

THE FRIENDS OF THE WAITE ARBORETUM INC.



WAITE
ARBORETUM

NEWSLETTER NO. 60

Winter 2009

Secretary
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Editor
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FROM THE PRESIDENT

Following the AGM on April 6 your Committee met again on June 3, chaired by Vice-President Beth in my absence.

During May the Friends hosted a visit by 35 members of the Order of Australia Association and some of our volunteers catered for that.

Volunteers Beth Johnstone and Brian Richards have put in considerable time into developing a CD PowerPoint presentation on the Arboretum. We hope to use this to present talks to interested groups. If you are aware of anyone who would like a copy to illustrate a talk, please contact the Director or a member of the Committee.

We need to increase awareness of the Arboretum in the wider community and increase our membership and volunteer participation.

At the end of June, David and Judy Symon gave a Sunday afternoon poetry reading as a fundraiser and it was appreciated by all. They are developing a wonderful anthology of Australian Flora in Verse which hopefully one day will find a publisher.

Dr. Gardner raised with the Committee problems arising with the root architecture of plants obtained from some nurseries. We feel we should follow this up with the Nursery Association. New plantings face enough challenges without the additional problem of poor root structure.

We are considering a number of projects that will need further funding next year. In the meantime Editor Jean will list a number of events needing your support during the coming Spring. I hope you can join us.

Bryan Milligan

IN THE ARBORETUM

FROM THE DIRECTOR

Support for the Arboretum

The best news I have to report is that continuing funding has been secured to employ an Arboretum groundsperson, thanks to the support of Joe Bennink, Manager Entrepreneurial Programs and Community Relations, Martyn Evans, Director, Community Engagement and Prof. Mike Brooks, Deputy Vice-Chancellor and Vice-President (Research). This continuity of funding recognises the importance of the Arboretum as a resource for research and teaching, as an experimental collection and as a valuable asset for the community.

Since January 2005, Mark Ziersch has been employed on a part-time casual basis and the maintenance of the collection has greatly improved under his care. Funding to purchase a mini loader last year increased his capacity to deal with the 1 – 5 truckloads of donated mulch delivered every day. In the last few months we have purchased more new labour saving equipment: a sturdy trailer, a compressor, a generator and an electric jackhammer with spade attachment. The latter will be used to decompact the soil around all the Arboretum trees (except those with a tendency to sucker) which will improve water penetration and gas exchange and therefore general tree health. The four 'Lynington' pears in the Urrbrae House garden, a special selection from the Waite Arboretum by David Symon, have already been decompacted and mulched. Soon we hope to have a replacement utility vehicle for the Arboretum.

Treenet 10th National Street Tree Symposium 4th–5th September

This year promises to be our biggest and best symposium yet as we celebrate 10 years of achievements and look to the future. Day 1 will be at the National Wine Centre where 12 speakers from around Australia will talk on subjects such as 'The value of urban trees', 'Trees, urban ecology and community health', 'Response to climate change for sustainable cities' and

'The Avenues of Honour project'. More details of the program can be seen at our new look website www.treenet.org. Day 2 will be held entirely at the Waite Arboretum with 6 presentations on topics including 'Selecting trees', 'Soils and trees', 'Biodiversity trail', 'Treenet stormwater harvesting trials' and 'Promising drought tolerant species in the Arboretum'. There will also be a demonstration by David Galway of a Hydrovac 'water spade'. Helpers at the 2008 Symposium would have seen the results of excavating the roots of an elm and a spotted gum using an air spade. It made for a fascinating comparison of root architecture. This year, the Hydrovac will be used to expose the roots of a dead pear tree. Tim Johnson, a past Chair of Treenet currently doing a PhD at the University of SA on 'Trees, Stormwater and Soils' will be harvesting the entire tree, measuring above and below ground biomass and collecting other data to inform his research.

