

# THE FRIENDS OF THE WAITE ARBORETUM INC.



WAITE  
ARBORETUM

NEWSLETTER

Winter 2004

No. 40

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Next Meeting:

**8 pm Wednesday 4 AUGUST, 2004**

**Prof. David Christophel**

Professor of Botany and Director, Chester M Alter Arboretum  
University of Denver, USA

**“I dream of trees ...  
a tale of a converted palaeobotanist”**

Prof. Christophel's research is centred on the use of leaves to identify plants and to interpret climate. Specific studies include both fossil and extant tropical rainforest floras, particularly the Lauraceae (cinnamon family). Other related topics include taphonomy (the process of fossilization) and using leaf cuticle fragments to identify the diet of tropical marsupials. Much of his work to date has been based on the Australian tropical rainforest and related fossils.

Urrbrae House, University of Adelaide - Waite Campus, Urrbrae

**ALL WELCOME**

Following the presentation, there will be champagne and nibbles to celebrate the 10th birthday of the Friends of the Waite Arboretum.  
\$2 per person donation towards refreshments

*An extra flier about Prof. David Christophel's talk is included for members to put in their local library or community centre, or give to a friend.*

## WATER PROOFING ADELAIDE

Water is a vital resource that we are currently using at unsustainable levels. We must become more innovative and efficient in our water use to ensure a sustainable supply for future generations. In recognition of this problem, the South Australian Government has initiated the Water Proofing Adelaide project. Peter Cooper, formerly a manager at SA Water and currently a member of the project team, spoke about the study at the recent AGM of the Friends of the Waite Arboretum. The following information has come from a discussion paper prepared by the project team and tabled at the meeting.

Four main possibilities for a water strategy for Adelaide are being considered:

- Reduction of water use
- Better management of our existing water systems
- Development of new or alternative supplies
- A combination of the above three.

The project focuses on Adelaide rather than SA as a whole and the areas for study essentially match the four major catchment zones - Northern Adelaide and Barossa, Torrens, Patawalonga and Onkaparinga.

Currently, on average, 60% of Adelaide's mains water comes from catchments in the hills with the rest drawn from the River Murray. This varies considerably and in a dry year up to 85% may be taken from the river. The greatest proportion of water used is for residential purposes (58%) and while most of this is pumped through the water mains some comes from ground water and rainwater. For the typical suburban household, 60% of the water is used indoors and the remaining 40% externally, predominantly on the garden. Ground water is used extensively for agriculture in the Adelaide Hills, Willunga Basin and Barossa Valley. In all of these areas water use is equal to, or greater than, the sustainable limits. Irrigation of parks and ovals makes up the majority of water use for public purposes, most of which is supplied through the mains system (20%). Other uses of mains water are unmetered e.g. leakage, fire fighting, theft (11%), commercial and industrial (10%), and primary production (10%).

Only a small portion of the Adelaide Hills catchment area is reserved to protect the water supply with the remainder largely dedicated to economic uses such as agriculture. In Melbourne, Sydney and Perth, large areas of the water catchments are uninhabited, providing far greater protection of water supply and quality.

The River Murray system is a regulated river system with a series of dam locks and other storages used to control flows. Prior to regulation, the river flows were highly variable. Before European settlement, it is estimated they varied between 5000GL per year and 40000GL per year. Average flows are now about 13,800 GL per year, of which 80% is diverted for human purposes. SA water users have had reliable access to River Murray water since 1941 with the adoption of the River Murray Waters agreement and the current Murray Darling Basin Agreement, which guarantees that SA receives at least 1,850,000ML per year. This is only reduced in drought years when the available resources are shared equally among the three states. Over 60% of this entitlement is left in the river for environmental purposes.

High evaporation rates in the Lower Lakes, however, means that the environmentally sensitive areas around the Murray mouth and Coorong only benefit when the state receives more than its minimum entitlement flows. Comparison in the share of water in the Murray Darling Basin shows that NSW uses 54%, Vic 36%, SA 6%, Qld 4% and ACT .03%.

The government has already taken initiatives to manage water usage:

Strategies to manage the use of groundwater are in place in the Northern Adelaide Plains and the Willunga Basin.

Treated wastewater is being used to support expansion of irrigation in the above areas as well as at Mawson Lakes. SA has the highest level of use of wastewater in the country.

Storm water schemes have been developed for irrigation and industrial uses e.g. at Parafield Airport storm water is captured and supplied to Michell Australia's wool processing plant and at the Brompton Parfitt Square Urban Re-development Project all run off from residential roofs, gardens, streets is retained within a small reserve and in aquifer storage.

Encouraging use of rainwater tanks although current water use actually only represents 0.5% of total water use.

