the Propagator

International Plant Propagators' Society
Australian Region - Newsletter Summer 2005 - No: 8

Finding paradise on the El Camino Real

'***They called it Paradise'***, that's the start of a famed Eagles song about California and to the Spanish explorers who made their way north from Mexico, it certainly was. On their march north the Spanish established 21 missions to bring religion to the locals as well as setting up 'ranchos' to give a return on their investment. Linking the missions and ranchos was a walking track, the 'royal pathway' or as it was known the 'El Camino Real'.

Fast forward four hundred years and a group of propagators set out to traverse the same El Camino Real, in search of the propagators paradise. Our vehicle was a bus painted with a wizard on the side, the Real is now highway 101. A glory box of interest awaited us.

The first thing an Australian notices about Californian nurseries is their size; they are huge by our standards. The trip started with a visit to Monrovia, cited as formerly the largest nursery in the world. It is now relocating to other sites and the land being sold to housing, a common theme for large well established growers (they have been on the site for 50 years). A small remnant, still larger than most Australian nurseries, will be retained and this concentrates mainly on propagation. The variety of crops grown by Monrovia is huge and with production facilities all over the US, they are certainly a major supplier to most garden centres. A demo of grafting magnolias was given.

The next nursery on the itinerary, Colorama, was growing in size and stamping its place as the premium grower of potted colour. Of interest was the roller benches for the dispatch area, where trays of plants ready to go are placed each day. Owner Richard Wilson put this in place to reduce picking time. His latest move is to use flooding benches and reuse all water. California's environmental laws are very strict and all nursery run-off water must be collected and retained on-site. He described to the group the most recent move by major US retailers, 'sale on scan'. In essence he retains ownership until the product is sold by the retailers, but in return gains extra margin and more say in product mix. Colorama staff merchandise, sweep floors, and water plants and are the sole supplier of this product in-store. He described US plant marketing as 'cut throat'. Richard said he will be monitoring developments closely and says to growers 'you have to be retail oriented'. The nursery has 250 employees and loads 24 trucks per day in spring (day and night crew).

The next stop was one of the most successful retail garden centres in California, Rogers Gardens at Corona Del Mar. The displays were exciting, and the plant quality superb. A feature was the large hanging baskets and group planted pots. A model train line kept the kids amused, and they already had Christmas goods on display, rooms full of trinkets, lights, trees, gifts … you name it. It is said to be the busiest garden centre in the US with 100 staff and $15 million turnover. They unashamedly concentrate on the premium end of the market, with highly respected staff, on-site training and a host of add on services. Plants are now only 50% of the sales, the rest coming from home decoration, patio furniture, mail order merchandise and Christmas goods.

We ventured further south stopping briefly at a private garden at Rancho Mission Viejo, one of the few remaining large ranchos (25,000 acres) left in California. .... *(continued on page 10)*

President's Comment

It is warming up already and they are predicting a hot summer. This may have an effect on industry sales but it will have a bigger effect on our little plants. You only need to miss a misting or have a dripper block up and your have lost a few plants. It seems that pumps will always stop at 5:30 on a Friday!

Speaking of water, how are the water restrictions affecting you? As an industry we need to speak up when governments start making it hard for us to do business. It is important to be water efficient, but it is also important that those who strive to improve their practices are acknowledged. Our industry is generally water efficient with many recycling it.

Enough politics. I hope everyone has locked in May 18 to 21 for the 2006 Conference. As usual it will be packed with excellent technical information and great social functions. However the most important times are when we are discussing plant propagation over dinner. It is at these times that we learn the most. Here our young and not so young but new propagators get exposed to the combined wisdom of our society. It is also when they get to make the personal connections that will allow them to mature into true plants people.

I hate to nag, but have you nominated any young propagator for the **Rod Tallis Award**? What about someone for the **Six Pack program**? We also have another exciting new award. Greg McPhee has been working with our friends in South Africa to develop a packaged visit to South Africa to spend some time in a one of their nurseries, and to attend their annual conference. See the article (page 3) for full details.

We have finally decided on the design for our **membership certificates and name badges** and hope to send them out to everyone in the New Year. Pam has emailed everybody to check in what form you would like your name. Please respond promptly as we get a better price if we can do all the badges at once.

I would like to thank all the executive and committee members for the work they have done this year. It is much appreciated by us all. We would not be able to function if it wasn't for the many hours these members contribute. David Daly steps down as International Director. He has been a great contributor in all the roles he has undertaken on the executive. Thank you, and we will miss your insightful comments and suggestions.

I would like to wish all our members a very happy Christmas and a prosperous New Year.

Clive Larkman

Secretary / Treasurer's Comment

The drought is a reality to all Australians now regardless of where you live. I believe that we here in Queensland have had it pretty good for a long time, so we are now just adjusting to the changes. Predicted forecast for summer rain sounds promising with many a storm predicted…..we will wait and see what happens.

It is that time of the year again, and shortly membership subscription renewals will be forwarded out to all Members. Your speedy remittance in this regard would be very much appreciated.

Brisbane conference is shaping up to be *'One not to be missed'*. So please mark it in your diary for next year 18th to 21st May 2006. More information will be forwarded out early in the New Year regarding the Brisbane conference

Cheers, Pam Berryman

International Directors Report

-California 2005

Appointment of Secretary Treasurer

A special thanks was given to John Wott for his 20 years of service to the position of secretary treasurer.

