online research and found these recent articles:

Hovenkamp PH, Miyamoto F. 2005. A conspectus of the native and naturalized species of *Nephrolepis* (Nephrolepidaceae) in the world. *Blumea* 50: 279–322.

Hennequin, Sabine, Hovenkamp, Peter, Christenhusz, Maarten J.M. & Schneider, Harald (2010) Phylogenetics and biogeography of *Nephrolepis* – a tale of old settlers and young tramps. *Botanical Journal of the Linnean Society* volume 164, pp. 113–127.

I haven't yet seen the Hovenkamp (2005) paper, but I have looked at the paper by Hennequin and her co-authors who studied 18 species of *Nephrolepis* (there was only one species they could not obtain) and provide the first genetic study (using DNA gene sequence data) of the genus. I thought that some members might be interested in a brief summary of some of the key discoveries in the paper:

- Previous work had suggested, controversially, that *Nephrolepis* could belong within the Lomariopsidaceae (a family of ferns that includes the genera *Cyclopeltis*, *Lomariopsis* and *Thysanosoria*). However the Hennequin study does not support that conclusion.
- An evolutionary tree of *Nephrolepis* species (which I cannot reproduce for copyright reasons) suggests that the group first evolved in the Eocene (roughly 55-35 Million years ago).

- *Nephrolepis* probably originated in what were then tropical northern forests and subsequently split into two groups of species: one (including *N.falcata* and *N. davallioides*) in southeast Asia and northern Australia, the other (including *N.pectinata*) spread into the New World, meso-America and South America.

- Some species, like *N.biserrata* and *N.undulata*, have since spread across oceans, far beyond their likely original point of origin.

- The genetic study suggests that many morphological characteristics, such as rhizome and stolon differentiation, and shape of the pinnae have evolved independently many time and in *Nephrolepis* species that are not necessarily most closely related. (I suppose, reading between the lines of Don's article, that this would not surprise him much!?)

- However, the genetic study does also show that *Nephrolepis* is a valid genus. (FSV members will no doubt be relieved to know that botanists are not proposing to split the genus!).

Thus endeth today's seminar!

Best wishes to all FSV members until the next issue. Please keep the articles coming (my cupboard of unpublished material is bare).

Robin Wilson

Fern Society of Victoria meetings — 2014

May - NO ACTIVITIES

There will be no meeting at the Kevin Heinze Centre and no FSV activities in May 2014

June: Sunday 22nd

Excursion to Royal Botanic Gardens Melbourne – to view the Fern Gully (and other locations according to individual interests).

Meeting point: Visitor Centre, Birdwood Avenue, Front Entrance (near the Bookshop/ Entrance Cafe) at 11 am. (Contact Barry Stagoll on mob. 0411525890 if required).

Suggest partake of lunch from (say) midday, either at the cafe or byo picnic (take into the Gardens).

Parking: Coin operated parking ticket machines in roadside locations including Birdwood Avenue.

For details of meetings for July and beyond see next Newsletter

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The genus *Nephrolepis*

Don Fuller

This article is based on a talk given by Don at the March 2014 meeting of the Fern Society of Victoria

Tonight our topic is the genus *Nephrolepis*, a group of ferns which has lost popularity and one we seldom mention at our meetings. The name *Nephrolepis* comes from the Greek nephros “a kidney” and lepis “a scale” which relates to the kidney shaped indusia on many of the species. *Nephrolepis* is now placed in the Davalliaceae family along with the other Australian ferns – *Davallia*, *Oleandra* and *Arthropteris*. Worldwide there are about 30 species, most of which are found in tropical areas with only a few in the temperate regions.

Native *Nephrolepis* ferns

Flora of Australia lists 6 species but also point out that the status of several species is doubtful and if reviewed could be reduced. The six species found in Australia are as follows.

Nephrolepis acutifolia – Found in NE Qld and N NT. It is tropical/sub tropical with 1 pinnate fronds to 1.0-2.0m. It can grow in full sun but is very cold sensitive. Uncommon.

