

NEWSLETTER

SUMMER 2016

NUMBER 86

FRIENDS OF THE WAITE ARBORETUM INC.

www.waite.adelaide.edu.au/waite-historic/arboretum

FORTHCOMING EVENTS

FRIENDS OF THE WAITE ARBORETUM EVENTS

Free Guided Arboretum walks

First Sunday each month. Meet at 11.00 am at Urrbrae House

Fibre walk 11.30 am – 12.30 pm

Sun Feb 14th. Discover the natural materials used in basketry and allied arts'

WHAT'S ON AT URRBRAE HOUSE

Assemblage: 14 Feb - 28 Feb

Creative basketry Exhibition presented by FWA and Basketry SA.

Official opening: 2 pm Sunday 14 February, 2016.

Opening hours: Mon - Fri: 11 am - 4 pm, weekends: 1 pm - 4 pm

FWA AGM 7.30 pm Monday

April 11. Guest speaker:
Viesturs Cielens, Landscape designer.

May 5th Celebration of Jennifer Gardner's 30 year's of service to the Arboretum

More details at:

<http://www.adelaide.edu.au/waite-historic/whatson/>



Patron: Sophie Thomson

President: Beth Johnstone OAM, **Vice-President:** Marilyn Gilbertson OAM

Secretary: Meg Butler, **Treasurer:** Dr Peter Nicholls

Editor: Eileen Harvey, **email:** eileengarden@y7mail.com

Committee: Henry Krichauff, Robert Boardman, Norma Lee, Ron Allen, Dr Wayne Harvey, Terry Langham, Dr Jennifer Gardner (ex officio)

Address: Friends of the Waite Arboretum, University of Adelaide, Waite Campus, PMB1, GLEN OSMOND 5064

Phone: (08) 8313 7405, **Email:** jennifer.gardner@adelaide.edu.au

Photography: Eileen Harvey



Alectryon oleifolius ssp. *canescens*, Bullock Bush

Table of contents

2. From the President, Beth Johnstone OAM.
3. From the Curator, Dr Jennifer Gardner.
5. Friends News: Visit to Anlaby, New Members.
6. Vale Bryan Milligan. Combined Friends Christmas drinks.
7. Assemblage Basketry Exhibition, Terry Langham.
8. From the Treasurer, Peter Nicholls. AGM speaker Viesturs Cielens.
9. Sandalwood, *Santalum*, Ron Allen
10. Treenet, Glenn Williams.
11. Bullock Bush, *Alectryon oleifolius*, Eileen Harvey
12. The Arboretum in Summer.

FROM THE PRESIDENT

The flowering of the jacarandas usually gives reason for reflection and the committee has been doing some of this recently. The Friends of the Waite Arboretum Inc. was established in 1994 and has continued for some twenty years. During this time the FWA has made contributions totalling \$178,500 to the support of the Arboretum. As well as financial contributions volunteers have committed enormous time and effort to the maintenance, development and support of the Waite Arboretum over the period. In fact, the amount of funds provided is laudable and a source of awe. In 2014 the current committee held an Afternoon Tea to celebrate previous committee members. Perhaps we should have provided something stronger than tea to reward their wonderful efforts.

In October one item from the committees bucket list was achieved! We managed to organise a visit with members to Anlaby Homestead at Kapunda. This was a special delight for many of those members who were able to join the group because it was an opportunity to make comparison between the size and scope of the gardens at Urrbrae and Anlaby. It is impressive to see the effort and energy expended to restore this historic and wonderfully interesting place in South Australia. A separate report is elsewhere in the Newsletter.

As we head into the new year the harsh reality of the wider world impinges upon the tertiary sector. It will be more difficult with budget cuts for the staff to organise and manage the large amount of work of the Arboretum.

The very hot weather is always a source of concern in the Arboretum because of the risk of fire. This was highlighted earlier this summer by a small fire that fortunately was noted and reported promptly, and then controlled. Distress comes from the fact that it seemed to be deliberately lit. Those of us who support the Arboretum and know just how valuable a resource it is, cannot conceive of people who would consider arson, because it is such a destructive force with so many unintended consequences. As the weather warms we are very grateful to those who keep an eye out for the Arboretum and hope that the current vigilance and oversight is maintained.

