

Fronds

*Friends of the Australian National Botanic Gardens
Number 87 December 2017*





Friends of the
**AUSTRALIAN NATIONAL
BOTANIC GARDENS**

Patron Her Excellency Lady Cosgrove
Vice Patron Mrs Marlana Jeffery
President Lesley Jackman
Vice President TBA
Secretary Jann Ollerenshaw
Treasurer Helen Elliot
General Committee Wendy Antonak
Linda Beveridge
Christianna Cobbold
Jonette McDonnell
David More

Public Officer TBA
Exec. Director ANBG Dr Judy West
Post: Friends of ANBG, GPO Box 1777
Canberra ACT 2601 Australia
Telephone: (02) 6250 9548 (messages)
Website: www.friendsanbg.org.au

Friends' activities and contacts

Fronds Committee: Anne Rawson
Barbara Podger
Pam Rooney
Denis Warne
Cathy Robertson
newsletter@friendsanbg.org.au

Membership Lesley Harland
Pam Cooke
membership@friendsanbg.org.au

Growing Friends Kath Holtzapffel
Guides Christianna Cobbold
Botanic Art Groups Helen Hinton
Photographic Group Brian Moir
Plant Science Group Anne Campbell
Social Events Tricia Morton
Talks Convenor Doug Laing

For all these groups contact:
info@friendsanbg.org.au

Booked Walks:
bookedwalks@friendsanbg.org.au

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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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ALISON TURNER

Owlet Nightjar, ANBG: a new bird for the ANBG birdlist (see also p 19)

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Cover: "Having spent the day at the Botanic Gardens, I was at the car park preparing to leave when I saw four Gang Gangs feasting on gumnuts. Taking a photo I noticed a number of sawfly larvae on the branch below. I was then amazed when I realised that two were actually eating the larvae. Some fell to the ground and survived, but the pair didn't stop till all the larvae were gone. I hadn't realised that these birds were also carnivorous. An eye opening experience." Alison Milton

Another galling story in the gardens: the Myall Gall Midge

Roger Farrow

After a Thursday lunchtime talk at the Gardens this April, a friend from ANPS, Helen Brewer, showed me some galls infesting three trees of the Myall, *Acacia pendula*, in bay three of the south-west car park. They appeared to be a type of flower gall since they occurred on the peduncles of the axillary flower racemes, rather than on the shoots or leaves. The galls varied in colour from fresh pale green to dark brown and withered which is assumed to be a function of age. I removed a small bunch of fresh galls for research purposes, dissected some individual galls, put the rest of the bunch in a jar, and checked the internet. My conclusion was that they were flower galls induced by a gall midge, *Dasineura* species in the family *Cecidomyiidae*. This was confirmed when some flies emerged in the jar later on the same day.

I sent some pictures of the galls and the flies to Dr Peter Kolesik, a *Dasineura* expert at Adelaide, and he confirmed that the species was *D. glauca* and its host is, you have guessed it, *A. pendula*. He also said that it was a new record for the ACT

and surrounding area. Accordingly, I have deposited specimens of the midge with the Australian National Insect Collection.

Our specimens of this *Acacia* in the gardens would be several hundred kilometres further east of the nearest wild populations on the western plains (west of Wagga). However, *A. pendula* is widely planted by local Councils in parks and along nature strips throughout the western slopes and tablelands of New South Wales. These attractive trees are also grown in rural and urban gardens and in local botanic gardens in the same areas. David Taylor from the Gardens showed me another specimen in the Mallee section above the car park and this tree was also covered with old *Dasineura* galls. David also told me there were specimens of *A. pendula* on the median strip of Southern Cross Drive at Belconnen, that I then visited, and one of the three specimens examined had small numbers of fresh *Dasineura* galls, although all three trees were heavily infested with the fungal gall, *Uromycladium tepperianum*.

It is therefore likely that this gall midge disperses by relatively short flights between scattered populations of natural stands and planted specimens of *A. pendula* throughout our region. It is also possible that gall-flies migrate in the upper winds like many vagile small insects, including aphids and many

others, although I have not recorded them from aerial samples taken while working on insect migration at CSIRO. According to Peter Kolesik, *D. glauca* is also recorded from a related, non-weeping acacia, *A. omalophylla* or Yarran, that occurs in the same areas as *A. pendula*.

I recently checked some flowering Myalls growing along the roadside in the Riverina near Darlington Point but there were no galls present anywhere. It is interesting to note that the local galls also produced several different species of parasitic wasp whose larvae would have parasitised the midge larvae. It is possible that this gall midge is well controlled by parasitic wasps in the natural range of the Myall.

Dasineura is an interesting genus of gall midge because several species have been introduced for the biological control of *Acacia* species in South Africa, by reducing seed production. I noted that the *A. pendula* at ANBG had produced far fewer seedpods than normal. All the trees had also produced new flowers on the terminal shoots available for the emerging midges to infest.



Dasineura galls on *A. pendula*



Dasineura galls on *A. pendula*



Dasineura larva



Dasineura glauca

Friends help char the timber

Lachy Brown, Cave Urban



Just as fire is an essential agent of regeneration in many Australian tree species, so it proved to be an important element in the design of the Gardens' newly completed Paperbark Treehouse. The Friends played a key role in a series of charring days when the charring torch was applied to the structural tree trunks rising through the platform and holding the crow's nest; and to the ramp and platform's weather-board cladding. A BBQ lunch matched the food with the activity.

Sydney-based arts collective, Cave Urban, designed and built the Treehouse for a clearing in a sensitive micro-habitat - a copse of *Melaleuca* thriving in spring-fed boggy ground just below a walking track, near the Gardens' educational facilities.

The Treehouse is a ramp-accessible platform, floating out among the papery trunks, bringing unique intimacy to the experience of this wild area on three levels: the understorey below-decks; a

two and a half metre-high platform; and a ladder-connected crow's nest in the forest canopy.

The surrounding *Melaleucas'* myriad filo-pastry-thin layers of bark not only protect the living trunk against the ravages of fire, they harbour epicormic buds that sprout only after the trunks have received a decent torching.

This life-giving baptism of fire sparked the idea of giving the treehouse timbers the same treatment by applying the ancient Japanese technique of Shou-Sugi-Ban, literally translated as "burnt cedar board".

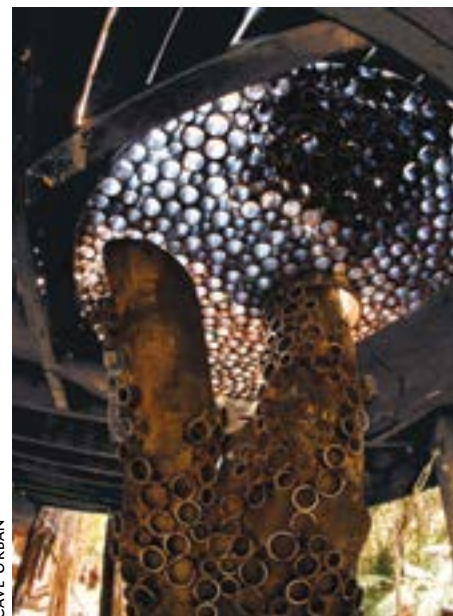
The charring of timbers serves the treehouse in important ways beyond the symbolism of fire's role as destroyer and regenerator of life in the Australian forest. The carbonised outer layer provides a natural weather shield and gives extra protection against fire by resisting ignition. The boards were cut longitudinally as wedges from Victorian silver ash logs in a revolutionary process

known as radial sawing. The blackened poles and boards (whose naturally contoured edges complement the layers of paperbark) provide a perfect backdrop to the dappled deep greens of the enveloping forest.

The majority of building materials came from recycled sources. The soaring dead and charred tree trunks are from the Gardens. The turpentine piers, joists and decking came from demolitions of old wharves. The rosewood handrail and ladder rungs are 100 year old Central Queensland fence posts from the filmset of *Australia*. The whole design and building process was based on collaboration with the Friends, the ANBG staff, the amazing building team and extended to a cultural exchange with Chilean sculptor, Carolina Pinto, who came to create the organic steelwork that grows on and around the trunks of the tree columns and allows native vines to grow through the structure and anchor it to the forest floor.



