



Fronds

*Friends of the Australian National Botanic Gardens
Number 90 December 2018*



Friends of the AUSTRALIAN NATIONAL BOTANIC GARDENS

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Email or post material to the *Fronds* Committee at the above addresses or, place in the Friends letterbox, located inside the Gardens' Visitor Centre, between 9.30 am and 4.30 pm, Monday to Sunday. Editorial messages: telephone (02) 6250 9548.

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Banksia coccinea, ANBG

BRENDA RUNNEGAR

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Front cover: *Banksia spinulosa* var. *collina*, one of the mature banksias already growing in the ANBG. A new Banksia Garden is planned for the ANBG ...to inspire and inform new generations of enthusiasts. More information in this issue, pages 4 - 5. PHOTO: ANNA KIELTYKA

Threatened Species in ANBG nursery

Dr Sally Box, guest speaker for the 2018 AGM

Plants make up more than half of Australia's threatened species under the *Environment Protection and Biodiversity Conservation Act*. There are over 1,300 plants on the EPBC list, including over 70 wattles, over 75 gum trees, and over 200 orchids. Under the Threatened Species Strategy, 30 plants have been targeted for improved trajectories by 2020. These targeted plants were chosen based on prioritisation principles in the Strategy, including their conservation status, environmental importance, umbrella benefits, geographic range, and their ability to leverage broader action.

The Strategy covers a five year period to 2020, by which time there are targets to have: 100 per cent of Australia's known threatened species in conservation seed banks; recovery actions underway for at least 50 threatened plants; additional recovery actions underway for at least 60 threatened ecological community sites; and at least 30 priority plant species with improved trajectories.

Delivering on the plants targets is being achieved through a number of actions including: seed collection and storage, propagation, revegetation, building fenced areas, translocations, invasive species control, disease mitigation, and

improved fire management practices.

The Office of the Threatened Species Commissioner (OTSC) is working in collaboration with the ANBG to grow ex situ populations and hold insurance populations through seed banks to achieve plant and seed banking targets set out under the Strategy. The *Wandiyali Swainsona* Project is protecting existing populations of small purple-pea (*Swainsona recta*) and translocating 300 seedlings from the Gardens with the aim of establishing a new self-sustaining population near Queanbeyan. One hundred small purple-pea seedlings have been translocated to date and, so far, so good. They have been planted in pairs with tree guards to maximise protection from herbivores. The ongoing management of the existing populations will involve groups such as Greening Australia, Conservation Volunteers Australia, Canberra Nature Map, Queanbeyan Landcare and the Molonglo Catchment Group.

Banksia vincentia was discovered a decade ago in bushland near Vincentia, a small town on the south coast of NSW. Bush fire and soil borne disease reduced the 14 plants discovered in the population to just four. The ANBG has successfully cultivated 45 plants

above the ground, with each plant having its own 60 cm x 60 cm container, designed to maximise their chances of producing seed. By having plants off the ground, it gives them the best possible shot at survival, and will help counter possible issues such as pests, soil and poor drainage. Other botanic gardens from the South East Bioregion together with Parks Australia, Booderee National Park and the NSW Office of the Environment and Heritage are all working together to help save this stunning plant. The ultimate goal is to have at least 800 plants established within a new in-ground orchard in Booderee National Park, just 10 km from Vincentia, by autumn 2020.

Dr Sally Box commenced as the Australian Government's second Threatened Species Commissioner in January 2018. Her role is to champion the implementation of the Threatened Species Strategy and practical conservation actions to recover our most threatened plants and animals. This article is a much shortened version of her presentation to the 2018 AGM of the Friends of ANBG. Further information about the work of the OTSC is available at: <http://www.environment.gov.au/biodiversity/threatened/commissioner>



Small purple-pea (*Swainsona recta*)



Banksia vincentia



Preparing a Banksia Garden in the ANBG

Boronia Halstead, Friends Liaison Person on the Banksia Garden Working Group

Visitors to the ANBG over recent months may have noticed a lot of earth movement and chain sawing in the part of the Gardens known as the 'Banks Loop', adjacent to the Banks Centre. This work is happening just down the hill from another major development in the Gardens, the construction of the new Conservatory. The site is being prepared for our exciting new Banksia Garden. The project has been enabled by a generous \$100,000 donation from the Friends. The opening of new Garden will be the highlight of a 'Banksia Month' during the celebration of the 50th Anniversary of the ANBG in 2020. This is most fitting, given the ANBG logo features a generic representation of a *Banksia*.

Carl Linnaeus the Younger (son of Carl Linnaeus the Elder) named the *Banksia* genus in 1782, honouring the important role of Joseph Banks in the collection of Australian plants on the Endeavour expedition led by Lieutenant (later Captain) James Cook in 1768–1771. Banks has become known as 'the Father of Australian Botany'. Carl Linnaeus the Elder also referred to 'Banksia' as an alternative name to Terra Australis as our continent was then known. It is curious indeed to

think we might have called ourselves the *Banksian National Botanic Gardens* had this idea been accepted.

Banksias are already a year-round feature in the ANBG, providing drama and colour for our human visitors, and a fabulous source of food and shelter for our feathered and furry residents. As these plants have matured over many years, the horticultural team has learned a great deal about their special growing requirements in the Canberra environment. Now this vast knowledge is being pooled with expertise from banksia enthusiasts around the country, to create a space in the Gardens where stories can be brought together, to inspire and inform new generations of enthusiasts.

Banksias have been important for Indigenous people for many thousands of years, chiefly through the use of nectar as an energy source. Since the first sightings of plants, now known as *Banksia*, around Botany Bay by Joseph Banks and Daniel Solander (the latter a pupil of Carl Linnaeus the Elder) in 1770, around 175 species have been described. This includes around 90 species of *Dryandra* that were transferred into *Banksia* in 2007, almost doubling the size of the genus. Lively debate continues about this. The new Banksia Garden will include a small number of the 'genus formerly known as *Dryandra*' for interpretive purposes.

Site preparation for the new Banksia Garden commenced at the beginning of winter, with the removal of most of the vegetation, to eliminate root competition and create optimal levels of sunshine and air movement to give the new banksias the best chance of thriving.

Behind the scenes, the ANBG team has been working collaboratively with experts around Australia to identify which species to include in the planting plan and how best to grow them. The selection of species will consider the likelihood of successful establishment together with the display potential over the whole year. Plants chosen will give visitors an understanding of the enormous diversity within the genus, ranging from low-growing species often with stems trailing across the ground such as *Banksia blechnifolia*, through all shapes and sizes, to taller species such as the well-known *B. serrata*.

The design of the Garden captures a range of different banksia related themes. At the bottom of the Garden visitors will find a 'Burnt Banksia' installation. Twisted banksia skeletons left after recent fires in the Booderee National Park area will be collected and incorporated into a unique feature, telling the story of the interaction between these plants and fire. This installation will create a linkage to the fire theme illustrated in the neighbouring treehouse. Other key narratives planned for the Garden include highlighting the difference between eastern and western Australian banksias, the impact and importance of banksias to Indigenous and non-indigenous



BORONIA HALSTEAD

Dan from the Living Collections team spreading 'tier two' of the specially designed banksia soil profile featuring an organic component mixed with industrial power station waste in the southern part of the banksia section 25 along the main path.

Australians, and an explanation of how we have successfully grown such a range of species in the Garden as a guide for visitors and banksia enthusiasts alike.

Most banksia species are Western Australian and have evolved to survive in highly impoverished, sandy soils, very different from many soils in south-eastern Australia. So that the WA species included in the design thrive, the Living Collections team is developing tailor-made soil media. Excitement is brewing over recent successes in grafting western species onto eastern species rootstock, as this will enable a wider variety of banksias to be grown in a range of soil types long-term. The less 'soil specific' eastern species together with the grafted western species will form the long term structural framework of the Garden. Select western species growing on their own roots will be planted in large moveable pipes, again in a custom-made soil mix. These will be able to be moved to optimise flowering displays in the Garden and can be taken under shelter in periods of extreme cold or rain.

Many banksias are vulnerable to *Phytophthora* infection and other soil pathogens, especially when drainage is poor. A major part of site preparation will focus on delivering perfect drainage, with the use of the specially designed soil profiles

and media, combined with the bold use of mounds and sculptured surfaces. The varying heights of planting surfaces will also bring plants closer to eye level, to enhance the visitor experience.

Some of the banksias originate from warmer parts of the country and would normally struggle in Canberra's frosty winters. To provide a suitable micro-climate for cold-sensitive species, north-facing thermal walls of different heights are being incorporated into the design of the Garden.

Visitors will be able to sit and enjoy the display of banksias from low seating walls and alcoves along the pathway through the Garden. The design incorporates gathering spaces for groups of school children or celebrations. The Banksia Garden will provide a very attractive new accessible space, with options for lighting being explored for after-dark access and banksia-themed sculptural elements being developed to enhance the visual and structural elements within the Garden.

Our new Banksia Garden will showcase much of the magnificence of a vibrant genus within Australia's unique flora, as well as the cutting-edge ingenuity of the ANBG horticultural team in creating a very special space for us all to enjoy and expand our knowledge of this iconic group of plants.