There were motions put to the board regarding the appointment of secretary treasurer, the exact wording of the motions will be available to members once I receive the minutes. The firm of "Calabrese and Heuser" were appointed to the position of international secretary treasurer of IPPS. The company manages many similar organisations as IPPS, and the Board felt that the appointment would be good for the IPPS.

A summary of the motions were as follows:

1. The appointment of Calabrese & Heuser is per the proposal Pat Heuser has presented to the board, the appointment starts on 1st Jan 2006.

2. The voting rights of the international secretary treasurer and editor be withdrawn from the constitution.

3. A review committee of the President, past President, Vice President , 2nd VP and one delegate will review the Secretary Treasurer annually.

4. The appointment of John Wott as a consultant until 31st Dec 2006.

Proceedings on the Web

With the appointment of a new secretary treasurer it was felt that Calabrese & Heuser will now look at working on the website.

The motion the Australian region put to the board was defeated unanimously. But another proposal was discussed:

A proposal from ISHS (International Society of Horticultural Science) was put to the board. They want all the proceedings put onto the website. It is still early days, but ISHS could produce all the proceedings to go onto their website. How members have access to these papers will also be looked at by the committee.

The ISHS proposal will be put forward to the board of directors throughout 2005/6 and discussed in Denmark in 2006. This does seem like a very good proposal.

The Australian region did vote at their AGM to have all proceedings on the web by 2008. We did not state that they should be password protected in the motion, but I strongly pushed for all proceedings to have limited access.

International Award of Honour
No applicants for this position.

Accounts / Financials
A new open accounting package will be implemented by Calabrese & Heuser.

Review of Standard Operating Policy
A review of the SOP will be conducted throughout 2006, to be in line with the new secretary treasurer.

International Constitutional Voting
Not all regions have had their AGM. It looks like all the changes will pass. The position of 2nd VP could be reality in 2006. It is the region's responsibilities to fill this position, with planning to occur many years out.

Southern Africa Potential region
I have a copy of the potential region of Southern Africa report for 2005. A very professional concise report, it put the rest of the regions to shame. Elsa du Toit did note that they no longer receive "the Propagator". I believe being the sponsoring region we should send them at least one copy.

The current contract with Southern Africa (drawn in Coffs in 2003), will be followed through until the end of 2008. The international board wants to see stability in finances and member numbers before approaching the board for full regional status.

Southern Africa have asked for expansion/recruitment funding for 2006/7, to increase their upliftment program. They will write a report to the board for Denmark 2006.

GB& I Expansion Funding
GB & I have asked the international board for funding of US$13,000 to run workshops into Eastern Europe. This includes catering, workshop room-hire, travel, accommodation, administration, advertising. They have spoken to the Scandinavian region regarding this proposal.

Future Conferences

2006	*GB & I*	*Belgium 29 Aug- 1 Sep*
	International	*Denmark late August 2006*
2007	*International*	*Tennessee Oct 10 - 23 2007*

Please note all pre conference international tours are open to all members of IPPS

Other Information
Volumes 1-10 of Proceedings are mostly on the Western Region website. The International Secretary also holds past copies of Proceedings (book & CD) which are available for any member to purchase.

David Daly

IPPS Travel Opportunity

The Australian region of the International Plant Propagators Society (IPPS) is offering a student of horticulture an opportunity of a lifetime, a trip to South Africa. Whilst there, the person will experience life working in a local nursery and attend the Southern Africa IPPS (SAIPPS) conference, which is being held in Pretoria in March.

The person chosen will be hosted by a nursery family in South Africa and visit local nurseries. Then they will join with others to form a support group for the conference, in a similar manner to the Australian region's 'six pack'. The intent of the trip is to build ties amongst young horticulturists in each country.

South Africa is an exciting place with some very distinct local flora. Included in the trip will be visits to botanic gardens and specialist plant growers. South Africans are quite advanced in some aspects of horticulture, and the locals there will also be seeing how they can improve from Australian ideas.

The trip is part of an exchange program between Australian and South Africa that is now in its second year. This will be the first visit by an Australian.

The expected time away from Australia is two weeks. The person chosen will be an ambassador for the Australian region and needs to have the support of their employers. An application form is available on the IPPS, Australia website www.ipps.org.au. For further enquiries please contact: - Greg McPhee, 0419 606561.

2005 Exchange propagators from South Africa - Lucy and Kuphumla

NZ Conference Opportunity

The New Zealand region of IPPS are very keen to foster an International "experience" to our Conference. With this in mind, we would like to offer free Registration for two of your members to attend our next Conference in Dunedin from the 27th to the 30th April, 2006. The only condition attached is that we would require them to present a paper.

Our Conferences are always lots of fun, full of great entertainment, interesting papers and awesome field trips. One of the last directives issued by our late International Director, John Follett, was that we were never to "take the Play out of Propagation !!" and we don't intend to. Looking forward to hopefully hearing from you soon,

Kind regards,

Glenys Evans
P.O. Box 98 Waikanae Kapiti Coast,
NEW ZEALAND

Propagation Research in Australian Botanical Gardens, Government Departments and Universities

Propagation research is alive and well in Australia's institutions. The great majority of work appears to being undertaken with native plants with a strong conservation emphasis at Botanic Gardens. Naturally, some Universities did mention that there was some contracted research that they could not discuss.

