

Fronds

Friends of the Australian National Botanic Gardens
Number 98 August 2021





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Email or post material to the *Fronds* Committee at the above address 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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HELEN DAWES



Two paintings from the Botanical Art Groups' exhibition were purchased by the Friends for the Gardens' collection: *Arid* by Marjorie Roche and *Wahlenbergia Species* by Susan Spiller. From left: Marjorie Roche, Neville Page, Judy West and Susan Spiller

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Cover: New Holland Honeyeater on *Banksia aemula*, photo by Pam Rooney
Be enchanted by the birds on an early morning bird watching walk through the Gardens, *Wake Up with the Birds*: Information on page 4.

Northern Precinct Development – New National Seed Bank and Horticulture Centre

Peter Byron, General Manager ANBG

The National Seed Bank is home to a large and ever-increasing collection of Australian native seeds. By collecting, storing, supplying and researching seed, the National Seed Bank team is protecting Australia's unique flora for future generations. The Gardens recently unveiled the designs for a \$7.2 million state-of-the-art National Seed Bank facility that will be developed along with a Horticulture Centre in the site's Northern Precinct.

The ANBG has a key conservation role to provide long-term storage of rare and threatened Australian species through its seed banking activities. An important part of that role is the research conducted to enable germination of stored seeds, so they can be used for species recovery, or to understand how species might perform in future or in stressful environments. Future plant conservation will require research to enable long-term storage of the threatened plants that cannot be stored using conventional seed banking methods,

for example ferns. The ANBG's developing knowledge of Australian plant conservation, native seed germination and ecology has enabled conservation of threatened flora and gained national and international reputation for scientific and horticultural research.

The ANBG National Seed Bank is home to a large and ever-increasing collection of Australian native seeds with a history of collections dating back to the early 1960s. The existing seed bank holds more than 7,700 seed collections from almost 4,000 plant species - 140 of which are threatened species. Not only is the National Seed Bank vital for conservation, it is an integral part of the ANBG collections. It supports the living collections and nursery with seed for propagation of new and replacement native species for display and safeguarding Australian native plants.

On 13 May 2021, the Honorable Sussan Ley MP, Minister for the Environment, announced the designs for the new National Seed Bank. The new facility will enable the ANBG to continue to demonstrate leadership in contemporary plant conservation, horticulture and research as we work towards the conservation of Australia's plant species. The National Seed Bank will be located in the Northern Precinct of the ANBG.

The new National Seed Bank features an extensive seed bank freezer or 'vault' and a state-of-the-art laboratory to enhance the research capacities, and conservation programs delivered by the Gardens.

The new National Seed Bank will provide:

- Almost quadruple the long-term storage space for rare and threatened Australian plant species, providing a safety net against extinction.



Design concept for the new National Seed Bank



National Seed Bank laboratory design layout developed by Canberra-based Guida Mosely Brown Architects

New National Seed Bank and Horticulture Centre (contd.)

- Increased capacity and capability for seed research through purpose-built laboratories that will accommodate the current technology applied in the field.
- Continued supply of seed for propagation, recovery and rehabilitation of rare species and plant communities.

The funding to construct the new National Seed Bank from the Australian Government has been supplemented by several generous donations. In addition, the National Parks Conservation Trust conducted the *Seed the Future* campaign to help purchase specialist equipment for the new National Seed Bank, support scientific research to uncover nature's secrets on how to bank, germinate and grow species to enable rewilding and enable the ANBG to give back to volunteers through enhanced learning and development opportunities.

The ANBG contracted award-winning Canberra architects Guida Moseley Brown Architects (GMB) to design the new National Seed Bank. GMB has evolved over the past 40 years from Mitchell/Giurgola & Thorp Architects

(MGT), which undertook the design and documentation of the Parliament of Australia from 1980 to 1988. GMB has significant experience in designing laboratories and scientific facilities.

New Horticulture Centre

Co-located with the new National Seed Bank is another key development – the Horticultural Centre. This facility will provide office accommodation for Horticulture and Seed Bank staff, workshops, equipment sheds and storage areas. The development of the Horticulture Centre will enable the future development of the current space occupied by the Depot and current Seed Bank into an event amphitheatre as proposed in the ANBG Master Plan.

The funding for the new Horticulture Centre was announced by the Australian Government in 2020 as part of \$233 million funding package to Commonwealth national parks of which \$13.7 million was set aside for infrastructure upgrades and renewal at the ANBG.

The construction of the Horticulture Centre is planned to occur concurrently with the new National Seed Bank in 2022.

Friends Briefs

Wake Up With the Birds

7.45 am on the weekends of
25 September to 10 October.

Bookings essential

We were unable to hold these walks last year due to COVID but are planning to start them again with small groups, socially distanced this spring. Of course they may be cancelled if we have a resurgence close to the event but fingers crossed we will be in the Gardens in the early morning again.

The ANBG provides a fantastic habitat for many of Canberra's birds, with water and nectar in abundance. During Floriade join us for a 90 minute guided walk to see many of the Gardens' amazing birds. Following the bird walk you are welcome to stay on for coffee, tea or breakfast at Pollen – the Gardens Café (bookings at: www.pollencafe.com.au).

Spring is a great time to observe the feeding and nesting behaviour of our birds and their young.

Find out how to identify our most common black birds, for example, magpies, currawongs, ravens, choughs and magpie larks; be introduced to cockatoos, parrots and honeyeaters; learn some tips on distinguishing between all those small brown birds; and discover the habitats where birds are most commonly encountered in the Gardens. The Tawny Frogmouths have already been seen in their favourite eucalypt trees and New Holland honeyeaters have been collecting nesting material from the *Banksia baueri* in the new Banksia garden.