STEVE ROGERS

Banksia blechnifolia, ANBG



STEVE ROGERS

Banksia serrata, ANBG



BILL HALL

Banksia prionotes, WA

Donation of award winning artworks

Jane Black, ANBG Librarian/Archivist

The ANBG Library and Archives is delighted to share with you the latest addition to our artwork collection, 22 original watercolour paintings of Australian mistletoes. The paintings are a generous donation from the artist, Dr Gillian Scott, who resides in Port Macquarie.

Dr Scott is regarded as one of Australia's leading botanical artists with her artworks being included in major international collections including those of Dr Shirley Sherwood in the United Kingdom and in the Hunt Museum of Botanical Documentation in the United States of America. Over her 30 years of botanical art, Dr Scott has perfected a number of special techniques to achieve a life-like appearance in her subjects. The donated watercolours capture this exquisite aspect of her work.

The artworks are of special significance to the history of botanical art in Australia, with the donation including paintings exhibited at the prestigious Royal Horticultural Society's Botanical Art Exhibition in London in 1991. Dr

Scott's entry of Australian mistletoe watercolours received the coveted Gold Medal, the first time it had been awarded to an Australian artist.

To share Dr Scott's work with a broader national and international audience, all of the 22 watercolours have been scanned by our Photograph Curator, Cheryl Backhouse, and are now available online via the Australian Plant Image Index.

The original artworks will be on display in the ANBG Library in February 2019 for Friends who would like the opportunity to appreciate the watercolours in person. Details will be released closer to the date via the Library's *Library Connect* newsletter.

Thank you to Dr Scott for her generous donation which covers an important chapter of Australia's botanical art history and which will undoubtedly inspire many generations of future botanical artists.



© ANBG,

Muellerina celastroides. On *Banksia integrifolia*, Pt Lookout South Stradbroke Is. QLD



© ANBG,

Lysiana casuarinae on *Acacia acuminatum*, Gold fields region of WA



© ANBG,

Dendrophthoe vitellina on *Grevillea robusta*, Grantham S.QLD



© ANBG,

Dendrophthoe glabrescens on *Eucalyptus crebra* near Toowoomba, QLD

What's new in the ANBG Image Collections?

Mike Crisp, a botanist and lecturer from the Research School of Biology at the Australian National University (ANU), recently retired and donated his 35 mm slides to the ANBG Image Collections. These images mainly depict Australian legume species (Fabaceae), other plant families, as well as people performing a range of tasks in the field and at the ANBG.

From 1975 to 1989, Mike worked at the ANBG as a research scientist and herbarium curator. During this time, he photographed plants and collected herbarium voucher specimens while on field trips. The specimens collected at this time and while at the ANU are now lodged with the Australian National Herbarium. Some of these photographs have already been incorporated into the Image Collections.

Mike's slides are a significant contribution to the Australian Plant Image Index (APII) due to the high quality of the images and the associated data. The

donation also includes images of type specimens (the material on which the descriptions of new plants are based) and the original collection localities of these specimens. Mike has also donated some line drawings which he used to illustrate scientific papers on *Daviesia* and *Lep-tosema* which were published in *Australian Systematic Botany* 8(6): 1155-1249; *Australian Systematic Botany* 12(1): 1-54; and *Phytotaxa* 300(1): 1-308.

The Image Collections' team has finished assessing the donated slides and selected approximately 1000 that would be most valuable to the collections. Of these, 325 slides of the genus *Daviesia*, and 41 of those of people, have been added to the website. The remaining slides will be added in due course.

All Mike Crisp's digitised plant photos are available on APII's website: go to Full Version Search: photographer.

Cheryl Backhouse (Photograph Curator)



Daviesia chapmanii (a 24014) was taken in the ANBG in May 1984



Daviesia nova-anglica (a 24144) is linked to Mike Crisp's collection number 7336, taken at approximately 23 Km E of Tenterfield Plateau NSW in September 1984.

Friends Life Membership: awarded to David Coutts

David has a life long interest in plant science: he has a degree in agriculture (and economics), and has worked on agriculture and plant science issues in Australia and overseas, including work on seedbanks and the International Treaty on Plant Genetic Resources. Both he and his wife Merle have a long standing interest in Australian flora. David joined the Friends in 2002 as a Guide, and soon took on the task of administering and promoting the booked walks program. David served on the Friends Council as both President and Secretary. He has also been the Chair of the Friends Projects Committee (which makes recommendations on Gardens projects to be funded by the Friends) for the last 10 years and continues in that position. The Friends thank David for his exceptional service to the Friends and the Gardens.

Alan Munns



President of the Friends, Lesley Jackman congratulates David Coutts on his being awarded Life Membership of the Friends



a-24019_3 *Daviesia cordata*, taken in the ANBG nursery 1983

Friendly Chatter

Photographic Group

The Photographic Group has had a rewarding year. Great guest speakers at our monthly meetings enlightened and entertained us. Topics covered ranged widely including photographing tiny peacock spiders, eclipses of the moon, and that perfect landscape and bird photo. We had an introduction to the wonders of both Mulligans Flat Woodland Sanctuary and Canberra Nature Map.

We also conducted our first all day 'Introduction to Photography Workshop', and early morning or late evening walks in the Gardens including special opportunities, when the gates are locked, for those lighting effects of sunrise and sunset often called the 'golden hour'. Excursions to Jerrabomberra Wetlands and Tidbinbilla (see separate article this page) provided opportunities for great photos, camaraderie and an exchange of ideas and tips on technique.

The Group contributed all the photos for this year's ANBG bookshop's calendar which would make a great extra Christmas gift if you are still looking for that something special. We have again conducted our annual Photographic Exhibition, our major Friends fund raiser, this year titled 'Perspectives', displaying the flora and fauna of the Gardens and region.

Our new committee is planning another exciting year ahead, including speakers, practical workshops and more ANBG walks including in late evening or early morning, the latter followed by breakfast in the cafe. The first meeting for 2019 will be held on the last Friday of February in the ANBG Theatre. Details of the program are updated on the Friends website. The Group welcomes potential speakers and new members.

Contact us: photo@friendsanbg.org.au.

Derek Corrigan



HELEN DAWES

Another long lens

Tidbinbilla excursion, Friday 28 September 2018

The stone is ancient but the plaque relatively recent. It's been 15 years since the fires tore through Tidbinbilla Nature Reserve, and just over 10 since the Sanctuary reopened and the 'Opening' tor dedicated. But the young Cunningham Skinks didn't care, they were just out enjoying the sun and providing a perfect snap for the Friends Photographic Group as they ventured to the not so wilds of the Sanctuary at Tidbinbilla.

Around 20 members took their cameras and long lenses around the Sanctuary and the Koala Path, on a warm spring Friday, under the guidance of Visitor Assist Volunteers Guides Edna and Leigh.

An acknowledgement to the traditional owners got us started. Then, as we travelled through the park to Ribbon Gum entrance, a Swamp Wallaby with mature joey in her pouch, welcomed us. Leigh took some of the group to start the morning with Koalas while the others ventured with Edna into the Sanctuary.

The Eucalypt Forest did not disappoint. As well as finding Koalas in the 'wild', the Swamp Wallabies posed, the Potoroos were friendly, and a pair of Spotted Pardalotes fearlessly attended their nest entrance on the ground. Along the Koala Path, Koalas were snapped in the front enclosure, with some well-aimed shots even capturing one of the new joeys.

The Sanctuary also put on a fabulous day. The glittering ponds provided the perfect opportunity to practise mirror reflection photos. The birds were out, posing for a range of camera angles. The Long-necked Turtles chose a range of backdrops, including basking on the logs, and swimming in the ponds. And the Platypuses, not wanting to miss out, showed off for the photographers too.

The only no shows were the red-belly blacks but we did see a Kookaburra up a gum tree.

Edna Dundas

**Tidbinbilla Visitor Assist Volunteer
(and ANBG Volunteer Guide)**



DEREK CORRIGAN

Platypus at Tidbinbilla

Volunteer Guides

On almost any day in the Gardens, you will catch sight of one or more volunteer Guides. They might be leading a walk or Flora Explorer tour, bird-watching, examining plant labels, or chatting in the café. There are 61 of us and we are in the process of recruiting more!

As the newly appointed Convenor for the Volunteer Guides, I am still discovering all the various activities that Guides are involved in. Regardless of the details, everyone is working to ensure that we can provide the best possible experience for visitors. Rostered walking and Flora Explorer tours are the bedrock of our role, and in 2017 there were over 3,000 visitors on these tours.

As Guides, we find ourselves communicating with people from all over the world: overseas visitors from 53 countries comprised 30 percent of visitors on rostered walks; and 14 percent, from 27 countries, on rostered Flora tours. The most represented countries were United Kingdom, United States and China. Amongst the Australian visitors (69 and 84 percent for walks and Flora Explorer respectively), most came from NSW and ACT, followed by Victoria and Queensland.

While for many visitors (even locals), the guided tour is their first experience of the Gardens, this is not always the case. The additional themed walks offered recently, primarily to Friends, are designed to add to the range of available visitor experiences; and we will be interested to find out how popular they are.