I apologise that not all institutions were contacted or responded this time, as I struck the busy end of year exam period at a number of the universities, or had some difficulty contacting appropriate people. Contact names are given at the end of each entry.

Australian National Botanic Gardens Nursery carry out propagation research into the following:

- Grafting techniques on a wide range of Australian plants
- Vegetative propagation methods for *Hybanthus floribundus* as a means of increasing the use of this very ornamental plant in the gardens
- Ongoing investigation into methods of building up the numbers of *Hakea pulvinifera* (a critically endangered species from northern NSW).

Paul Carmen

Research projects at Melbourne Botanic Gardens:

- Conservation of Australian terrestrial orchids - ex situ propagation and cultivation for recovery plans.
- Micropropagation of *Doryanthes excelsa* and a survey of genetic diversity in natural populations.
- Vegetative cutting propagation of a rare and ancient proteaceae rainforest plant from NE Queensland *Eidothea zoexylocarya.*

Rob Cross

At Mount Annan Botanic Garden (NSW) in recent years the focus has been on conservation and sustainability.

- Horticultural development of the Wollemi pine.
- RIRDC funded NSW Agriculture and the Botanic Gardens Trust to work further with cut flower growers to increase the range and quality of available Flannel flower cultivars, especially increasing vigour and extending flowering times. Over the past ten years they have explored propagation, cultivation and cultivar development.
- The newest project is the development of Seedquest NSW, aimed at collecting, storing and researching seeds of 750 NSW species over a three year period. With others they are researching common problems: deep dormancy, storage of desiccation intolerant species and extension of seed shelf life.

http://www.wollemipine.com/

http://www.rbgsyd.nsw.gov.au/conservation_research/

Dr Cathy Offord

Kings Park and Botanic Garden in conjunction with the University of Western Australia claim to be the Australian leaders in the development and promotion of new and novel seed biology approaches for increasing seed propagation success.

Currently there is a team of eight scientists at Kings Park working on different aspects of native seed dormancy and germination, seed storage physiology, seed broadcasting and seed enhancement for Australian species. Many projects are undertaken in conjunction with key end users including mining companies, Landcare groups, conservation agencies and various government bodies. Key outcomes include land restoration using species previously considered difficult to propagate from seed, development of propagation techniques for species with horticultural potential, conservation of threatened flora, and broad scale rehabilitation of damaged landscapes.

Dr Shane Turner or Dr David Merritt - (08) 9480 3639

NSW DPI (Department of Primary Industries)

- Flannel flower (*Actinotus helianthi*) propagation by Seed, Cuttings and Tissue-culture.

- Grafting from wild source, cultivated material and tissue culture of Australian native Rutaceae, Pimeleas, Corymbias
- Cuttings of rootstocks,
- Tissue culture of Eriostemon
- Kentia Seed germination

Jonathan Lidbetter

Forestry Tasmania is doing work on liverworts, algae and moss in seedling mixes at Perth nursery.

information from Sandra Hetherington

Universities

Dr Ian Gordon from the University of Queensland said "there is a considerable amount of propagation research taking place in the Centre for Native Floriculture at the Gatton Campus of UQ."

A new research greenhouse is under construction for the Centre. It will consist of a four bay structure designed and constructed to PC2 standard, clad with twin wall polycarbonate sheeting and fully air conditioned for effective temperature control. Aluminised thermal screens and full blackout screens will enable research into floral biology of local native species."

Ian Gordon

James Cook University are investigating:

- A non-mist, maintenance free propagation unit for sandalwood propagation in isolated islander villages.

Tony Page

At the University of Sydney Plant Breeding Institute (Camden, NSW**)** propagation research is undertaken for three different reasons.

- The first is the development of methods for dealing with difficult-to-root material from mature plants of woody perennials for building up our germplasm collections. The main research effort has been devoted to the large trees Moreton Bay Fig and Port Jackson Fig (*Ficus macrophylla* and *F. rubiginosa*).
- The second is the development of methods of tissue culture and micro-propagation for use in breeding methods such as somaclonal variation, somatic hybridisation, in-vitro fertilisation, production of haploid plants, cotyledon segment culture, embryo rescue, and the maintenance of male-sterile lines of annuals. Extensive research has been done on *Grevillea spp.* and hybrids, *Gazania spp., Argyranthemum frutescens, Leucanthemum x superba, Petunia axillaris* and *hybrids, Poa labillardieri, Lomandra longifolia, Scaevola spp., Verbena spp., Capsicum annuum, Triticum spp., Oryza sativa* and *Secale cereale.*
- The third is the development of commercially efficient methods of propagation by both standard and micro-methods for new varieties approaching the release stage. This has focussed on *Ficus macrophylla, Ficus rubiginosa, Poa labillardieri, Grevillea spp* and hybrids, *Petunia axillaris and hybrids, Gazania spp.* and *Capsicum annuum*.

www.agric.usyd.edu.au/pbi/

Assoc. Prof Peter M. Martin

The University of New England in NSW have an active program looking into:

- in-vitro breeding of Australian plants
- Understanding the flowering of the Desert Pea, and links between flower colour and disease resistance.
- Propagation of the rare Dangowan Daisy *asterolasia*. From cuttings moving on to tissue culture and embryo rescue.
- Propagation of *actinotus* Flannel Flower - the influence of Gibberellic acid on plant growth, stem length and flower size.