Meet at the Visitor Centre at 7.45a.m. Please wear comfortable footwear and warm clothes. Please bring your own binoculars if you have them.

Cost: \$15 for Friends of the ANBG, and \$20 for others. (Not suitable for children under 8 years old.)

Bookings essential: see Friends website www.friendsanbg.org.au and use the link to the booking site. Enquiries: email birds@friendsanbg.org.au or telephone 0410 577 677



Costa Georgiadis launches the *Seed the Future* campaign

New Friends group: Nature Journaling at the Gardens

At its meeting on 10 June 2021, the Friends Council resolved to establish a **Nature Journaling and Field Sketching Group** for the benefit of interested members. This is a welcome initiative and very much in line with what people are doing here and overseas. For over 25 years I have been walking in the bush with my friends, in the Canberra region and more widely around Australia and overseas. Over that time I have made many drawings, some of which have been published and others which I keep for myself and family. Nature Journaling is about observation of whatever you see in nature, whether it be plants, birds, landscapes, people, insects or animals. To sit quietly and contemplate the

world around you then record one's reflections, is a very peaceful activity. It does not have to be a masterpiece. Creating a record of what we see goes back to ancient times. Australian aborigines recorded the hunt or whatever interested them. Explorers used journals to remember what they saw through writing and drawing, for example Charles Darwin. The ANBG makes an ideal setting for such activity. The new Friends Group will meet once a month on the first Monday of each month, with each meeting in a different part of the Gardens. If you are interested in participating, please contact me on lespage26@gmail.com

Lesley Page, Co-ordinator



Schools Photographic Competition: explore the Gardens with your camera

Camera Ready Action

This year, the Friends of the ANBG are reviving their *Annual Schools Photographic Competition* after a lull in 2020 due to COVID-19. Last year, there was a special exhibition instead, highlighting winners from the previous 23 years.

Getting to know the Gardens' hidden gems early means you have plenty of time to get that special photograph that may win you prizes. There are cash prizes for both monochrome and coloured photographs taken by primary, secondary and college students. High school and college students may also enter altered reality images. **There is also an opportunity for your work to feature in a dedicated exhibition.**

To be eligible, all photos must feature some aspect of the Gardens, such as its plants, wildlife, scenery or its community. Entries may be submitted individually or through the student's school or college, but must be taken in the ANBG. **The closing date is 24 September 2021 to allow time for judging by the Friends Photographic Group.** An exhibition of the best photographs will be held from 4-21 November in the Visitor Centre.

For entry forms, and more information, see the Friends website Home page, under Latest News (www.friendsanbg.org.au). Or email schoolphoto@friendsanbg.org.au for further information.

Targeting threatened species in the ANBG nursery

Kathryn Scobie & Joe McAuliffe

Conservation projects make up a significant amount of the work undertaken by the Living Collections team at the ANBG. Both in the nursery and out in the Gardens you will find evidence of a large body of work dedicated to conserving Australia's threatened flora. Visitors can see much of this work in one location at the Conservation and Research Garden, and on display along the main concourse near the Visitor Centre.

Behind the scenes, nursery staff are actively engaged in propagating, growing and maintaining an ever-changing and vital collection of at-risk species. The focus of this conservation work can vary greatly, from growing plants for genetic research or scientific testing to seed orcharding, translocation projects, revegetation and *ex-situ* collection development and management.

The most local conservation project involves *Muehlenbeckia tuggeranong*. While reasonably easy to propagate and incredibly hardy in cultivation, this endangered species has been experiencing significant decline in its wild population in Tuggeranong, ACT. The ANBG nursery holdings have been a necessary *ex-situ* back-up of the local

population and propagation efforts have recently been renewed in order to boost the declining numbers and diversity in the wild. Our strong collection protocols and collection management practices for threatened species ensured that we have collected and continue to hold a valuable genetic representation of the species. In partnership with the Centre for Australian National Biodiversity Research (CANBR) and the ACT Government, the ANBG nursery is proud to play a key role in this important, local conservation effort.

Over the last eighteen months, the nursery has propagated and grown a conservation collection of the alpine form of *Epacris microphylla*. Collected from Kosciuszko National Park in an effort to preserve the species from the disturbance of upgrades to the Main Track, the alpine form of this generally common species is of current interest to taxonomists. Together with the NSW Department of Planning, Industry & Development (DPIE), nursery staff were involved in the initial fieldwork to collect cuttings as well as propagating and growing a few hundred plants for translocation. The unexpectedly high success rate of propagation has resulted in one batch of plants already hardening

off somewhere within the Kosciuszko National Park. The remaining batch are enjoying the protection of the nursery poly-tunnels for a few more months before being planted back into the critically endangered ecological community of the Windswept Feldmark.

One of the more unique conservation projects the ANBG nursery has contributed to in recent years is a *Save Our Species* project that focuses on a bird, rather than a plant – the Scarlet Robin. With the goal of building habitat corridors for the Scarlet Robin across a vast landscape, the ANBG was instrumental in leading the selection of plant species for the project and working with DPIE, Local Land Services (LLS) and other partners to inform and educate local community



Male Scarlet Robin, ACT

PAM ROONEY



Nursery horticulturist, Carol Dale with one of ACT's and ANBG's most threatened plant species, *Muehlenbeckia tuggeranong*



An inspection of the root system of *Epacris microphylla* prior to translocation release

groups about the project. Unable to resist the opportunity to revive two birds with one stone, we championed the use of threatened plant species within the planted corridors. As part of the project, we grew a mix of around 1250 plants made up of the vulnerable and threatened species *Eucalyptus pulverulenta*, *E. aggregata*, *Bossiaea bombayensis*, *Dodonaea procumbens* and *Swainsona recta*. This project has been ongoing with several plants still in production. The nursery has had the opportunity to learn a great deal about the cultivation of some of these species and we have been privileged to participate in some of the planting days. Our staff take great satisfaction from contributing to ecological restoration in this way.