Spring and Floriade are a busy season for booked walks. Just recently we have guided visitors from the Devonport Garden Club, a group of people with disabilities, a nursing home group and the Institute of Foresters and other professional groups. In 2017 we took 626 people on booked tours (walks or Flora).

We are constantly thinking about who our visitors are, and who else we might attract to the Gardens. So, when you visit,

if you see us around in our smart green shirts, please say hello and tell us about what interests you most in these Gardens.

Lesley King

Growing Friends

Over the last few months the Growing Friends has been busy propagating and preparing for the November 2018 plant sale and beyond. We continue to welcome new members so please talk to one of the Growing Friends today, or telephone John Connolly (0477 257 188) or Maurice Hermann (0429 361 256) if you are interested in joining us.

Meetings are held on the first Saturday morning of each month, usually in the Crosbie Morrison building, and are followed by morning tea and a propagation session. A small group of our members volunteer to run each propagation session and they are a great way to see different parts of the Gardens, not to mention learn about the wide range of native plant families and species that we are able to propagate.

Wendy Merritt

Botanic Art Groups

Preparations are well under way for our hallmark exhibition for 2019:

**Art in the Gardens with Friends
'MORE THAN JUST A PRETTY PLANT'
16 March to 14 April, 2019
Visitor Gallery**

This will be the twelfth annual art exhibition of the Friends Botanic Art groups. The exhibition will continue to focus exclusively on native flora but, in addition this year, all entries must feature a plant with a use, be it a traditional indigenous or colonial use, or a modern one.

It is indeed surprising how many plants have had important functional uses in society, now and in the past. The beautiful bookmark included in this edition features *Eremophila bignoniiflora* by Christopher Meadham. It was used by Aboriginal tribes to soothe yeast irritations and also in bedding. The other side of the bookmark features a bunya pine (*Araucaria bidwillii*) by Morgyn Phillips. The bunya pine was well known by Aboriginal people for its bunya nuts with families meeting to enjoy the feast when the large cones were harvested. Today the nuts are highly valued by chefs to include in modern Australian cuisine. Bunya wood is also valued as an excellent tone wood to make musical



Typha domingensis, by Vivien Pinder (Botanic Art Groups Exhibition).

Botanic Art Groups (contd.)

instruments. Several bunya pines are growing in our Gardens, one very close to the entrance. Also featured is a triptych of common bulrushes, *Typha domingensis*, by Vivien Pinder. Bulrush rhizomes were an important food for many Aboriginal tribes while leaves were used to weave baskets and string. Many uses of native flora are unappreciated in contemporary society.

Botanical art group members have been hard at work researching the uses of plants with the help of our librarian, Jane Black, and horticulturalists, rangers and volunteer guides. It is planned to produce a booklet with some of the beautiful illustrations to accompany the exhibition this year, which should make an excellent souvenir or gift for friends interested in our native plants.

Mark the dates of this exciting exhibition in your 2019 diary.

Kate Ramsey

Plant Science Group

Plant Science Group members have been out and about. We recently had the opportunity on two occasions to join Dr Roger Farrow, retired entomologist, on his special walks focusing on "Pollinators at Work in the Gardens". We also had a special visit to the Australian National Insect Collection with two presentations: plant-moth interactions presented by Ted Edwards, Honorary Fellow at CSIRO, and the scribbly gum moth presented by Marianne Horak, entomologist specialising in Australian Lepidoptera at the National Insect Collection.

Monthly technical talks have also continued. Dr Dave Albrecht, of the Australian National Herbarium, gave an overview of the taxonomy, ecology and distribution of *Lobeliaceae* plant family in Australia.

Sarah Sharp, consultant ecologist for the ACT Government, in a talk entitled: 'Vegwatch – a quantitative vegetation monitoring program for citizen scientists', presented some initial findings from data collected by members of ParkCare and other volunteer groups when monitoring changes in vegetation across the Capital region.

Dr Dan Rosauer, Research School of Biology ANU, under the heading "Whether biodiversity conservation can be done without species", discussed how, with understanding of evolutionary relationships made possible by advances in genetic analysis, scientists can inform conservation decisions even in the presence of unreliable or incomplete taxonomy.

For further information, or to be put on the email list, email: plantscience@friendsanbg.org.au or see the Friends website under Activities.

Anne Campbell

The 22nd Annual School Photographic Competition, run by the Friends, attracted 269 entries from 122 students, representing 11 ACT high schools and colleges. Judging was done by Helen McFadden from the Canberra Photographic Society. Prizes for 1st to 5th in the three categories (Monochrome, Colour, Altered Reality) were presented by Helen on 3 November at the ANBG theatre. She commended the students on the range of subjects and the standard of entries, while reminding them to take care with their presentation. A surprise for all prize winners was the presentation to each of a copy of a book on the Namadgi National Park, generously donated by the National Parks Association of the ACT. Highly Commended and Commended certificates were also awarded to 62 entries.

Cecilia Melano



Fuzz Berry, Amy Jones, Erindale College, (First, Colour)



After Van Gogh, Mackenzie Gniel, Canberra College, (First, Altered Reality)



Kooka, Tyson Pottinger, Canberra College, (First, Monochrome)

Let's Talk about Thursday Talks

The Thursday talks Committee

Thursday lunchtime talks continue to be a popular aspect of ANBG activities. Remarkably, given the demands on people's time, these weekly talks have shown an increase in the average number of attendees, rising from 62 five years ago, to some 70 at present. Attendance is now limited to 90 for safety reasons, and on a number of occasions this year we have had full houses. This has meant, unfortunately, turning some folk away.

We are fortunate in being able to draw on an enormous wealth of talent in Canberra. We appreciate the efforts of our speakers, who have shown great skill in presenting sometimes complex stories in a manner that engages a general audience. Their use of magnificent images or clear diagrams is a great support in this.

Topics are wide and varied. This year they have ranged from those of global importance, such as Julian Cribb's talk on the existential issues that we must address if we are to survive the 21st century – a talk that opened this year's program – to those of more local interest. Talks on the stunning geography, and the biota, of Australian regions have included Rosemary Purdie's 'Immersed in the Larapinta', and Matthew Higgins'

'What a high!' – his 30 years of exploring Australia's high country.

There has been a focus too on issues based on different time scales. Chris Carter's 'Where the Rivers Run' centred on archaeological evidence surrounding human occupation at Lake Mungo and related regions of the Murrumbidgee river systems. Brian Cooke focused on the effects of European settlement, and the devastation of indigenous food sources caused by the introduction of rabbits.

Lynne Bean's talk took us into deeper time, describing the fossil fish and the flora of the Jurassic Talbragar Formation. Nerilie Abram looked at the last thousand years of climate records, including those preserved in Antarctic ice, and what their patterns might suggest for future climate trends.

Others of our speakers ventured further afield. Ceridwen (Crid) Fraser took us to the Southern Ocean, and the biodiversity of marine communities, featuring the giant kelps, and noting even the fungal communities that thrive inside Antarctic volcanoes.

Naturally, those who pioneered Australian botany and zoology featured too. Penny Olsen documented the importance of

Indigenous Australians to early European collectors, and Ann Moyal recalled the contribution of Scotsman Robert Brown to Australian taxonomic botany.

Through the medium of the Thursday talks we have been able to tour other significant gardens. Max Bourke took us to Greece, to explore the National Garden of Mediterranean plants, using this and more modest Greek gardens to explore the concept of Mediterraneanity. On a different scale, Doug Laing introduced us to the Chelsea Physic Garden – founded in 1673 by the Worshipful Society of Apothecaries to ensure their access to necessary medicinal plants.

This is just a selection of the Thursday talks already enjoyed. Planning is well underway for the talks program in 2019. To date potential speakers and topics have been identified through to about September. This reflects the continuing richness and diversity of the pool of contributors available to us.



MAX BOURKE

National Garden of Mediterranean plants



PHOTO PROVIDED BY LYNNE BEAN

Podozamites jurassica - flora of the Jurassic



BILL HALL

Julian Cribb on challenging existential issues

Paradise Lost - Daniel Solander's legacy

His Excellency Ambassador Pär Ahlberger

The Swedish naturalist Daniel Solander was one of the foremost botanists on board the Endeavour during its voyage in 1768 - 1771. He represents the first encounter between the Nordic Region and the Pacific Region based on botany, linguistics, culture and astronomy. The Polynesian scholar Tupaia and Solander formed an important bond during the Endeavour voyage. It was the first exchange between the Swedish culture and the Polynesian, Maori and Aboriginal cultures. It is a partly forgotten story which needs to be told again.

Daniel Solander was born in 1733, in a town only 100 km from the Arctic Circle. He was described as short and stout. His eyes were small, his face jovial with a fair complexion. He

was a careless dresser and liked bright waistcoats. He was a person well liked, combining humility, charm, absent-mindedness and social skills. He studied medicine and natural history in Uppsala as the favourite student of Carl Linnaeus, the founder of modern systematic biology. In 1760, at the invitation of British naturalists, Solander travelled to London to give instructions in the Linnean methods. He never returned to Sweden, much to the disappointment of Linnaeus.