Volunteers are needed to assist on several days and in many different ways. Assisting with serving Friday morning and afternoon teas and lunch will be fund-raising for the Friends of the Arboretum. Volunteers on Thursday will be able to attend all presentations at no charge. Similarly, volunteers on Friday will be able to see the demonstrations/presentations when not on duty. If you can spare a couple of hours your help would be greatly appreciated, not only to raise funds for the Friends but also to present a friendly, welcoming interface with symposium delegates visiting the Arboretum. Please contact Jennifer on 8303 7405 or fill in the enclosed form and post it to Jennifer or fax to 8303 6826.

Planting

Our 2009 planting is now complete with new 75 specimens, the majority donated by Daryl Kinnane for the Dry Rainforest Garden. His generosity is greatly appreciated.

Research projects in the Arboretum

In addition to the proposed research project on the Elm Avenue by a collaborative team of scientists in the University of Adelaide's Environment Institute, for which funding is still being sought, and the use of the pear tree as described above, there are several other current research projects utilising the Arboretum as a resource.

One is the compilation and analysis of 60 years of flowering records of our pear collection, being undertaken by Fran MacGillivray as part of her PhD project in the School of Earth & Environmental Sciences, University of Adelaide looking at the impact of climate change on flowering and fruiting.

Enoch Vuong, Hons Student and Shahin, Masters Student under Assoc. Prof. Wei Zhang, Dept Medical Biotechnology, Flinders University have recently collected leaves from ~ 50 Arboretum native trees, to screen their natural antioxidants for anti-skin cancer and anti-skin aging activities.

Paul Coats, a Masters student in Horticulture at Melbourne University under Dr James Will is researching the six Australian endemic *Citrus* species for their horticultural potential. He

recently visited the Arboretum to collect material from our *Citrus glauca* and also *Capparis mitchellii*.

Friends may have noticed that two access tubes have been installed under a mature River Red Gum in H15. Bob Newman, Catchment Management Consulting in collaboration with Dr Sigfredo Fuentes, University of Adelaide are trialling some soil moisture instrumentation and methodology. Sigfredo will be monitoring soil moisture using an Enviroscan Diviner capacitance probe and they hope comparative changes over time will indicate how the soil profile moistens throughout wet seasons and how the tree dries it out during drier periods. This will inform Bob's recommendations as to how best preserve mature red gums along creek lines in the midnorth of SA.

Death Caps

The very poisonous Death Cap fungus *Amanita phalloides* has reappeared this year. Friends may remember that its discovery in the Waite Arboretum in June 2008 by mycologist Pam Catcheside was the first verified occurrence in South Australia. Last year we collected and destroyed 94 specimens in the 3 months it was fruiting. This year we have collected over 300 specimens in the first 4 weeks alone. The fungus is mycorrhizal mainly on oaks and it has been discovered under 10 of our oak trees. It is quite likely present in the Mount Lofty Ranges but not yet recorded.

All parts of the Death Cap are deadly if eaten, with one cap sufficient to kill a healthy adult. The poison is an hepatotoxin and there is no full antidote. Once eaten, survival depends on early recognition and treatment (possibly a liver transplant). The distinguishing features are (1) the veil which initially covers the whole mushroom and splits as the fungus enlarges, often leaving a membranous ring on the stipe and a cup-like bulb at the base of the stipe and (2) white crowded gills and white spore print. The cap is whitish with an olive-brownish tinge. It has been confused with the edible Paddy Straw mushroom used in Asian cuisine. Best advice is not to eat any wild mushroom unless you are certain it is not poisonous.

Arboricultural work

Arborist Chris Lawry has done a day of formative pruning deadwooding in the Arboretum. Another day is scheduled to work on the oak collection.

Tree Climbing Championships

The South Australian Society of Arboriculture will again hold its annual State Tree Climbing Championship in the Arboretum on Saturday 19th September. The competition involves about 25 competitors climbing six different trees in a number of events including aerial rescue and speed climb and culminating mid afternoon in the masters' challenge final. The event is open to the public free of charge, so come along and watch these skilled arborists compete.