One of the projects of this past year has been the replacement of the fountain in the Rose Garden. This is now underway and members will be notified of the completion later. We are very appreciative of the financial support provided with a grant of \$3000 from the Rose Society of South Australia in November.

Planning is well underway for the Basketry Exhibition to be held early in 2016. This is a collaboration between Basketry SA and the Friends group that has been occurring biennially during the Adelaide Fringe. The two groups have developed a very harmonious working system and the occasion is a

very demanding but pleasant, experience. The Exhibition shows off the large range of skills evident within the Basketry group of South Australia. Every year they seem to get better and better.

Following the Basketry Exhibition we are looking forward to collaborating with Friends of the House committee members and the Conservation Reserve to once more arrange a Film Event to raise funds.



L to R: Mr R. T. N. (Noel) Lothian, The Hon. Kym Mayes, Minister for Agriculture, Prof. Jim Quirk, Director of the Waite Institute, Jennifer Gardner, David Symon. At the bronze plaque awarded by IDS. 14 September 1987.

In May we shall celebrate the anniversary of Jennifer Gardner's thirty years of service to the Arboretum. I know that she will be very cross with me for outing this so publicly BUT this really is a special occasion for the Arboretum which just cannot be ignored (she did suggest that we could!). Her service has been exemplary, not just for the length of service but also for the dedication that she has brought to the task of being Curator. Her aim has always been the development of the Arboretum and a guaranteed future for the place that it occupies. So please set aside a diary entry for 5th May 2016 so we can celebrate.

A sad event recently was the death of one of the committee's recent past presidents, Bryan Milligan. Bryan worked and volunteered at the Arboretum and was a wonderful support to staff and volunteers alike. He was always ready with a smile of encouragement and was a fount of wisdom about the Arboretum and the land.

In October we were fortunate to have Meg Butler join us as Secretary. She brings considerable experience and skill to the role and we are grateful to have her charming presence.

My sincere thanks to all members of the committee for their hard work during the past months and I hope that you have enjoyed a wonderful Christmas and New Year.

Beth Johnstone

IN THE ARBORETUM - FROM THE CURATOR

2015 was a productive time in the Arboretum and Gardens and 2016 promises to be equally rewarding and packed with activities and projects.

The 16th annual Treenet National Street Tree Symposium was well attended. Thank you to the Friends who again assisted on the registration desk, packing symposium bags, and preparing name badges. Both days were held in the Adelaide Botanic Gardens in 2015, but this September, Day 2 of the symposium will return to the Waite Arboretum.



Photos Jennifer Gardner



In early October, the Arboretum was venue for an Outdoor Playgroup SA event. The organisation encourages creative outdoor play in children aged 0-4 years and provides parents with ideas of activities they

can do with their youngsters in the natural environment. This is the group's second visit, following a morning at the labyrinth earlier in the year. About 100 families with children attended each well organised event and there was a decorated tree, making bird seed feeders, painting a banner using leaves for brushes and lots more things to do and make with natural materials. It was lovely to see the children having fun in nature but also a great way to promote the Arboretum more widely. I have noticed a marked increase in the number of families with young children visiting the Arboretum and gardens this during the summer holidays. At the end of the year the Netherby Kindergarten children and their parents visited the Arboretum. They were enthralled with the native bee hotel and the dragon tree.

A grass fire burnt about 1,000 m² in the centre of the Arboretum on 18 October. The fire, which appeared to be deliberately lit, started under our magnificent Cork Oak *Quercus suber* #431A. Fortunately the Glen Osmond Fire Brigade responded very quickly, the area had been recently mown, and there was no wind so the fire was soon arrested. A number of trees were partially scorched,

but none were lost.



The Fire Brigade on site. Photo Jennifer Gardner

On 21 October I gave a presentation in Mt Gambier to the Australian Forest History Society Conference held every four years.



Part of the IDS group by the bronze plaque which is one of only two in Australia awarded by IDS. Photographer: Stephen Routledge (IDS).

On 23 October I conducted a guided tour of the Arboretum to members of the International Dendrology Society who were touring South Australia. They were very impressed by the collection and keen to obtain seeds from species not commercially available.

In November Pinnacle Tree Care was engaged to undertake arboricultural work in the NW Arboretum including felling several dead trees and installing new possum guards on the five remnant Grey Box under attack. The Grey Box, some of which were almost completely defoliated, have made a remarkable recovery. The work was funded by a grant from the Friends of the Arboretum.