In 1763 Solander was appointed assistant keeper at the British Museum. He formed a strong friendship with Joseph Banks and joined the scientific staff on the Endeavour expedition. This deciding moment was later described by Banks in a letter to a friend in Sweden.

Of this (the Endeavour voyage) I promptly informed Doctor Solander, who received the news with much pleasure and immediately promised to provide me with complete information on all aspects of natural history which could probably be met with during such an extensive and unprecedented voyage. But some days afterwards, when we were together at Lady Monson's table and spoke about the unique opportunities I should get, Solander got remarkably fired, sprang up a short time later from his chair and asked with intent eyes: Would you like to have a travelling companion? I replied: Such a person as you would be of infinite advantage and pleasure to me! If so, he said, I want to go with you, and from that moment everything was settled and decided.

During the voyage Solander and Banks collected around 17,000 plant specimens. The specimens from Australia included around 900 species and in New Zealand 349 species. Solander was the author of the first individual floras of Australia and New Zealand. These were major but unpublished botanical works. His pioneering descriptions have



The Simpling Macaroni, 13 July 1772 / M. Darly Mitchell Library, State Library of New South Wales / PXA 1353 Macaroni, a satirical etching portraying Daniel Solander, holding a plant specimen with flowers and root in his right hand, and a curved knife (lettered *Savigny*) in his left.



Banksia solandri, Stirling Range Banksia. The species name commemorates Daniel Solander. It was first gathered in 1829 in the Stirling Range WA by William Baxter. (*The Banksia Book*, AS George, p 80)

been described as scientifically comprehensible, yet elegant and poetic. He also recorded important ethno-botanical information, including many Maori names. The Polynesian navigator and interpreter, Tupaia played a crucial role in this.

In a letter to Sweden, Banks later described the intensive work on board the Endeavour.

During this voyage, which lasted three years, I can say of him (Solander) that he combined an incomparable diligence and an acumen that left nothing unsettled, with an unbelievable equanimity. During all that time we did not once have any altercation which for a moment became heated... We had a reasonably good supply of books with us for Indian natural history and seldom was a gale so strong that it interrupted our usual time of study, which lasted from approximately 8 o'clock in the morning until 2 o'clock in the afternoon, and from 4 or 5 o'clock, when the smell of cooking had vanished, we sat together until it got dark at a big table in the cabin with our draughtsman directly opposite us and showed him the manner in which the drawing should be done and also hastily made descriptions of all the natural history subjects while they were still fresh.

Solander and Banks used large quantities of John Milton's epic poem *Paradise Lost* to press the specimens during the voyage.

After returning to London, Solander resumed his post at the British Museum. He continued to work with Banks and they made several smaller expeditions, among them to the Isle of Wight, Scotland and Iceland. The plan was to document the botanical results of the Endeavour expedition. However, Solander passed away following a stroke in 1782, which left Banks devastated. In 1784 he wrote to a friend in Sweden: *The botanical work, with which I am now occupied, is drawing near to an end. Solander's name will appear on the title page beside mine, since everything was written through our combined labour. While he was alive, hardly a single sentence was written while we*

were not together. This was not to happen.

The Embassy of Sweden and the Solander Gallery in Wellington, NZ, have launched a unique art collaboration: *Paradise Lost - Daniel Solander's Legacy*. Ten artists have been invited to respond creatively to the legacy of Daniel Solander, with works including painting, watercolours, limited edition prints,

artist books and three-dimensional objects. The research by Dr Edward Duyker has been important in this project. I would like to recommend his book: *Nature's Argonaut: Daniel Solander 1733-1782*.

The artists involved in the project are Sharnae Beardsley from Christchurch, Dagmar Dyck from Auckland, Tabatha Forbes from New Plymouth, John McClean from New Plymouth, Alexis Neal from Auckland, Jo Ogier from Christchurch, Jenna Packer from Dunedin, John Pusateri from Auckland, Lynn Taylor from Dunedin and Michel Tuffery from Wellington.

The exhibition will be officially opened at the Solander Gallery in Wellington in February 2019 and will tour New Zealand until mid-2020. It will visit Australia and I hope that it will be first opened at the Australian National Botanic Gardens (ANBG) in Canberra. Our good friends at ANBG gave us invaluable support when we created a Solander Garden at the Embassy in Canberra, which was officially opened last year. I am looking forward to hosting the Friends of ANBG at the Embassy in 2019.

We are also looking forward to collaborating with the Florilegium Society in Sydney on a watercolour art exhibition of plants collected by Solander and Banks, planned for 2020.



PARADISE LOST

DANIEL SOLANDER'S LEGACY



STEPHEN ROBINSON PHOTOGRAPHY COURTESY OF SOLANDER GALLERY

Swedish Ambassador to Australia, Pär Ahlberger, in the Auckland Botanic Gardens under a *Sophora microphylla*, coined by Joseph Banks and Daniel Solander. The common name of this tree is Kowhai, family Fabaceae, native to New Zealand and widely regarded as the NZ national flower.

Friends AGM: major projects & related activities

The following are edited summaries of reports for the year 2017-18 presented to the Friends of ANBG 30th AGM. Full reports are on the Friends website www.friendsanbg.org.au

Summary of the Report from the President Lesley Jackman.

Friends' President Lesley Jackman introduced her annual report noting it had been a successful year for the Friends: marked by a massive Friends' contribution of \$293,000 to the Gardens in project support, raised through Friends' activities, membership fees, and Public Fund donations.

The Paper Bark Treehouse was officially opened in November 2017 and the associated landscaping was completed in 2018. The Treehouse is now a notable attraction at the Gardens. Work is underway on a donor attribution plaque.

The Public Fund's promotion cam-



Judy West and Lesley Jackman

paign was very successful, raising \$35,000, more than double the average raised in recent years. The Friends will help the Gardens promote their fund-raising campaign for the new National Seed Bank by distributing a brochure with the October membership renewals.

Membership increased by 30 per cent in the last financial year resulting in significant growth in membership income. Excellent publicity around the Paper Bark Treehouse project, the Public Fund campaign and the popularity of the café were all contributing factors. Work continues on the IT upgrade. The planning and preparation for a membership data base and an online payment system are in progress. The IT hacking in May caused much worry and finally involved \$5000 in costs to resolve the issue.

2020 is the year of anniversaries. The Friends are participating in planning discussions with the Gardens for celebrating the Gardens' 50th anniversary in 2020. The main focus will of course be on the Gardens but it will also be on the 30th anniversary of the Friends and there is a committee looking into

options for the anniversary celebrations. The Friends have committed funds for the new Banksia Garden that will be opened in early 2020. We expect to support other projects including the Ian Potter Conservatory.

Guides Quality Professional Development Program. Council recently signed off on a Guides Quality Professional Development Program following a two year pilot program. The Program will enhance the substantial in-kind contribution made to the Gardens by the Guides.

Something to think about is whether the Friends are at the point of needing to employ a paid staff member in view of the increased amount of work in recent years.

Friends' Strategic Plan 2016-2020.

Good progress has been made against the five goals. The relationship with the ANBG is in excellent shape, formally and informally, with contacts around the Gardens between staff and Friends.

Public engagement and communication. *Wake up with the Birds* continues to be very popular in spring. The Thursday Talks have seen audiences sometimes exceed the theatre's capacity. The Plant Science Group provides monthly talks and other activities. The Schools Photographic Competition continues to draw local school groups into the Gardens. The Growing Friends, the Botanic Art Groups and the Photographic Group make a valuable on-going contribution to the Friends. A highlight this year was the provision of all images for the Botanical Bookshop Calendar by members of the Photographic Group.

Finances. Membership numbers are high and finances are very healthy despite the Treehouse expenditure in the last financial year.



Friends, David Coutts, Alan Munns, Barbara Podger and Warwick Wright at the AGM

In concluding, Lesley thanked all who supported and/or worked for the Friends during her four years as President, acknowledging her Council colleagues including those who were leaving – Christiana Cobbold and Jonette McDonnell. She also welcomed the new Council under a new President. Lesley also warmly thanked the staff and management of the Gardens for making the Friends so welcome.

New Council Members: Congratulations to Max Bourke as the incoming President, Helen Elliott, re-elected as Treasurer, David More as re-elected general member, and Alan Henderson and Lynden Ayliffe as new general members.

Talk following the AGM:

The AGM was followed by a talk by Dr Sally Box, Threatened Species Commissioner. (see page 3)

Summary of the Report from the Treasurer, Helen Elliot, for the year ended 30 June 2018.

The Treasurer Helen Elliot tabled her Report, the Auditor's Report and Financial Statements (including the Public Fund) for the year ended 30 June 2018. This year's highlights included a profit of \$10,000 from the Friends planning and hosting the Australasian Botanic Garden Volunteer Guides' Conference which was held in Canberra last October. The statements show successful income generated by the special interest groups such as the Thursday Talks, Growing Friends' plant sales, Botanical Art Groups exhibition, Photographic Group exhibition plus Wake Up with the Birds, booked walks, and summer concerts.

The unexpected highlight of the year was the increase in membership receipts to \$97,421 which was an amazing result when compared with the previous five year average of \$70,000.

