

Friends of the Australian National Botanic Gardens

NEWSLETTER

Number 60 November 2008



Lift Out:
What's out in the Gardens &
What's on at the Gardens



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Cover: *Swainsona formosa* Sturt's Desert Pea and a daisy *Rhodanthe chlorocephala subsp rosea* growing in the desert in the foyer of the Visitor Centre, Australian National Botanic Gardens, Canberra. Photo by Anne Rawson.

A happier prospect

Alan Munns, President, Friends of ANBG.

At the time the last *Newsletter* went to press I was pessimistic about the Gardens budget for 2008-09. At that time we knew that Parks Australia had not done well in the budget and I worried that the Gardens might face yet more staff cuts.

Things turned out better than I feared. The Gardens got a small increase in its budget which enabled some new staff to be engaged to help with review of the management plan, asset management and the education program. The Friends welcome this development, and will continue to press for more resources for the Gardens.

Friends' springtime activities this year have been very popular.



Photo by Anne Rawson

We provided funds to support the creation of a *Spring Display* of flowering annual plants—daisies and Sturt's Desert Pea. Guided spring flower walks followed by morning tea at Hudsons Café were very popular. We hope this will become an annual event.



Photo by Terry Norman

Breakfast with the Birds has attracted large numbers of visitors to early-morning guided walks led by enthusiastic birdos, followed by breakfast at Hudsons Café. Extra walks were scheduled to cope with the demand.

As I write, it seems that the hugely popular *Summer Concert* season will go ahead next January with eight concerts over four weekends. The Friends were very disappointed last year when the Gardens reduced the season to just four concerts. That greatly reduced our fundraising capacity and our ability to financially support the Gardens. And it disappointed many Canberrans who return every year to enjoy an evening picnic meal in the delightful ambience of the Gardens while listening to great music. The Friends welcome the return of the concerts and look forward to an enjoyable summer in the Gardens.

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Friends at Government House

Margaret Clarke



To thank Mrs Jeffery for hosting the Friends at Government House, Nilavan Adams produced a handpainted card featuring *Patersonia occidentalis*
© Friends ANBG

Over 80 volunteer Friends were privileged to be welcomed by our Patron, Her Excellency Mrs Marlena Jeffery, to a morning tea at Government House on 29 July. Touring the house and gardens Friends were treated to a viewing of superb Australian artworks on loan from the National Gallery. Another highlight was the 64-drawer inlaid wood jewellery cabinet by craftsman Geoffrey Hannah, incorporating motifs of sugar gliders and Australian flora.



Friends volunteer, Alison McKenzie, inspects the Geoffrey Hannah jewellery cabinet.
Photo: Dorothy Taylor

Gardening Manager, Norm Dunn, guided the Friends around the grounds of the 54 ha ex-sheep station, highlighting the effort of his eight gardeners in maintaining eight hectares of irrigated lawns as well as formal gardens, cottage gardens, orchards and woodlands. Water for the gardens is drawn from Lake Burley Griffin with an annual allocation of around 75 Ml. This is much reduced from the days when flower beds were more extensive and two and a half hectares of vegetables were needed to supply the kitchens in Government House.

While principally an exotic garden, there are some fine eucalypts among the 4,500 trees, although not all plantings have been an unqualified success. Norm reflected on the



Mrs Jeffery addresses the Friends with Friends' President Alan Munns and Vice President Barbara Podger alongside. Mrs Jeffery has kindly agreed to continue as Patron of the Friends following her retirement from Government House. Photo: Courtesy Government House.

challenges of choosing eucalypts compatible with the water thirsty lawns (*Eucalyptus sideroxylon* having proved problematic) and the worry of falling limbs.

Eucalypts are clearly not alone when it comes to trees behaving badly at Government House. Mrs Jeffery recounted how at one honours investiture, recipients enjoying the shade of the magnificent 170-year-old *Cedrus deodara* were suddenly subjected to an almost explosive down-pouring of pollen.

The honour of oldest tree at Government House goes to a *Eucalyptus melliodora* thought to be between 300 to 400 years old. It is in amazingly good health requiring nothing more than a little deadwood removal every few years. What a wonderful location and history it presides over.



This *Eucalyptus melliodora* has been growing on this site since well before Captain Cook's historic voyage of discovery along the east coast of Australia.
Photo: Dorothy Taylor.

Swainsona formosa

Liz Baker



Sturt's Desert Pea growing on a roundabout in Alice Springs.

Photo by Liz Baker

Each year we eagerly await the planting out at the ANBG of Sturt's Desert Pea, with its stunning red and black flowers and soft grey foliage. Last summer it was planted out in Section 99 near the Crosbie Morrison Building. (*And this summer it will be found in a number of pots on Banks Walk and on the edge of the café lawn – ed*) Its natural range is the arid regions of central and north-western Australia but it is found in all mainland states except Victoria.

Sturt's Desert Pea was first collected by William Dampier in Western Australia in 1699. Shipwrecked and later court-martialled, he still managed to get his dried and pressed specimens of over twenty plants back to England. Today they remain preserved in the herbarium of the Department of Plant Sciences, University of Oxford and form part of the earliest extant collection of Australian plants.

The plant is an annual, which grows rapidly especially after rain. It has a trailing habit with clusters of blooms held on erect stems during June to March. The leaves are pinnate and hairy which give them a grey-green colour. Various forms have been found: the well-known scarlet pea flower with a black boss; a white form; and hybridised varieties which can be red, pink or yellow. Propagation is from seed which needs to be scarified and soaked before planting but it is not an easy plant to grow. Some success has been achieved in grafting onto its close relative *Clianthus puniceus*, the New Zealand Glory Pea.