Nephrolepis arida – Found N WA and N NT. Grows in damp crevices in sandstone gorges. Fronds can grow to 1.7m and are 1 pinnate. Uncommon.

Nephrolepis biserrata – Coarse Sword Fern. Found in NE /NW Qld and N NT where it grows in the shade near water and is moderately common. It is tropical/sub tropical with 1 pinnate fronds 0.9-2.50m long.

Nephrolepis cordifolia – Found NE NSW and E Qld but has naturalised in many other areas including Victoria. It is tropical/temperate with 1 pinnate fronds 0.4-0.8m. Grows full sun to shade and is common.

Nephrolepis hirsutula – Found N and E Qld where it is moderately common, and in scattered locations in N NT and N WA. It is tropical/sub tropical with 1 pinnate fronds growing to 1.2m. Often found in exposed positions

Nephrolepis oblitterata – Found NE and NW Qld, and N NT where it is moderately common. Fronds are 1 pinnate and grow to 1.7m. It is tropical/sub tropical and is found in damp locations.

Most of the above ferns, have large fronds, grow in big clumps, and in some cases are invasive. Also with the exception of *N. cordifolia* all are cold sensitive and difficult to grow under normal conditions in temperate regions hence of little interest to us.

Nephrolepis cordifolia (Fishbone or Sword Fern) is a fern that we are all familiar with. It is a medium sized, extremely hardy fern with almost a worldwide distribution throughout the tropic and subtropic regions. It has stiff and erect fronds whereas most *nephrolepis*, except for some cultivars, are pendulous. A feature of this fern is the fact that it produces underground scaly tubers from its runners or stolons. It is a vigorous, drought and sun tolerant fern that will grow in a wide range of conditions. It will survive in full sun, is almost indestructible and can be invasive. *N. cordifolia* has provided a number of cultivars the most familiar being *N. cordifolia* cv. *Plumosa* (Plumed Sword Fern) which makes an attractive basket. Other cultivars are “Kimberley Queen” and “Garrettii”.

Exotic *Nephrolepis* ferns

The most important of the exotic species is *N. exaltata* which is a common fern in the

Nephrolepis (continued)



Above: *Nephrolepis exaltata* Cultivar 1 cv. Unknown

Below: *Nephrolepis exaltata* Cultivar 3 possibly *N. exaltata* cv. Roosevelti

photos: Don Fuller



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Nephrolepis (continued)

Americas and also found in Africa and Asia. It is a medium sized fern with short upright, dark green fronds which are similar to *N. cordifolia* but larger and longer, and when grown in the shade, are softer and more arching.



Above: *Nephrolepis exaltata* 'Chantilly Gold'.
photo: Don Fuller

Above: *Nephrolepis falcata* Cultivar 2,
possibly *N. falcata* cv. Ram's Horn

Below: spore pattern of *Nephrolepis falcata* Cultivar 2, possibly *N. falcata* cv. Ram's Horn photos: Don Fuller



Nephrolepis (continued)

In the late 1890s a florist near Boston found among his *N. exaltata* ferns a new variety which was softer, more graceful and had long pendulous fronds. He cultivated it and it became very popular and still is today. It is called *Nephrolepis exaltata* cv. *Bostoniensis*, the Boston Fern and is a sterile cultivar. However the mutation did not stop there and among the many thousands of Boston Ferns cultivated in many locations there appeared a large number of very different forms which had ruffles, frills, colour changes and other variations. This ability to produce interesting cultivars has continued even to this day with a chain store currently selling a new release.



Main image: *Nephrolepis* spp. in Don Fuller's igloo.

Top right: *Nephrolepis exaltata* Smithi

Photos: Don Fuller.

Competition results (subject: the genus *Nephrolepis*)

These are the results from the competition at the March meeting (all photos Barry White).
(Don Fuller's *Nephrolepis* article continues on the following page.)