General operating expenditure was fairly much in line with previous years. The

high-point was the \$293,000 Gardens Support including \$55,000 from the Public Fund with donations to nine Garden projects. Due to the successful fund raising campaign by the Public Fund, and the other sources mentioned above, the Friends were able to support smaller worthwhile projects such as mobility scooters and the final donation towards an ex situ threatened species conservation project. The Public Fund received donations of \$34,952 which was a significant increase over previous years and it now has total cash funds of \$85,840. The Fund has committed \$28,000 for 2018-19 mainly for seed bank equipment and an ex-situ *Macadamia janseni* project.

Helen concluded by mentioning that it was an exceedingly busy year and acknowledged the tireless efforts of all volunteers who made the Friends such a viable financial group to support the Gardens.

Report from Executive Director, Dr Judy West.

This has been another busy and successful year for our Gardens reaching many significant milestones in the lead up to the 2020 celebrations.

A highlight was the 6.3 per cent increase in visitation to the Gardens, with 513,664 visitors recorded. This included a record increase of 10 per cent in school students plus a 10 per cent increase in interstate students. Around 13,250 people attended events and activities at the Gardens.

The Master Plan Implementation is progressing well. Work is continuing for the construction of the **Ian Potter Conservatory**, featuring plants unique to Australian tropical rain forests. There is ongoing testing of light levels and an Interpretation Plan completed in September 2018, the latter enabled with funding from the Friends. Construction of the Conservatory is set to commence in May 2019, with the opening in mid-

2020. The **Paperbark Treehouse**, made possible by the generous support and funding by the Friends, was opened in November 2017. The **Northern Precinct Plan**, also part of the Master Plan, will provide a hub housing the National Seed Bank, horticulture and trades depots. Milestones achieved include the completion of the **Seed Bank Concept Design**, the launch of the **National Seed Bank Fund-raising Campaign**, including a fund-raising dinner with potential donors and sponsors; and the development of a National Seed Bank campaign brochure which was distributed by the Friends as part of the mail out of subscription renewals in late October.

I would like to acknowledge the Friends and Friends Public Fund for their ongoing support of the Gardens. As well as being great ambassadors for the Gardens, the Friends have supported many of the visitor experiences developed in the Gardens over the last 30 years plus.

The **Living Collections** have experienced a further increase in external partnership agreements with high priority on threatened species. There is a new focus on better management of existing plant and seed collections with the creation of two new roles for collection and plant records' coordination. A new Collections Management working group will prioritise plant collections.

Highlights for **Garden Developments** were the *Pomaderris* Garden, Research and Conservation Garden, Concourse Development and the beginnings of the Banksia Garden. The Banksia Garden with many rare and rarely seen species, is being supported with funding of \$100,000 from the Friends and is due to open in April 2020 to coincide with the Gardens' 50th Birthday.

Conservation milestones included: the *Pomaderris* threatened species project funded by a three year grant from **Save Our Species Environment Trust**; the *Banksia vincentia* project to establish

Report from Executive Director, Dr Judy West, (contd.)

a seed orchard at the Gardens; and the **Seed Orchards for Threatened Species** partnership program with ACT and NSW Governments focusing on *Swainsona recta*.

The National Seed Bank's mission is to build a unique collection of Australian native seeds for conservation and research. The Friends have funded a project to assess older seed collections using an x-ray machine. One example of a successful outcome for the Seed Bank this year is the *Santalum acuminatum* project (see below). Significant seed contributions were also made to the Global Trees, Crop Wild Relatives and 1000 Species projects, with collection and training undertaken at Kakadu and Christmas Island National Parks.

The Seed Bank Research continued to focus on: endangered temperate grassy ecosystems, Commonwealth Parks' significant species, and completion of germination trials for Alpine Sphagnum bogs and associated fens threatened ecological community.

The Seed Imaging Project in collaboration with Bush Blitz contributed seed images to the Australian Plant Image Index covering 1000 species west of the Great Dividing Range.

Visitor Experiences have been expanded through new garden spaces and an increase in the annual signature events. The Friends contributed funding for both the landscaping of the children's trail, relocated to the Paperbark Garden, and for two new electric scooters.

New connections and partnerships with organisations such as the Swedish Embassy, the Australian National University and Eucalypt Australia have also helped support new Garden activities.

For the last 12 months the National Seed Bank with the Nursery have been working to propagate *Santalum acuminatum* from seed collected from Uluru-Kata Tjuta National Park. Whilst not an endangered species nationally, the Quandong is at the edge of its range and only 14 trees remain in the Park. These are subject to heavy grazing pressure so regeneration is limited. The species is also culturally significant to the traditional custodians of the Park. Quandong is difficult to germinate and requires a number of treatments plus a host to grow on once it has germinated. So far we have managed to propagate 19 seedlings which will be returned to the Park in 2019 to supplement the remaining stand.

Tom North



CAROLINE CHONG

Garden Shorts

Ranger's *Who Did That* trail wins award



PHOTO SUPPLIED BY SABRINA SONNTAG

Ranger Katy Penman has been awarded the 2018 Interpretation Australia Young Achievement Award for her work on the *Who Did That* children's trail at the Gardens.

Katy had the idea to rework the children's trail after seeing how some children and parents needed guidance to engage with the Gardens. She spent many hours planning, researching, drawing, painting and writing and is delighted with the results. 'I love walking down to the Paperbark Treehouse when I am working on the weekends and talking with families who are spending time together down there. I meet kids who come here every week and others who are here for the first time. It's about giving kids and their families a gentle nudge to look all around the natural world and hopefully retain the sense of wonder children have into their adult life.'

Katy works as a weekend Visitor Services Ranger at the ANBG. Her education was in Forestry, Visual Arts and Cultural Heritage. A project like this has been a wonderful way to bring her talents and experience together.

The award is for emerging professionals who are making an outstanding contribution to the development of interpretation in Australia. First presented in 2008, this award celebrates inspiration, creativity, innovation and audience awareness of an individual who demonstrates commitment to Interpretation as their chosen profession.

Blooming Banksias in the Proteaceae section

Gardens' horticulturalists are redesigning a space in the Proteaceae section to showcase and test their Banksia growing skills as a prelude to the opening of the Banksia

Garden in 2020. The team will trial growing several challenging-to-grow species of *Banksia* from Western Australia, in two distinct soil preparations on the site, to test theories in a practical way.

On one side, a sandstone mix has been combined with an organic layer. On the other, the team have used a pure sandstone sandy mix with great drainage and no organic layer as a control or base level soil structure. Next time you are in the Proteaceae section, have a look and see if you can tell the difference in the soil or success of the plants.

***Pomaderris* Garden – a living experiment**

Keep your eyes on the recently developed Pomaderris Garden and watch as things take shape. Plants in this section were intentionally planted to trial the horticultural potential of several threatened species in this group.

You may notice the plants along the boundary road are beginning to grow. Over time, Gardens' horticulturalists hope these plants will take shape into what may be the first-ever hedge comprised of threatened species.

Although many of the plants are still small, several chosen for their pretty flowers have been blooming through the spring months.

Pomaderris is a group of cream-yellow flowering shrubs that are part of the Buckthorn (Rhamnaceae) family. They grow mainly in the eastern states of Australia in a wide range of habitats, such as woodlands, heaths and open forests, and are an important part of the ecosystem, attracting pollinators such as butterflies and jewel beetles.

The Pomaderris Garden showcases threatened species for which little is known about their cultivation or their reproductive biology.

Pomaderris velutina is one of the threatened species showing horticultural promise for hedges.

Introducing Tiffeny Horwood

Tiffeny Horwood has recently joined the Australian National Botanic Gardens as acting General Manager of the Gardens. Tiffeny has been in the Australian Government's Environment Department since 2012. Over the last three years she directed the Victoria and Tasmania Assessments Team within the

Environment Standards Division, overseeing environmental impact assessments under national environmental legislation. Previously Tiffeny has established financial, IT and program management for the Ozone Protection and Synthetic Greenhouse Gas program, and worked in a range of financial/management accounting, financial policy and process improvement roles within the Department. Originally qualified as an accountant and working in a range of private and commercial accounting roles, Tiffeny joined the Australian Public Service in 2002.



PHOTO SUPPLIED BY SABRINA SONNTAG

Tiffeny Horwood, Acting General Manager, ANBG



PHOTO SUPPLIED BY SABRINA SONNTAG

Friends at *Banksia* trial garden in the Proteaceaea section

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Australian National Botanic Gardens

Walking & Cycling Canberra's Centenary Trail

Nina Hvoslef & Tallis Didcott

2015 Reprinted 2017, 2018,
Soft cover, 186 pages, Colour
photographs & maps, \$30.00.

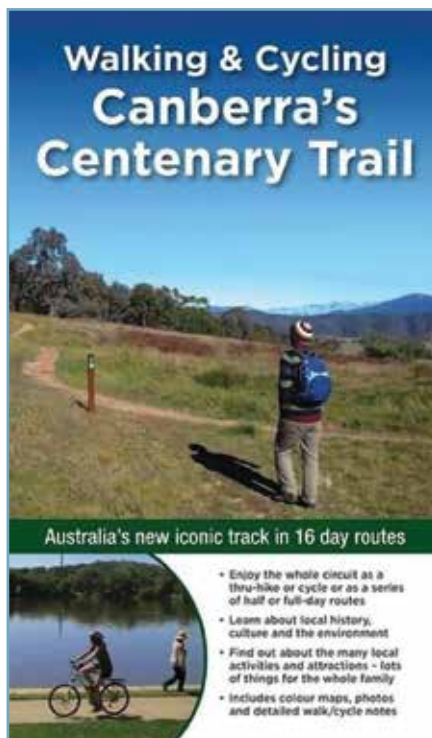
Why not grab your walking shoes, your bike, the family, the dog and this mighty handy guide book and head out into Canberra's beautiful hills and bushland!