Belonging to the family Fabaceae, the taxonomy of Sturt's Desert Pea has changed several times. It was first named

Donia formosa in 1832, but this was soon changed in 1835 to *Clianthus dampieri* (*Clianthus* from the Greek *kleos*, glory; *anthos*, flower, and Dampier). This remained its name for more than 100 years, but in 1950 it was decided that it should more correctly be called *Clianthus formosus* (*formosus* being Latin for 'beautiful'). More recent classification has changed the name to *Swainsona formosa*. Isaac Swainson was a botanist who studied Australian flora but his contributions were somewhat dubious. The common name comes from Charles Sturt who recorded seeing large numbers of the plants when exploring central Australia in 1844, 145 years after Dampier's original discovery.

Charles Napier Sturt was born in Bengal, India in 1795 where his father was a judge. Aged five he was sent to England to live with his mother's sisters and later was educated at Harrow School. When he was 17, a paternal aunt wrote to the Prince Regent asking for an ensigncy for him in the British Army. He joined the Dorsetshire Regiment with which he served in Canada, France and Ireland. Then when his Regiment was assigned as transport escorts, he sailed to Sydney aboard the 'Mariner' in May 1827.

Sturt first became Governor Darling's military secretary. Then, because of his previous travels and his personal interest in natural science and geography he was sent to determine the proposed existence of an inland sea. Leaving Sydney in November 1828, he was joined in Bathurst by an assistant, Hamilton Hume, and continued north along the Macquarie River discovering the Darling River, which

he named after the Governor. He found neither an inland sea, nor an answer to where the water went. In 1829-30 he made a second trip, taking six months, following the Murrumbidgee and Murray Rivers, and proving that the Murray-Darling system ended at the sea.

Suffering from ill-health caused by his travels, he returned to England where he married Charlotte Greene, who accompanied him back to New South Wales in 1835. Retiring from the Army he became a pastoralist near Mittagong, also owning land in what is now the ACT. In 1839 he sold up and overlanded along the Murray to settle in the new colony of South Australia.

His third exploration was in 1844 to explore central Australia, where he found the plant we name after him, but when camped on the edge of the Simpson Desert, drought, extreme heat and scurvy forced the expedition to return home. He held several senior positions before becoming Colonial Treasurer of South Australia. His eyesight failed in 1851 and he sailed for England where he died in Cheltenham in 1869.

It is said that Sturt's real contribution was his excellent relations with the Aboriginal people he met on his travels and also his accurate observation and description of the vegetation he saw.

Recently, while holidaying in England I visited an antique centre in Gloucester, which coincidentally is very near to Cheltenham. Keeping an eye out for Australiana, I spotted a china teapot handpainted with the unmistakable flowers of Sturt's Desert Pea. The label said 'handpainted chili beans'! It appears from my researches that it is a typical item created within china painters' groups of the 1930s in Australia. What a lucky find!



Photo by Liz Baker

Sturt's Desert Pea was proclaimed the floral emblem of South Australia on 23 November 1961. Other plants named after Charles Sturt are *Gossypium sturtianum*, Sturt's Desert Rose, which is the floral emblem of the Northern Territory, and *Solanum sturtianum*.

Growing Friends

The winter months have not seen members inactive, with many rooted cuttings from our autumn sessions needing to be potted up to grow on for future sales.

Problems with the drainage of our seed and cutting beds have been addressed, and the replacement of rotting timbers with metal supports has been completed.

Our small team of maintenance experts has spent a great deal of time and effort so that we can now rely on the systems working. We very much appreciate their generous efforts in getting the job done.

spring plant sale

on Saturday 8 November from 8.30 to 11 am
in Crosbie-Morrison carpark



Photo by Murray Fagg © ANBG

Two plants that will be available at the spring sale are:

Tetratheca thymifolia

A small heathland shrub to 60 cm commonly known as Black-eyed Susan from the dark purple centre to the purple-pink nodding flowers. Its thyme-like leaves are borne in whorls. It can be found in the woodlands of south-eastern Australia. It is good for planting in rockeries and pots and likes some overhead cover. It can be cut back hard after flowering.

Grevillea confertifolia

From the Grampians Victoria where it is found in moist and rocky sites. It is a variable, low, spreading shrub with narrow linear leaves and attractive, mauve-pink flowers in tight clusters at the ends of branches. It is spring flowering and tolerant of frosts and snow.



Photo by Murray Fagg © ANBG

Garden Shorts

We are not alone!

I recently attended the annual meeting of the American Public Gardens Association (APGA) in Pasadena, California, the 'big sister' equivalent of Botanic Gardens of Australia and New Zealand (BGANZ). I am a great fan of APGA's journal *Public Garden*, which covers everything from climate change to greenhouses to change management in organisations. It always comforts me that we are not alone—there are many other gardens out there facing the same challenges.

APGA has over 500 members, which says something about the strength of the public gardens community in the US. It has been going in some form for over 50 years, so it was not surprising that BGANZ, which has only been around for some five years, has a long way to go in comparison.

It was inspirational to see what could be achieved: a thriving professional development program; ongoing professional networking and support; benchmarking services for institutions; corporate partners; a collaboration to curate a national collection; awards recognising excellence in gardens management. It has a full time staff of six, of course, keeping it all ticking over.



Don't get me wrong, BGANZ is doing more than OK, with its website, newsletter, regional networks (New South Wales, Queensland and Victoria) and

conferences and biennial national conferences. But my experience in the US has made me realise the huge potential BGANZ has to benefit all kinds of botanic gardens, all over the nation—public, private, large or small.