For the ancient *Lomatia tasmanica*, with its single genetic clone and single known wild location in the south west of Tasmania, our long-term conservation goal is to learn more about the species and hold and preserve a robust *ex-situ* collection. Under significant threat from being wiped out by bushfire or *Phytophthora cinnamomi*, solid *ex-situ* collections can potentially save this species from extinction. However, as with many worthwhile endeavours, the road has

not been easy. It is slow to grow and initially difficult to propagate, and nursery staff have been on a steep learning curve over several years with this particular species. Collaboration with the team at the Royal Tasmanian Botanical Gardens has helped with insights into preferred growing conditions and propagation environments and the ANBG collection is now building in numbers each year. With each new plant added to the collection we feel an added sense of security that we have a good insurance policy for the species here at the ANBG. Our short-term goals are to flower the plants for the first time and to continue our efforts to graft them successfully. In addition, the Gardens team plans to trial a plant in a high-profile location soon, so that we can better share this conservation story with the public.

The nursery also continues to work on the critically endangered *Eucalyptus recurva* and the endangered *Swainsona recta* amongst others. While these projects are a mere selection of the conservation work in progress at the ANBG, they represent the scope of such projects as we continue to strive for excellent conservation outcomes for Australia's threatened flora.



Seedlings of *Swainsona recta* destined for translocation.



One of several stock plants of *Lomatia tasmanica* growing in the ANBG Nursery

Telling the Time by the Sun: An Enlightening Afternoon

Friday 8 October 2021, 1.30 pm

Many gardens large and small feature a sundial. Canberra is fortunate to have a number of publicly accessible sundials; several of them devised by the Adelaide based physicists Marg Folkard and John Ward of *Sundials Australia*.

On Friday 8 October we have an opportunity to hear Marg talk about the history and science of sundials, as well as the exacting art of creating them. She will focus in particular on two sundials – the armillary sphere in the ANBG and the analemmatic or human sundial at Mt Stromlo.

This event, organised jointly by the Friends of the ANBG and the Australian Garden History Society, was to have been held in 2020 as part of the Friends 30th Anniversary celebrations. It celebrates the 20th anniversary of the gift of the sundial to the ANBG by the Friends. **An Enlightening Afternoon** will start in the ANBG theatre, and continue with a walk to the sundial near the rockery in the ANBG. Flora Explorer will be available for participants with limited mobility. After afternoon tea at the Gardens, we will drive in our own cars to the sundial at Mt Stromlo Observatory and tell the time by our own shadows in the late afternoon light.

Time and Venue: Start at 1.30 pm in the ANBG Theatre, and finish at about 5.15 pm at the Mt Stromlo Observatory. This is a self-drive event.

Cost: Tickets \$25 including afternoon tea (plus booking fee).

Bookings: Follow the link on the Friends website. Bookings **open on Friday 6 August 2021**. Bookings are essential.

Preferential bookings for Friends of the ANBG and AGHS members: 6 to 21 August. General bookings: from 22 August.

Enquiries: events@friendsanbg.org.au, or phone Christianna on 0410 577 677.

Friendly Chatter

Growing Friends

Growing Friends are delighted to be one step closer to their goal of restoring biannual plant sales to the public. An event was held in April with sales limited to ANBG staff and Friends. Plant stock was sold by booking a time slot. Attendees were then allowed access to the Growing Friends' shade

area to choose their plants. Information was available from Growing Friends' members present in the igloo at the time of the sale. "Watch this space" for future sales hopefully open to the general public, perhaps even later this year. Monthly cutting sessions are now in full swing, and the igloo cutting bed is full of new cuttings destined to be potted-

on and put into the shade area to grow to more mature plants before being offered for sale. Some larger, older plants will also be included in future sales.

The igloo, which took a huge hit when severely damaged in the Canberra hailstorm in January 2020, has finally been restored. Many cuttings on the cutting bed suffered a short setback as the igloo was uncovered during its roof replacement. They have, however, recovered with minimal losses and the roof installation has been completed in time to protect the cuttings from sub-zero winter temperatures.

Following Reconciliation Week, the June Growing Friends' cutting sessions featured edible plants, most of which have traditionally been used by Indigenous Australian peoples for culinary, medicinal and herbal uses. Fruits from these plants can be eaten and herbs used for cooking purposes. Last year *Ad Crescentum Native Gin* was made for the celebrations of the Gardens' 50th anniversary. A new gin will be produced for the next 3 years, each featuring different herbs and plants from the Gardens. Growing Friends hope to produce cuttings from some of these plants and these will ultimately be in our sales to the public.

The last few months has seen many new members to the Growing Friends and is giving a new enthusiasm to the group following "2020", a difficult year. We extend to them all a hearty welcome.

This year, work of the group received a special recognition. The Australian Association of Friends of Botanic Gardens annually recognises an individual group for their exceptional contribution to a Botanic Garden, Park or Arboretum, through awarding the Handbury Award. This year our Growing Friends group has been honoured by being awarded the group award for "Exceptional contribution of a member organisation to its Botanic Garden...". The award is named in honour of the late Geoff Handbury



Anne Campbell receiving the Handbury Award on behalf of Growing Friends ANBG at the recent AGM of the Australian Association of Friends of Botanic Gardens held at the Waite Institute on 12 April 2021. Presented by Penny Fowler, Deputy Chairperson, Royal Botanic Gardens, Victoria, a niece of Dr Geoffrey Handbury, a generous benefactor to the Association.