Top image: 1st place:
Nephrolepis exaltata
'*Bostoniensis*' grown
by Mirini Lang

Lower image: 2nd
place: *Nephrolepis*
exaltata 'Fluffy
Ruffles' grown by Don
Fuller



Above: 3rd place: *Nephrolepis exaltata* 'Curly
Locks' grown by Don Fuller

Below: *Nephrolepis* competition display at the
March FSV meeting



Nephrolepis (continued)

David Jones in the Encyclopaedia of Ferns lists over 50 cultivars and there are claims that the number is over 200. They take many forms with some upright, some long and pendulous, some frilled or ruffled and some short, very fine and congested.

Several references comment on the difficulty with identifying and naming many *Nephrolepis* cultivars due to the following reasons:

- The difficulty in adequately describing the frond differences which is increased by the ability to produce different fronds on the same plant.
- Old and new names loosely used and documented.
- The practice of renaming an old cultivar for marketing purposes.

The cultivars of *N. exaltata* *Bostoniensis* are generally not suitable for growing outdoors in our region but can be very attractive plants in warm, sheltered, well lit positions and indoors. Some of the better known cultivars are as follows (*indicates that this fern was on display at the March FSV meeting):

Compacta A smaller compact form of *Bostoniensis*

*Gretnae** Large weeping fern with crested and forked fronds

Delilah As *Gretnae* but golden yellow

Aura or *Fandancer** A small golden yellow form of *Bostoniensis*

Variegata or *Tiger** A green yellow variegated form

*Chantilly Gold** A small to medium sized fern with frilled, dense, golden yellow fronds.

*Fluffy Ruffles** and *Childsii* Small to medium sized fern with upright stiff wavy/ruffled and congested fronds

Smithii,* Suzy Wong, Verona Small ferns with fine, lacy, dissected and congested fronds.

*Curly Locks** A recent release. An unusual fern with small, upright, backward curling, fronds and inwards curling pinnules

Three cultivars, whose identify was unknown or uncertain, were also on display. They were:

Cultivar 1. A fern with tall, upright, mid green fronds which are unusual in that most of the pinnules change from pinnate to bipinnate midway along the pinnule.

Cultivar 2. This unusual fern has short, upright growing fronds which are dark green in colour and have congested curved pinnules. It was thought that this fern could be *N. falcata* cv *Ram's Horn*. This fern also has fronds with spore.

Cultivar 3. This fern was originally obtained from the late Dorothy Forte and was unnamed. I initially had reason to believe that it was *N. exaltata* cv. *Roosevelti* but in my growing conditions the fronds tended to be short, upright growing and mid green in colour where as the description I read said that it has long pendulous fronds. However another member brought in her fern which came from the same original plant but was growing inside and under dimmer lighting. This fern is very different in appearance with long, broad, dark green, pendulous fronds and could well fit the description.

All of the cultivars of *N. exaltata* '*Bostoniensis*' are sterile so propagation must be by division or tissue culture.

Another *Nephrolepis* of interest is *N. falcata* from Malaysia-Burma area. This fern is the origin of the reasonably well known cultivar *N. falcata* cv *Furcans*, the *Fishtail Sword Fern*. This fern has long pendulous fronds with all pinnae forked like a fishtail. Another cultivar of *N. falcata* is *Ram's Horn* which has strongly curved pinnae and seems similar to my unidentified cultivar 2.

Nephrolepis (continued)

Growing Conditions and Care of *Nephrolepis* Cultivars

Nephrolepis exaltata and other cultivars grow well in baskets and pots in sheltered positions but not in the open garden. They are ideal ferns for indoors, sunrooms, porches, glasshouses and igloos with a warm, humid and well lit position with good air movement. They grow well in plastic baskets and pots. Good drainage is essential so use a potting mix that drains well and is slightly acid (ph 5.5 – 6.0). I have found coir potting mix excellent and now use it for all my *Nephrolepis* ferns.

Nephrolepis ferns are very tolerant of drying out for a short period but do best if in summer they are grown in a humid environment and are kept moist but not wet. The finer and congested cultivars are very prone to rotting in the centre if water remains on the foliage for any length of time. It is therefore preferable to not wet the fronds and only water the potting mix. Where possible dunking the basket or pot in a container of water is a good practise as it results in a through soaking. In the cooler months they require very little water and should be kept on the dry side.