The Council of the Heads of Botanic Gardens, and its members, remain strong supporters of BGANZ and will be doing all they can to keep it developing its role and profile. With our role as the Australian National Botanic Gardens it seems to me we have a special interest in encouraging and facilitating BGANZ and its regional networks. It's potentially a powerful way of getting conservation messages into all the small corners of the nation... and to that wonderful diversity of people in our regional areas. One of the messages I took away from the recent BGANZ NSW conference was that we all have one goal—to ensure that plants are appreciated and understood—but the key to our success as institutions over time is the sheer diversity of approaches we have that can be used to achieve that goal. There can be something for everyone in a botanic garden, lets not lose that thought.

Anne Duncan, Director

A Plant by No Other Name

The Gardens and the Australian National Herbarium are centrally involved in a national effort to produce a unified, agreed list of scientific names for all native and naturalised vascular plants across Australia. The Australian Plant Census (APC) project will eventually account for every name used in Australian taxonomic literature, including synonyms and phrase names, and provide information on the taxonomic concepts followed.

The need for the census stems from past practices of botanists and State herbaria of using different concepts when applying names to their flora, so that plants apparently change names at the border. These inconsistencies were highlighted when the Commonwealth tried to align its new legislative schedules for the

Environment Protection and Biodiversity Conservation Act 1999 with lists used by the states in their own legislation. It was clear that it would be impossible to catalogue and thus protect Australia's botanical diversity if the plants didn't have names that are agreed and consistently used.

The advantage of the APC over all previous attempts at a national census is that decisions are made with extensive input and consultation from botanists in all state herbaria, making it a truly national, collaborative project.

Some large groups such as the Proteaceae, Chenopodiaceae and Mimosaceae have been completed, along with other families and are presented as a dynamic database at www.chah.gov.au/apc. The census team genuinely welcomes corrections or feedback on the project via cpbr-info@anbg.gov.au.

Brendan Lepschi, Anna Monro and Murray Fagg

Banksia heliantha once known as *Dryandra quercifolia*



Photo by Murray Fagg

The APC representing the consensus view of the state herbaria, provides information on recently accepted name changes. In 2007, a paper was published transferring all the names in *Dryandra* into *Banksia*, as DNA evidence indicates these plants are a single group. This has more than doubled the size of *Banksia*. Several of the existing species names used in *Dryandra* were already occupied in *Banksia*, so these species had to be given new names. The species pictured, previously known as *Dryandra quercifolia*, is now known as *Banksia heliantha* (from the Greek for sun and flower, in reference to the large bright yellow inflorescences).

What's out in the Gardens



All plants on Banks Walk or the Main Path. Photographers: Anne Rawson (1, 3, 6, 8, 10), Howard Rawson (2, 4, 7), Murray Fagg (5, 9).

- | | |
|--|---|
| 1. <i>Rhodanthe chlorocephala</i> subsp <i>rosea</i> | 6. <i>Grevillea</i> 'Bonfire' |
| 2. <i>Philotheca myoporoides</i> subsp <i>acuta</i> | 7. <i>Swainsona formosa</i> |
| 3. <i>Telopea</i> 'Canberra Gem' | 8. <i>Phebalium squamulosum</i> subsp <i>squamulosum</i> |
| 4. <i>Hibbertia empetrifolia</i> | 9. <i>Alyogyne</i> 'West Coast' and <i>Hovea elliptica</i> |
| 5. <i>Melaleuca fulgens</i> 'Hot Pink' | 10. Petals of <i>Prostanthera rugosa</i> on a mossy rock in the Sydney Basin. |

What's on at the Gardens



The Friends of the ANBG use the 'gold' coin donations received at each activity to support Australian National Botanic Gardens' programs and development. The Friends thank all those who have donated, and all those who will. The Friends especially thank the many speakers who volunteer their time and talents to further the knowledge of all who attend the events in the Gardens.

Please note: Unless otherwise indicated, talks are in the ANBG Theatre.

When bookings are required, phone the Visitor Centre on 02 6250 9540. Members who make bookings for events are requested, as a courtesy to their fellows, to notify the Visitor Centre if they are unable to attend.

Details of events are correct at the time of printing. For changes and updates please check the Friends' website at: www.friendsANBG.org.au or on the Gardens' site at: www.anbg.gov.au or in the local press.

Good News

Speakers at the Friends' Thursday talks have kindly agreed to their summary or PowerPoint presentation being available from the ANBG library to Friends, by kind assistance of the ANBG Librarian. A donation to the Friends for the use of this material will be gratefully accepted.

NOVEMBER

Thursday 6 November at 12:30 pm
'How Evolution Works'

Adrian Gibbs

The wonderful diversity of plants represented in the ANBG has been produced by evolution over many millennia. How evolution works is now being revealed by studies of gene sequences. The diversity of organisms is paralleled by the diversity of their genes, which have been changed and differentially selected over time. Adrian will explain that fossicking in gene sequences to reveal the past, like all detective work, is fascinating, and can even reveal the origins of microbes that leave no fossils

Saturday 8 November 8.30 to 11 am
Growing Friends Spring Sale
In Crosbie-Morrison carpark

See page 5 of Newsletter.

Thursday 13 November at 12:30 pm
'Tasmania—Cryptogam Heaven'
Chris Cargill

Well-known as the 'Natural State', Tasmania has long been on Chris' 'must see' list of Australian places to visit. 'And the long wait was well worth it. While I had known for many years that Tasmania was the land of rugged natural landscapes and beautiful ancient forests, I had never had the opportunity to do any serious fieldwork there in relation to the cryptogams. Come and take a 'Cook's Tour' of some of the highlights of my Tasmanian trip including images of many of the flowering plants and the intriguing and beautiful cryptogams.'