Jim Gould helping with the charring



Organic steelwork

Lesley Jackman

On the very last, and somewhat chilly day of winter, various Friends assembled on the Paperbark Lawn of the Gardens, just below the site of the Paperbark Treehouse, to find out about the mysterious Japanese art of yakisugi, or carbonising wood.

Cave Urban was keen to thank the Friends for our support as underwriters of the project with an invitation to do some on-site charring of timber to be used in the build. We also enjoyed some delicious charred meat and vegetables very generously provided by Cave Urban.

The work involved the use of rather large blowtorches, whose size may have

deterred some but Jim Gould of the Friends Photographic Group led the Friends' effort, enthusiastically charring the trunk of a red box (*Eucalyptus polyanthemos*) that has since been hoisted into place ready for concreting.

Donations have been flowing into the Public Fund for the Paperbark Treehouse, which was designated as a major project for the Fund in September 2015. The Friends would like to thank all those who have contributed so generously so far. The Public Fund Management Committee will be considering further Gardens projects to support early in 2018.



PAM ROONEY



CAVE URBAN



ALISON MILTON

Moving charred log into position



CAVE URBAN

Wedges of Victorian silver ash for boards



CAVE URBAN

Bush Blitz

Polly Hemming, Bush Blitz team

Bush Blitz is Australia's largest nature discovery project, with the aim to document plants and animals across Australia. It is based at the ANBG and managed by staff from the Australian Biological Resources Study (ABRS). Since the program began in 2010, the International Year of Biodiversity, Bush Blitz has discovered 1350 new species and has added thousands of species records to what is already known, increasing our scientific knowledge to help us protect our biodiversity for generations to come.

There are many plants and animals still to be discovered by science. There are an estimated 580,000-680,000 species in Australia, but three-quarters of this biodiversity is yet to be identified. Forty-five per cent of continental Australia and over 90 per cent of our marine area have never been comprehensively surveyed by scientists.

Bush Blitz is a unique multi-million dollar partnership between the Australian Government through Parks Australia and the ABRS, BHP

Billiton Sustainable Communities and Earthwatch Australia that sends multi-disciplinary teams to parts of Australia where few or no biological surveys have ever been done. The scientific teams scour deserts, forests, mountains, valleys, gorges – and more recently, marine reserves – for significant biodiversity finds, particularly new species. The program is the largest nature discovery program in Australia and involves bringing together specialist taxonomists, indigenous communities, rangers and landowners, educators and volunteers, who together are making an extraordinary contribution to the protection of our country's natural heritage. To date, we have sent over 180 scientists on 43 major field expeditions across Australia's national reserve system, often to very remote locations. Organising each expedition is a huge logistical exercise that takes months of detailed planning. One expedition team, to Lake Condah, comprised almost 50 people.

For each blitz, the team loads up with equipment including traps, reference

books, magnifying glasses and plant presses; they set up base camp and start collecting out in the field, searching for frogs, reptiles, mammals, bats, bugs, moths, butterflies, spiders and new plant species.

Surveys aim to understand the presence of all species, however there are some target taxonomic groups that represent some of the most abundant, yet least understood, species in Australia that are of particular interest to scientists including: *Arachnida* (spiders), *Gastropoda* (terrestrial and freshwater snails), *Heteroptera* (true bugs), *Lepidoptera* (butterflies and moths), *Odonata* (dragonflies), Terrestrial vertebrates (small mammals, reptiles and amphibians), and vascular and non-vascular plants.

The identification work begins back at base camp, where the survey team will try to identify what they've found using magnifying glasses, field microscopes and reference books. Where identification

What's in a name? If a plant or animal has no scientific name its conservation status cannot be determined and it cannot be managed and protected. Taxonomy, the science of naming and describing life on Earth, provides the basis for identifying and monitoring Australia's biodiversity. This, in turn, generates the knowledge needed for effective environmental conservation.



A. YEN

LaTrobe PhD candidate Conrad Bilney working with traditional owners; Kivwirrkurra Bush Blitz 2016



CHRIS MANCHESTER, AUSTRALIAN NATIONAL INSECT COLLECTION

Heteroptera (true bug) specimen found on the Namadgi/Kosciuszko National Parks Bush Blitz.



J. OTTO

Peacock spider: This new species of peacock spider (*Maratus* sp.) was discovered by the Queensland Museum's Dr Barbara Baehr on the 2014 Carnarvon Station Bush Blitz



STEPHEN MAHONY

A jewelled gecko (*Strophurus elderi*) found on the Mungo NP Bush Blitz earlier in the year, listed as vulnerable in NSW.

proves too complex samples are taken back to labs for a more detailed assessment, often in consultation or collaboration with other scientists. If a specimen is found to be a new species it is formally described, named and allocated to the appropriate species family, and that specimen then becomes the "holotype". The holotype is the gold standard, the reference specimen against which all other specimens will always be compared.

Once the species has been identified, all that information is shared online so other researchers can use it (through Australia's Virtual Herbarium for plants or the Australian Zoological Catalogue of Australian Museums for animals). Each year the information collected by Bush Blitz teams will be collated into a major report on the state of Australia's biodiversity.

Bush Blitz is increasing our knowledge of Australia's ecosystems and supporting higher-level conservation planning by: discovering and documenting new species, finding new occurrences of threatened species, recording species range extensions to better understand their distribution and response to climate change, detecting potential biosecurity threats early and increasing knowledge of weed and pest species and their invasive potential.

Bush Blitz is like the gift that keeps on giving; the list of new and updated species continues to grow on a daily basis as taxonomists progressively work through the thousands of specimens collected on our expeditions.



T STARRS

Scientists with a light trap on the Great Victoria Desert Bush Blitz in September this year.



Australian Museum fish collection manager Mark McGrouther setting up a gill net to trap fish on the Oxley Wild Rivers National Park Bush Blitz in 2015



C. NICHOLS

Teddy bear bee: A new species of teddy bear bee found on the Lake Torrens Bush Blitz earlier this year.



BRUCE MILLS

Jade Tinney pinning moths; Bruny Island Bush Blitz, 2016

Friends AGM: major projects & related activities

The following are edited summaries of reports for the year 2016-17 presented at the Friends of ANBG 29th AGM, held on 31 October 2017. Full reports are on the Friends' website www.friendsanbg.org.au

Report from Executive Director, Dr Judy West

We were thrilled to announce with the Friends the winning design for the Paperbark Treehouse. The treehouse stands among the grove of paperbark trees below the Banks Building and will attract visitors young and young-at-heart. Sydney-based firm Cave Urban won the national design competition with its design featuring recycled timber, radially sawn cladding charred for both protection and aesthetic appeal, and rosewood balustrades salvaged from the set of Baz Luhrmann's 2018 movie *Australia*.

I would like to acknowledge the Friends and Friend's Public Fund for their ongoing support of the Gardens. In addition to being wonderful ambassadors for the Gardens, the Friends have supported many of the visitor experiences developed in the Gardens over the past 20 years. The Treehouse is another great example of the Friends' ongoing support.

Another exciting change this year has been the opening of our new café, Pollen. The café has gained a strong following with friends and families enjoying coffees and fresh meals together. Pollen has already become one of the Gardens' many attractions with its beautifully-styled décor and healthy food menu surrounded by the backdrop of the Gardens.

The Gardens continues to strengthen our commitment to conservation with currently more than 15 active partnerships targeting different rare and threatened plants, including *Banksia vincentia*, several *Pomaderris* species, *Zieria bauerlenii*, *Swainsona recta* and more. Excitingly, our horticulture team have managed to cultivate from seed the Christmas Island mangrove, *Bruguiera gymnorrhiza*, to be included in the Ian Potter National Conservatory. This

mangrove species is particularly interesting as it grows along a permanent freshwater stream emerging from a cliff on an uplifted marine terrace approximately 35 m above sea level. In the wild this tree grows to 30 m high – it might stretch the conservatory! Such collaboration among organisations is vital for today's conservation work.