New Seat

Another teak bench seat will soon be installed in the Arboretum, donated by Jacqueline Burford in memory of her husband Dr John Burford. Both were undergraduate students at the Waite and John went on to do his PhD here. Seats greatly enhance the amenity of the Arboretum and more donations are always welcome.

Jennifer Gardner

CASSIA FISTULA L.

Cassia fistula, Family Fabaceae, Sub-family Caesalpinoideae is native to southern Asia, from southern Pakistan, through India to Myanmar and south to Sri Lanka. It is the National tree of Thailand and the state flower of Karula in India. Its yellow flowers symbolise Thai royalty. The generic name seems to be derived from the Greek *Kasia*, the name of a kind of cinnamon and the specific name is Latin for a pipe. Presumably, the specific name relates to the shape of the fruit.

Cassia fistula has the common names Golden Shower Tree, Golden Shower Cassia, Indian Laburnum, Drumstick Tree and Pudding Pipe Tree among others. The common name 'Pudding Pipe Tree' appears to refer to the pods which are long and cylindrical and contain a sweetish pulp. Considering the beauty of the tree in full flower, this seems to be a singularly inappropriate common name.

Cassia fistula is a medium sized (10-20 m), fast growing, deciduous or semi-evergreen tree with strong and durable wood. The leaves are pinnate, 15-60 cm long with 3-8 pairs of leaflets, 7-21 cm x 4-9 cm. The flowers are golden to yellow borne in pendulous racemes 20-40 cm long. Each sweetly perfumed flower is 4-7 cm long and has 5 equal sized petals. The flowers often occur before the leaves emerge. The fruit is a legume, 30-60 cm x 1.5-2.5 cm, with a sweetish pulp and several poisonous seeds. *Cassia fistula* is a widely grown as an ornamental and is a very handsome tree covered in profuse flowers (see accompanying photograph of the *C. fistula* (# 500 F8) in the Arboretum, which was taken in March this year). It is not recommended for dry climates although it is drought and salt tolerant. It is not frost tolerant. It is said to do best in full sun in well drained soil. The *C. fistula* in the Arboretum was planted in 1950 and so has survived for 59 years despite the dry seasons it has had to endure.

The fruit pulp has been used as a mild laxative, for the treatment of fevers, arthritis, nervous system disorders, bleeding and cardiac and stomach problems. The bark is also used.

For a century or so *Cassia fistula* and *Senna alexandrina*, both used as laxatives, were confused. *Cassia fistula* was illustrated as such in Herbal in the 14th Century and Medieval herbalists used both plants under their respective names until Linnaeus called both of them *Cassia fistula*, despite the fact that their fruits are different, those of *Cassia* being woody, cylindrical and non-dehiscent and those of *Senna* being flat, pulpy and dehiscent (Randell, 1995). So they remained one genus until detailed research in the 1980s showed that there were sufficient differences between them to separate them as the old herbalists had done centuries

before. In addition to the differences in their fruits, they also differ in the stalks of their three longest stamens; those in *Cassia* spp. are more or less S-shaped whereas those in *Senna* spp. are straight or C-curved (Randell, 1995).

There are about 30 spp. of *Cassia* world-wide but only two, *C. queenslandica* and *C. brewsteri* are native to Australia.

References: Randell, B. (1995). The Australian Garden Journal;
http://en.wikipedia.org/wiki/Golden_Shower_Tree

Jean Bird



Cassia fistula #500. Photograph courtesy Dr J. Gardner – taken 27-03-09.

CLIMATE CHANGE AND TREES

Professor Ian Plimer's recent controversial book "Heaven + Earth"* does not deny climate change. On the contrary, he provides adequate evidence that Earth's climate has constantly changed. His central argument disputes the findings of the Intergovernmental Panel on Climate Change that rising CO₂ levels are leading to rising temperatures.