Adelaide's mains water is, by world standards, very high and it is important to maintain the health of our waterways. At present many waterways are polluted from such sources as industrial pipes, septic tanks, sediment run off, fertilizers and pesticides. Urban storm water can contain litter, dust, soil, rubber, oil and excess nutrients from animal faeces and fertilizers. This can result in the growth of algae that can be detrimental to the ecosystem and humans who come into contact with the water. Heavy metals from roads and industrial sites can collect in aquatic animals such as mussels, which has a dangerous impact through the food chain. Other environmental concerns include alteration of natural flows, clearing vegetation, loss of habitats, increasing salinity and threats to ground water.

There are regulations and laws in place to manage and protect water resources and deal with the distribution of water. There are also organisations responsible for water management. The outcomes of the water proofing Adelaide study will have ramifications for these. Factors that will influence the future management of Adelaide's water supply and demand include economic efficiency, technology, climate change, water quality, public health, sustainability and existing infrastructure.

Options for Adelaide's future water use that will be considered are:

Reduce water use through education and demand e.g.

Encouraging use of water efficient appliances

Promotion of water efficient gardens

Make savings in water used commercially and industrially

Save water being used for public reserves, sports grounds and schools

Increase prices

- Introduce incentives for saving water
- Regulate to reduce water use
- Increase yield from existing water resources e.g.
  - Increase available water from the Murray,
  - Increase the volume of water collected in the reservoirs
  - Reduce evaporative losses from the reservoirs
  - Reduce losses from aqueducts
  - Manage development competition in the Mt Lofty Ranges
- Examine possible alternative water supplies e.g.
  - Encourage use of recycled wastewater
  - Encourage the harnessing of local water
  - Make use of urban storm water
  - Desalination
- Having effective regulatory arrangements

The notion of sustainability challenges all South Australians to consider the social, environments and economic impact of future water supplies. It is unlikely that a single solution will be found. The Water Proofing Adelaide project needs the input of individuals, community groups, businesses, industry associations, interest groups and government agencies in order to formulate strategies.

People are invited to provide feedback and ideas via written submissions, using the website or telephoning.

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**Marilyn Gilbertson**



## **Arboretum T-shirts**

Good quality, 100% cotton, dark green with Waite Arboretum logo in white.

**\$16** (incl. GST) Available from the Arboretum office.

Great small gift to post interstate or overseas.

## North Coast Regional Garden, Coffs Harbour

In the minutes of the June 2004 meeting of the Friends of the Waite Arboretum, I noted correspondence from the Friends of the North Coast Regional Garden, Coffs Harbour. At that same time Sue and I were actually exploring the wonderful Botanic Garden of Coffs Harbour.

On a previous visit 14 years ago, we were impressed by what was happening on this site, which is surrounded on three sides by the estuarine Coffs Creek. In the early part of last century the area had been used as a night-soil depot and a rubbish dump. A few visionary individuals interested in conservation saw the potential of the site, and in 1973 submitted a "Plan for Management of Natural Areas, Coffs Creek" to the local Council. A small group from the Friends mentioned above, during the 1980s set about organising working bees to remove weeds and rubbish from the site. The Gardens were officially opened in 1988 as part of the Bicentenary celebrations.

Since that time continued staged development has taken place and in addition to the large areas of rainforest and mangroves that have been saved, many new projects have been completed. These include a Creek Walk, a Sensory Garden, Boardwalks, 5 modules of shade houses and areas set aside for non-Australian plantings. Because of the area climate, a wonderful range of plants has established rapidly and it is now a place of great beauty and diversity.

I would urge anyone considering travelling to the NSW north coast to spend at least a day exploring the Coffs Harbour Botanic Garden.

**Bryan Milligan**



### **New Members**

A very warm welcome to the following new members:

Robert Allanson, Plympton; Berin Belchamber Family, Payneham S; Mathew J. Chapman, Collinswood; Peter Chisholm, Pooraka; Howard Codell, Glenelg N; Virginia Cooke, ACT; Andrew Healy, Eden Hills; Benjamin Hollister, W Hindmarch; Colin de Jonge Family, Hawthorndene; David Kerr, Myrtle Bank; Henry Krichauff, Hazelwood Park; Jeanette Lord, Belair; Local Government Tree Resources Association, NSW; Sue McArthur, St. Peters; Dr. E.H. Medlin, Crafers; Pamela Newland, Hawthorn; David Oates, Blackwood; Gillian Robertson, Beaumont.

We now have 114 financial members.

## Great Expectations or Counting Your Dragons Before They Are Hatched

I have long had a soft spot for Dragon Trees (*Dracaena*) and our best tree is commemorated as the logo for the Arboretum. This tree was praised earlier in the newsletter and has been the subject of several papers.