Summary of Report from the President, Lesley Jackman

Friends President Lesley Jackman introduced her annual report noting it had been a busy year. She highlighted major areas of achievement. She noted that the many ongoing Friends activities are outlined in a longer written report published on the website.

The Paperbark Treehouse is the largest project of the last 27 years. Cave Urban, a Sydney-based firm operating internationally were selected for its design and construction. The Friends, the ANBG and the Public Fund are in partnership to develop this project, which the Friends have underwritten up to \$280,000.

A campaign to promote the Public Fund to members is linked to the Treehouse project. A brochure promoting the Public Fund to Friends and listing its current projects – the Treehouse, a collecting trip to Northern Queensland and a lichen digitisation project – was included in the 2017 membership mail out.

The Paperbark Treehouse, is the largest project the Friends have donated to the Gardens in the last 27 years

Friends' project support to the Gardens has prioritised the Treehouse since 2014. Other smaller projects have received support including the conservation and framing of two Florilegium

prints. Once the Treehouse is paid for in early 2018, priority will shift to projects for the Gardens' 50th Anniversary in 2020.

15th Biennial Australasian Botanic Gardens Guides Conference 15 – 19

October 2017 was a major project involving 175 registrants from Australia, New Zealand and Scotland. The Conference theme was *Informed Guiding – Discovering the Mystery and Magic of our Gardens*. The President acknowledged the prodigious efforts of the Conference organisers – Guides and other Friends. The Conference was fully subscribed and a profit is expected. See full report on page 17.



BILL HALL

Guides Conference Convenor, Glenys Bishop thanking keynote speaker, Executive Director Judy West

Information Technology achievements include: introducing Google Drive for document storage; a Public Fund online donation option; a trial of online point-of-sale for exhibitions and plant sales; and online membership renewals planning.

Donations to our Public Fund are currently eligible for a tax deduction Tax under the Income Tax Assessments Act, but a review is underway. The Friends made a submission in 2016 to the House of Representatives Standing Committee on the Environment Inquiry on this matter and when the Treasury released a discussion paper in

2017, the Friends' Council responded, highlighting the role a Public Fund such as ours can play in assisting a botanic garden. Developments on this issue will continue to be of keen interest.

Friends' Strategic Plan 2016 – 2020 was approved in September 2016. Good progress has been made against all of its goals and our relationship with the Gardens is in excellent shape.

Partnerships: The Friends continue to support the summer concerts and have secured continuing sponsorship from Icon Water. The 2018 season will again run for two weekends. Guides continue to provide twice daily Gardens tours and booked walks and Flora Explorer scheduled and booked tours. Guiding activities have had a strong focus on ongoing professional development. Other activities include Friends support for Enlighten, the production of *Flowers Fruit and Foliage*, the Botanic Interns Program, Schools Photographic Competition and Plant Science Group research activities.

Public engagement and communication are encouraging awareness and understanding of native plants. These include activities such as the Botanic Art and Photographic groups, Wake up with the Birds, Thursday Talks, good relations with likeminded groups, the website and *Fronds*.

Funding of our Guides Conference and Summer Concerts was well supported through sponsorships and in kind support. The Public Fund has been well publicised and its continuation has been actively managed through our submissions to Government bodies.

Member services provided support to 1,648 memberships this financial year, a five percent increase from 2016. New membership benefits during the period included discounts at Cool Country Natives, a plant nursery in Pialligo; and a ten percent discount at the Botanic Bookshop's sister shop, Australian Choice. Lesley warmly acknowledged

the daily contribution made by the membership team.

In concluding, Lesley thanked all who supported the Friends in the last year, acknowledging the efforts of her Council colleagues, including outgoing members David Cox, Jan Finley, Rita Maclachlan and David Coutts. Lesley also warmly thanked the staff and management of the Gardens for making the Friends so welcome.

New Council Members

Congratulations to newly elected Council members: Jann Ollerenshaw (Secretary), Wendy Antoniak and Linda Beveridge.

Talk following the AGM

The AGM was followed by a talk by the General Manager of the Gardens, Peter Byron, on the Global Botanic Gardens Conference 26 – 30 June 2017 held in Geneva, Switzerland and his subsequent visit to Kew Gardens in the UK.

Summary of the Report from Treasurer, Helen Elliot, for the year ended 30 June 2017

The Treasurer, Helen Elliot, reported that our new auditor, Jeff Brewer from MGI Joyce Dickson, advised that the Friends' financial statements should include the Public Fund, to provide a complete picture of our financial situation. Separate reports for the Fund have also been prepared. This year functions and events, including Thursday Talks, plant sales, exhibitions and summer concerts have again contributed to income. Booked walks brought in about \$2,000. A number of projects were not completed by the end of the financial year, but they are expected to finish next year. The combined Balance Sheet at 30 June shows accumulated funds of \$596,212, with the payment for the Treehouse still to be finalised. The Public Fund received \$24,065 in donations this year and has accumulated funds of \$103,477. The Treasurer thanked her assistant, Kim Liston, Council members, and other Friends, including the Membership Team, for their continued hard work.

Life Membership of the Friends: awarded to Maureen and John Connolly for their dedicated service to the Friends.

Maureen became a Guide in 2005 and has been very active ever since, playing a key role in at least two Guides training courses. She has acted as Friends liaison with the ANBG library for many years, presenting the latest books to Guides meetings each month. Maureen was also actively involved in the arrangements for the recent very successful Guides Conference held at ANBG.

John became a member of Council in 2006. He served on both the Projects and Social Committees before becoming Secretary of Council for 4 years. For some years John ran the drinks table at the Summer Concerts and on other occasions. Since leaving Council John has become an active member of the Growing Friends. In addition to the above activities John and Maureen are often available to help with various special events and occasions.



BARBARA PODGER



BARBARA PODGER

Friendly Chatter

Growing Friends – Spring Sale

The Growing Friends spring sale took place on Saturday 11 November. As an added highlight, Dr Suzi Bond signed copies of her book *Field Guide of the Butterflies of the ACT* and discussed plants that attract butterflies to the garden.

Dr Suzi Bond is a Visiting Fellow at the ANU where she researches the butterflies found in the ACT. Her research is driven by a fascination with local butterfly fauna and a desire to better understand their populations and ecology. Her beautiful book includes detailed notes and photographs of the wide range of butterflies found across the ACT, with contributions from Steve Holliday and John Stein. Copies of Suzi's book are available at the Botanical Bookshop in the ANBG Visitor Centre.

Two plants in the spring sale identified by Suzi as being used as larval food plants by local butterflies are: *Polyscias sambucifolia* used by Dark Pencil-blue (*Candalides consimilis*); and *Pomaderris ericephala* used by Yellow Jewel (*Hypochrysops byzos*). Other plants providing nectar-rich flowers that are accessible to butterflies, *Brachyscome*, *Callistemon*, *Grevillea*, *Kunzea*, *Leptospermum*, *Melaleuca*, *Pimelea* and *Senecio*, were also for sale.

Growing Friends meet monthly on the first Saturday morning of each month. Feel welcome to join us in the Joseph Banks Building. We also have a working bee on the third Tuesday of each month. Please talk to one of the **Growing Friends** today, or telephone Kath Holtzapffel (6281 5817) or Yvonne Robinson (0423 054 013) to check location and time.

Yvonne Robinson

Schools Photographic Competition Exhibition

The exhibition of photographs from the annual Schools Photographic Competition was held in the Visitor Centre Gallery from 25 October — 12 November. All images were taken by high school and college students in the Gardens. The competition is run by the Friends, co-ordinated by Cecilia Melano and this year judged by Helen McFadden, award winning photographer based in Canberra. In assessing each photo Helen had three questions. Is there a subject? Is there something in the photo which is in focus? Does it show me something new? Basic and useful questions for each of us when assessing our own images!