Officially opened in 2013, Canberra's Centenary Trail was created to celebrate Canberra's 100th official birthday. The trail consists of 145 kilometres of tracks and trails designed for walkers and cyclists and showcases the natural, cultural and historic areas surrounding and within Canberra.

This book provides handy suggestions on ways to tackle the various stages of the trail as short, medium or long day walks, as well as full colour maps which clearly show how to get to, from and along various parts of the trails. The 'at a glance' boxes which are

dotted throughout the book provide everything you need to know to get started and a nice little extra bonus... suggested kids activities! These are listed at the back of the book and provide excellent ideas on ways to get the kids busy during the walks, encouraging them to use their senses to really immerse themselves in the natural environment.

This great book will make it easy to discover and enjoy Canberra's hills and surrounds by following Canberra's Centenary Trail!



The Snow Wombat

2016, Susannah Chambers,
illustrated by Mark Jackson,
Hardback, 31 pages, Children's
book- colour illustrations, \$25.00

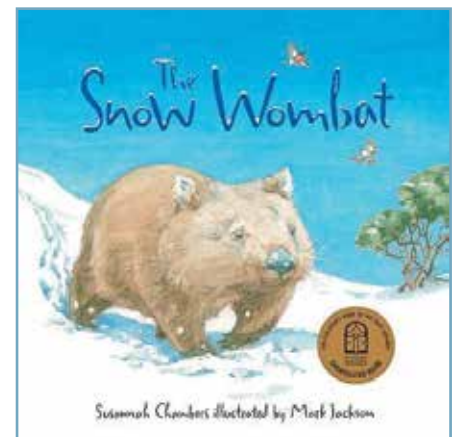
Snow on the stockman's hut

Snow on the crows

Snow on the woollybutt

Snow on my...NOSE!

This shortlisted children's book is about a little wombat living in the Australian High Country. Wombat heads out on a journey through the snow meeting animals, birds and people along the way and finally reaches its nice warm burrow... home! Each page is beautifully illustrated with colour paintings of the animals, plants, hills, creeks and landscapes of the Australian High Country. An absolute gem!



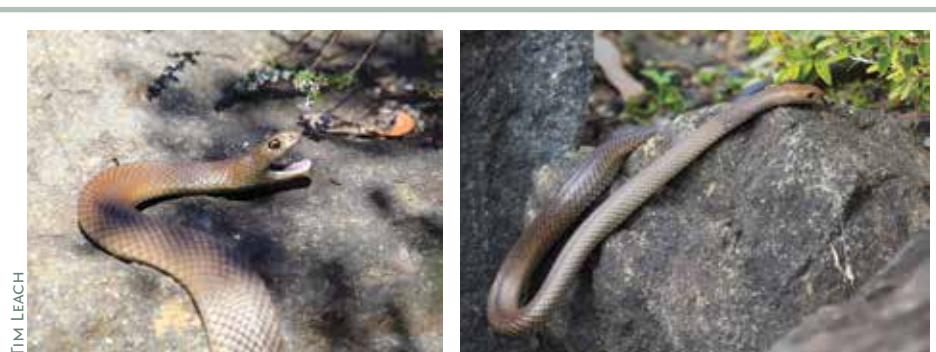
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with a 10% discount on purchases over \$10, including the purchase of gift vouchers, on production of the customer's membership card for the person whose name is on this card.

No discount on redemption of gift vouchers.

www.botanicalbookshop.com.au

more information on our Facebook page at 'Botanical Bookshop'



Be aware of snakes in the ANBG: Tim Leach writes that he has seen several snakes in the past month, mainly in the ANBG Rock Garden area. They were variously hunting each other (three of them doing this), hunting the water dragons, basking in the sun, and one was seen to 'yawn' a couple of times. Apparently it was probably re-articulating its jaws after having caught prey.

Yunnan: province of plant riches

Ben Wallace

Yunnan is one of 34 provinces of the Peoples Republic of China. Geographically it is the furthest in a southwest direction, wedged between Myanmar to the west and Laos to the south. It contains roughly 15,000 plant species, representing some 60 per cent of the entire Chinese flora. The northwest of Yunnan, including the Gaoligong and Hengduan Mountains, comprise a biodiversity hotspot as rich as any on the planet.

Several plant groups illustrate this point. In Diqing Prefecture with an area about one third that of Tasmania, 135 species of *Rhododendron*, over 100 species of orchids, 95 *Primula*, and 75 species of *Pedicularis* are listed as native. On a single trip through this area it is possible to see, in flower, as many as 30 different rhododendrons, 20 orchids and a dozen primulas. The Shangri-la Alpine Botanic Garden began as a reserve for Lady Slipper Orchids, genus *Cypripedium*, of which five species are native on that site, all in flower together in late spring.

The high biodiversity is a product of several factors including a multiplicity of environments and the great number of potential niches available to species of life to occupy. Mountainous regions are particularly rich because of the altitude

and aspect effects on local micro climates influencing rainfall, sun access and protection. Another major contributor is the availability and input of diaspora from adjacent regions such as the Himalayas, the Holarctic temperate biota to the north, and the Asian tropical biota to the south. The latter shows a link with the Australian flora in the family Proteaceae, genus *Helicia* – *H. tsaii* and *H. schweiliense* of the Gaoligong Mountains; eight species occur in Australia.

The Pudacuo National Park, centred on subalpine lakes Shudu and Bitai Hai, exemplifies environmental diversity. Standing on a boardwalk above the gently sloping shore of Lake Shudu, one can observe a sequence of plant communities from buttercups and primulas in mud, to hummocks with the spectacular *Rheum alexandrae*, thence to the first woody plants with *Rhododendron hippophaeoides* and *R. microphyton* in wet soil, to a belt of willows and maples and perhaps Rock's Crab-apple, to the hillside dominated by Lijiang Spruce with a diverse herbaceous understorey including the giant gentian *Megacodon stylophorus*.

Mingyong Glacier grinds its way down the southern face of Mount Kawagebo (aka K6, at 6,740 m) into the Mekong

Gorge. This periglacial environment is vegetated with a rich mixed evergreen conifer/broadleaf deciduous temperate forest. The dominant tree is *Pseudotsuga forrestii*, its nearest relative, Oregon Pine of North America.

High on the Cang Shan is a post glacial moraine-dammed lake, above the ancient, walled Silk Road city of Dali, home base of the Bai minority people. Twenty four of the 56 minority cultures are based in Yunnan making it the most diverse regarding *Homo sapiens*.

Above Tacheng near the First Bend of the Yangtse River is a Reserve and Research Station for the Yunnan Snub-nosed Monkey, a fascinating and highly distinctive, now rare primate. Its altitudinal range is higher (to 4,500 m) than any other primate, excluding our own species.

Dr Wallace, former Curator Living Collections at the ANBG, has travelled to Yunnan many times, fascinated by the amazing flora, the stunning geography, and the incredible history and culture of the minority peoples who live there. He has led a number of tours to the province, and will be taking a group of about 20 people on tour from Wednesday 22 May to Monday 10 June 2019. If you would like more information email benwallace@bigpond.com, or phone 02 6238 0935..



Rhododendron oreotrephes, *Quercus semecarpifolia*, Bitai Hai



Snub-nosed Monkeys eating their staple breakfast of Old Man's Beard lichen

Friends Briefs

Donors to the Public Fund of the Friends

The Public Fund of the Friends of the ANBG was established in 2004 by the Friends to enable tax deductibility for donations of more than \$2 to the Friends. During 2017-18 the Public Fund raised \$35,000 for support of Gardens projects, in particular the Paperbark Treehouse. The Friends thank all who have donated to the Public Fund. Donors of \$200 or more to the Public Fund since the December 2017 issue of *Fronde* are listed below:

Joan Adler
W and M Bush
Mrs Christianna Cobbold
Helen Compton
Joanne Daly
Dr N and Mrs D Exon
Maureen Fisher
Malcolm and Karin Fyfe
Colin Hauff
Marlena Jeffery
Andrew and Monica Phelan
Miss Penny Richardson
Jennifer Rowland

Another twelve people who donated to the Public Fund at this level wished to remain anonymous.

Lesley Jackman

Wake Up with the Birds, 2018

This spring was the 15th year that the Friends have provided bird walks in the ANBG. Every weekend was booked out and over 200 visitors and their bird guides enjoyed an early morning walk in the Gardens.