Thursday 20 November at 12:30 pm
'The Evolution of the Australian Flora'

Michael Crisp

DNA from living organisms can be used to reconstruct evolutionary history using genealogical trees ('phylogenies'). Changes in the shapes of phylogenies help us to detect evolutionary upheavals (including extinctions) caused by ancient geological and climatic events. This presentation will cover molecular evidence for the origins of the Australian flora from its ancient, and not so ancient, Gondwanan roots and for floristic turnover associated with environmental changes during the last 65 million years.

Saturday 22 – Sunday 23 November
A tree in the palm of your hand: an exhibition of Australian plants as bonsai

Experience a fascinating exhibition of Australian plants as bonsai. See banksias, eucalypts, wattles, tea-trees and other Australian plants from the collection of bonsai enthusiasts. Bonsai demonstrations. Admission charge applies.



Ficus rubiginosa

Saturday 22 November at 6 pm
Graze in the Gardens

A great three course dinner in two beautiful locations in the Gardens. Enquiries & Tickets: Barbara 6247 7188; Mary 6231 3878; Ellen 6259 1887.

Thursday 27 November at 12:30 pm
'Coral and Carbon Dioxide'
Malcolm McCulloch

See summary on Friends website closer to the event.

Sunday 30 November 10 am to 12 noon

Arboretum Visit

Don't miss this opportunity to join a guided tour of the Canberra International Arboretum and Gardens. The bus tour will stop at three or four locations to view current plantings and sites for future development (wear appropriate footwear). If the weather is warm, you may wish to bring a drink. Bus departs from ANBG bus shelter at 10 am, returning at 12 noon. Bookings essential, at the Visitor Centre. Cost \$13 per person payable on the day (to cover cost of bus).



Aerial shot of arboretum site, from CIAG website

Saturday 29 and Sunday 30 November from 10 am to 4 pm

Open garden at 10 Wickham Crescent, Red Hill

Visit the beautiful and impressive garden of Ros and Ben Walcott. Part of the proceeds to the Friends. Refreshments and guided tours available.

DECEMBER

Tuesday 2 December 2008 – Sunday 29 March 2009, 9 am – 4.30 pm

Generate – exhibition to celebrate Charles Darwin by Julie Ryder

Visitor Centre gallery

This mixed-media exhibition by Canberra artist, Julie Ryder, explores the life and theories of the 19th century naturalist, Charles Darwin. Drawing inspiration from Darwin's five-year voyage in *The Beagle*, Ryder investigates the impact that this exotic journey had on his ideas of social and natural history, through textiles, works on paper and crafted objects.

JANUARY 2009

Saturdays and Sundays 3/4, 10/11, 17/18, 24/25 January

From 6.00 to 7.30 pm

Summer Concerts in the Gardens



Photo by L. Harley

Each Saturday and Sunday during January experience talented local bands and musicians performing amongst the gum trees in the setting of the Australian National Botanic Gardens. Enjoy a picnic with family and friends whilst you frolic to funky folk, swing to smooth jazz or revel to rock and roll. Saturdays on the Eucalypt Lawn; Sundays on the Café Lawn. Gold coin donation to the Friends.

Monday 12 to Sunday 18 January Snakes Alive!

Crosbie-Morrison Building

Be charmed by our live display of snakes, lizards, frogs and turtles, presented in partnership with ACT Herpetological Association. Admission charge applies.

FEBRUARY

Thursday 5 February at 12:30 pm

'Up the Native Garden Path' Mark Carmody

The Friends talks for 2009 start with the cheery, colourful and controversial garden show host; later weather presenter and ambassador for flowers, Mark Carmody, who brings his usual breath of fresh air and amusing insights to the use of native plants in landscaping. The ANBG was honoured during the Beijing Olympics when, each day, a native Australian flower was highlighted in his lapel.

Tuesday 10 February 2009 at 5.30pm

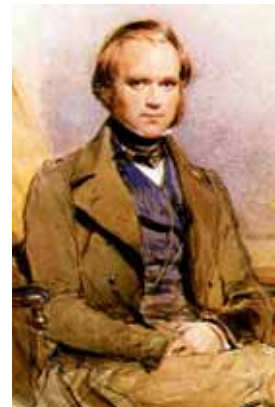
Friends Annual General Meeting

Please put the date in your diary now! Details coming in the mail.

Thursday 12 February at 12:30 pm

'The 200th Birthday of Charles Darwin'

Julie Ryder and friends



Water colour portrait by George Richmond painted in late 1830s

Happy Birthday Charles Darwin! To celebrate the 200th anniversary of Charles Darwin's birth, a panel of artists and scientists will talk about the legacy his research has contributed to our knowledge and understanding of the natural world. Join artist, Julie Ryder, whose exhibition *'generate'* is on display at the ANBG Gallery, along with other speakers, to hear how his ideas and theories continue to influence us today.

Thursday 12 February

Friends Twilight Dinner

Hudsons Café in the Gardens

Look out for details and booking forms which will be forwarded to Friends early in the new year. Don't miss this year's theme with a difference!



Photo by Barbara Podger

Friends of the Australian National Botanic Gardens

Thursday 19 February at 12:30 pm
'The World's Best Botanic Garden'

Tim Entwistle

The first botanic gardens were established in the mid-sixteenth century, to celebrate the 'wondrous breadth of God's creation and its order' (Robert Dossaix, 1999, *Night Letters*). Later they also celebrated evolution. The early gardens in Australia were primarily a place to acclimatise plants for the new colony as well as a stopping-off point for the wonders of the new land to be transported back to Europe. Today there are over 2500 botanic gardens and arboreta, mostly situated in northern temperate regions of low current-day plant diversity. There have been various attempts to define what a botanic garden is, but the most useful guideline is that published in the *International Agenda for Botanic Gardens in Conservation in 2000*: 'Botanic gardens are institutions holding documented collections of living plants for the purposes of scientific research,

conservation and education'. This still leaves a lot of room for each botanic garden to have its own agenda and local character, as it should! So what makes a botanic garden a good one?