1st, Colour section, Schools Photographic Competition: *The Garden in Zoom*. AMANDA JOYNER, Canberra College

Photographic Group

A highlight of recent months was the Group's fourth exhibition titled *Exposed*. Running from 5 to 22 October at the Visitor Centre, the exhibition coincided with both the Guides Conference and Floriade. It comprised framed works, unframed mounted prints, cards, and bookmarks along with a monitor displaying changing images. There were also a number supporting speakers.

A percentage of sales goes to support the work of the Friends, and a number of the works were purchased by the Friends for the Gardens. The success of the exhibition was perhaps encapsulated by a comment from a member of the public that they had never before been made so aware of the beauty and diversity of Australian native flora and would now enjoy it with fresh eyes.

We have also had a busy period in other ways, including informative speakers, an excursion to Booderie National Park at Jervis Bay, and a hands-on workshop on macro photography and associated equipment facilitated by members of the group David Cox and Bill Hall.

The new Committee is making plans for an exciting year ahead, including more of our early morning walks followed by breakfast in the café, and a variety of guest speakers. The first meeting for 2018 will be held on the last Friday of February in the ANBG Theatre.

Details of the program are updated regularly on the Friend's Website. The Group always welcomes potential speakers and new members. Contact us at photo@friendsanbg.org.au.

Brenda Runnegar



2nd, Colour Section Schools Photographic Competition: *Lace*. ELISE KELLETT, Dickson College

Friends Botanical Art Groups

Art in the Gardens with Friends 17th March – 15th April, 2018

Members of the Botanical Art Groups are hard at work preparing paintings for our exhibition beginning on 17th March next year. Botanical art requires close attention to detail and each work can often take many weeks to complete. This exhibition has a special theme of ‘Threatened and Endangered Native Plants’ although other works featuring non-endangered native species will also be included. The ANBG has a special role to play in preserving these plants.



Darwinia carnea, Di Redwood



Caladenia actensis,
Spider orchid.
Jann Ollerenshaw



Sturt's Desert Pea, ANBG, One of 3 photos *Exposed*: Opening night purchased by the Friends from *Exposed*



Each BAG member is entitled to submit one work that is an artist's choice but all other works have to be vetted by a team of judges comprised of botanists from the ANBG and botanical artists to ensure a high standard. Just having work accepted for exhibition is an honour. Last year we were able to hang over 100 works. A commission from the sale of each painting goes to the Friends to support the ANBG. The event has been increasingly successful in raising funds.

A beautiful bookmark is included in this edition of *Fronds* to help remind you. Further information will be available closer to the date.

Kate Ramsey

Plant Science Group

Membership of the group remains stable at around 100 with over a quarter attending each monthly talk. Talks are scheduled on the first Monday of the month (public holidays excepted), and will resume for 2018 in February.

From July to the end of this year, talks have covered a range of topics with speakers drawn from the ANU and CSIRO:

- ‘Top-down rehydration: absorption of atmospheric water (vapour, dew, rain) by leaves of mangroves’ by Professor Marilyn Ball, ANU.
- ‘Dispersal and disturbance drive diversity’ by Dr Crid Fraser, ANU and 2016 ACT Scientist of the Year.
- ‘*Rhizanthella* and other orchids, an update’ by Dr Mark Clements, Australian National Herbarium and Centre for Australian National Biodiversity Research.
- ‘Life, the Universe and Pittosporaceae’ by Dr Lindsay Cayzer, Queensland Herbarium and the Australian National Herbarium.

And the forthcoming final talk for the year:

‘Buzz Pollination of the Native *Lasiandra*, *Melastoma affine* (Melastomataceae), revisited and why plants have poricidal anthers’ by Dr Roger Farrow, Retired CSIRO Entomologist. There is a relationship between insect pollinator species and flower type - beetles go to one type of flower, bees to another, butterflies to another. But Dr Farrow has observed native bees doing something strange in the Daintree, indicating other dimensions of bee behaviour at these flowers.

If you are interested in joining the Plant Science Group, please email plantscience@friendsanbg.org.au to be included on the mailing list for upcoming talks and activities.

Anne Campbell

The ANBG Image Collections

Image Collections team

The Australian National Botanic Gardens (ANBG) has been building a collection of photographs and illustrations for many years, beginning in the late 1960s.

History

In a type-written document dated 1966 (now stored in the ANBG archive collection), Dr Betty Phillips, the botanist at the then Canberra Botanic Gardens, mentions her vision for 'Slide Collection'. She says:

The numerical list and card index of the slide collection is in process of construction. So far, the slide collection is thoroughly botanical. Whatever system is finally adopted for the rest of Parks & Gardens, this collection should definitely remain in the Botanic Garden.... One thing which has been found useful is for botanists to take boxes of slides away on field trips - there is often an opportunity to explain the work of the garden and the principles of conservation to people who have never thought about them.

By the 1970s the collection was in active operation, largely based on 35 mm colour slides (mostly Kodachrome). The photographs were used to record plants being grown in the then Canberra Botanic Gardens and also those collected by staff on field-trips, as well as Gardens' events and developments. The records



Cheryl Backhouse (ANBG Image Collections manager) with 35 mm slides, Ellis Rowan building 2010. The slides are stored in archival hangers in fireproof filing cabinets. Photographer: Murray Fagg

associated with the photos (such as taxon name, locality, date photographed or details of event being recorded) were incorporated into an electronic database from the late 1980s.

In 1993, the Image Collections formed part of the ANBG's contribution to the newly-established Centre for Plant Biodiversity Research (now the Centre for Australian National Biodiversity Research). This partnership also incorporates the Australian National Herbarium (ANH) collections.

Scope and focus

Besides the 35 mm slides the Image Collections also include formats such as black and white prints, negatives, and (since 2005) digital images. The physical collections are stored in fire-proof safes.

The Australian Plant Image Index (APII) is the national photographic collection of Australia's flora. Its aim is to have good quality images of every Australian native and naturalised plant in order to provide a visual representation of each taxon. One aspect that sets the collection apart from many other plant

photograph collections is its emphasis on maintaining current and authoritative scientific names for the plants depicted. A high proportion of the plant images are linked to voucher specimens held at the ANH or to the plants in the ANBG's Living Collections or in some cases to specimens held at other herbaria.

APII consists of portraits of whole plants, as well as leaves, flowers, bark,



This illustration of *Amanita muscaria* drawn for an educational project on poisonous plants is an example of the various types of botanical illustrations housed in the ANBG Image Collections. Artist: Kathleen O'Ryan



Photo from ANBG Image Collections used in the Australian Horticulture Centenary Special magazine in March 2003. Photographer Barry Brown. The caption read: *Prime Minister, Ben Chifley, with the Director of the Royal Botanic Gardens, Kew, Sir Edward Salisbury, planting trees in 1949 to celebrate the beginning of what would become the Australian National Botanic Gardens. Courtesy of the ANBG collection*

fruit, and seeds. Some of the recent additions include X-ray images of leaves, digital images of seeds captured by a camera attached to a microscope in the



Backhousia tetraptera flowers (L) and fruit (R) photographed by John W. Elliott at Mt Stuart, Townsville, QLD.

It is a new species described in the journal of *Australian Systematic Botany* in 2012 (<http://www.publish.csiro.au/sb/SB12015>).

National Seed Bank, and images of tropical rainforest plants originally used in interactive plant identification keys. APII also includes images of fungi and lichens



and of non-flowering plants such as mosses, liverworts, hornworts, and ferns.

Although the plant photos are the main focus, the image collections also serve as a repository of other classes of images built up over the years. These include photos of various Australian vegetation types (for example eucalypt woodlands), portraits of botanists and staff, and historical images recording the development and activities of the Botanic Gardens. Various botanical illustrations are also incorporated in the Collections, including some produced for Gardens' publications and some from the *Flora of Australia* series.

Additions to the collections

Image donations are accepted if they are considered likely to add value and serve the requirements of end-users. Strong preference is given to plant images that are linked to herbarium voucher specimens stored in an accessible scientific collection. Unvouchered images may be accepted if they have been identified by a specialist in the relevant plant group,

(Cont'd over page)



Seed of *Acacia cyclops* photographed by Brook Clinton with a microscope camera at the ANBG National Seed Bank.