Prof Acram Taji

UWS in NSW have spent some effort looking at the:

- Effect of heat and smoke aiding germination of Australian native plants.

Charles Morris

Murdoch University in WA are researching:

- Micropropagation of recalcitrant plants.
- The role of fire in regeneration in wild post fire environments affecting seedlings.
- The role of mycohorizal associations, particularly in plantation eucalypts.

Dr Barbara Bowen

University of Tasmania

- At the moment mainly via tissue culture, but also some traditional cuttings: *Humulus lupulus* (hop), *Acacia mangium, Philotheca freyciana, Lomatia tasmanica* (very preliminary)

Dr Anthony Koutoulis

This article explores a different and worthwhile aspect of seek and share. It provides the opportunity for members to pose some worthwhile issues for research, as well as providing current information that may assist their own propagation efforts.

I would like to thank those who contributed (mentioned as contact), and the members who assisted with information in their states. Many of the people I talked with were interested in coming to the next IPPS conference, so we may hear more about this work over the next few years.

Bruce Higgs -editor "the Propagator"

Q & A from Mildura Conference

This wraps up answers to questions raised at the Mildura conference. If you have a question that you would like answered please ask a member directly or via the website chat room, or send me a note for inclusion in the Propagator (bruce.higgs@bigpond.com).

3. More information on microbe addition to media, e.g. Trichoderma (Robert Reynolds referred this question to John Teulon.) - Robert Percy

There are a number of different strains that are sold commercially and they vary in response. I haven't tried all of them although I have tried many different ones and they do vary. I have used one particular variety and have been very satisfied with this over a period of 10 years. I am willing to send information for mixing for use in propagation and tubes.

How long before it goes off? I have had some for 4 years now and still using it. It lasts very well as long as you keep it in a cool place until you are ready to use it. Mix and use it within a short period of time (one week is too long). **- John Teulon**

Robert Reynolds advised that there have been previous papers published on this at the first conference. *(Please refer to Combined Proceedings)*

4. What residual fertiliser remains in a plant fed with fertigation in the Nursery once it is sold off to the customer (approximate shelf life)? - Ben Stocks

The general experience I have had is mainly in the summer seasons with tubes and with typical irrigation. I would say a maximum of 2 weeks but it very much depends on the type of plant. For older plants it depends on the plant. I would suggest that with potted colour you wouldn't get much more than 2 weeks. Woody shrubs take about one month before you start to see a loss of quality. **- Kevin Handreck**

5. What is anion exchange resin? - Michael Martin

It could be a natural material or synthetic organic material that collects anions like Cl^-, NO_3^- etc, and is used to slowly release iodide (I^-) for improving the ability of iodine treatment. **- Kevin Handreck**

6. I understand the use of agar, but what is IVS – its' use and purpose? - Michael Martin

IVS is I*n Vitro* Soil-less propagation medium which is forward integrated into Stage 3 and replaces agar as a rooting medium. It is used for rooting micro-cuttings in-vitro without agar. Media is composed of sterilised peat / perlite / coarse river sand. IVS is porous and it is our experience that both root initiation and root elongation, particularly on difficult to root species, is improved in IVS compared to agar medium. The reason, is that agar is hypoxic or 'waterlogged', and as we all know, cutting propagation medium generally needs a fairly high air filled porosity. Micro cuttings are treated in an auxin pulse in agar medium initially then they are transferred into IVS. **Chris Newell**

7. Is there any difference in the root system of a cutting produced or seedling eucalypt? - Sue Caldwell

ROD TALLIS AWARD

Applications should be lodged with:
Janis House, P.O. Box 241 SOMERS VIC 3917
For further details Janis can be contacted on:
Phone (03) 5983 2736
or by email: janiscaddie@bigpond.com

Yes there is, as mature trees don't have a tap root as a general rule. If you go bushwalking on a track or in a National Park and you come to a log you have 2 choices you can either go over it or under it. Why can you go under it? You can because it is being held up by the root 'ball' and if you walk around and look at the type of plant and tap root formation then you will see that there is no 'tap root'.

We took plants like *Eucalyptus* and particularly *Melaleuca alternifolia* and looked at the root structure, and basically found that the root structure of a plant from a cutting that was several months to a year old was like the adult root system. Seedlings probably a year or so old just went straight into the ground as a start to the root system. The roots went down about 30 degrees from the cutting and just kept going out in all directions. After a few months there were 3 or 4 and eventually 5 or 6 roots so that the seedling had one root down for at least a year later and then we harvested the plants after 15 months. It was found that there were roots going out in all directions except vertically underground.