Putting aside the argument that anthropogenic production of CO₂ is responsible for changes in our climate, let's look at what changes have taken place.

The media dwell a lot on recent drought in SE Australia. This is understandable considering the majority of our agricultural production for both exports and home consumption comes from in or around the Murray Darling basin. However, droughts have always been a feature of the Australian climate and more severe droughts occurred in the same areas more than 100 years ago. When writing about current climate change, this is conveniently overlooked.

The major feature of the Australian climate is its *high variability***. Reliable records of weather in this country cover less than 200 years, whereas we know from other evidence, there have been major changes in rainfall, temperature, sea levels and continental position over many thousands of years.

While Plimer concedes there have been extinctions of plants and animals over time-frames of millions of years, there has also been adaptation to change by many species. We have evidence of this in many of our own indigenous trees and shrubs. For example, mallee species of *Eucalyptus* with their lignotubers resistant to fire and drought, *Allocasuarina* species found in very dry areas from a genus originally adapted only to wetter coastal areas.

The Waite Arboretum can demonstrate both failure and adaptation. Although every attempt is made to plant species from like areas in other parts of the world, inevitably there are enough differences to place stress on some new plantings. Soils and microbial life may be very different and even climate is not easy to match. For example, a true Mediterranean climate is generally more humid and less variable than that found on the Adelaide Plains. For this reason some species are bound to fail but the majority do adapt and it is this resilience that has allowed many plant species over time to survive much bigger changes in climate than we may be presently experiencing.

The positive side to rising CO₂ levels is that trees (and indeed all photosynthesising plants) will benefit from this particular greenhouse gas.

Saving forests and planting more trees can only be beneficial to the Earth's climate.

*Plimer, Ian (2009) "Heaven + Earth. Global Warming - The Missing Science". (Connor Court Publishing Ballan).

**"Annual Australian Rainfall Deciles 1900-2000". (Bureau of Meteorology)

Our Patron, Sophie Thomson, used our rose garden to demonstrate rose pruning in a recent (27 June) episode of "Gardening Australia". She pointed out that good tools, i.e. secateurs, pruning saw, loppers, etc, are necessary. She showed how to cut out the old wood and remove branches to open out the bush. She pruned the rest of the branches to an out-facing bud to reduce the canopy by about ½. She preserved the water shoots. Sophie emphasized that roses are very forgiving and that you can't do them too much harm. She also said that different people use different techniques and so there is no hard and fast rule.

AUSTRALIAN FLORA IN VERSE

On Sunday 28 June, David and Judy Symon again read a selection of poems about Australian plants and this second reading (of different poems), was just as delightful as the first.

The President welcomed some 30 guests and introduced David and Judy who are currently preparing an anthology of Australian verse. Their collection began when David collected poems for his Sturt Desert Pea book and he thought that it would be interesting to see if other plants were treated in a similar fashion to the Desert Pea. He discovered that poems about sheoaks (*Casuarina* spp.) are characterised by sighing and wailing, those about wattles (*Acacia* spp.) are sentimental and patriotic, mangroves are mysterious, Waratahs are noble, pepper trees are not referred to as weeds (although they are in some places) and gum trees seem to be the backbone of the land from stature to utility.

In 1788, Australian plants were alien and bizarre to the new migrants – the trees had no shade, the flowers had no scent. However, more recent migrants have come to appreciate the Australian Flora and this is reflected in their poems. For example, a poem by Elaine Barker about wildflowers makes unfavourable comparison between them and English flowers but concedes that perhaps she will one day accept them and David Malouf, an Australian born of migrant parents, described in his 1974 poem "Evergreen", his transition from preferring crocuses, etc., to elms, larches, etc. to, some 30 years later, an appreciation of the Bunya pine.

As well as poems about flowering plants, David read a couple of poems about fungi which pointed out their importance (Mark O'Connor) and strength (Michael Leunig).