Growing Friends' recently restored igloo

AO, an influential entrepreneur and philanthropist in regional Victoria. Not only is this very exciting news for the group as a whole, it is also a unique opportunity to recognise and thank those long-term members who have made a tremendous contribution to the Growing Friends over a long period. Their collective memory, often including their participation in events in other botanical gardens across multiple Australian states, has added to the technical skills of our own Growing Friends group as a whole. New members are always welcome. More experienced Growing Friends are most happy to help new members with answers and solutions to plant propagation. Talk to one of the Growing Friends today.

For more information, please email growingfriends@friendsanbg.org.au

Donna Growcock

Photographic Group

The Photographic Group has been busy since it recommenced in February. Informative presentations have been held in the Theatrette with COVID distancing policies implemented.

In May we held two outdoor events. Mid May, our convenor, Rhonda Daniell, arranged with Megan Donaldson to have the Gardens illuminated for photographers to explore them at dusk and into the evening. Activity of



GRAHAM GALL

Thorny Devil and Telstra Tower at night,

the birds was observed by some, with most concentrating on capturing images of the evening lighting in the gardens. It was perfect. Later in May, the group visited Bendora Arboretum and under the tuition of Graham Gall, a member of the Photographic Group, were able to capture beautiful and creative images. Outdoor activities are a special part of our Group's agenda.

Our annual exhibition *Recovery* will be held from 25 November to 12 December in the Visitor Centre.

This year the exhibition will incorporate awards and will be open to all members of the Friends. More details are available on page 10 of this issue of *Fronds* and updates will be available on the Photographic Group section of the Friends' website.

The group meets either in the Theatrette or at a designated location on the last Friday of the month at 10am. This year we have been meeting at the Pollen café at 9.30 for coffee prior to the meeting. To join the group either pick up a flyer from the Visitor Centre or send an email to photo@friendsanbg.org.au

More information about our group is available on the Friends website under the heading 'Get Involved'. Once you join, a monthly newsletter will be sent to you with news about the group.

Helen Dawes

Botanic Art Groups

Our 14th exhibition *From the Desert to the Sea* in April, proved to be an outstanding success with over 70 per cent of works sold. With commissions, raffle and sales of the book *Not Just A Pretty Plant*, over \$4,000 was raised for the Friends. Two beautiful paintings from the exhibition, *Arid* by Marjorie Roche and *Wahlenbergia Species* by Susan Spiller were purchased by the Friends for the Gardens' collection. Some members have also been invited to exhibit work in the Botanical Art Society of Australia's exhibition *Flora, the Art and Science of the Plant* to be

held at the Fitters' Workshop in the Kingston Art Precinct from Wednesday 29 September to Sunday 10 October, 10am to 4pm.

We are pleased to welcome a number of new members to the Botanic Art Groups who were inspired by the works in the exhibition. The Group has three meetings each month with members able to attend one or several sessions as time permits. One of these meetings is on a Saturday. Members must belong to the Friends but there is no charge to join our Group. Simply email botanicart@friendsanbg.org.au to contact the Membership Secretary.

For each meeting horticulturalists select cuttings from the Gardens for members to paint and draw. There is no formal



Arid by Marjorie Roche



Wahlenbergia Species by Susan Spiller

teaching but meetings are friendly and collaborative. Meetings are held in the newly refurbished Banksia Centre. From time to time we hold workshops and in October this year renowned botanical artist Leonie Norton will conduct a 2 day workshop for members. If you have ever thought you would like to try botanical art, come along and join us.

Kate Ramsey

Volunteer Guides

Any recent visitor would have observed the Gardens being transformed by construction work. But there are still vast areas of plantings that are unaffected, and Guides have been designing new routes to reach and link up some of the lesser known areas, bypassing noisy spots. Guided walks can still involve plunging into rainforest, discovering the damp ambience of casuarina groves, the fine display of carpark trees and seeking sun in the Banksia Garden – potentially all in the same walk. Flora Explorer tours already have a route which takes them to the borderlands of the Gardens and so avoid some of the diggings.

Guides have also embarked on regular themed walks for one week during most months. After the success of our

Eucalypt tours in March and Tree tours in May, Guides have designed walks focussed on themes reflecting what is currently happening at the Gardens. During June we offered walks on the theme of *Off the Beaten Track* which involved traversing some minor dirt pathways to link up out-of-the-way spots, including areas dedicated to conserving vulnerable and endangered native plants.

During July, attention focussed on megafauna, and guides took the opportunity to illustrate the vegetation as it was in the ages of dinosaurs and megafauna and how it has changed over time. The walks highlighted examples of ancient plants eaten by ancient animals - dinosaurs of the Jurassic and megafauna of the Pleistocene up to the near past: *What animal did eat these plants? How do we know?*

In August we are striking a rather more aesthetic note, with *Colour in Winter* walks showcasing the beautiful flowers that add colour and interest to Australian landscapes at this time of year. We then celebrate Wattle Day and Acacia week during September.


These themed walks are likely to be of particular interest for regular ANBG visitors and members of Friends, as the

walks provide a more specialised focus and showcase specific areas.

Volunteer guided walks are free and bookings are not required. They start at 11am near the clock.

Due to popular demand, the themed walks (also free) are held twice a day during the specified dates (see *What's On*, page 21)). Flora Explorer runs on weekends at 11.30: There is a small cost and you book at the bookshop.

Lesley King



Botanical Bookshop

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
more information on our Facebook page at 'Botanical Bookshop'

Recovery: 2021 Photographic Competition & Exhibition

The Photographic Group is this year including a competition with the 2021 annual exhibition. There will be significant prize money and the competition is open to all Friends.