In December garden volunteer and student at the Waite, Tate Hancox, spent two weeks doing an internship in the Arboretum and gardens. One of his projects was to search the IUCN Red List for species represented in the Arboretum and compile a spreadsheet of the specimens and their conservation status. 176 Arboretum specimens representing 70 taxa are listed, including 24 taxa with 'Vulnerable' status, 25 taxa are 'Endangered', and three are 'Critically Endangered'. Ex situ conservation of species endangered in the wild is an

important role of the Arboretum.



Katja and Terry. Photo Jennifer Gardner

Also in December Channel 11 (Ten Network) crew filmed the Waite Arboretum Native Bee Hotel and interviewed Dr Katja Hogendoorn and the hotel designer/builder Terry Langham for the children's TV series SCOPE which exposes young minds

to science in an informative and entertaining way and showcases scientific work. The program will go to air on 20 February 2016.

This summer has seen an explosion in the population of Elm Leaf Beetle (ELB) and the damage to trees in Elm Avenue and elsewhere in the Arboretum has been significant. Once ELB is established it is likely to escalate if no action is taken and successive attacks will weaken the trees. So the elms have been treated with trunk injection of a systemic insecticide. This should provide two to three years of protection. The efficacy of this treatment will be monitored with the assistance of volunteer Russell Cook.

Keeping up the water to new plantings has been a challenge during successive heat waves and I acknowledge the dedicated assistance of volunteer Terry Langham and members of the Palm and Cycad Society with this task, especially when Andrew was on leave.

The heat waves have driven many koalas from the Waite Conservation Reserve into the Arboretum in search of water. Koalas have been observed sitting in and under a number of species which are not their food plants and even sitting and snoozing in the watercourse on a hot day.

Speaking of koalas, Friends may be interested to know about TREND - Transects for Environmental Monitoring and Decision Making – which brings together scientists from the University of Adelaide, Flinders University, University of South Australia, SA Research and Development (SARDI) and SA Dept of Environment, Water and Natural Resources (DEWNR) in a long-term research and monitoring program dedicated to understanding how species and ecosystems change over space and time (see www.trendsa.org.au/). By downloading the free TREND app, you can contribute to citizen science. The TREND app enables the public to record the sightings of a number of plants and animals, and Koala is one of the species of interest. Tapping on Koala (or other selection) allows the user to add and submit a photo (with its geospatial data) and notes. It is very simple to use and whenever I see a koala in the Arboretum, I upload the image to TREND. Brush-tailed Possum, Butterflies and Moths and Native

Bees are other categories of interest that are frequently seen in the Arboretum. Submitting your images will enable scientists to analyse not only occurrence but also population densities that may vary seasonally and from one year to the next. I encourage Friends to participate in this exciting initiative.



Water feature and gabion seat in the Garden of Discovery. Photo Jennifer Gardner

In the Garden of Discovery a delightful three-tiered rock water feature and gabion seat have been installed, funded by a grant from the Mediterranean Garden Society – SA Branch (MGS). Landscape designer Viesturs Cielens

conceived of and oversaw the project, personally selecting the rocks from the Carey Gully quarry. Viesturs will be the speaker at the FWA's AGM this year. Members of the MGS constructed the gabion seat under the watchful tuition of contractor Gary Stone who made the seat framework and red gum top as well as carving the rock bowls.

Work to refurbish the ponds in the Twentieth Century Rose Garden is also underway with a new pump installed. Highly regarded sculptor Silvio Apponyi has been commissioned to design and construct the ornamental stainless steel grills. This work is funded by a grant from the FWA with a contribution from The Rose Society of South Australia.

Congratulations to Groundsperson Andrew Walters who has just completed a Graduate Certificate in Arboriculture at the University of Melbourne. His new knowledge and skills will inform the valuable work that he does in the Arboretum.

On 1 January, responsibility for the Waite Historic Precinct (Urrbrae House, Gardens, Waite Arboretum and Waite Conservation Reserve) transferred to the School of Agriculture, Food and Wine – Faculty of Sciences, with a reporting line to Stuart Matthews, School Manager. I anticipate this move will strengthen links between the Arboretum and students and staff in the School, and help promote the Arboretum as a resource for research and teaching.