The lowest botanic garden in the world, at 90 m below sea level, Turpan Eremophytes Botanic Garden in China. Photo by Rosemary Purdie.

Thursday 26 February at 12:30 pm
'The National Reserves System'

Peter Taylor

See summary on Friends website closer to the event

The Botanical Bookshop

www.botanicalbookshop.com.au

always welcomes Friends of the ANBG to the store.

A 10% discount is offered:

- on purchases over \$10
- on production of your current membership card
- to the person whose name appears on this card

No discount is given for items marked 'Red Spot Specials'.

There are two free (30 mins) parking spaces for customers in both southern and northern parking areas

Friends' Benefits

Your Membership Card entitles you to the following benefits:

Parking Pass—Display for free parking and please park in the lower levels of the carpark.

Botanical Bookshop—A discount on most items.

Hudsons Café—Loyalty cards, one for meals, one for tea/coffee.

Friends Lounge—is open to members from 9.30 am to 4.30 pm. It is in the Ellis Rowan Building - follow the path past the Cafe. A space of our own to relax and enjoy a free cup of coffee or tea. Take the opportunity to catch up on newsletters from other botanic gardens, plus lots of other interesting reading.

Botanical Resource Centre— Public access herbarium, text books, access to online resources, trained facilitators to help you, all in the room adjoining the Friends Lounge.

ANBG Library Membership—Borrow books, serials, videos, DVDs plus use of computers and interactive CD ROMs

Function Facilities—Special rates on bookings for functions at the ANBG.

Open Hours

Australian National Botanic Gardens, Clunies Ross Street, Black Mountain, Canberra.

Open 8.30 am - 5.00 pm daily. Closed Christmas Day. Visitor Centre open 9.00 am to 4.30 pm, (02) 6250 9540.

Free guided walks with volunteer guide: 11.00 am and 2.00 pm daily

Booderee Botanic Gardens, Caves Beach Rd, Jervis Bay. Phone for opening times on (02) 4442 1122.

Bryophyte website launch



Funaria hygrometrica, an early coloniser after slow, hot fires. Photo by Heino Lepp.

On Thursday 28 August, regular attendees at the Friends Thursday lecture series were surprised to find themselves at the glittering official launch of the ANBG's new Bryophyte website.

Three years in the making, the website was created through the dedicated work of Heino Lepp, and through sponsorship funding by the Friends. Mr Donald Hobern, Director of the Atlas of Living Australia, did the honours, and the event wound up with a visit to the hitherto mysterious depths of the Cryptogam herbarium hosted by its curator, Chris Cargill.

To quote from the new website: 'The word bryophyte is the collective term for mosses, hornworts and liverworts and bryology is the study of bryophytes.' If you would like to explore the world of these perhaps lesser known members of the plant world, start with the almost edible looking artwork on the front page of the site at <http://www.anbg.gov.au/bryophyte/index.html>

Spring Flower Trial



Gardens staff planting out the spring flowering plants. Photo by Barry Brown.

During 2008, Gardens staff requested funding support from the Friends to allow the purchase and growing of some special Australian native spring flowering plants.

The Friends provided \$7,000 for a trial planting of Australian daisies and Sturt's Desert Pea (*Swainsona formosa*).

Although much admired, Sturt's Desert Peas can be hard to grow outside their natural desert environment, as they are prone to fungal diseases and root rot. To overcome these potential diseases, Gardens horticulturalists used seed-grown plants grafted onto a more vigorous and rot-resistant New Zealand plant, *Clianthus puniceus* (Glory Pea). Sixty of these grafted plants were purchased from a specialist nursery in Victoria.

Gardens staff experimented with different fertilisers, pruning techniques (pinching tips to encourage compact growth) and environmental controls (bottom heat) to enhance growth.

The best 15 of the original 60 plants were chosen for display. Selection criteria for display plants were based on the number of stems (20-40) and the general vigour of the plants.

Species selection for the display of Australian daisies was based on seed viability and germination trials in autumn 2008 (five of the species trialled had low to nil germination). During germination trials, six species germinated quickly and uniformly with no treatment, while three species germinated after treatment in Kirstenbosch smoked disc. (The Visitor Centre has an information sheet listing the species trialled and planted.)

With future experimentation, ANBG horticulturalists may discover techniques for breaking dormancy of those species that did not germinate in trials this year.

More than 11,000 daisy seedlings were planted out, with an additional 2000 kept in the nursery as back-up.

Enjoy the display over the next couple of months!

Friends at BGANZ

The Friends supported a strong attendance of ANBG volunteers at the recent conference hosted by the Eurobodalla Regional Botanic Gardens for the NSW Chapter of BGANZ. This is a relatively new organisation established in 2004 to

Friends Briefs



Wheelchair accessible walk at Eurobodalla Gardens.

represent the interests of botanic gardens in Australia and New Zealand and as a forum for exchange of information and ideas. (See 'From the Director' for a future vision for BGANZ.) The ANBG is a strong supporter of BGANZ and a number of staff contributed their expertise as speakers and facilitators.

The conference highlighted success stories in developing and managing botanic gardens across the state. The Eurobodalla Gardens itself provided one of the most inspiring stories. The devastation of the 1994 bush fires in the then fledgling gardens, galvanised the community to rethink and rebuild with a new focus as a regional botanic garden. The 42 ha site now beautifully displays plants from a collecting region extending over 110 kms of coastline from Durras Lake in the north to Wallaga Lake in the south.