Statistics for the photos in the Image Collections

Total number of photos in the Image Collections (slides, prints & artwork)	119,391
Total number of species of vascular plants photographed in APII (native and naturalised in Australia)	15,000
As the estimated total of vascular plants in Australia* is 25,000 and APII holds 15,000 species, the estimated percentage of the Australian flora in APII is:	60%
With 94,965 plant photos and 71,000 being linked to herbarium specimens or databased plants in ANBG's living collection, the estimated percentage of vouchered plant photographs is:	75%
Average number of APII images downloaded by public from Atlas of Living Australia website per month	51,860
Total number of species photographed in ANBG	4,324
Total number of photos illustrating Australian vegetation	1,729
Total number photos showing activities, development and landscapes of the ANBG	7,290

* Australian Plant Census data (APC <https://biodiversity.org.au/nsl/services/APC>)

The ANBG Image Collections

such as botanists or authors of books on Australian native plants.

We are interested in enhancing the non-plant portion of the collections, particularly with images of new developments and of events occurring in the ANBG.

Where and how are images used?

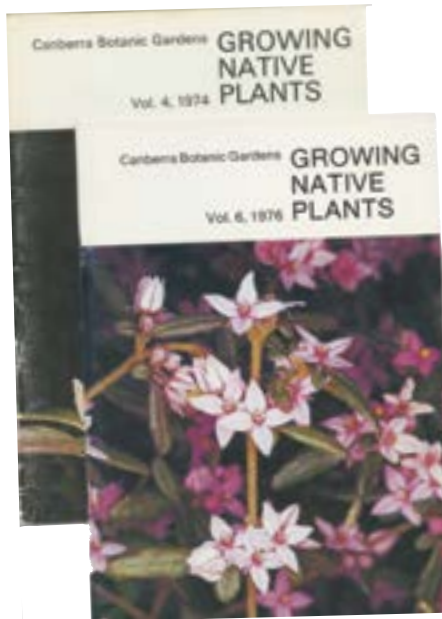
The image collections are widely used locally, nationally and internationally for commercial and non-commercial purposes. Some examples of where the images have been used are in *Fronde*, on websites, government publications, ANBG's interpretive signs, plant labels, souvenirs, exhibitions and field guide booklets. The *Growing Native Plants* booklets that were produced by the Gardens in the 1970s and early 1980s



Tayloria gunnii (moss) photographed by Heino Lepp in southern Tasmania.

were largely illustrated using photos from APII. The main point of public access to the collections is via the ANBG website or via the Atlas of Living Australia, which uses APII as its primary source of plant images.

The copyright of images varies across the collections. For images taken by staff and volunteers in the course of their work, copyright belongs to the ANBG. The copyright of images taken by other organisations (e.g. CSIRO) and by individual photographers (e.g. Murray Fagg)



The series of *Growing Australian Plants* published annually from 1971 used images from the APII

is usually retained by them, although some rights may have been assigned to the ANBG.

The collection is moving to a more 'self-serve' supply process, with 35 mm slides being scanned in-house using a high-end scanner, as digital photography replaces other formats.

The main point of public access to the collection is through the ANBG website. Go to www.anbg.gov.au then under the Botanical Resources image click on Plant Photographs. This opens the page 'Search the Australian Plant Image Index' which gives you access to a list of possibilities, including digital images by genus and species; all records of plant photos including non-digital; photos of different vegetation types; and non-plant photos where you can find historical images. The process of requesting images is also outlined on the same webpage under Conditions and fees.

Our current aim is to make as many images as possible available under Creative Commons licences in accordance with the Australian Government's open data policies.

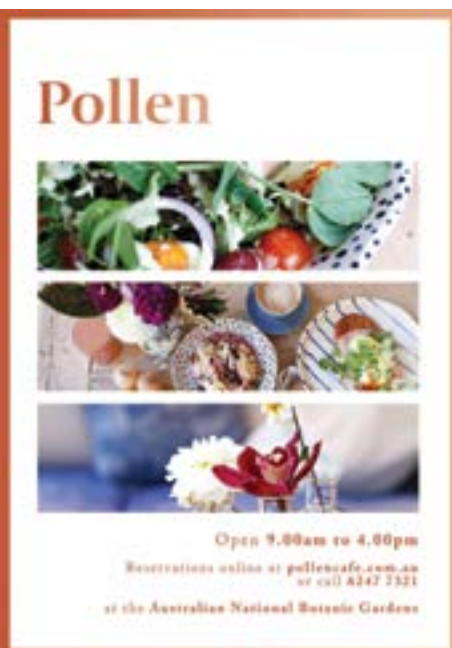
Access to the collection is also available by appointment with the Photographic Curator (6250 9529 or photo@anbg.gov.au).

Public Fund donors (\$200 plus)

The Friends would like to thank all who have given to the Public Fund of the Friends of the ANBG since the December 2016 issue of *Fronde*. Donors of \$200 or more to the Public Fund in that period are listed here:

W and M Bush
Garth and Margaret Mansfield
Professor Dorothy Broom
Isobel Crawford
N. Landau
Marlena Jeffery
Sally and Geoffrey White

James Kelly
Marjorie Lindenmayer
Jennifer Rowland
Colin Hauff
Annabel Wheeler
Joan Adler
Lesley Jackman and Marcel Dimo
Margaret Anderson
The family of Jean Cook (1915-2012), in her memory
Another 11 donors wish to remain anonymous.



What's new in the ANBG Image Collections?

The photos below are examples of slides donated to the Australian Plant Image Index (APII) by the late Ivan G. Holliday. These images were donated as transparencies and have recently been scanned. Ivan was a keen plant photographer and took many photos of street trees, which are a different style to images currently held in APII and hence add value to the collec-

tion. Ivan donated photographic slides of *Eucalypts*, *Melaleuca*, and some other taxa in addition to images of some of his botanical artworks. Ivan wrote several books on native plants, including *A Field Guide to Australian Trees*, and *A Gardener's Companion to Eucalypts*.

A brief biography of Ivan Holliday can be viewed on the ANBG website. Search the

website using: ANBG APII Ivan Holliday. All photos taken by Ivan Holliday that are available in APII can be viewed here: <https://www.anbg.gov.au/cgi-bin/photo?FORMAT=TABLE&BY%23020=1&400=IHOLLIDAY%25>

To search for other photos in the image collections use this link:

<https://www.anbg.gov.au/photo>

Cheryl Backhouse



Brachychiton acerifolius



Corymbia citriodora



Eucalyptus mannifera

Donation to the Friends Public Fund; Jean Cook 1915 – 2012

The family of the late Jean Cook (1915 – 2012) has made a generous donation to the Friends Public Fund, in her memory. As desired by the family, the donation will contribute to the construction of the Paperbark Treehouse.



Jean Cook at the ANBG

Jean was a founding member of the Friends. Over many years she was a regular visitor to the Gardens, roaming widely and chatting to staff and others (including the late Bernard Fennessy). She had a lifelong love and knowledge of Australian flora and birds.

As a child growing up on the edge of Hornsby Valley (Sydney) she and a friend roamed throughout the bush. At home, she had a platform in a tree in their hillside garden where she loved to read.

She passed on her love of the natural world to her children and grandchildren. Indeed, one small great grandchild called the ANBG "Grandma's garden", so often did they meet there.

Gardens Shorts

New gardens for summer

Look out for our new *Pomaderris* Garden and Research and Conservation Garden opening this summer. Both gardens will feature a range of significant rare and engaging species.

Living Collections staff have been busy with initial plantings over spring. Many of the plants are linked to Gardens' partnership conservation projects and boost both our threatened species and living collection holdings.

Carefully planned planting layouts and landscaping include sculptured surfaces for water harvesting. Accessible paths will allow visitors to get in close and personal to see the plants up close.



Pomaderris angustifolia

Welcoming visitors from China

With China recognised as Australia's fastest growing inbound tourism market and the establishment of direct flights between Canberra and Singapore, the Gardens is taking a number of steps to welcome visitors from China. In the coming months, we will be rolling out a few new



New ANBG Main Path sign

group tour packages specifically catering for Chinese visitors, including a Breakfast with the Birds tour and a Bushland Nature Walk tour. We have already developed our Visitor Guide and Map and you may soon see some new signage around the Gardens in Mandarin.