Finally, I acknowledge with gratitude, the 2015 donation of \$25,000 from the Friends of the Waite Arboretum to fund a variety of projects, and the wonderful ongoing support in time and talent of the Arboretum and garden volunteers, Arboretum guides and the Committee of the Friends.

Jennifer Gardner

FRIENDS OF THE WAITE ARBORETUM NEWS

Visit to Anlaby



Photo Beth Johnstone

The Friends of the Waite Arboretum Inc. organised a visit to Anlaby Station early in October for members and friends. Several cars transported a group of eighteen people from Adelaide to the homestead car park where we were greeted and taken for a tour of the house. The house was cool and very inviting. It was interesting to see and hear some of the early history and stories of the place as well as learn of the effort that the current owners have made to restore some of the rooms. It is of course, where the current owners live so it is already building a new history as they spend many hours researching and restoring. There is much to be admired in this effort and arranging escorted visits is a way of providing for future restoration plans.



Photo Beth Johnstone

The group had lunch in amongst a wonderful display of woollen clothing from past times and up to the present. This had been part of a special display which, fortunately for our group, had not been dismantled. It was certainly an entertaining extra for the women in the group.

The enormous garden was where the group spent the time after lunch, where we were shown the special trees and saw the restoration and replanting which



Photos Sylvia Piddington

make it such a wonderful place in which to spend time. Although it was a fairly warm day, there were pools of shade and some places to linger where one could lose oneself in the moment.



Photos Beth Johnstone



The group ended the excursion in the shop where there are mementos of Anlaby to purchase. Books of photographs and some specially woven merino blankets are

featured. The overall response from those members present was very positive.

Beth Johnstone

NEW MEMBERS

We warmly welcome the following new members:

Ms Victoria Harrison of Hove

Dr Chrissy Sharp and Mr Andrew Thamo of Balingup, WA

Mr Jung Hoon Cho of Baulkham Hills, NSW

Vale Bryan Leslie Milligan



Photo Lynette Zeitz

We sadly farewellled Bryan at his funeral on 27th October. His passing resulted from an illness, which he was first aware of several years ago, but which he refused to let change his optimistic outlook on life right to the end.

Bryan was a committed and enthusiastic supporter of the Waite Campus and

especially the Arboretum. His involvement with the Waite goes back to his arrival in SA from Victoria in 1979. With experience gained from his uncle's farm in the Goulburn Valley he was soon involved as Assistant Farm Manager with the farm management staff of around 20, responsible for the whole of the Waite area, including the orchard section. He later became Manager of Research Services, Rural Services Department. It was with sadness that he had to supervise the clearing of portion of this section to make room for the new Plant Research Centre. With his strong commitment to the farming community, he, along with others was instrumental in organising the extensive farm tours for Agricultural Science students till they ceased in 1992. Several of Bryan's historic photographs of around the Waite Campus appear in Lynette Zeitz's definitive history, "The Waite".

Following the formation of the FWA from a small group of volunteers in 1994, Bryan joined the FWA in 2000 and subsequently joined the Committee in 2003. He became Vice President in 2005 and President following Cicely Bungey in 2006. He continued in this role till the start of his ill health in 2009, when I became President and he regrettably had to resign from the Committee in 2012.

Bryan was always committed to the environment with all his normal enthusiasm. I first met him in 2001 when I joined BEAC, the now disbanded Burnside Environmental Advisory Committee, which was established some years earlier mainly on the initiative of Barbara Crompton. I was immediately impressed with his input into this group with his passion and practical ideas. He was always a strong supporter of water conservation, especially relevant in the recent severe drought, from 2008 onwards. At the Waite he was concerned about the operation of the bore and the water supply into the stream to the dam. Together with Prof Geoff

Fincher he was trying to develop an overall water conservation plan for the significant runoff from the extensive Waite Complex buildings. It is hoped that this project will start to progress before too long; a part legacy to this wonderful man. We all extend our sincere sympathies to Sue and the family.

Henry Krichauff

Christmas drinks at Urrbrae House

The combined Friends Groups drinks party was held at Urrbrae House on the 7th December. The previous days had been notably hot and the evening was a fairly warm one, however many of the Friends members joined in conversation and "catching up" with others and judging by the volume of sound, it seemed to be a pleasurable experience.