With only three permanent staff, the gardens rely heavily on some 120 volunteers to manage and grow its collection. Volunteers are involved in a wide range of tasks covering everything from curating the herbarium to education, propagation, construction and management. While the role of Friends and volunteers is quite different in the capital city botanic gardens, it is worth reflecting on the fact that around 75 per cent of all botanic gardens in Australia have less than nine paid staff and are predominantly run by volunteers.

More Friends Briefs on page 12

Rabbits: Australia's hidden landscape gardeners!

A synopsis of the 2008 Bernard Fennessy Memorial Lecture

Brian Cooke*



Left: *Eremophila alternifolia* in Vulkathunha-Gammon Ranges National Park, showing distinctive diagonal chisel-like cuts made by rabbits. Photo © Dr Robert Henzell. Centre: Rabbit plague, Hawker Gate, Quinyambie, SA dog fence, November 1988. Photo © Peter Bird. Right: Young Mulga ring-barked by rabbits. Photo © Dr Robert Henzell.

Wild rabbits, introduced into Australia in 1859, spread within 70 years to occupy two-thirds of the continent. Despite legislation, rabbit-proof fences, poisons, fumigants and destruction of warrens, rabbits prospered causing severe economic damage. It was largely CSIRO's introduction of myxomatosis that turned the situation around.

Nevertheless, despite 50 years of rabbit research, CSIRO scientists published remarkably little on rabbit impact on native plants and animals. Only anecdotal observations were published following myxomatosis and the first clear description of rabbit damage to Australian plants, *Acacia cyclops* and *Myoporum insulare*, came in the 1960s from Robben Island, South Africa, where both rabbits and plants had been introduced.

The University of Adelaide, through work at the Koonamore Vegetation Reserve, first drew attention to the significance of rabbit impact. A study of long-term vegetation changes from 1926 to 2002 showed that in the first 50 years after sheep were removed from the reserve only two species of saltbush became re-established, but nine additional tree and shrub species regenerated freely after rabbits were eliminated in 1975.

Subsequently a succession of research papers provided an ever-growing list of affected plant species and wider impacts were recognised in alpine grasslands and island ecosystems. It is not hard to see how rabbits can affect whole communities; failure of recruitment of arid-zone

acacias means fewer parasitic mistletoe plants and fewer birds and insects that rely on them.

The introduction of Rabbit Haemorrhagic Disease (RHD) in 1995 and the resultant reduction of rabbits provided a second natural large-scale experiment useful for assessing rabbit impact. Studies in the Coorong National Park and Flinders Ranges National Park indicated that where rabbits were greatly reduced, plants ranging from terrestrial orchids to shrubs re-established themselves. As native grasslands recovered, wombats, kangaroos and native rodents also responded positively.

Studies in Victoria documented not only the first widespread regeneration of buloke, *Allocasuarina lehmannii*, since European settlement, but also the upsurge in rabbits as they developed resistance to infection with RHD plus the resulting damage to seedlings that had not grown large enough to withstand them. Importantly, it was shown that rabbits must be held below 0.5 – 1 rabbit/ha to sustain natural buloke regeneration.

Although RHD has held rabbits low for the last 13 years, they were still listed as a risk to 86 threatened species in New South Wales alone, ranking them near feral goats that threaten 94 species. In addition, a recent survey of roadside vegetation in south-eastern Australia, including Tasmania, showed that rabbits were present on 50 per cent of the 220 sites visited. They were damaging native plant seedlings on 25 per cent of sites. The failure of recruitment of short-lived shrubs changes vegetation

structure, understorey is lost and weeds invade leaving a barren landscape with low biodiversity.

Long-term prospects are again looking grim. In many semi-arid areas rabbits are no longer well controlled by RHD and in the last five years they have surpassed critical levels where they inhibit natural shrub regeneration. We must act now rather than responding only when economic damage becomes obvious once more. In the short term well known methods of rabbit control (for example, poisoning, ripping and fumigation) can help keep rabbits down but in the future we need new methods, such as additional isolates of RHD virus from Europe, to extend the effectiveness of biological control.

We ignore these 'unseen gardeners' at our peril because they strike at the very essence of what makes Australian landscapes unique. We should not accept a situation where classic Darwinian evolution is outpacing the development of the wisdom and foresight needed to properly care for Australia's unique flora and fauna!

Editors' Note: The Gardens relies heavily on its rabbit proof fence to keep these destructors out. The fence is regularly patrolled to ensure no holes have appeared.

**Invasive Animals Co-operative Research Centre and Institute for Applied Ecology, University of Canberra.*

Favoured fauna in the Gardens

Pat Gibbs



Macleays Swallowtail on *Xerochrysum* sp. on edge of Rainforest Gully, ANBG. Photo by Tony Woods

The choice of place for the Gardens, made in 1935 by Dr Bertram Dickson, has proved to be an excellent one. It is partially protected from the hot summer sun in the late afternoons and from the westerly winds. It is almost surrounded by the natural dry sclerophyll forests and woodlands on Black Mountain's slopes, and the birds and other animals of the mountain are regular visitors enjoying enrichment of their diets. Many of the original eucalypts of the area have survived, and these old trees with holes provide essential protection for many birds, arboreal mammals and insects. The plantings in the Gardens have extended the habitats for local fauna and attracted some surprising new tenants.

The dedication, knowledge and skills of successive Gardens staff over 60 years have given Canberra a very special collection. Plants from important families and from many

parts of Australia thrive here. They blend together to give interesting contrasts of size, foliage and flowers.