There are several more tree-like species that might grow in the Arboretum. Because *D. draco* grows well here I have tried to get seed of these rarer species. They grow in Somaliland, Arabia and Socotra, all places from which it is not easy to get seed.

We did once have a plant of *D. cinnabari* from Socotra but it did not flourish in the area it was planted and died. Another seedling is slowly growing to take its place. We had seed of *D. ombet* from Somaliland and now have several plants one of which has flowered but we still lack *D. serrulata* from Arabia.

The surprising recent discovery of *D. draco* growing on a steep face on the Moroccan coast yielded a new subspecies *D. draco* ssp. *ajgal* of which we were lucky to get seed and two are now planted in the row along the sports ground fence. Considering the small size of the island and the long interest in its flora it is amazing that a new species *D. tamaranae* was recently discovered from Gran Canaria. The species is limited in number and is extremely inaccessible, again being on precipitous rock faces. It is on the red list of rare and endangered species and we have been lucky to get 5 seeds. These have been planted but have not yet germinated. Hence the title.

The last newsletter tells of Jennifer's efforts to save the Elm Avenue. I was hoping the trees would die and be replaced by a fine unique double row of Dragon Trees, but I shall die before the Elms and there is now no chance of me seeing even the beginning of such a splendid avenue, alas, alas.

**David Symon**

POSTSCRIPT: Three of the five seeds have now germinated, so watch the Dragons grow!



***"To plant a tree is to give body and life to one's dreams of a better world."***

***Russell Page***

## TREENET Avenues of Honour 1915 - 2015 Project

TREENET is launching an ambitious project to identify, protect, restore or reinstate all of Australia's memorial Avenues of Honour. TREENET research and education co-ordinator, David Lawry, explains.

After World War I, many Australian towns planted avenues of trees to commemorate local servicemen and women who died. Australia was particularly active in planting such avenues, because of its remoteness and the high participation rate of Australians in proportion to its population. Avenues of Honour were also affordable, with granite monuments erected later as funds became available. Avenues were planted, to a lesser extent, after World War II, and the Korean and Vietnam wars.

Sadly, research conducted on behalf of TREENET by graduate Sarah Cockerell, suggests that at best, only half of the avenues planted between 1918 and 1925 are still present in a recognisable and healthy form. Many have been lost due to road widening and other development, or have been neglected to the point where they are unrecognisable. In fact, TREENET estimates that if nothing is done, almost no Avenues of Honour will remain within 50 years.

In response, TREENET will launch an 'Avenues of Honour 1915 - 2015' project at its annual symposium in September. The hope is that, by the centenary of Anzac in 2015, all avenues will have been identified and documented, and either restored or reinstated. Each avenue will be appropriately marked with signage giving information on the avenue's history, and the names of those commemorated. Where possible, replacement trees will be propagated from remaining trees in the avenue. Other trees may be sourced from relevant 'theatres' of conflict, or selected from the broad range of new and established species – both indigenous and exotic – produced in nurseries throughout Australia.

TREENET also plans to plant new avenues in honour of the many unrecognised thousands of Australians, serving and non-serving, who have died as a result of war. It is anticipated that under the project, more than 100,000 trees will be planted by 2015. The project will be funded through the production and marketing of a Gallipoli rosemary, a plant originating at Anzac Cove in Turkey. The parent material was brought back by a wounded 'digger' repatriated to South Australia in 1915, where it was propagated and incorporated into a memorial hedge.

Now, TREENET hopes the plant, professionally labelled and produced under licence, will help raise the funds needed for the project. TREENET will also seek funding through grants and donations. The fund-raising aspect of the project presents an opportunity for TREENET and the nursery and garden industry to form a partnership, with TREENET taking a leadership and co-ordination role, and the industry providing production and marketing expertise.

Participation in the project would not only benefit the nursery industry financially, through generating plant sales, but also by establishing the industry as a good 'corporate citizen'.

The possibilities for community involvement are seemingly endless. For example, TREENET is considering promoting a national arbour day, on which school children could be involved in planting and other related activities. The project is an outstanding opportunity to increase community awareness of the importance of street trees, and their needs if they are to be successfully established.

TREENET looks forward to working closely with the nursery industry, not only now in the vital planning stages, but also throughout the duration of the 10-year project.

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**New books available at Friends' meetings or from the Arboretum Office**

**Melaleucas: A Field and Garden Guide**  
2<sup>nd</sup> edition (2004)

by Ivan Holliday

**\$32 each** (RRP \$36.95)

**Kangaroo Island's Native Plants**  
(Revised 2003)

by Ivan Holliday, Bev Overton, Dean Overton

**\$16 each** (RRP \$19.95)