The current members of the three groups have developed what seems to be a very effective system of collaboration and Friends of Urrbrae House did a spectacularly clever job by offering a wider range of drinks than previously. The warmth of the evening made sipping lemon, lime and bitters very pleasant.



Photo Vicki Cheshire

As always, the flowers arranged by the volunteers looked marvelous and the house exuded its usual comfortable ambience. A feature of the evening was no speeches, just a brief thanks to all those who continue to volunteer to do the things that they do so well, along with the hope that they will continue into the next year!

Sincere thanks were offered also to the wonderful staff who work in the Waite Precinct and who make our volunteering such a rewarding thing to do. Several of our very staunch supporters were unable to share Christmas drinks with us this year but sent apologies. These included the Hon. Martin Hamilton-Smith MP, Barbara Hardy and Meg Butler.

Beth Johnstone

The Friends of the Waite Arboretum Inc. and Basketry SA Exhibition "ASSEMBLAGE"



Sylvia Piddington, 2015, *Assembled Angel's Trumpet*. Photo Sylvia Piddington

Members and the wider community are invited to ASSEMBLAGE: an exhibition at Urrbrae House by Basketry SA with the support of the Friends of the Waite Arboretum.

The exhibition will be opened by Janine Mackintosh, assemblage artist, **Official Opening:** 2pm - 4pm Sunday 14 February 2016 Urrbrae House University of Adelaide, Waite Campus.

"ASSEMBLAGE" 14 – 28 February 2016

Opening hours: Monday – Friday 11am – 4pm, Saturday and Sunday 1pm – 4pm



Lyn Coombe, 2012, *Ripple*; Lamia Guscia, 2012, *Landscape*, dyed blue and natural palm inflorescence. Photos Maxwell Magain.

Exhibition Theme: Assemblage

Assemblage: "Art form in which natural and manufactured, traditional non- artistic material and objects are assembled into three – dimensional structures" (Grove P. 2009, *Grove Art Online*, Oxford University Press).

These biennial exhibitions in Urrbrae House support both FWA and Basketry SA financially and play a role in creating greater public interest in the Waite Arboretum though increased visitors' numbers.

The Waite Arboretum provides a valuable source of suitable plant materials for basketry in texture,

shape and colour: *Dracaena draco* – Dragon Tree; *Pinus* spp. - plant sheaths, needles; Elm Tree - tree suckers, palm inflorescence and indigenous plants materials.

A number of Basketry SA members support FWA by volunteering work in the Waite Arboretum, and actively support FWA events throughout the year.



Sylvia Piddington, 2014, *Fish Bowl with Fish* (25 x 25 x 32 cm), bowl worked as lace half stitch a mirror image of hexagonal weave) using *Dracaena draco* and fish woven from *Philodendron* leaf sheaths with bead eyes. Photos Sylvia Piddington

Non-Waite Arboretum plants (African Flag, *Chasmanthe floribunda*, New Zealand Flax, *Phormium tenax* and cultivars), and non – plant / manufactured materials (telephone wire, barbed wire, ...) can be used – as well as feathers, shells, and clothing etc.



Sylvia Piddington, 2010, *Bird Flu Virus Mobile* (30 x 30 x 40 cm) 'mobile worked by twisting *Chasmanthe floribunda*, with added feathers. The virus is represented with an hexagonal protein structure and the feathers represent the antigenic groups. The nucleic acid is absent'. Photo Louise Bagger



From Desert Ship to Dinner Plate, 2012, Marlene Thiele, Cobbled grass over a wire frame, Photo Maxwell Madgin.

Creating Basketry

Designing and planning a basketry project will often depend on the material and, technique chosen. Techniques of stitching, shaping, twining, and weaving can govern the size, design, detail and function of a work. Spontaneous – free form basketry can be seen as choosing a material and at times allowing the material's specific characteristics to strongly influence the outcome.



Colour Whirl, 2012, Anne Quigley metal fan frame, woven plant and clothing materials.



Random weaving of grape vine and willow, 2015. Photo Sylvia Piddington



Weaving Iris with a clay base, 2015, Basketry SA Wallaroo weekend gathering. Photo Sylvia Piddington

Basketry SA

Basketry SA is an Association formed in 1981. Members' works and efforts can be seen in a number of museums and private collections public showings throughout Australia, including Urrbrae House the South Australian Museum, the Adelaide Botanic Garden and the Adelaide Royal Show.