This 2021 annual photographic exhibition is entitled *Recovery*. The goals of the exhibition and the awards are to support and raise awareness of the aims and values of the ANBG and showcase the Gardens' wide-ranging diversity of flora and fauna.

Friends are invited to submit their best photographs of native plants and wildlife according to four award categories. Entries for categories 1, 2 and 3 must be taken in the Gardens.

1. *Plant Portrait* - a single or group of the same genus or species.
2. *Wildlife* - a photograph of wildlife in the Gardens.
3. *Banksia* - a photograph of a single or group of Banksia plants in recognition of Joseph Banks' visit to Australia and the new Banksia Garden.
4. *Vulnerable or Endangered Plants* - a photograph of any Australian vulnerable or endangered plant. Photographs in this category can be taken either in the ANBG or elsewhere but must include their location and plant identification.

Closing date for entries: 4 October 2021.

Please check Friends' website for further details

or contact Jim Gould at js.gould@bigpond.com See also *What's On*, page 22 of this issue.

President's Report

The National Parks Conservation Trust has been ramping up its activities of late. In May 2021 it launched a fundraising drive to purchase specialised equipment for the new National Seed Bank building, a major new project for the Gardens. The fundraising was launched by Costa Georgiadis, best known as host of the ABC's *Gardening Australia* television program, hence the attached photo of me and Costa. Costa spoke passionately about the need to enhance the collection of seeds, particularly those of critically endangered species. He was also full of praise for the work of the Friends. The Trust has also been actively promoting its *Everlasting Circle* program, which facilitates ways for individuals to make a bequest to the ANBG. The Friends Council supports this initiative.

Membership of the Friends continues to grow. This is in contrast to many Friends groups that are experiencing a decline in membership. We now have more than 2,000 memberships comprising almost 3,000 members, taking into account joint memberships. We held a successful morning tea welcome to new members in March 2021, and a similar event is planned for August.

The recent exhibition staged by the Botanic Art Groups was a great success, both in terms of number of visitors and the number of paintings sold. The Friends benefit financially from the art exhibition by receipt of a commission on art works sold. As is customary each year, a painting - this year two paintings - were purchased by the Friends and presented to the Gardens as a gift. The two paintings selected, *Wahlenbergia species* by Susan Spiller and *Arid* by Marjorie Roche were presented to Judy West at the Thursday Talks event on 3 June 2021. The Australian Association of Friends of Botanic Gardens (AAFBG) makes periodic awards for excellence, known as the Handbury Awards, in honour of Geoff Handbury, a major benefactor of

the Association. There are two categories of award: the first is for individuals, and the second is for member organisations. This year the Growing Friends of ANBG were successful in receiving a Handbury Award in the second category. Congratulations to Maurice Hermann and to all members of the Growing Friends for this significant achievement.

Preparations are well under way for the AAFBG National Conference which will be hosted by the Eurobodalla Botanic Gardens from 29 April to 1 May, 2022 - dates to put in your diaries. The theme of the Conference is *Thriving Together – Resilience and Renewal in a Changing World*.

Members will have noticed that significant construction work is currently under way at the Gardens. Construction has commenced on the new Conservatory, and work is well under way on the East Core Precinct Redevelopment Project (below the cafe). At its meeting on 10 June 2021, Council resolved to donate \$235,000 to the East Core Project. This is a major commitment for the Friends. The area under development will be called the Friends Lawn. On the same day, the Friends of ANBG Public Fund Management Committee held a meeting at which they resolved to donate \$30,000 to the East Core Project for landscaping works which will enhance the living collection of native plants and provide habitat for wildlife. The Public Fund Management Committee also resolved to donate \$20,000 to the National Seed Bank for specialised equipment.

The *Flowers Fruit and Foliage* walk and brochure, compiled by Ros and Ben Walcott continue to attract much attention from visitors to the Gardens.

We are now producing a regular video recording of the various plants featured each fortnight. A link to the video is provided on the Friends website as part of the *Flowers Fruit and Foliage* brochure notice.

Friends Council has established a new special interest group: the *Nature Journaling and Field Sketching Group*. They will meet monthly on the first Monday of each month, each time at a different location within the Gardens. Details of this Group is provided on page 5 of this issue.

Two forthcoming activities are worthy of note, and perhaps a listing in your diary. Three weekends will be devoted to *Wake Up With the Birds*, between Saturday 25 September and Sunday 10 October. Further details are available on page 4 of this issue of *FronDS*. Bookings are necessary for this very popular activity. The other activity, in October, is *Telling the Time by the Sun*. This is a joint event planned with the Australian Garden History Society, ACT branch (AGHS). It was one of the events that was postponed from our 30th Anniversary Celebration in 2020 (see page 7 for details).

Best wishes going forward to everyone.

Neville Page



President, Neville Page, and Costa Georgiadis, May 2021

The ANBG: a natural functioning ecosystem as exemplified by its insect fauna.