Working to save Australia's threatened trees

The Gardens' National Seed Bank (NSB) is now into its third year of collecting seeds to safeguard some of Australia's most threatened trees in Kakadu National Park. The effort is part of the Global Trees Campaign with Kew Gardens.

"Our field work to date has targeted 29 tree species in the Northern Territory for collection, out of 306 tree species threatened with extinction nationally," said Tom North, Manager of the NSB.

'This effort focusses on species new to conservation seed banking, in an area that has had minimal previous plant conservation focus.'

The seed bank conducted earlier field-work for the project collecting across Victoria River Downs and Gregory National Park in conjunction with George Brown Darwin Botanic Gardens, as well as in Kakadu National Park.

'The remoteness of some of the targeted species means that it's difficult to monitor whether there is actually seed available and ready to be collected at any given time. We



Tom collecting for Global Trees Campaign

rely on voucher specimens held in herbaria for researching the flowering and fruiting times to gauge the best time for collection trips.'

We have been well supported on collection trips by staff from George Brown Darwin Botanic Gardens, Kakadu National Park, ANBG Living Collections and the NSB Seedy Volunteers.

Help with Daisy family ID

The image below may not be what you think of when you think daisies. In Australia there are almost 1,000 native species – so it can be a bit of a challenge to tell them apart.

A new freely-available online identification key, published by Gardens and CSIRO researchers, Alexander Schmidt-Lebuhn and Kirsten Cowley, covers about 100 species of shrubby paper daisies that make up about 20 per cent of Australian paper daisies. For those who know their Latin, these are the large genera *Cassinia* and *Ozothamnus* and their smaller relatives.

They include some attractive ornamentals like *Ozothamnus diosmifolius*, Rice Flower, several rare and threatened species like Tasmanian *O. reflexifolius* (pictured here), and *Cassinia arcuata*, Sifton Bush, a species that is locally declared a noxious weed.

The key is available at <http://keys.lucidcentral.org/keys/v3/cassinia/>



Ozothamnus reflexifolius

Volunteer Guides: Australasian Botanic Gardens Volunteer Guides Conference

The ANBG guides welcomed colleagues from interstate and overseas to the Australasian Botanic Gardens Volunteer Guides Conference on Sunday 15 October for a stimulating and informative 5 day experience. There were guides from capital city Botanic Gardens and also from smaller regional gardens, New Zealand and Scotland.

The Conference promised mystery and magic in its theme: *Informed Guiding – discovering the mystery and magic of our gardens*. The mystery and magic began after registration and orientation walks on Sunday afternoon, with night walks in the Gardens.

Even the genuine 'rain' in the Rainforest caused by the sprinklers, contributed to a magical experience exploring the plants, wildlife and vistas all lit by the lights in the Rainforest and the Red Centre. Many guides were keen to see if night walks would be possible in their own gardens.

We were most fortunate to have Key Note addresses by Executive Director Judy West and Dr Helen Cleugh of the CSIRO on Monday morning which set the scene for a lively Panel session on 'Climate Change in the context of botanic gardens guiding.'

On both Monday afternoon and Thursday morning Canberra guides offered a wide range of newly created

themed tours in the ANBG which showed off our Gardens. Managing up to 15 groups around the Gardens at the same time and avoiding traffic jams was a challenge but everything went very smoothly.

A focus on guiding techniques in some of the National Institutions, as well as the use of digital media and science communication on Tuesday morning, was followed by visits to National Institutions where we saw the different approaches and challenges for guides.

Discovering the mystery and magic of our Gardens

On Wednesday the Conference broke into three groups to visit a range of gardens in Canberra and the surrounding area, including the Arboretum, Government House, Lanyon; a total of 11 gardens. At an early morning bird walk at the ANBG the tawny frogmouth and scarlet honeyeaters were a highlight.

The final plenary session on Thursday comprised presentations on guiding in our Gardens from guides at the Arboretum, Edinburgh Royal Botanic Gardens, Eurobodalla Regional Botanic Gardens and the ANBG.

A full day post Conference tour visited the Monaro High Plains, and three Nimmitabel gardens lovingly crafted

as lush oases in an otherwise dry, drought and frost-prone land.

Throughout the Conference we had glorious Spring weather and the comments received from participants from other Gardens during and after the Conference were overwhelmingly positive. Guides were enthusiastic about taking home the information, ideas and experiences from the Conference and using them to enhance guiding in their own Gardens.

"Thank you so much for the wonderful time we had here at Canberra, the beautiful welcoming and the fascinating program."

"Those of us staying at University House had some great conversations each evening about guiding and what we had seen and learned."

"You have certainly set the bar high and put us on our mettle for next time." (Guide from Kings Park, Perth where the next Conference will be held)

Our huge thanks to Conference Convenor, Glenys Bishop, and the hard working and talented team involved in the planning, organisation and management of the Conference.

Thanks also to our Conference sponsors, Capital Wines, Botanica World Discoveries and the Botanical Bookshop for their generosity and support.

Christianna Cobbold



Art walk lead by Jill More & Jan Finley



A guided tour at the at the NGA

Friends Briefs

Native Bees in the Gardens: 2016/17 Season

As this year's Spring blossom arrived in the Gardens, I was still analysing my native bee collection from the last summer season. The cool winter days proved to be an ideal time to hone my skills in bee taxonomy, and I set about the task of identifying as many of the bees as I was able, with a good deal of assistance and expert advice from Michael Batley from the Australian Museum in Sydney.

As expected, the Gardens proved to be a popular location for bees, with over 50 species of native bees and two species of non-native bees collected in the last summer season. The non-native species were the very familiar European honey bee (*Apis mellifera*) and the African carder bee (*Afranthidium repetitum*), which is gradually spreading throughout Australia. The native species found were mostly from the *Halictidae* and *Colletidae* families, as expected,

but some species from the *Apidae* and *Megachilidae* families were also present. Of these 50+ native species, I was able to identify 36 species, which highlights the subtlety of the morphological differences between some species. A number of the native bee genera are still not well characterized and further entomological research work will be required to clearly distinguish the various species within these genera. Our knowledge of native bee species is still far from complete and further new species are likely to be found. The remaining species in the collection could be identified only to the genus level, by me at least. Most native bee species do not have common names, but some names are applied at the genus level (see images).

Of the 36 species fully identified, it was interesting to note that 14 of these species had not been recorded previously in the ACT, according to the records in the Atlas of Living Australia (ALA). This was quite

exciting news for me and emphasised just how limited is our knowledge of the natural world around us. It also demonstrates the value that citizen science can make to our understanding of the environment.

You can also contribute – anyone with a camera can post a picture of a native bee (or other flora and fauna) found in the ACT on the Canberra Nature Map (canberra.naturemapr.org/) or on the Australia-wide Bowerbird site (bowerbird.org.au) where others can help with identification.

I am continuing to study native bees and their floral preferences in the Gardens this summer and will undoubtedly find more species, perhaps some that have not been recorded here previously. If you have any interesting information or photos, please share them with me.

Peter Abbott



Resin bee (*Megachile oblonga*) on *Melaleuca lanceolata*



Lasioglossum callomelittinum on *Grevillea corrugata*



Leioproctus amabilis on *Corymbia peltata*



Small Worlds: an exhibition of photographs of moss, lichen & Fungi

Brenda Runnegar
Visitor Centre, ANBG
10 January – 4 February 2018

New Discounts for Friends

If you need to buy some lovely Australian gifts and can't find them in the Botanical Bookshop, head to **Australian Choice** in the Canberra Centre where by showing your Friends membership card you will receive a 10% discount.

Popular plant outlet, **Cool Country Natives** in Pialligo, is now offering a 5% discount for Friends. Very useful for those summer plantings!

Wake up with the Birds 2017

Once again this year the Friends offered early morning bird walks over four week-ends in September and October. This is always a popular attraction to the ANBG with over 170 visitors participating.