Basketry SA, 'Bamboo Hive' 2015, in 'Little Sprouts Kitchen Garden' Adelaide Botanic Garden. Photos Sylvia Piddington

Fibre Basketry Home Grown & Handmade: The Fibre Basketry Weavers of South Australia Inc. 2007 edited by Helen Richardson, Kangaroo Press, Torrensville South Australia.

Terry Langham

From the Treasurer, Peter Nicholls

Dear Members. I invite you to renew your membership, which are due as from 1st of January, before the AGM which will held on Monday April 11th.

I have enclosed a membership renewal form with the newsletter. If you have renewed your membership, please disregard the form.

FWA AGM Monday April 11, 7.30pm

Guest speaker: **Viesturs Cielens, Landscape designer**, will speak about 'Time, Spirit and Place' as influences in garden design.

Friends will know of Viesturs' work in the Garden of Discovery and now you have the opportunity to hear him talk about Landscape Design.

Sandalwood

During my caravan holiday in the "Top End" of the Northern Territory in June and July last year, I discovered huge plantations of Sandalwood in the Douglas Daly Region. So, it seemed appropriate to write an article highlighting this special genus of plants.

There are 5 or maybe 6 species of this genus native to Australia. The genus is *Santalum*, which belongs to the family Santalaceae. This family consists of some 400 species across about 36 genera. In Australia, Santalaceae is represented by only 2 woody plant genera, *Santalum* – the Sandalwoods and *Exocarpos*, the Native Cherry or Cherry Ballart, although many of the Mistletoes (mainly genus *Amyema*) also belong to Santalaceae. All of these genera have one thing in common, they are all hemi-parasitic, mainly root parasitic but in the case of the mistletoes, arboreal, because they exist above ground. The six species of *Santalum* are:-

S. acuminatum – Native Peach, Quandong, Sweet



Huge Quandong tree at Wirrabara. Photo Ron Allen

Quandong. This is probably the best known species growing naturally in South Australia, having a wide distribution from coastal dunes to granite outcrops in the drier inland areas. The tree grows to about 6 metres high, has pale green leaves up to 9 cm long, profuse bunches of small pale flowers and eventually, spherical, bright red fruits up to 45 mm in diameter. The fruit forms a fleshy covering (mesocarp) over a round kernel which like other species is pitted. The flesh is easily peeled and can be eaten raw but is usually made into jellies, jams and chutneys. Quandong is probably our most sought after "Bush food".



Quandong fruit in the Adelaide Botanic Garden

During the 1980's, as a teacher at Croydon High School, I was involved with a number of Aboriginal Studies camps in the Northern Flinders Ranges and we usually stopped by a large Quandong tree in late September had all dropped to the ground. The peel by that time was reddish brown and like tough leather, however after peeling, soaking and cooking with lots of sugar became a tasty Jam for the kids to enjoy with their damper.

S. album – Indian Sandalwood. This species is sometimes said to be native to Australia, and although it grows naturally in the coastal areas between Melville and Elcho Islands of the far north of Northern Territory, it is more correctly native to India and to Indonesia. This is the most fragrant and commercially valuable of all of the Sandalwoods.

S. lanceolatum – Northern Sandalwood, Plum Bush.



S. lanceolatum fruit in the Waite Arboretum

There is a fine specimen growing in the Arboretum just to the west of the *Hakea francisiana* collection. It is sometimes called Plum Bush because of the purple colour of the fruit which are said to be quite sweet. This species has

the widest distribution of the six, virtually growing in all mainland states especially north of Port Augusta. It has been used commercially to extract the fragrant oils.

S. murrayanum – Bitter Quandong. This species is similar in appearance to Native Peach but tends to have pendulous branches and produces a fruit with a bitter mesocarp. It has a wide distribution over much of Southern Australia.

S. obtusifolium – A rarely cultivated species. It has quite a different habitat from the others which are mainly arid land types. Its habitat is along the eastern coast from southern Queensland to north east Victoria. Unlike other described Australian species, the leaves are rounded and have recurved leaf margins.