Roger Farrow

An ecosystem is defined as a biological community of interacting organisms in their physical environment. At its core is its biodiversity and the interaction of the component organisms that sustain life on earth. A functioning ecosystem is one in which the activities of the plant producers and animal and fungi consumers and decomposers are in equilibrium through the cycling of energy and nutrients. These activities are also known as ecosystem services. There is a consensus that loss of biodiversity leads to lower productivity and ecosys-

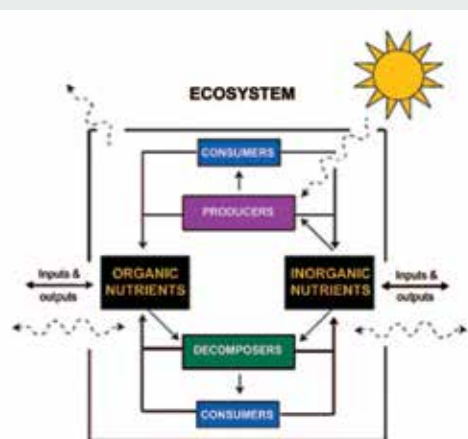
tem stability. A worldwide trend has been the loss of natural ecosystems to agroecosystems with their high inputs of energy and nutrients and extremely low biodiversity. This is why places like the Australian National Botanic Gardens and the surrounding Nature Reserve are of such importance for the conservation of biodiversity. Such ecosystems contain a complex array of plants and animals from the largest vertebrates to the smallest bacteria and the insects form just one component in this array.

Botanic Gardens

In Australia, most historic botanic gardens have focussed on displays of introduced plants, often with wide expanses of lawn, which do not support native insects and other wildlife that have evolved to feed on native plants and on themselves. Most such gardens were established in city centres and are often isolated from areas of native vegetation that sustain a high diversity of native plants and animals. This isolation has increased over time through urban sprawl and the loss of natural habitat in surrounding areas, as agroecosystems

have replaced natural ones. The Gardens are unique in that they were established in an area of dry sclerophyll forest and grassy box woodland and feature only native plants. Many original native trees survive among the formal beds that are surrounded on three sides by native forest that has a rich flora and fauna. This area merges with the Black Mountain Nature Reserve that contains the same plant associations and would qualify as a natural functioning forest ecosystem. The insect fauna of this area has been well studied by staff of CSIRO and ANU and this continues through citizen science and the uploading of records on Canberra Nature Map and other databases. These confirm the area as one of high biodiversity.

Although most plant species are grouped in beds by family, there are



Reprinted from *Issues in Ecology* #4 1999



This picture illustrates the botanic diversity and also the structural diversity in the Gardens



TIM LEACH

An alderfly, *Archichauliodes guttiferus*, whose predatory larvae live in running water. It is uncertain how this insect reached this habitat in the Gardens as the adults are very weak fliers.



A predatory burrowing wasp, *Bembix* sp taking advantage of the red sands in the desert garden to construct its nesting tunnel. Their numbers have greatly increased in the Gardens since the desert garden was constructed.

additional areas devoted to plant associations, including those of the Sydney sandstone, rainforests and central desert plus water features that provide distinct habitats for many insect species.

The significance of the urban isolation of many botanic gardens has to be tempered against the dispersal abilities of many insects. Dispersal is a fundamental attribute of the insect life cycle. Most winged insects disperse on emergence whereas others disperse as small larvae on gossamer threads. The dispersal range may be extensive and constitutes a migration often downwind or on a compass bearing as witnessed by the arrival of bush flies and caper white butterflies in spring, among others.

Ecosystem services

Producers: the plants

The dry and relatively mild microclimate of Black Mountain enables a wide range of native plants to be

grown from throughout the continent that are hosts for suites of native insects depending on their host plant preferences. The taxonomic arrangement of garden beds by plant family also affects the location of host plant specific insects across the garden. For example, the bottlebrush sawfly is associated with the *Callistemon* species growing in the Proteaceae section, whereas the larvae of the Imperial Jezebel butterfly feed on the scattered, naturally growing mistletoes, *Amyema* sp.

Consumers: the herbivores

Insects are the most obvious and diverse group of herbivores in the Gardens. They feed as adults and larvae on the leaves, flowers, stems, trunks and roots of trees, shrubs and forbs and on grasses, mosses, lichens and fungi. Most are specific to one genus of host plant, such as the eucalypt leaf beetles that feed on the leaves of a range of eucalypt species (but not other Myrtaceae). Others are

confined to a single species of host plant, such as the scribbly gum moth, *Omograptis scribula*, that only feeds on the cambium of the local scribbly gum, *Eucalyptus rossii*. Very few native insects are genuinely polyphagous, feeding on a variety of plants from different families, but include some sap-feeding bugs, commonly seen in the Gardens. Many sap-feeding insects have an additional role through the secretion of honeydew that is an energy provider for many species of ant, bee, wasp and fly that otherwise feed on nectar from flowers.

The potential diversity of plant feeding insects in the Gardens is higher than in the surrounding dry forest because of its plant and habitat diversity and this is



Chrysalis in communal 'nest' of Imperial Jezebel, *Delias harpalyce*, in a mistletoe, *Amyema* sp.



Leaf chewer. Eucalypt leaf-beetle larvae, *Paropsis atomaria*



Bottlebrush sawfly larva, *Pterygophorus cinctus*



Sap feeder. Aggregation of the polyphagous seed bug, *Oncopeltus sordidus*, feeding on Molucca bramble, *Rubus moluccanus*



DEB RALPH

Sand grasshopper, *Urnisa guttulosa*, in the Red Centre Garden. The nearest 'wild' populations of *Urnisa* are found on sand banks of the Murrumbidgee corridor. Adults would have flown in after the garden was constructed and may have established a local breeding population.



Galls of Boree gall midge, *Dasyneura* sp., on flower buds of the Boree, *Acacia pendula*, in ANBG upper carpark. The nearest wild populations of Boree occur in the western plains of NSW. Although a weak flier the midge has dispersed widely across NSW, affecting many planted Boree trees with its galls.

confirmed by the wide range of species photographed by citizen scientists that regularly visit the Gardens. This includes a range of moth and butterfly larvae that are mostly host species specific.

The herbivores are also represented by a large array of gall-inducers that affect almost every species of plant, but especially eucalypts and wattles.