Eucalypts have been popular with poets and several poems about them were read by David and Judy. They tended to be somewhat sentimental. *Casuarina* spp. and *Acacia* spp. were also well represented as were *Brachychiton* spp.

David read what must be one of the few poems by an Australian Prime Minister, namely Henry Parkes who wrote a poem called "The Martyr Tree" about a tree which had been damaged by bushfire but still remained green and able to withstand the elements.

As with last year's selection, the poems covered a wide range. There were lyrical, political and amusing poems and one was even a fantasy (Roger McKnight's 1972 poem "Seed" which described all parts of a tree being pushed back eventually into a seed).

All in all, a most enjoyable afternoon's entertainment. It was a shame that so many of you had to miss it.

Jean Bird

NEW MEMBERS

We warmly welcome the following new members:

Mrs Eileen Harvey, Eden Hills; Dr Arvinder & Mrs Diarshul Sandhu, College Park; Mrs Ruth Fletcher, St Georges

SPONSOR PROFILE

Russell Botten from 'Taking Care of Trees' is the second of our valued sponsors to be profiled.

Russell Botten has always been passionate about protecting our environment, which prompted him to buy a small tree company, 'Taking Care of Trees' in 2006. With a background in landscaping and trades management, he re-branded the company, obtained QHSE certification, implemented ongoing staff development and became an annual charitable partner with 'Trees for Life'. This has all enabled 'Taking Care of Trees' to focus on delivering specialised tree and arborist services with the aim of helping people and trees to co-habitat together safely.

This together with Russell's focus and commitment to delivering personalised customer service, has resulted in 'Taking Care of Trees' being one of Adelaide's prominent tree service companies, employing over 15 qualified staff.

It was a natural choice for 'Taking Care of Trees' to support the Waite Arboretum and it is a privilege to be associated with passionate and dedicated people, all working together to help sustain our fragile environment. www.takingcareoftrees.com.au

Peter Nicholls

Ed's note: Russell's surname was incorrect in a previous Newsletter. My apologies, Russell.

Jean Bird

FORTHCOMING EVENTS

Thursday & Friday September 3 & 4: 10th TREENET Symposium.

Saturday 19 September: State Tree Climbing Championship. Free in the Arboretum.

Sunday 20 September: Arbor Wind Quintet.

Sunday 18 October: Visit to Dean Nicolle's property, cost \$5.00 per person. See Below .

Monday 7 December: Christmas Drinks.

Directions to Dean's meeting place:

Currency Creek is about 90 min travelling time from Adelaide. Take the Goolwa turn-off after Mt Compass, turn left at the Strathalbyn-Goolwa Rd (16 km from Goolwa turn-off). Meet at Currency Creek Lions Park (where there are toilets). Bring a picnic lunch if you wish but the tour should end at lunch time and Goolwa is not far away. Further enquiries to Bryan Milligan – 8379 2676.

CURRENCY CREEK ARBORETUM

The Currency Creek Arboretum is a specialist eucalypt research Arboretum located near Currency Creek, south of Adelaide. The site was specifically chosen for eucalypt research and was established by Dean Nicolle in 1992. Eucalypts (*Angophora*, *Eucalyptus*, *Corymbia* spp.) are Australia's most dominant natural group of plants. Research includes eucalypt systematics, taxonomy, ecology, physiology, cultivation and conservation.

Major planting has occurred each year since 1993, with all seed having been collected wild.

Information on all collections has been recorded since the project's beginning. This includes survival, health, growth rates, time to first bud initiation and flowering and the potential of all collections for further use.

For further information visit Dean's website: www.dn.com.au

This photograph of a *Capparis mitchellii* fruit in the Adelaide Botanic Garden was kindly sent to me by Mrs Eileen Harvey.



**We are seeking someone to design a new format for our newsletter.
If you have desktop publishing skills and would like to assist with this,
Please contact Jennifer 8303 7405**