S. spicatum fruit. Photo Ron Allen

S. spicatum – Sandalwood, sometimes called Fragrant Sandalwood. It is native to the southern half of Western Australia and western South Australia. Although lacking the value of *S. album* this species has been heavily exploited for the

sandalwood oil markets in Singapore and China. The export market began in the mid 1850's with annual shipments of more than 1000 tons increasing to more than 4000 tons by 1900. Early exploitation in South Australia was very heavy, and it is now considered to be a vulnerable species.

The leaves of most of the species described above are very similar in appearance. The specific name of three of the species refers to the narrow pointed leaves - *acuminatum* (acute, sharply pointed), *lanceolatum* (pointed, lance shaped), *spicatum* (from a spike – sharply pointed).

The future of Sandalwood products in Australia

The two main species for oil production are *S. spicatum* and *S. album*. Australian sandalwood has historically been used in the incense markets in China, Taiwan and Hong Kong and most other Asian countries. It has been widely accepted in these areas for over 150 years. Recently Australian sandalwood oil has been used in many high end perfumes and other cosmetic products.

Western Australia currently has the largest sandalwood plantation resource in the world. Australian sandalwood is being grown in commercial plantations throughout the Wheat-belt of Western Australia, and Indian sandalwood in the tropical far north of WA mainly in the Kununurra region within the Ord River Irrigation Area. Recent developments have seen plantations set up in the Darwin area, near Katherine and in the Douglas Daly region of Northern Territory. Plantations are also being set up in the Burdekin area of northern Queensland.



Santalum spicatum showing heartwood. Photo Ron Allen

Australian sandalwood does produce a lower oil content than Indian sandalwood although it consistently produces the oil-forming heartwood from a very young age. It is the older heartwood from which the best oil is extracted. In the early days (circa 1900), trees were pushed over and the roots and old wood collected for export. The Indian sandalwood develops hardwood

earlier than the Australian species – at about 5 years and from then on, it continues to develop. 15 years is considered to be the optimal harvest date and it is thought to return about a million dollars a hectare at harvest time.

TFS Corporation Ltd (Tropical Forests Services) is a grower, processor and producer of Indian sandalwood products in Australia. The Company manages the largest area of Indian sandalwood plantations in the world with 10,583 hectares established in Australia's tropical north. It is worth looking up their web page to see the size of their operation (<http://www.tfsLtd.com.au>).

While staying at the Douglas Daly Park, I drove to the Ooloo Crossing on the Daly River. On a previous visit this was a narrow rough road. Now millions of dollars are being spent on it to produce a major sealed road some metres above the flood plain – mainly to service the Sandalwood plantations. I was very interested to see the host plants in the young plantations. Each row of Sandalwoods had two rows of host plants, which at a distance appeared to be African Mahogany and one of the local species of Grevilleas. I took several photographs but lost them all when I had major problems with my laptop.

References

- Jewel of the Australian Desert, Neville Bonney
- Native Trees and Shrubs of South Eastern Australia, Leon Costermans
- Western Queensland Trees and Their Timbers, Ellie Fairbairn
- Trees and Shrubs of north-west Queensland, Jenny Milson
- Tropical Timber Services – www.tfsLtd.com.au

Ron Allen

TREENET

TREENET is an independent, environmental, non-profit organisation dedicated to improving the national urban forest. Its nationwide network of supporters thrive on the challenge of encouraging all sectors of the community, including private residents and civic authorities, to adopt, promote and act on the need to increase the tree population in our towns and cities, to make our urban environments more liveable.

As an annual community education and professional development exercise, TREENET hosts a two-day National Street Tree Symposium in the first week in September; the 16th such event held at the National Wine Centre and Adelaide Botanic Garden being the most recent.



Drone's-eye view of the Adelaide Botanic Garden – Day Two TREENET Symposium 2015. Photo courtesy of Treenet.

Whilst the environmental focus is clearly 'tree-centric', what really happens at TREENET Symposia is so much more. In addition to topics about pest & disease, soils, street tree trials, tree hazards and risk management, tree root growth and behaviour, vegetation management near powerlines, nursery industry development, right tree – right place, innovative arboricultural practices and so on – scientific research and practical case studies are presented to stimulate much broader conversations.