Each walk is completely different from another one. We can rely on plants to be in the same location but birds are another story! This year a pair of Tawny Frogmouths was seen briefly in early September, close to where they nested last year, before disappearing from view. Fortunately they were found again nesting on a eucalyptus near the DuCrou Pavilion in time for the last two weekends.

For the third year in succession Spotted Pardalotes used the same location to excavate their tunnels. Many, but not all, visitors were fortunate to catch a glimpse of these tiny, very active and fast birds as they flew in or out of the burrow.

Close by the male Satin Bowerbird tended to his bower, hopped about nearby and, when a female came to inspect, called and danced. Some people were lucky enough to see a juvenile transitioning to adult plumage.

In the *Grevillea* section our regular honeyeaters flashed past, moving from one shrub to another. Our spring

Summer Sounds 2019, Volunteers needed

Planning for the Summer Sounds 2019 concert season is well underway.

The 2019 concerts will be on the first two weekends in February: Saturday 2 and Sunday 3; Saturday 9 and Sunday 10 February.

The success and smooth running of the concerts has always been dependent on a small army of volunteers.

This year volunteers are once again needed to assist with collecting entry fees, supervising car parking, driving assistance vehicles to and from the Eucalypt Lawn, and helping at the Information Tent. You might even find time to relax and enjoy the concerts!

A link to the online sign-up is on the Friends' website under Summer Sounds 2019. If you have not been involved with the concerts before, and would like further information, please contact: summerconcerts@friendsanbg.org.au.

We look forward to seeing you at the concerts.



Wake up with the Birds: Spotted Pardalote pauses before entering the well-camouflaged nesting chamber

PAM ROONEY

migrants such as Yellow-faced and White-naped Honeyeaters were slow to arrive this year, only making an appearance at the final weekend.

Our first set of ducklings also arrived late and delighted everyone when they waddled across the Café Lawn for the first time on the final Saturday.

Other birds seen included Golden Whistlers, Eastern Yellow Robins, Olive Whistlers, Bassian Thrush, a Goshawk circling overhead, Gang-gangs, and, as usual, the Red Wattlebirds, Currawongs and magpies were all seen building nests, on their nests, feeding young, or just keeping an eye on things.

Many thanks are due to the organising committee and to all the leaders and helpers who volunteer their time. Over \$3000 was raised for the Friends projects in the Gardens.

Tricia Morton

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 the Gardens' site at: www.anbg.gov.au

Guided Walks

Daily at 11 am and 2 pm

Meet a volunteer guide at the Visitor Centre for a free one-hour tour of the Gardens.

Storytime in the Gardens

First Friday of every month, Suitable for pre-schoolers. 10 am – 11 am.

Cost: \$5.00 per child

Flora Explorer tours

Weekends & public holidays, 10.30 am & 1.30 pm.

Tours cost \$8 for adults and \$5 for children and concessions. Children under 3 travel free.

Forty-five minutes of discovery around the Gardens. Purchase tickets from the bookshop.

Weeding Black Mountain

Saturday 1 December 8.30 to 11.30 am

Saturday 5 January 8.30 to 11.30 am

Saturday 2 February 8.30 to 11.30 am

Saturday 2 March 8.30 to 11.30 am

Saturday 6 April 8.30 to 11.30 am

Removing woody weeds from Black Mountain and within ANBG

Check Friends' website for meeting place for each weeding work party. Please email your name and phone number to friendsofblackmountain@gmail.com or phone Linda (0437 298 711) or Libby (02 6296 1936) so there is enough delicious morning tea.

Bush Blitz Community Day

Sunday 2 December, 10 am to 3 pm, Eucalypt Lawn

Join Bush Blitz scientists on their search for species and learn how to identify the amazing plants and animals that call ACT home.

Visit bushblitz.org.au for details.

Cost: free

EXHIBITIONS

Visitor Centre Gallery, Open Daily 9.30 am – 4.30 pm, FREE

Perspectives, FRIENDS PHOTOGRAPHIC GROUP, 22 NOVEMBER – 9 DECEMBER

An exhibition of photographs of flora and fauna, mainly taken within the Gardens. Unframed prints, cards and other photographic products will be on sale.

Plants and Places, 12 DECEMBER 2018 – 13 JANUARY 2019

Ruth Dodd's second exhibition at the Visitor Centre Gallery, presents oil paintings of plants and structures from some of the places she has visited over the past year. Ruth works from close observation of a subject and uses colour to dramatise what she sees to be its essential elements.

Pod, 16 JANUARY 2019 – 17 FEBRUARY 2019

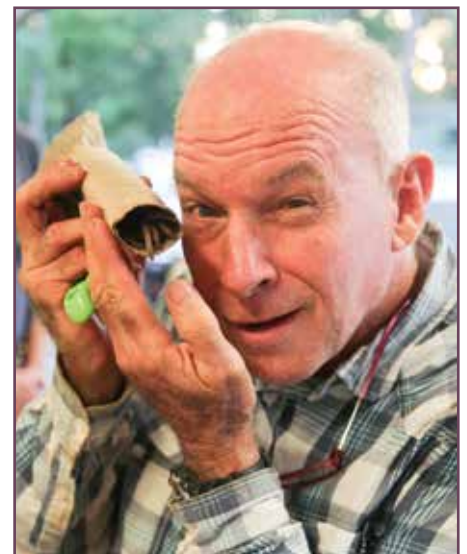
Kate Smith is a visual artist mainly producing drawings and installations. Her exhibitions are research based, investigating a particular concept or subject matter. This exhibition focuses on the seed pods of Australian native plants. The aim of the exhibition is to celebrate the dramatic, quirky and intricate shapes that can be found in our native seed pods.

Black Mountain Miniatures, 20 FEBRUARY – 10 MARCH

A series of paintings focusing on light, patterns and the natural subjects of Black Mountain. Frank Knight, wildlife artist and ornithologist, and Linda Beveridge are exhibiting works.

More than just a pretty plant, FRIENDS BOTANIC ART GROUPS 16 MARCH – 14 APRIL

All paintings will feature a native Australian plant with a use, be it a traditional Indigenous or colonial use, or a modern one. (Information p 9)



Dr Robert Raven is a spider expert who will be on the Bush Blitz team, seen here with a spider.

PHOTO SUPPLIED BY PAULA BANKS

What's on (contd.)

Summer Walks

Friends of the ANBG are delighted to present the following two walks this summer. Please note there are a limited number of places available for each walk.

Bookings essential: Friends website on Home Page under 'Calendar'.

Enquiries: memberswalks@friendsanbg.org.au.

Meet: Visitor Centre, ANBG.

Bring: Water, appropriate footwear.

Cost: free

1. Butterflies in the ANBG

Sunday 13 January 2019

10 am to 11:30 am

Do you know an Imperial Blue from a Macleay's Swallowtail? Or an Eastern Flat from a Common Brown? This is a wonderful opportunity to join local expert, Suzi Bond, in observing these elusive creatures in the ANBG.

Copies of the *Field Guide to the Butterflies of the Australian Capital Territory* by Suzi Bond with Steve Holliday and John Stein are available at the Botanical Bookshop.



PAM ROONEY

Meadow Argus butterfly, ANBG

2. Australian Trees and their Botanists

Sunday 17 February

10 am to 11:30 am

Join Volunteer Guide, John Turnbull, on this fascinating walk uncovering stories of adventure, mystery, sex, and even murder, associated with Australian trees and overseas botanists!

Sunset Cinema

Wednesdays, Thursdays, Fridays and Saturdays - throughout December until Saturday 12 January

Enjoy the latest movies and classics in a lovely garden setting. Bookings through sunsetcinema.com.au

Creating a Visual Art Diary: Using Art to Connect with Nature

Sunday 9 December 2018 & Sunday 17 February 2019, 10.00 am – 12.00 pm, Banks Building, Cost: \$45.00

This workshop concentrates on nature, the power of observation and drawing for relaxation. Join Julia Landford from NatureArt Lab for guidance on drawing techniques and ideas for nature journaling. Whether you're a complete beginner or an accomplished artist, you will develop your skills and a deeper appreciation for our natural environment.

Bookings on the ANBG website, *What's on* page

Snakes Alive

Monday 14 – Sunday 20 January 2019 10.00 am – 4.00 pm

Cost: \$4.00 child, \$6.00 adult, \$5.00 concession

A live exhibition showcasing a variety of Australian reptiles and amphibians, many of which are threatened, endangered and very rarely seen in the wild or captivity.

Photography afterDARK

Friday 18 January 2019 & Friday 15 February 2019, 8.00 pm – 11.00 pm

\$120.00, Bookings essential, at ANBG web page, *What's On*.

Crosbie Morrison Amphitheatre

An exclusive three hour guided night photography workshop with Irene Lorbergs instructing in photography during sunset, dusk and the black of night. Suitable for intermediate to advanced photographers, aged 15 and over.

NatureArt Puggles' & 'Explore NatureArt' School Holiday Program

Tuesday 29 January – Friday 1 February 2019

9.00 am- 12.00 pm (Puggles 5-8yr olds) 1.00 pm – 4.30 pm (Explore NatureArt 9-12yr olds)

Banks Building

Cost: Various, depending on the number of sessions, \$70.00 for one session.