Consumers: Predators and Parasites

The next trophic level of the functioning ecosystem comprises the vast number of insect predators and parasitoids that feed on the egg, immature and adult stages of most insects and carry out the essential function of regulating the numbers of insect herbivores.

Decomposers

An essential part of a functioning ecosystem is the breakdown of dead and dying plant and animal material by mechanical and digestive means and its transformation into simpler organic material that are recycled to the produc-

ers. Insects such as crickets, cockroaches and moth larva assist in the breakdown of litter whereas timber is processed by the larvae of longhorn beetles, weevils, darkling beetles and cockroaches.

Flower visitors

Many insects are dependent on nectar from flowers as an energy source and their pollen as a food source for growth and development. The plants rely on attracting insects by colour, scent and shape of their flowers and a reward of nectar and/or pollen, to achieve transfer of pollen. These attributes have resulted in co-evolution between insects and flowers that has led to specialisation of some insects to particular flower types: the pollination syndrome. For example, pea and mint bush flowers are largely visited by bees, wattle flowers are visited by small beetles whereas flies visit pungent-scented flowers. The presence of a wide range of flower types and flowering times in the Gardens has encouraged a high level of biodiversity in this func-

tional group, including iconic species like blue-banded and carpenter bees, as well as jewel beetles, bee flies and flower wasps, among many others.

It can be concluded from this review that the diversity and abundance of insects throughout the Gardens supports the hypothesis that this area functions as a self-sustaining natural ecosystem and is a significant resource for the conservation of the local insect fauna.

Photos by Roger Farrow unless otherwise specified



Male metallic green carpenter bee, *Xylocopa aeratus*, visiting flower of *Oxylobium arborescens*



Caterpillar of Dainty Swallowtail, *Papilio anactus*, feeding on native Citrus sp. The presence of the Citrus sustains a breeding population of this butterfly in the gardens.



A swamp grasshopper, *Bermius brachycerus*, an immigrant shown feeding (unusually) on grass tree foliage (*Xanthorrhoea* sp.) in the Gardens. This species is normally seen on waterside grasses and sedges.



An ichneumonid wasp, *Gotra* sp. a parasitoid of emperor gum moths, *Opidophthoptera* sp. It has emerged from the moth pupal stage.



Wood chewing darkling beetle, *Promethis* sp



A large robber fly, *Neoaratus hercules*, with captured honey bee.



Heartwood tunnelling by longhorn beetle larvae, *Prionus* sp

***Bindi*, 2020, Kirli Saunders**

Hard cover, 130 pages, Black and white illustrations, \$17.00

This delightful award-winning book, is a collection of verse for mid-upper primary students, written from the point of view of 11-year-old Bindi and her friends, on Gundungurra Country. The beautifully written verse lets us share a massive year with Bindi...it starts out like normal...school, family, hockey, dancing...but this year also delivers a drought, a big art assignment, a broken wrist and devastating bushfires that affect the town. Gorgeous sketches by Dub Leffler illustrate the poems. This really is a beautiful, compassionate book written *for those who plant trees* which explores climate, bush fires and healing through the eyes of a young girl.

***Wild Mushrooming: A Guide for Foragers*, 2021, Alison Pouliot & Tom May**

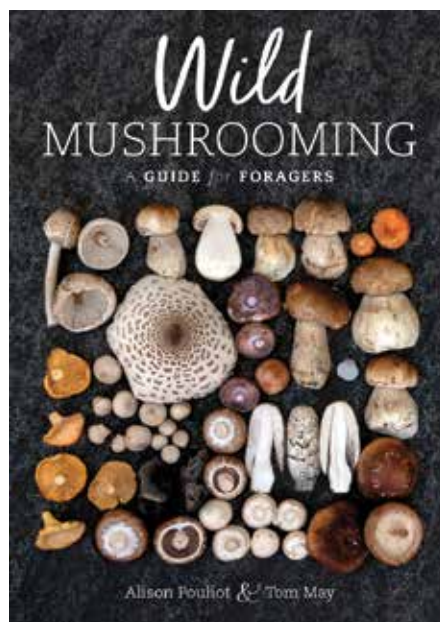
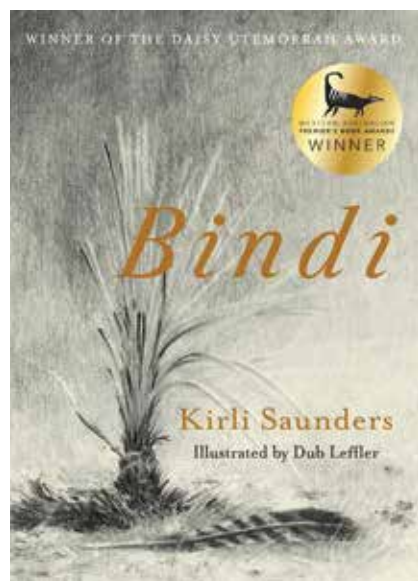
Soft cover, 310 pages, Colour photographs, \$50.00

With the rise of interest in wild food foraging, *Wild Mushrooming: A Guide for Foragers* is a useful book packed with

information to help learn to accurately identify edible fungi. Sections on where, when, and how to find fungi help guide the forager in the identification of 10 edible species. The book also includes some delicious recipes to try for both foraged and cultivated fungi.

The photographs in this book are superb and many of the fungi described are presented through many closeup pictures of the different parts, angles, undersides, top, sides, growth formations, changes during growth stages and more. A detailed checklist of features accompanies the various species including habitat, substrate, habit, pileus, lamellae, stipe, flesh, spore print, odour, taste, and phenology. Diagnostic information on toxic fungi and lookalike species helps to differentiate the desirable from the deadly.