The unique mix of our native flora has added resilience to this area. The synergy of a natural reserve surrounding an extensive plant collection gives our fauna greater chances for survival. Certainly after the 2001 and 2003 fires around Canberra, the Gardens was an important refuge for many surviving birds. Other visitors have taken up residence. Water dragons clearly enjoy the Gardens' water features and a number of Brown snakes have made the Gardens their home, and perhaps even the Powerful Owl might return one day.

The diversity of plants can also attract species previously considered vagrants in the ACT to establish here. One example is the beautiful butterfly, the Macleay's swallowtail (*Graphium acleayanum*), which is now seen each year. Our rainforest plantings include several known hosts for its caterpillars, and in March 2008 a surprising number of the butterflies from a late hatching could be seen fluttering above and sipping nectar from many different flowers.

The Gardens staff need support to retain the collections in good condition, particularly now, when losses of native flora and fauna are already recorded from many ecosystems.



Photo by Howard Rawson

Banking Seeds

Margaret Clarke

Tucked away in the Gardens, the Seed Bank has been collecting, drying, cataloguing and storing seed since 1963. While it now has a huge collection covering around 2,400 taxa, the minute size of most seed means it can all be accommodated in a few small buildings.

As well as supplying the gardens with seed for growing on and planting, the Seed Bank has an important scientific role as a gene bank for the long term storage of rare and threatened flora. Seed banking is being increasingly recognised internationally as an important backstop for the survival of biodiversity at a time of great environmental stress. This is because most seeds can be stored in a state of suspended animation for hundreds of years under ideal conditions.

Drying and cooling regimes are key to successful seed storage. For seed longevity, reduction in moisture content is more important than reduction in temperature. Seed required for short term collection (less than five years) can be stored at 4°C. For long-term collections (more than 25 years) storage at -18°C is needed along with a moisture content of only three to seven per cent. Since 1995 all seed collections made by the Gardens are dried and stored at -22°C.

Viability of seed stored in the collection is monitored by a program of germination trials and this is adding enormously to our understanding of what triggers the germination of different Australian native plants. For many of the seeds being tested very little is known about their germination requirements.

Where seeds are proving difficult to germinate, thinking about the environmental conditions for natural germination in the field gives pointers to which laboratory techniques might best be applied. In some cases seed dormancy can be broken by temperature variation to emulate seasonal change. In other cases dormancy breaking techniques such as smoked water discs, Gibberellic acid, potassium nitrate, warm moist stratification, cold moist stratification, scarifying or chipping are needed.

Building and maintaining the seed collection is the responsibility of Sarah Fethers and her small but dedicated team of volunteer Friends, Alison McKenzie, Doreen Wilson and Malcolm Fyfe. Sarah is particularly passionate about her involvement with the Gardens' work with National Parks and Wildlife to collect seed from the alpine plants on Mt. Kosciuszko. (see *Newsletter* No 59: 'ANBG Alpine Collecting 2008').

The Seed Bank already holds the largest number of species of alpine plants in Australia, an important resource for a region so vulnerable to the effects of climate change. Funding permitting, Sarah would like to see this already valuable collection grow into a national state of the art alpine seed bank, to collect and conserve Australian alpine seeds for future use, regeneration and research.

Visitors to the Gardens will soon be able to appreciate some of the fruits of the alpine seed collecting expeditions. Watch out for plantings of alpine species of *Craspedia costiniana*, *Craspedia maxgrayii* and



Cartoon reproduced with the kind permission of Judy Horacek. Sarah Fethers has spent many hours collecting seed from Australia's alpine area for the Seed Bank. She is shown above collecting seeds (photo by Molly Henson) and holding seeds she has successfully germinated from the collection (photo by Barbara Podger)

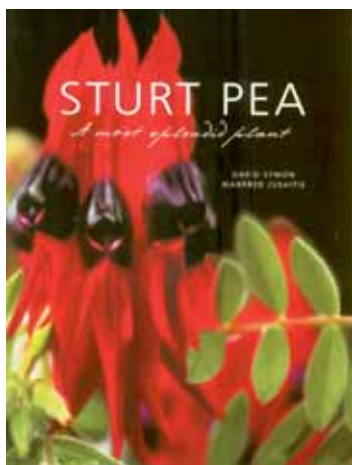
Leucochrysum albicans ssp. alpinum in the Rock Garden section 15m. These should be flowering now.

The Gardens Seed Bank is also home to Greening Australia's Seeds for Survival Project. This project was initiated after the 2003 Canberra bushfires to increase the availability and diversity of local native seed. The seed is supplied to local land holders and the ACT Government for regeneration planting. It is a practical example of just how important seed banking can be to restoring ecosystems devastated by catastrophic events.



Volunteer Doreen Wilson's hands extracting seeds. Photo by Barbara Podger.

From the Bookshop *Tom Butt, Shop Manager*



Sturt Pea: A most splendid plant

by David Symon & Manfred Jusaitis

Adelaide, Department of Environment and Heritage and the Board of the Botanic Gardens and State Herbarium, 2007

Paperback, 151 pages, colour photographs.

ISBN: 0759000514

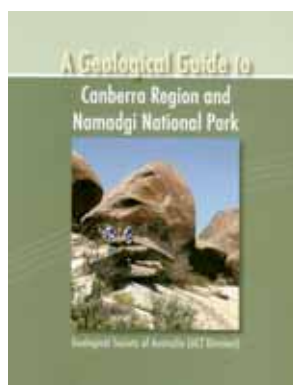
RRP: \$39.95

This book is the first to comprehensively focus on this dramatic flower. It tells the story of the discovery and history of Sturt pea, of the passion of early European horticulturalists to grow the plant, of its botany, biology and culture, of its rise to iconic status, and of the progress made in domesticating this wild yet mysterious plant.