High quality educational and fun art science experience for children. Run by experienced science communicators and artists, they inspire a love of nature through drawing, painting, animal encounters and outdoor play.

For more information and to book: www.natureartlab.com.au by 16 January

Summer Sounds 2019,

Saturday 2, Sunday 3, Saturday 9 & Sunday 10 February 5.00 pm – 7.30 pm

Enjoy the last month of summer with live music featuring some of the best band and dance talent in the Nation's capital. **Volunteers needed – see p 20**



Summer Sounds, 2018

BRIAN MOIR

Bonsai Exhibition

Friday 22 – Sunday 24 February

Crosbie Morrison Building
The annual exhibition of Australian plants as Bonsai by the Canberra Bonsai Society.

NatureArt Kids Club

Sunday 24 February & Sunday 31 March, 10.00 am – 12.30 pm

Cost: \$48 Bookings essential
Exciting monthly science adventure, exploring nature through drawing and observation, nature journaling, painting and hands-on activities.

Bookings at www.natureartlab.com.au

Growing Friends Plant Sale

Saturday 1 March 8.00 am – 11.00 am or until sold out.

Banks Building carpark
From \$6.00 per plant

Plants are propagated and tended by the Growing Friends from material sourced from the Gardens. All proceeds go to support the Gardens.

Australian Native Plants Society – Plant Sale

Saturday 23 March, 8.30 am – 1.30 pm or until sold out. Southern carpark
From \$6.00 - \$10.00

A great range of native plants, many local species and suitable for Canberra's climate and soil.

Eucalypt Dyeing Workshop

Saturday 23 March, 9.00 am – 1.00 pm
Cost: \$70.00 Bookings essential

Celebrate National Eucalypt Day by learning how to make leaf and bark dyes for imprints on fabric. Each participant will dye a scarf to keep as well as samples of wool, silk and linen dyed in eucalypts. The workshop is led by Sally Blake, a local textile artist, who has done extensive research on plant dyes. Workshops limited to 15 participants, suitable for 15yrs and over.

Thursday Talks: February - April 2019

Lunchtime talks are held at 12.30 pm every Thursday from February to November in the Gardens' Theatrette. Talks last for 1 hour. Admission is by gold coin donation. There is no need to book but please note, that for safety reasons the ANBG Theatrette seating is strictly limited to 90 people. So, do come early for a seat at a Thursday Talk.

The Friends of the ANBG thank the speakers who volunteer their time and talents to further the knowledge of all attending events in the Gardens. The Friends use the 'gold' coin donations received at each activity to support Gardens' programs and development and thank all those who have donated. Please note: unless otherwise indicated, talks are in the ANBG Theatrette.

Some summaries or PowerPoint presentations of Thursday talks are available to Friends from the ANBG library. A donation to the Friends for the use of this material will be gratefully accepted.

Please direct queries about Thursday Talks to Doug Laing: email lilley@iimetro.com.au

FEBRUARY

Thursday 7 February

Dr Prame Chopra 'Dangerous Eruptions: Volcanoes Past, Present and Future'

Prame, previously a Reader in Geophysics at the ANU, will talk about his longstanding interest in the earth's internal heat, the processes that are driven by it and the green energy opportunities it presents – volcanic eruptions are some of the most impressive manifestations of this astonishing heat.

Thursday 14 February

Boronia Halstead 'South Western Australia Flora: What a Hotspot'

Boronia would like to spark our curiosity about the extraordinary diversity of plants growing in south-west Western Australia, the area being the first Global Biodiversity Hotspot to be recognised by the International Union for the Conservation of Nature.

Thursday 21 February

Dr Marcel Cardillo 'Australian Plant Biodiversity: Past, Present and Future'

Marcel, from the ANU, will discuss how extracting DNA from plant tissues helps us reconstruct the evolutionary history of the Australian biota over tens of millions of years. He will explain why south-west Australia is a 'biodiversity hotspot' and the increasingly important role that molecular phylogenetics plays with examples from research on Australian Proteaceae.

Thursday 28 February

Associate Professor Andy Leigh 'How do Plants 'do' Heat Stress? Further Lessons from the Australian Desert'

Andy, from the University of Technology Sydney, will explore what factors determine whether high temperatures become stressful to plants. Does water stress make a difference; is thermal tolerance static or fluctuating; and over what time scale?



PAM ROONEY

Biodiversity of south-west Western Australia. (Thursday 14 and 21 February), Tassel flower, *Leucopogon verticillatus*

MARCH

Thursday 7 March

Matthew Higgins 'The Declined, the Gifted and the Desired: Four Canberra Rivers'

Matthew is a Canberra historian, and he will present natural and historical information about four rivers near Canberra, and detail some of his experiences on them.

Thursday 14 March

Dr Alexander Schmidt-Lebuhn 'Phylogenetic Diversity and 'hot spots' for Conservation'

Alexander, is from the CSIRO, and will explain how phylogenetic diversity works and its logic, and how it can identify areas of conservation priority and patterns of biogeographic interest.

Thursday 21 March

Emeritis Professor Mike Crisp 'Callitris: an Evolutionary Chronicle of Extinction, Survival and Re-diversification'

Mike, from the ANU, will discuss how the cypress family of conifers has been an important model for studying the way organisms came to be distributed, where they are found today, and how ancient changes in the earth's environment influenced their distribution.

Thursday 28 March

Justin Foley 'ACT Healthy Waterways – an Update'

Justin is Program Manager, ACT Healthy Waterways Project, a joint initiative of the ACT and the Australian governments to improve the quality of water entering our lakes and waterways. It includes the construction of infrastructure – like wetlands, ponds and rain gardens, and involves research trials.

APRIL

Thursday 4 April

Jane Black 'Artwork Delights from the ANBG Library and Archives Collection'

Jane, ANBG Librarian and Archivist, will share some of the delightful and diverse artworks from the ANBG Library and Archives collection which have been inspired by Australia's native plants.

Thursday 11 April

Dr James Nicholls 'Manipulation of Host Plants by Herbivorous Insects'

James currently works at the Australian National Insect Collection at CSIRO, and will talk about how parasitic oak gall wasps manipulate their host plants to produce unusual structures and compounds to gain higher quality nutrition and increased protection from predatory wasps.

Thursday 18 April

Dr Sue Fyfe 'Detecting Photosynthetic Stress in Temperate Australian Seagrasses'

Sue, from the ANBG, will introduce the evolution of temperate Australian genera to their marine environment, and discuss photosynthesis in sea-grasses, their physiological response to light stress, and the potential for monitoring meadow health with remote sensing.

Thursday 25 April

Dr Michael McKernan 'Selected Gallipoli Cemeteries'

Michael, a social and military historian, will speak on some of the better-known cemeteries, their locations, the unique nature of each, and the stories of the men who lie buried in them.

FRIENDS BENEFITS

As a Friend you are entitled to:

Three issues of *FronDS* a year

Three hour free parking pass

Discount at:

Botanical Bookshop (most items)

Pollen

Jindii Eco Spa

Cool Country Natives in Pialligo

Australian Choice, Canb. Centre

You also receive:

Advance details of lectures

Advance bookings for some events

Discounts on some events

ANBG library membership –

borrow books, serials, videos,

DVDs plus use of computers and

interactive CD ROMs

Function facilities – special rates

for functions at ANBG

And opportunities to:

Join Botanical Art Groups

Growing Friends

Photographic Group

Plant Science Group

Assist with Gardens' research projects

Become a Guide

Relax in the Friends Lounge

in the Ellis Rowan Building,

open to members 9.30 am to

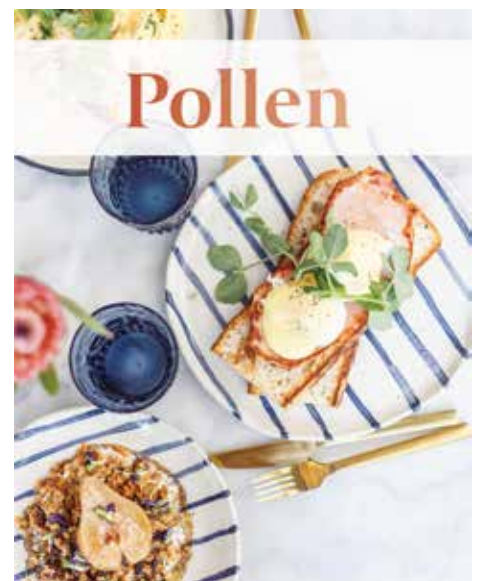
4.30 pm. Relax with tea/coffee

and lots of interesting reading.

Change of venue for Native Plant Market days.

Native Plant Market Days have been held at Yarralumla, for 18 years, first at the Government Nursery then at the Heritage Nursery and now at Pialligo. The market days, where quite a few growers of native plants come along to sell, are run on the first Saturday of the month September, October, November, December, February, March. April and May from 8:30 am to 3 pm. Basically spring and autumn.

They will be held at Cool Country Natives, 5A Beltana Rd, Pialligo.



Open 7 days | 9am - 4pm

Book online pollencafe.com.au