Such issues include water sensitive urban design (WSUD) and stormwater management; the dangerous effects of the urban heat island; promoting physical, social and mental health and well-being; the future of urban biodiversity; the critical need to reduce the downward spiral of successive generations of our community becoming more and more alienated from nature; utilising the digital revolution to make information more

engaging and accessible; caring for heritage and culturally significant trees; the Avenues of Honour Project, just to name a few.

Field activities on Day Two of TREENET Symposia are very popular, where delegates can interact and network in smaller groups. The Waite Arboretum has regularly and proudly hosted this more practical day. Whilst the Adelaide Botanic Garden was a highly successful TREENET experience this year, organisers are excited to be back 'home' at the Waite Arboretum for September 2016.

Courtesy of the internet, high definition videos of TREENET academic presentations, case studies, interactive forums and field activities can be accessed via TREENET's website <https://www.treenet.org/>

Glenn Williams

Bullock Bush, *Alectryon oleifolius*

Family Sapindaceae



Alectryon oleifolius ssp. *canescens*. Arboretum specimen #279, planted in 1959. Nearby are two younger specimens

Bullock Bush is widespread in the drier parts of Australia. There are three subspecies: ssp. *canescens*, common in SA on limestone-sand soils; ssp. *elongatus* a taller plant with greener longer leaves found in western NSW on heavier soils; and ssp. *oleifolius* found in northern WA.

Alectryon oleifolius ssp. *canescens* forms an attractive small tree with distinctive grey-green broadly linear leaves.



The flowers are tiny, yellow-green, lack petals and are arranged in racemes. The fruit has 2 or 3 lobes each containing one small black seed attached to the lobe with a bright red aril.

The main method of

reproduction is not by seed but rather by suckering after good rains or if the roots are damaged. Where the species is common, such as the Gawler Ranges,



it is thought that large groves of up to 100 Bullock Bush may have originated from just one tree with all the plants in the group being genetically identical.

Bullock Bush can be long-lived (over 100 years) in favourable conditions. The foliage is attractive to both stock and native herbivores and new plants cannot establish unless an area is completely protected from grazing. Even mature trees are browsed up to the height goats, camels and cattle can reach. Continual grazing of regrowth and breaking down of the canopy can destroy whole stands of mature Bullock Bush.

The foliage can be cyanide producing and stock poisoning has been reported, with sheep more susceptible than cattle; poisoning is most likely from young leaves in summer, if stock are hungry or stressed, and leaves are wet with dew or rain.

Bullock Bush is useful for shade and shelter and is an attractive tree for dry areas. The timber is hard and heavy with reddish heartwood. It has limited usefulness as it is not suitable for use outside or in the ground.

References

<http://www.naturalresources.sa.gov.au>
<http://www.dpi.nsw.gov.au/agriculture/resources>

Eileen Harvey

SUMMER IN THE ARBORETUM



Australian native Brush-tail Possum in one of the Elm trees in Elm Avenue. Photo by Tate Hancox .



Angophora hispida, Dwarf Apple. *Angophora* flowers have petals as well as stamens other eucalypts. Origin NSW. Photo Jennifer Gardner.



Caesalpinia ferrea, Leopard Tree has beautiful mottled bark , attractive bipinnately compound leaves and bright yellow flowers in summer. Origin Brazil. Photo Jennifer Gardner.



Hakea cristata fruit has a toothed crests along either side of the suture. Fruit is well-camouflaged among the toothed foliage. Origin WA.



Brachychiton discolor, Lacebark Tree flowers profusely. Seed is carried in large pods and is surrounded by irritant hairs. Origin NSW, Qld.



Stenocarpus sinuatus, Firewheel Tree. Each inflorescence has 12-15 individual flowers. Origin NSW, Qld.



Eremophila bignoniiflora, Bignonia Emu-bush has large flowers and is bird pollinated. Origin Australia.



Eucalyptus platypus, Moort, is notable for the flattened peduncle which supports the inflorescence of up to 7 stalkless buds. Origin WA.



Koala in *Quercus suber*, Cork Oak. With the hotter drier weather, native animals are often seen in unexpected places in the Arboretum. Photo Jennifer Gardner.



Koala resting in the deep shade of an exotic tree.



Eucalyptus 'Urrbrae Gem' discovered at the Waite Arboretum in 1956, is thought to be a hybrid of *E. erythronema* x *E. stricklandii*. Photo Jennifer Gardner.