There is a large amount of information from Brazil/Africa on Eucalypts from cuttings. Cuttings happen in the wild for example with figs and syzygium from branches lying down. A paper has been produced on this already. It is a major way of producing timber trees. People don't fully appreciate what is going on in nature. **- Peter Radke**

I recently have come back from South America where interestingly a lot of the technical work on *E. globulus* that Peter talks about has been done and particularly on sub-tropical hybrids. In Uruguay they have done some interesting work particularly on comparisons of macro cuttings and mini cuttings of seedlings and compared the root systems. They found that mini-cuttings were indistinguishable from seedlings in root structure. **- David Cliffe**

8. Why do we call stock plants used for asexual propagation mother plants - no sex is involved?

Hartmann & Kester makes no reference to mother plants, this has probably crept in from the Tissue Culture industry. It distinguishes from sexual & asexual production. **- Chris Newell**

9. Can we have a more detailed description of the cloche method of propagation? - Ben Stocks

The cloche method of micro climate control was originally developed for rooted microcuttings but also works well with conventional seed, cutting and grafting

propagation. The cloche is a single layer of dress lining material which covers our hot beds over hoops attached with clothes pegs. Ours are three trays wide and as long as needed. We then mist onto the cloche rather than the plant material and maintain a high Relative Humidity without wetting the foliage, avoiding heat stress. We hand water as required. The cloche breathes so there is some air movement and it provides good light penetration, and is easy to clean and handle generally. Marex shades too much, material is also much better than plastic. - **Chris Newell**

11. With regard to the bench grafting of grapes, after cutting of scion material and understock, it is left laying on the bench which must allow for a skin to form. Is this not a problem? - Brian Smith

When we cut our budwood we actually leave it soaking in a container. Rootstock is cut and put to one side. It comes out of the water and doesn't have time to form a skin. It is re-cut right under the basal node and is then sealed up and watered. The cutting technique used is a very quick action. The rootstock is placed and the two blades slice each side of the wood and spliced so that it is a perfect graft. - **Paul Croxton**

12. Has anyone done any research on Australian native truffles? - Sue Caldwell

(Note: There has been some great work done in the Yarra Valley with several decent truffles being harvested that are of a quality equal to Europe.)

The Chinese have been doing work on a truffle and it is of poor quality. We all know about the truffle work being done in Tasmania and this is going very well, but this is all about Australian truffles. **Ian Tolley**

A bit of research is being done by DPI up to North Bundaberg. There are some books on the market dealing with this. **- John Daley**

13. You were heard to mention the words 'parking of buds', please explain. - Alan Saunders

This was in casual conversation. I had a fellow working for me who had a pistachio plantation as a hobby. We had a member of the family who parked a whole lot of pistachio buds on the trees and once they burst he just took the buds and away he went. **- David Cliffe**

14. Can anyone enlighten us as to how mistletoe takes on the morphology of its host plant, that is erect as opposed to pendulous growth? - Peter Smith

There are many different species of mistletoes, and they generally land on the right host plant.**-Pam Radke**

15. What are the best techniques for deflasking phormiums? - Jon Davis

We do a bit of deflasking and tissue culture. Main thing is watch the temperature (you can't do it in heat or if too wet). Trial a small batch first. **- Mark Pohlman**

We take plants from division. I also believe you need a free draining media and would suggest perlite with small amounts of peat moss and put them into a humid environment but not under mist, and leave them under these conditions. After a week bring them out and put underneath heavy shade, don't over-water, and then a week later bring them out. **- Alan Saunders**

16. Why do certain varieties of Grevillea yellow after tubing? Even after fertilising they will shoot off green shoots but still hold the yellow foliage. - Keegan Reed

Could be an iron deficiency, pH is too high or too much phosphorous or not enough iron or a combination of both. I would also be checking the pH level of the water you are using, nothing alkaline at all.

- Kevin Handreck

Iron sulphate solution in a watering can may fix the problem. It happens during early Spring or later Winter. Plants take up iron on growing tips, but at this time it is too cold to get tip growth. **- Michael Gleeson**

17. What is the expected effect of citrus canker on the citrus Industry (re propagation)? - Alan Gilbert

I have worked with citrus canker for 25 years and it is a real problem in the cooler, wetter areas where there is a lot of wind. Spores of the canker spread. You need to grow strong healthy trees as it is a very devastating disease. **- Ian Tolley**

What is the status on citrus greening disease? Murraya is a host plant and it is used in Thailand extensively. - Michael Gleeson

There are approx. 250 different species of plants/seeds imported into Australia each year and a new Research Centre for Bio-Security in Australia has been set up to keep a watch-out on any diseases. **- Robert Percy**

The issue here is what are the effects of a disease not already known here impacting on our Industry. Nursery Industry and Citrus Industry along with other organisations have developed a relatively new Organisation known as Plant Health Australia. - **Greg McPhee**

18. What are the advantages of embryo rescue over conventional seed germination? - Leigh Taig

Embryo rescue plant tissue culture is useful when seed is in short supply or normal viable true to type seeds don't germinate properly. The best example is a breeding project where fertile mature embryos (seeds) from controlled crosses are rare and each of these putative hybrids requires further clonal propagation for genotype assessment. In these circumstances the best way to capture the genotype is initiate the embryo into plant tissue culture and propagate clonally derived stock plants that way. **- Chris Newell**

19. How long has the Geraldton Wax breeding program been running in WA? - Julie Prent

Since the early 1990's, and was undertaken by Dicki Grounds. I have been involved in setting up protocols from 1995 to 2000. Currently it is funded by the Government of WA and we are looking for Industry participation. - **Chris Newell**

20. Propagation of Magnolia 'Little Gem'. What is the best material, time of year? - Tony VanderStaay

I actually don't have too much to do with the propagation of this but my understanding is the best time is to get ones from tissue culture, or from the plants when they are very young. **- David Daly**

Seedless embryos – Apparently there is a 1 in 1000 chance of actually getting it commercially viable from the embryo rescue that we are doing, and if you use

seeded which we do as well there is a 1 in 10,000 chance in getting something commercial. There is a big difference with the work we are doing, we are working with 2 seedless varieties. **Alan Saunders**

The following question was asked at the NZ conference in 2004 and this was the reply: What are the 'secrets' to the propagation success of Magnolia grandiflora "Little Gem" - propagation techniques, stockplant manipulation, etc.? – John Lawrence.