Eminent botanists David Symon and Manfred Jusaitis have spent several decades studying and researching Sturt Pea. In this book they reveal the secrets of this 'iconic' Australian flower for the instruction and delight of biologists, gardeners and art lovers alike.

The striking colour and form of Sturt pea's flower has led to its adoption as the floral emblem of South Australia. Its popularity has resulted in a host of uses in logos and coats of arms, on greeting cards and postcards, in designs for teatowels, clothing, ceramics and even confectionery. Sturt pea has featured in many landscape and still-life works of art, possibly the best-known being the paintings by Margaret Preston. Authors, song-writers and poets have used the Sturt pea in a variety of ways and settings.

The full cultural and social significance of this striking flower is revealed in this richly illustrated book.



A Geological Guide to Canberra Region and Namadji National Park

Geological Society of Australia (ACT Division), 2008

Paperback, 140 pages, photographs, maps, diags, index.

With a CD: Geological excursions and sites of interest.

ISBN: 978-0-646-48734-2

RRP \$31.70

This geological guide seeks to answer some of the questions about the geological landscape evolution of the Canberra region with particular emphasis on the processes involved. Some questions that may be asked about the Canberra region include:

- why are the mountain ranges oriented north-south?
- how did the granites form?
- did glaciers play a role in modifying the landscape?
- what types and ages of rocks are there?
- what mineral resources are there and is there any gold?
- are there any fossils in the rocks?

These and many other questions are discussed in this geological guidebook to the Canberra region and Namadji National Park. The book takes a journey through time, typically measured in many millions of years, to explain the beginnings and history of this eastern part of the ancient continent of Australia.

The book combines information from many areas of science including geology, tectonics, palaeontology, mining and settlement history. It is a fascinating insight into the formation history of our region written in an interesting and informative manner.

Also available at \$9.95 each: Geological Map of ACT 1:100,000 scale and a CD-ROM GIS (geographic information system) software and data to accompany the printed map.

More Friends Briefs

A New Batch of Guides

Photo by Robyn Lawrence



'P' is for Proteaceae and phyllodes. Eighteen trainee guides recently completed the ANBG volunteer guides course. They now have progressed to their 'P' plates and have started to run, or help run, one-hour free guided walks for the public around the Gardens.

The five-week course, the first for three years, was conducted by the Friends of the ANBG—previously it was run by the ANBG. Don Beer, a former history academic, ably ran the course aided by the ever helpful Maureen Connolly. Various ANBG staff members gave sessions in their areas of expertise and many of the experienced guides assisted in the guiding practice walks.

'The microscope session with Norm Morrison was a real highlight for me', said one of the trainees of the course. 'It was great to dissect the flowers and see them up close.'

The curator of the Australian National Herbarium, Brendan Lepschi, presented the graduation certificates to the new guides after they completed the training course.

So keep an eye out for the new guides doing their research or running their walks. They are a nice bunch, passionate about the Gardens and keen to learn.

Robyn Lawrence
(New Guide)

New Emails and Website

Thanks to Les Fielke, the Friends now have new email addresses and a web page that is separate from, but linked to, the Gardens site. In the past Shirley McKeown has organised web content and Murray Fagg has put it up on the Gardens site for us. Many thanks to Murray, but we, and Shirley, will soon be on our own.

The web address is:
www.friendsANBG.org.au

There are three email addresses, one for general information about Friends, one for membership enquiries and one for newsletter material. Messages are automatically directed to the relevant person.

The addresses are:
info@friendsANBG.org.au
membership@friendsANBG.org.au
newsletter@friendsANBG.org.au

And if you forget to put the ANBG bit in capitals, it doesn't matter, both upper and lower case are accepted.

Changes at Hudsons

Photo by Barbara Podger



Spring is upon us...the flowers are blooming, the baby birds are fledging, and water dragons are out of hibernation. What better place to sit and enjoy the ambience (and the new spring/summer menu) than at Hudsons Café! Sit out on the new deck area under an umbrella and enjoy the view over the grass to the ponds. (But please don't share your meal with the Choughs!)

Hudsons has been successful in its tender to renew the lease of the café, but increased costs have forced an increase in prices, though they are still very competitive. So Hudsons will soon be introducing a new system for providing discounts for Friends. Instead of receiving a discount on every purchase, members will be given two Loyalty Cards

to entitle you to a free tea/coffee or meal after a number of similar purchases. Your new Loyalty Cards will be mailed out with your new membership card and parking permit.

The café is open 8.30 am to 4.30 pm, seven days a week. Access via the rainforest bridge from the car park (no steps).

Wattle Walks



Photo by D.Kelly.

The Gardens were bejewelled with gold, the perfect setting for all those who celebrated spring with a guided Wattle Walk during the first week of September.

More on Bowerbirds

As a follow-up to the article on Satin Bower Birds in the July *Newsletter* and whether nests have been seen in Canberra, Malcolm Fyfe agrees that these birds are regarded as uncommon breeding residents and so it could be the case that not many nesting events have been recorded. However, he recalls one instance of a nest observed in Deakin some years ago. And he says he has it on good authority (J. Holland) that young were observed being fed in the nest in the *Callitris* area of the ANBG in December 2003.

Brekkie with Birds

The annual Breakfast with the Birds program was an amazing success, with about 150 people enjoying a very pleasant early morning spring walk followed by breakfast at the café. The first weekend produced many Wattlebirds on nest with young, including a very visible one in a brilliantly flowering entwined *Acacia* and *Hardenbergia*, over the Banks walk. The ever present Choughs, Australian Ravens, Currawongs, and Wood Ducks were also nesting along with Pardalotes, New Holland Honeyeaters, Eastern Spinebills, and Scrubwrens.