Bird scouting began in early September and the keen eyes and ears of our birding leaders and their helpers started spotting nests and roosting sites. The regular birds all put in their reliable appearances.

Spotted pardalotes were very active in two burrows in the lower Myrtaceae section, often picking lerp from leaves within a metre of the guests. Close by the satin bower bird was regularly displaying in the bower or preening in the Eucalypts above.

A pair of tawny frogmouths have taken up residence in a large *Eucalyptus mannifera* above the Protaceae section. During the four weeks we watched as the nest was prepared and "Dad" doggedly sat on the nest during the day. Finally two chicks appeared and started testing out wings.

Among the other birds seen were golden whistlers, yellow robins, wood ducks with chicks on the cafe lawn, tree creepers, olive whistlers, red capped robins, eastern spinebills and, of course, red wattle birds, magpies and currawongs.

Many of us noticed a sudden increase of people with large cameras slowly patrolling the *Grevillea* section just off the mail path. Scarlet honeyeaters

had been spotted! An uncommon visitor to Canberra (more common north of Sydney).

For a few lucky ones a Little Eagle was spotted high over the gardens returning to Black Mountain. Later a pair of little eagles were seen which could indicate a nesting site nearby, but this has not been confirmed.

To top it off, in October we were able to offer early morning bird walks for the participants in the conference of the Volunteer Guides of Botanic Gardens.

I would like to thank all the leaders and helpers who made this such an enjoyable and successful event with over \$2,000 raised for Friends projects in the Gardens.

Andy Rawlinson



PAM COOKE

Male Scarlet Honeyeater



PAM COOKE

Andy leads! Early morning bird walk, Volunteer Guides of Botanic Gardens Conference



Always welcomes Friends!

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



LINDELL EMERTON

An Australian Owlet-nightjar (*Aegotheles cristatus*) known to be in residence here at the gardens since July this year. It is a fairly common species throughout Australia but is seldom seen as it will spend the daylight hours in a roost hollow normally out of view but occasionally coming to the hollow entrance to enjoy the sunshine. It is rare and quite a privilege to see them out of their hollow during the day.

Lindell Emerton

Summer Sounds 2018 - Volunteers Needed

Planning for the Summer Sounds 2018 – *Jazz in the Gardens* – is well underway. The 2018 concerts will be on two weekends: Saturday 27 and Sunday 28 January followed by Saturday 3 and Sunday 4 February. The success and the smooth running of the Concerts has been dependant on the small army of volunteers that have helped every year since their inception. Many, many thanks to you all.

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

A link to the online sign up is on the Friends' website under Summer Sounds 2018. If you have not been involved with Summer Concerts before, and would like further information, please contact: summerconcerts@friendsanbg.org.au

Letter to the editor:

From the Gardens to the Gardens via Black Mountain

As we approach the anniversary of the opening of the Gardens' Bushland Nature Walk (*Fronde* 85, April 2017), a reader suggests a larger walk leading on from the Nature Walk.

For decades the Gardens has signposted the walk to the summit of Black Mountain. The completion of its new Bushland Track now makes for a wonderful circular walk through the Gardens and around and up Black Mountain, linked by a number of footpads, fire trails and tracks. This walk, from the Visitor Centre and back to it, is about 5.6 km and involves a total height gain of about 200 m. At a leisurely 3 km an hour, the walk should take under two hours. Given the elevation gain and because the walk traverses the Gardens and the eastern, southern, western and northern aspects of Black Mountain, the vegetation and the views are extremely varied. The damp gullies on the eastern and southern parts of the walk are a delight, especially in the winter months, with fungi, lichens and mosses. Orchids, too, may be seen. I suggest doing this walk in a clockwise direction as it is easier to find the way.

Follow the signs from the Visitor Centre to the Bushland Track and follow it to the lookout, then continue on the narrow footpad where some care is needed. After about 640 m this footpad ends on a fire trail where you turn right, upwards, for about 300 m to the summit road. Before reaching the road you have to negotiate a fence at a locked gate. An obscured pedestrian access is available about 10 m to the right of the gate. Cross the road and, a little to your left, climb the track up the bank and follow the old, but still good, trail in front of you for about 240 m until you get to a carpark & picnic area. Walk to the top right hand corner of the carpark to join the eastern loop of the Forest Track, a good level track, which in 500 m intersects the summit track from the Gardens. Turn right down the summit track and continue, following the signs, until you reach the rear gate into the Gardens (locked after 4.30 pm). From there to the Visitor Centre is about another 1.25 km, depending on your route.

This is a lovely walk for all ages, as long as one is reasonably fit.

Barrie Ridgway



Black mountain woodland



Moss Spores, Black mountain



Wax lip orchid, *Glossidia major*.



Dewdrops on moss

Leaf Litter

2006, Rachel Tonkin, Paperback, 38 pages, Colour drawings, \$18.00

This book looks at the fascinating world hidden within a small patch of leaf litter beneath a single tree. Each page opens our eyes to the incredible array of life living beneath the twigs, leaves, bark, and plants. This beautifully illustrated book takes us on a journey of discovery through the seasons learning about the different plants and animals and their importance in helping with processes including decomposition, seed dispersal and soil fertility. Just to add to the fun, each page has 'things to find' as well as 'lift the flaps' revealing a sneak peek at the hidden world of animals' homes, intricate tunnels, the root structure of plants and other amazing things that are going on in the soil underneath the leaf litter.

Educational, beautifully presented and with an important message Leaf Litter provides a very special journey into the world beneath the trees. Rachel Tonkin has illustrated over 100 children's books and Leaf Litter is a shortlisted book by The Children's Book Council of Australia.



The Plant Hunters: The adventures of the world's greatest botanical explorers.

2017, Carolyn Fry, Hardback, 160 page, Coloured drawings and photographs, \$40.00

Have you ever wondered about the origin of the huge array of plants that we grow in our gardens, prepare for the dinner table, and use in our daily lives? Such plants are rarely native to our region however we take their accessibility and ubiquity for granted, unaware of the great debt we owe to the naturalists and explorers who travelled around the world in search of these then unusual plants, and brought back samples and seeds along with fantastic stories. Beautifully illustrated with more than 150 images and documents from the archives of the Royal Botanic Gardens Kew, author Carolyn Fry tells us how plants were moved across the world, how new discoveries helped to save lives and how, even today, hundreds of new species are still being discovered.

Loads of information can be found in this book including chapters on Sir Joseph Banks, plants from down under, the search for spices in the east, the role of the modern day botanic garden, seed stockpiling as well as an interesting chapter on Carl Linnaeus and the naming of plants.

The Plant Hunters is a great book to leave out on the coffee table and dip into when you have a few spare moments.



Rainforest Drawing, workshop with Canberra artist, Genevieve Swifte

Christmas Gift Vouchers and discounts for Friends of the ANBG

Saturday 27th & Sunday 28th of January

Saturday 3rd & Sunday 4th of February

Inspired by the flora, fauna, weather and light of the Gardens' temperate rainforest gully the workshop will draw upon Genevieve's PhD research and will incorporate alternative photographic processes and the amplification of trees and birdsong. Young artists from thirteen years of age, creative professionals, complete beginners and people with all levels of ability are welcome.

For more information or to enrol, please contact Genevieve directly at:

mail@genevieveswifte.com or on 0400856922.

Details: 10am to 3pm, \$220 full price, \$187 Friends of the ANBG

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

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

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.

Bush Magic Storytime

First Friday of month, 10 to 11am

\$5 per child

Follow the signs from the Café bridge
Enjoy stories and craft activities in the Gardens. Suitable for pre-schoolers.

December – Bush Christmas

February – Waterhole Stories

March – Dinosaurs

Bush Tucker afterDARK

Friday 1 Dec, Friday 5 Jan,

Friday 2 Feb 7pm; \$50

Enjoy a summer evening in the Gardens sampling native delights with a Bush Tucker afterDARK experience. Revel in the sights, sounds and smells of the Australian National Botanic Gardens' native flora by night. Bookings are essential as numbers are strictly limited. See ANBG website

Free Guided Walks

Daily at 11.00am and 2.00pm

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

Weeding Black Mountain

Removing Woody Weeds from Black Mountain and ANBG Annexes. 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.