We took very fresh cutting material from trees that were 4' tall and did the cuttings quite large - 4 or 5 inches long. Some had 2 leaves and others we cut the leaves off them. Best time to do this is in March or April. I have spoken with Leo Coolowyn and he agreed that this is the best time to do it. You will have to pre-cut some but you will get a good strike rate. **- Di Larkman**

We do them late in the season as well perhaps a little bit later than what you do them in Australia. With us it is May or June, and we wait until the cuttings are almost hard, quite ripe – we take large cuttings still. Slightly higher bottom heat rate seems to help as well 24 to 25°C. **- Jim Russell -NZ**

We do it basically the same time as Jim mentioned – May/June. We take single node cuttings with 3 leaves. Our stock plants are kept well pruned to 1 to 2 metres each year. **- Ian Fankhauser – NZ**

21. For how many years can you take cuttings from 'hedges' before they need to be replaced? N. Duncan

When the motherstock dies, throw it out. **-Peter Radke**

22. Do you always use rooting hormones when propagating? Paul Carmen

No, we don't always use hormones. I have a theory based on a gut feeling, when you do everything right, you don't change it. The other thing I believe in for propagation is a bit of a cross between science and artistic touch, and it is the artistic touch that people need to have a good feel for the plants. **Peter Radke**

23. Can you say which mulch is best and why? What about the grape waste at the Inland Botanical Gardens? - Paul Carmen

What concerns me is the damage by some mulches. I still have some concern but that grape waste mulch is excellent as far as physical properties are concerned because it is open and yet will allow water through. Really the concern I have is the high salinity, high potassium and watch the EC. What you need in a mulch is large particles over 5 mm, if it is less than 2 mm it will not be as effective. - **Kevin Handreck**

24. What is special about the Italian substrate that you use for your production? Andrew Matthews

We use volcanic polosio from Italy, it has small particles that are hard and grippier. - **Paul Croxton**

26. What is the optimum time period for flooding? - Tony VanderStaay

The optimum time is the time it takes for the flood to fall, and capillary action to move the water as high as it can. At Advantage Plant Productions they calculated it by taking the rate of surface flow - that worked out at about 8 minutes full flood, plus 1.5 minutes of water going in- so around 10 to 12 minutes all up in a 140 mm pot. You only want water to go up, you don't want it to come back down again. **Greg McPhee**

27. Would adding 'airstones' to the slow sand filter improve the effect and efficiency? - Brian Smith

Slow sand filters work from aerated bacteria and I would say yes it is an advantage. You set it up so that it aerates the water as it comes into the bowl by swooping it upwards and that is where it could improve efficiency. **Greg McPhee**

28. Please comment on the nutrient build up in recycled water. - Michael Gleeson

Nutrient build-up is a problem in fully recycled systems. It becomes less of a problem if you have more fresh water in the system so that you have a bigger bank to work from. If you are working through a slow sand filter the slow sand filter bacteria will chew up some of the nutrients. I would suggest that if you are designing a new Nursery using a full recycling system you would then re-bed to strip the nutrients from the water.

Why would you want to take all the nutrients out of the water and then put special ones back in? The answer to that is you are not certain which nutrients have been removed and you end up with nutrients that have unknown quantities. So it is just so easier to do this as part of a management tool. **- Greg McPhee**

Check the pH of the water quite regularly and let the water run out of the pots. **- Des Boorman**

"The Plant Propagator, who originates plants of all kinds, is the cornerstone upon which all other parts of this vast industry depend. Without him (or her), and without their work and products, there would be no horticultural industry"

Based on a quote from Jim Wells at the first meeting of our region at Leura in 1973, from Michael Gleeson.

Challenge (Another challenge)

In the May edition of the IPPS Newsletter I put up a challenge to members to do some research in their nurseries and present the results at a conference. The challenge was particularly pointed at our younger members.

Our editor, Bruce, informs me that he took me up on my last challenge, and has had some encouraging outcomes from his trials. He told me that it is very easy to do a little trial, so don't tell me it's too hard.

Well, I now want to present another one for you out there.

Over the years, in various forms, the matter of Air Filled Porosity (AFP) in cutting media has raised its head. About 10 years ago I had some students from Sydney University undertake a research project at my nursery. The assignment I set them was to compare different compaction methods of cutting media into pots and see if it made a difference to the strike rate.

Some significant differences did show. In more recent times I have been working with a cutting media with a 30% AFP and the results have amazed me. A few weeks ago I was chatting with a member of the GB&I region about problems he was having with a particular plant and the matter of AFP in the media he is using was discussed.

Now the challenge for you out there is to look at what you are doing with your cutting media and see if a change in your media's AFP makes a difference?

Michael Gleeson

Wollemi Release a Success

Following a worldwide charity auction held in late October 2005 (that raised more than one million dollars from 292 plants), the main release of plants will be in April 2006.