Most of my *Nephrolepis* cultivars are grown in an igloo covered with 70% sandstone shade cloth and are facing north. Those in baskets are suspended from roof rails with the top of the fronds being very close to the roof. They seem to enjoy the heat but on days of extreme heat (+40c) some burning on the tips can occur but this does not seem to effect the rest of the plant. The golden yellow forms maintain colour best if the light level is very high (but not direct summer sun). If the light level is too high the top of the fronds will show signs of bleaching white. In the case of the green and yellow variegated form, the degree of variegation can be adjusted by varying the amount of light. The dark green forms should be given less sunlight to maintain their colour.

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Nephrolepis (continued)

Grooming of these ferns is more difficult because of their congested nature and the fact that eventually they will begin to die out in the centre with all the growth around the edge. When this occurs they will need to be repotted. Remove and discard the centre and replant the new growth from around the edge. This should preferably be done in early summer as they can be slow to re-establish. Do not repot in winter.

As previously stated these cultivars are sterile and can only be propagated by division or tissue culture. When subdividing a plant better results are obtained if the clumps are not too small as these ferns do best when slightly root bound and very small pieces are slow to establish.

Pests

Nephrolepis do not seem to be damaged by snails or caterpillars however scale and mealy bug can cause problems especially with the congested forms. Therefore good air circulation is essential for the health of your ferns.

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Fern Society of Victoria Spore Bank

Fern spore is free to members of the Fern Society of Victoria who donate spore. Otherwise the cost is members 50 cents per sample, non-members \$1, plus \$1.00 to cover postage and handling. Available at meetings or by mail from Barry White, 34 Noble Way, Sunbury, Vic. 3429 Australia, Ph. (03) 9740 2724. There is no charge for spore for overseas members, however to cover postage two International Reply Coupons would be appreciated; or alternatively spore may be exchanged. International Reply Coupons are being phased out in favour of PayPal via the FSV website. Overseas non-members may purchase spore at three packets for each International Reply Coupon, plus two coupons per order to cover postage and handling. There is a limit of 20 packets per order. Some spores are in short supply please include alternatives. Queries can be emailed to: Barry White barry_white1@msn.com.au. The following list is current as of December 2012, but consult the web page at <http://home.vicnet.net.au/~fernsvic/Sporlist.html> for updates and for details of payment options for spore purchases. Thank you to the spore donors who are listed on the web page.