Saturday 2 December 8.30 – 11.30am

Saturday 6 January 8.30 – 11.30am

Saturday 3 February 8.30 – 11.30am

Saturday 3 March 8.30 – 11.30am

Saturday 7 April 9.00 – 12.00

"Life in the Gardens" School Holiday Program

Tues Jan 16 – Thurs Jan 25 9.00am – 5.00pm \$70 per day

All-day programs of environmental, educational activities for primary school aged children. Discover and investigate the wonders of the natural world. Daily programs will vary, covering a range of topics including Plants, Creepy Crawlies, Bees, Snakes, Seeds, Life in the Water and more. Places strictly limited. Book via ANBG website

ANBG Kids Club

Last weekend of every month, starting February 2018

Weekend fun with environmental, educational activities for children aged 7-12. Become a club member to receive a membership pack of goodies and discounts on monthly club activities including building native bee hotels, dip netting for underwater creatures, spotlighting for beasts of the night, and more! Details coming soon on the ANBG website.

EXHIBITIONS

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

UP CLOSE

29 NOV 2017 – 6 JAN 2018

Larger than life paintings of Australian flora showing the complexities and exotic shapes of many flora not necessarily looked at 'up close'.

SMALL WORLDS, MOSSES, LICHENS & FUNGI

WED 10 JAN – SUN 4 FEB 2018

Brenda Runnegar highlights the beauty and complexity of these magnificent miniature 'other worldly' gardens with a series of framed colour photographs. (see p 18)

WAYFINDING ON BLACK MOUNTAIN

Thu 8 Feb – Sat 10 Mar 2018

A collection of drawings, prints and glasswork representing the observations and experiences of local artists in the form of wayfinders. The work will capture the form, texture and colour of flora of Black Mountain including two significant endangered communities.

BOTANIC ART EXHIBITION – THREATENED & ENDANGERED SPECIES

FRI 16 MAR – SUN 15 APR 2018

Australian native flora by members of the Friends of the ANBG Botanic Art Groups. (see p 11)

Rainforest Drawing,

A creative workshop with Canberra Artist Genevieve Swifte. Details p21.

Flora Explorer tours

Weekends & public holidays, 10.30am & 1.30pm. Purchase tickets from the bookshop. Tours cost \$6 for adults and \$3 for children and concessions. Children under 3 travel free.

45 minutes of discovery around the Gardens

Summer Sounds: Jazz in the Gardens

Concerts will be held over two weekends in 2018:

\$5 adults, \$2 Centrelink conc.
Child 12 yrs & under free.

As the sun goes down over the Gardens, enjoy live jazz music, great food and drink, socializing and dancing on the Eucalypt Lawn. The concerts commence 5.30 pm and conclude 7.30 pm

Saturday 27 January – *Annie and the Armadillos*

Sunday 28 January – *Laura Alice Ingram*

Saturday 3 February – *Gypsy Jazz Project*

Sunday 4 February – *Royal Military Band of Duntroon*

A variety of food vendors will offer tasty meals & drinks or bring your own. (see also p20)

Supported by Friends of the ANBG and Icon Water



Sunset Cinema

Wed to Sat from Thu 16 Nov – Sun 23 Dec 2017

Outdoor movie screenings in the serene surrounds of the Eucalypt Lawn. A range of movies to suit all ages. Gates open at 6.30pm. Screenings commence at last light, approx 8.30 pm. Admission prices vary. Bookings are essential, <https://www.sunsetcinema.com.au/canberra>

Thursday Talks: February to April 2018

Lunchtime talks are held at 12.30 pm every Thursday from February to November in the Gardens' Theatre. 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 Theatre seating is strictly limited to 90 people. So, do come early for a seat at a Thursday Talk.

Please direct queries relating to Thursday Talks to Doug Laing, email lilley@iimetro.com.au

FEBRUARY

Julian Cribb is the speaker for the first Thursday Talk for 2018.



He is an Australian author and science communicator. He is principal of Julian Cribb & Associates who provide specialist consultancy in the communication of science, agriculture, food, mining, energy and the environment. He is a fellow of the Australian Academy of Technological Science and Engineering (ATSE) and a member of the ANU Emeritus Faculty.

Thursday 1 February 12.30 pm

Julian Cribb, ATSE 'Surviving the 21st Century'

Julian will talk about his latest book *Surviving the 21st Century* which deals with the existential crisis facing humanity in our time - and what we can do about it.



ROSEMARY PURDIE

Immersed in the Larapinta

Thursday 8 February 12.30 pm

Dr Rosemary Purdie 'Immersed in the Larapinta'

Rosemary will talk about her Larapinta Trail walk – end to end - in July 2017, and the plants and stunning landscape en route.

Thursday 15 February 12.30 pm

Mathew Higgins 'What a high! Over three decades of exploring our mountain country'

Canberra historian, writer and photographer, Matthew will talk about places that have inspired his publications and award-winning work. He will be happy to sign your copies of his books.

Thursday 22 February 12.30 pm

Dr Chris Carter 'Where the rivers run: The prehistory of south-west New South Wales'

This talk will profile key evidence that has come from Lake Mungo and its immediate vicinity and will also introduce a broader perspective on Aboriginal occupation and the natural environment that supported it.

MARCH

Thursday 1 March 12.30pm

Chris Davey & Richard Thackway
'Phillip Island (South Pacific)
- Recovery from an ecological disaster'

Richard, a research scientist, will outline land management regimes that continue to transform the vegetation condition on the island, whilst Chris will discuss the response of avifauna to vegetation on Phillip Island.

Thursday 8 March 12.30pm

Dr Ben Wallace 'Yunnan, land of plant plenty'

With his lifetime fascination in plants Ben will discuss the floristic diversity of the province of Yunnan in China, and contributing ecological and geographic factors.

Thursday 15 March 12.30 pm

Catherine Ross 'Bettongs, bulbs and biodiversity'

Digging mammals such as bettongs, bandicoots and bilbies have been described as ecosystem engineers, and Catherine will ask whether the return of an ecosystem engineer helps to restore biodiversity in grassy woodlands?

Thursday 22 March 12.30 pm

Dr Mike Bourke OL (PNG) 'The role of staple food crops in food security in Papua New Guinea'

The talk will briefly cover population distribution and food consumption and then more comprehensively many aspects of food security in PNG.

Thursday 29 March 12.30 pm

Honorary Professor George Wilson
'Can vulnerable animals find new homes on private land?'

George will discuss aspects of price incentives, proprietorship and devolved responsibility for management accompanied by effective regulation, to increase wildlife and protected habitats.

APRIL

Thursday 5 April 12.30 pm

Lynne Bean 'What is to be found in the Talbragar Fossil Fish Bed?'

Lynne will talk on the fossil fish and plants from the Talbragar Fossil Fish Bed, NSW, which date from the Upper Jurassic, she will also briefly mention insects.

Thursday 12 April 12.30 pm

Phil Palmer, South East Regional Manager and Manager of Scottsdale for Bush Heritage Australia; please check the Friends website closer to the date for further details about his talk.

Thursday 19 April 12.30 pm

Dr Leo Joseph 'News from the Front: An update on bird research at the Australian National Wildlife Collection (ANWC) and around the world'

This talk will be about thorny taxonomic problems in our birds, such as the Chestnut Quail-thrush, White-eared Honeyeater, and natural selection starring the Eastern Yellow Robin.

Thursday 26 April 12.30 pm

Dr John Bradshaw 'Rocks, climate change and trees'

John will assemble an eclectic mix of his recent adventures, including working on technical climate change solutions associated with his profession as a geologist, mixed with his passion for the natural environment, native plants and trees.



Mike Bourke taking notes, Honinabi Village, Western Province, PNG. (Thursday Talk: 22 March)

FRIENDS BENEFITS

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You also get:

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:

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Plant Science Group
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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.

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