Chelsea Flower Show

With a need to go to a wedding in Europe and visit relatives, I was fortunate to have the event closely coincide with the Chelsea Flower Show in London.

The Royal Horticultural Society's Great Spring Show is over 160 years old and has been held during that time in venues in Chiswick, Kensington, the gardens of the Inner Temple and, since 1913, in the South Grounds of the Royal Hospital, Chelsea.

This was my second visit to this major international horticultural event, as I had been privileged to see it 29 years before. On this occasion, on the 26th May 2005, I noted that the site was now larger with many more sellers in the sales areas and a change of themes. The effort and quality of the displays were still excellent, with some exhibitors taking days and weeks to erect their display. From the end of one show to the event 12 months later Nursery personnel and Landscape Designers commence the design of displays for the next year's Show. The main contenders among the Chelsea show gardens this year exchanged recent obsessions, with naturalistic planting for mysticism and abstraction. The emphasis on symbolism is certainly part of a backlash against the lifestyle elements we have seen in garden design over the past decade. Out go barbecues and sunken seating areas, in come abstract sculptures, surreal formality, amorphous shapes and hypnotically repetitive planting.

Of particular interest was the second ever truly Australian entry. Flemming's Nurseries "Float" was awarded a gold medal for this rather unique and also modernistic entry. With its outdoor lounge, up-curved deck and lap pool, it was not widely original, but at least it looked like a real garden. This win demonstrates to the world that our Australian Horticultural Industry is full of dedicated and skilled people equivalent in talent and know-how to any in the world.

Another particularly excellent garden that drew a lot of interest was the Chelsea Pensioners garden, which celebrated the 60th Anniversary of the end of the Second World War. It also marks the first time the Pensioners have had a garden of their own at the Flower Show, in their "backyard" at the Royal Hospital Chelsea. A great deal of research went into recreating an authentic garden of the end of the war period of 1945. It was set in the grounds of a traditional English pub, with a huge range of plantings of wild and cultivated plants and vegetables.

In conclusion, I found the experience very interesting as well as educational. All the gardens had a meaning, whether it be from the two previously mentioned; other countries; a message from the Cancer Research UK; environmental issues; philosophical; recycling or eco-friendliness, and feel good designed planting with displays of masses of just flowers, greenery and vegetables.

There was also machinery, garden ornaments and structures, and New Releases which included our own Wollemi Pine. I recommend anyone having the opportunity to go to Chelsea Flower Show not to pass it by as it will be an unforgettable experience

David Ponman - story & photos

Colorama sales benches - photos Greg McPhee

(continued from page 1) ... The garden was a stunning mix of desert plants perched high on a secluded hill. Cactus, Aloes, Euphorbias ruled with plenty of Californian natives in the background. Then onto the 'Tree of Life' for a look at air layering of Mahonia and seed propagation of Californian natives, the specialty of the nursery. A surprise was that the owner Mike Evans had just hand built a retail bookshop in the design of a Mexican house called the 'Casa La Paz'. A Mexican fiesta awaited us with an evening of entertainment and enjoyment.

Plug Connection nursery is located in Vista, a suburb of San Diego. They are plug producers extraordinaire, with 255 million a year from about 30,000 m^2 of greenhouses. A feature was the recording system used to track orders and plants, with shipping dates colour coded and each tray bar-coded. An innovative and simple boom spray is used to make sure watering requirements of various crops are met. Water quality is an issue, and a reverse osmosis system is in place to maintain consistency of supply.

Ecke Ranch is THE name in Poinsettia production, and the group was met by Paul Ecke III for a casual lunch. The nursery was established by his grandfather who popularized them as a Christmas plant. They breed as well as grow, and we were treated to a display of the upcoming varieties. With a very tight regime and close attention to detail Ecke put out a plant of exceptional quality. Again their large land holding is being subdivided and sold for housing, an all too familiar tale.

About day three we arrived at the Tree of Life Nursery located on 40 acres of the historic Rancho Mission Viejo in San Juan Capistrano. This nursery is owned by the host and current President Mike Evans. Staff, all of whom have an extensive experience in ecological restoration, habitat enhancement and authentic landscaping showed us round and demonstrated nursery techniques including planting and aerial grafting with lots of enthusiasm." "That evening local members came from far and wide to join us for a typical Mexican BBQ put on in our honor by Mike."

The Paul Ecke Ranch specializes in poinsettia production in every shape and form imaginable. Their breeding programme has been going over four decades and their genetic gene pool is very comprehensive. Many varieties marketed in Australasia originated from Ecke Ranch.

Half way through the tour we visited the Casa Romantica Cultural Centre and Gardens in San Clemente on a cliff top overlooking the Pacific Ocean and what a magnificent place it was looking out at the sun going down over Catalina Island.

The organization was founded in November 2000 as a public-private partnership with the City of San Clemente and opened its doors to the public in 2003 after an extensive Restoration/renovation project. The Casa's mission is to use the site as a focal point to explore, understand and experience the diversity of life in Southern California for people of all ethnic backgrounds and all ages.

Programmes include performing, literary and visual arts, local and Southern California history, architecture, culture, lifestyle and garden experiences unique to the California coastal environment.