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<i>Adiantum formosum</i> 1/12	<i>Cyathea cooperi</i> 'Brentwood' 3/08	<i>Ophioglossum pendulum</i> 7/08
<i>Adiantum hispidulum</i> 6/12	<i>Cyathea cooperi</i> 'Cinnamon' 4/11	<i>Pellaea cordata</i> 7/09
<i>Adiantum raddianum</i> 'Le Grand Morgan' 6/12	<i>Cyathea exilis</i> 12/12	<i>Pellaea falcata</i> 1/11
<i>Adiantum raddianum</i> 'Triumph' 6/12	<i>Cyathea leichhardtiana</i> 8/12	<i>Pellaea hastata</i> 5/10
<i>Aleuritopteris kuhnii</i> 6/10	<i>Cyathea macarthurii</i> 10/10	<i>Pellaea viridis</i> 5/12
<i>Amphineuron opulentum</i> 7/11	<i>Cyathea medullaris</i> 10/12	<i>Phegopteris decursive-pinnata</i> 3/12
<i>Amphineuron queenslandicum</i> 4/12	<i>Cyathea rebecca</i> 8/12	<i>Pityrogramma calomelanos</i> 8/11
<i>Anemia phyllitides</i> 4/12	<i>Cyathea robusta</i> 9/10	<i>Platyserium bifurcatum</i> 'Venosum' Mt Lewis 10/07
<i>Anemia tomentosa</i> 8/11	<i>Cyrtomium caryotideum</i> 8/10	<i>Platyserium superbum</i> 4/08
<i>Angiopteris evecta</i> 11/09	<i>Cyrtomium fortunei</i> 6/10	<i>Pleisoneuron tuberculatus</i> 1/11
<i>Arachniodes aristata</i> 4/12	<i>Cyrtomium juglandifolium</i> 6/12	<i>Pneumatopteris sogerensis</i> 7/11
<i>Arachniodes mutica</i> 10/08	<i>Dicksonia antarctica</i> 8/12	<i>Pneumatopteris costata</i> 6/11
<i>Arachniodes standishii</i> 10/12	<i>Diplazium australe</i> 1/12	<i>Polypodium formosanum</i> 10/12
<i>Asplenium aethiopicum</i> 10/12	<i>Diplazium assimile</i> 7/12	<i>Polystichum aculeatum</i> 7/09
<i>Asplenium milnei</i> 10/10	<i>Diplazium dilatatum</i> 12/10	<i>Polystichum australiense</i> 10/12
<i>Asplenium nidus</i> 5/08	<i>Diplazium dilatatum</i> x <i>Deparia petersenii</i> v. congrua 3/11	<i>Polystichum formosum</i> 11/12
<i>Asplenium nidus</i> cv. 5/08	<i>Doodia australis</i> 2/12	<i>Polystichum proliferum</i> 12/10
<i>Asplenium pellucidum</i> 3/11	<i>Dryopteris affinis</i> 'Cristata' 1/12	<i>Polystichum retroso-paleacum</i> 10/12
<i>Athyrium filix-femina</i> (red stipe) 12/10	<i>Dryopteris cycadina</i> 11/12	<i>Polystichum tsus-simense</i> 11/11
<i>Athyrium otophorum</i> 1/12	<i>Dryopteris erythrosora</i> 1/12	<i>Polystichum whiteleggei</i> 10/10
<i>Blechnum ambiguum</i> 1/08	<i>Dryopteris guanchica</i> 11/12	<i>Pronephrium asperum</i> 1/11
<i>Blechnum braziliense</i> 1/12	<i>Dryopteris sieboldii</i> 3/11	<i>Pteris aspericaulis</i> 8/10
<i>Blechnum chambersii</i> 4/12	<i>Dryopteris sparsa</i> 11/12	<i>Pteris biaurita</i> 3/12
<i>Blechnum discolor</i> 8/12	<i>Dryopteris wattsii</i> 11/12	<i>Pteris dentata</i> 12/10
<i>Blechnum fluviatile</i> 9/11	<i>Histiopteris incisa</i> 12/11	<i>Pteris hendersonii</i> 12/10
<i>Blechnum minus</i> 3/12	<i>Hypolepis glandulifera</i> 1/12	<i>Pteris pacifica</i> 12/12
<i>Blechnum patersonii</i> 4/11	<i>Hypolepis muelleri</i> 3/12	<i>Pteris stenophylla</i> 4/11
<i>Blechnum spicant</i> 1/12	<i>Lastreopsis acuminata</i> 10/12	<i>Pteris tremula</i> 11/10
<i>Blechnum wattsii</i> 9/11	<i>Lastreopsis decomposita</i> 1/12	<i>Pteris umbrosa</i> 8/12
<i>Cheilanthes myriophylla</i> 3/12	<i>Lastreopsis marginans</i> 3/12	<i>Revwattsii fragile</i> 3/11
<i>Chingia australis</i> 11/12	<i>Lastreopsis microsora</i> 11/12	<i>Rumohra adiantiformis</i> (Cape form) 2/12
<i>Christella dentata</i> 3/12	<i>Lastreopsis nephrodioides</i> 4/12	<i>Rumohra adiantiformis</i> (native) 4/12
<i>Christella hispidula</i> /09	<i>Lastreopsis rufescens</i> 3/11	<i>Sphaerostephanos heterocarpus</i> 7/11
<i>Christella parasitica</i> 5/11	<i>Lastreopsis tenera</i> 3/11	<i>Teratophyllum brightiae</i> 8/11
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<i>Cyathea baileyana</i> 11/12	<i>Macrothelypteris torresiana</i> 4/12	
<i>Cyathea brownii</i> 10/12	<i>Microlepia firma</i> 1/12	

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