If its' Golden Barrel cactus that gets you excited, then Western Cactus is your paradise. They have tens of

thousands in production and have been exporting them into Asia for years. The nursery boast having the largest range in America on it's 27 acre main site. The tour was lead through the production cycle for seed grown plants, starting with flats and ending up with ready for sale advanced product. A small side trip took us to the in-ground production area where (you guessed it) Golden barrel cacti grow into metre high plants.

Cactus in their millions in all stages of production and in particular rows and rows of field grade Golden Barrels (Echinocactus grusonii) at Western Nurseries is a memory I won't quickly forget. Owners Hans and Gretl Britsch emigrated from Switzerland to California and started a specialist cacti and succulents nursery in 1966, by the 1970s the bare root export sales dominated their business but in the 1980-90's they focused on the domestic market and today 75% of sales are in the USA and 25% are international. Western Cactus now focuses on mass-market items (2" to 24" pots), specialty items, dish gardens and novelty products.

A relatively new setup Euroamerican Propagators specialising in new and innovative plants (some trials were firmly behind security screens). They have

extremely high hygiene standards, including overalls, hair nets and shoe covers for the parent plant house. Thirty people are engaged in the cutting lines, with cuttings from Costa Rica supplementing their own production. Dispatch was slick with automated box closing, cool-rooms for pre- shipping, and a label store that holds 52 million tags! They grow plants on a standard bench manufactured on site. The nursery is part of a group called 'Proven Winners' - requiring plants trialed at various sites in the USA. They work with breeders from all over the world in the procurement of plants with PBR protection.

The trusty bus then drove north up the 101, stopping off to 'burger up quick' (that's Californian for 'grabbing something ready to eat'). We paused at the Getty Museum and then over a mountain range and into Ventura county, another hot spot for nurseries.

Brokaw nursery is a fruit tree grower and is a pioneer of clonally propagated avocado trees. The nursery will this year turn out 400,000 trees for orchardists. Like so many other, it is now to be sold for development.

Breaking with the flow is Bordiers nursery, a new state of the art facility at Somis. Also breaking with Californian tradition was the rain, making the visit a fair bit shorter than expected, at least we got to see the flash drainage system that collects all water for recycling. The gravel covered site was impressive especially when we discovered that it took three years to complete with 6 trucks a day doing the delivery. Of interest was the amount of temporary buildings. When quizzed, the manager said it was near impossible to obtain local government approval for a permanent structure, taking years to achieve and requiring donations to the local school, etc.

French winemaker Moet & Chandon ventured into ornamental plants but later sold their breeding facility to Jackson and Perkins. They use it now to breed roses and to demonstrate the culture of Suntory (Japanese brewers and breeders) plants. On display was the famed and elusive 'blue rose'. It seems that genetic engineering has achieved what traditional breeding could not. Using a blue gene from a viola, this transgenic rose cultivar will be the start of a new GMO range of plants, watch for it in the years to come. We strolled through the latest crosses before scurrying back to the bus and out of the downpour.

The rain had just finished by the time we arrived at Greenwood daylilies. This is an in ground grower with 60 acres (and 200 cultivars) under cultivation. We passed on the field walk, and kept the mud from the boots, but stayed for a cozy lunch and talk on landscape supply.

The tour side tracked to a most intriguing garden, Lotusland in Monticeto, just a little east of Santa Barbara. Thirty-seven acres of beauty and intrigue, gnomes, enormous trees and beautiful plants to discover. The Garden is now owned by a trust who allow visit by appointment only. I was particularly taken by the pergola of lemon trees, the idea is that you can take a morning stroll and pick a few at the same time. The eccentric creator of the garden had her gardeners dressed in tuxedos to keep the place looking spic and span when she entertained guests in the mansion.

Bromeliads

Another notable stop was Huntington Library and Botanic Gardens. The botanic garden with sweeping lawns and vistas interspersed with statues and theme gardens was established in 1903 and now covers 150 acres. "In the library you'll see originals like Gainsborough's 'Blue Boy' and Lawrence's 'Pinkie' alongside other great paintings."

We topped the tour off with a visit to a real collector, a plants man with flair and a nice bloke as well. San Marcos Growers started as a tree nursery but could not contain himself. The range now covers a multitude of plants, even an Australian selection known as Koala Blooms.

Then off north to a real Spanish mission at La Purisima and a short drive to San Luis Obispo for the start of the USA Western conference.

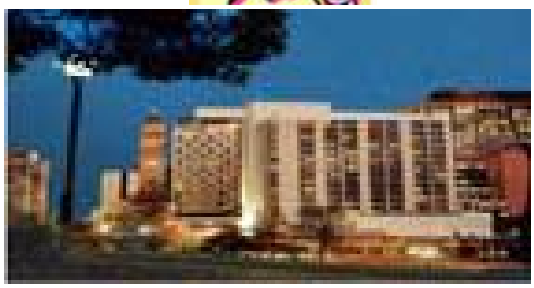
The tour covered much of the El Camino Real, we did visit more than one mission and were given history and commentary by Mike Evans. It gave us a different view on California, paradise and plant propagation.

Peter Waugh said he had been doing these tours for a number of years now, and recommended that members interested in people, plants and gaining a wider horticultural knowledge start saving for the 2006 Scandinavian tour.

- article from Greg McPhee, edited to include adapted quotations (italics) from an article by Peter Waugh

BRISBANE

In the State



30 year Reunion

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SPEAKERS

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For further details, contact

Pam Berryman

Secretariat IPPS Australian Region

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