Wild Mushrooming: A Guide for Foragers melds scientific and cultural knowledge with stunning photography to present a new way of looking at fungi... it models a new way of seeing our environment and encourages a deeper understanding of our ecosystem and its intricacies.



***ANBG 2022 Calendar* \$15.00**

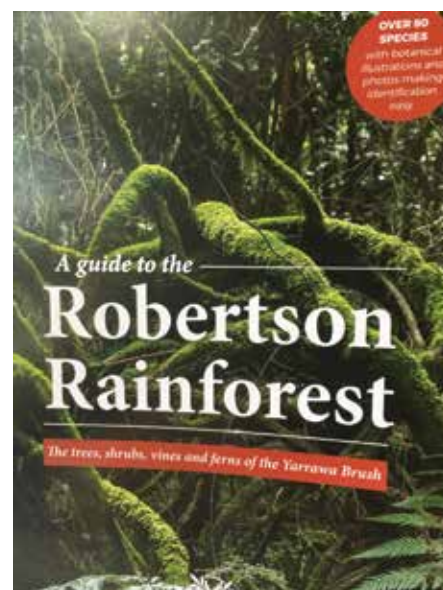
Our popular ANBG Calendar is now available. It features 13 beautiful images provided by members of the Friends Photographic Group.

A Guide to the Robertson Rainforest: The trees shrubs vines and ferns of the Yarrawa Brush

Robertson Environment Protection Society Inc, 2021, 112 pages with colour images. Price: \$24.95

Robertson is located at the very top of the escarpment in the Southern Highlands of NSW. It has a varied and very interesting native flora. The Robertson Rainforest is known as the Yarrawa Brush and is rated as critically endangered under the EPBC Act 1999.

A special book has just been published, prepared by the Robertson Environmental Protection Society. Eighty one species are covered, including illustrations and photographs. The illustrations are done by Cathryn Coutts, who lives at Robertson, and who is well known to the Gardens Botanic Art Group.



Uncovering the secrets of the Superb Fairy-wren

Catherine Gray, Undergraduate student from the ANU interning at the ANBG

Endemic to south-eastern Australia, Superb Fairy-wrens (*Malurus cyaneus*) are known for their cute round appearance and photogenic nature; but these little birds are more than just a pretty face. Behind their charm lies great complexity and many scientific secrets to uncover.

Since 1986, the Fairy-wrens at the Australian National Botanic Gardens have been the focus of a long-term

research project led by Professor Andrew Cockburn and his team at the Australian National University (ANU). The research team has captured, sampled, banded, and released over 10,000 Superb Fairy-wrens, helping to build an understanding of their surprisingly complex behaviour, genetics, and evolution. Driven by the advancement of DNA technology, this research is revealing fascinating insights into the Superb Fairy-wren, a complex and captivating bird.

A Team Effort – Cooperative Breeding

Despite being somewhat rare internationally, cooperative breeding is a relatively common social system for birds in Australia. The Superb Fairy-wren is a cooperative breeder. For this species, cooperative breeding means that in addition to the dominant male and female in a territory, there can be up to five additional male ‘helpers’ caring for the chicks. Helpers have generally been

hatched on the dominant birds’ territory and form a polite hierarchal queue for dominant status. While a simple concept to understand, Andrew Cockburn’s research at the ANU has revealed many complexities about this collaborative social system.

For example, cooperative breeding can influence egg size. The more helpers available in a territory, the smaller the eggs the mothers lay. This requires less energy on her part, providing her with a greater chance of survival into the next breeding season. Additionally, the more helpers available, the less effort dominant males provide in raising young chicks. This may be due to several causes which are not yet fully understood.

Other cooperative breeding bird species present in the Gardens include the Kookaburra and the White-winged Chough.



HELEN CROSS



HELEN CROSS

A male (right) and female (left) Superb Fairy-wren



CATHERINE GRAY

This image taken in mid-March shows a male Superb Fairy-wren molting from his bright blue breeding season plumage into his brown plumage.



CATHERINE GRAY

The female Fairy-wren in this image is named hRy (or Harry). She is named by the three small bands on her leg: henna, red, and yellow, which are used to identify individual birds in the landscape.

Unfaithful – Extra-group Parentage and Advancing Technology

Superb Fairy-wrens are extra-pair breeders, meaning that some chicks are unrelated to the female's mate. In this case, most Fairy-wren chicks are unrelated to the expected father. An early study at the Gardens had found up to 76% of offspring and 95% of broods resulted from extra-pair parentage, which were the highest rates of infidelity known in birds. During dawn chorus, dominant females fly to adjacent territories to mate with other males despite having a faithful partner back in her home territory. This behaviour was first discovered in Superb Fairy-wrens in the 1980s, when ANU researchers noticed an unfamiliar female wren in another territory at dawn.

Female wrens are attracted to the males who have danced for them in the months leading to the breeding season, and the males who have maintained bright blue plumage for the longest. Despite a common misconception, males are not blue all year round. Males can appear almost identical to their female counterparts outside the breeding season, except for their distinctive blue tails and black bills. While most males only moult into their blue plumage for the breeding season, some moult earlier. Some even remain blue for the full year, but not many do. Genetics, age and environmental factors all play a role in this.

The advancement of DNA technology has been a key driver in the progression of this research project. Andrew Cockburn's research team at the ANU has developed a significant genetic pedigree of the Superb Fairy-wrens at the Gardens, potentially being one of the largest pedigrees of free-living populations. They have also sequenced the entire genome of the Superb Fairy-wren.

example, temperatures and precipitation at certain times in the year can influence the length and occurrence of the breeding season, sometimes in different ways. While the current acceleration of global warming does not bode well, the rainy summer of 2020 has led to a welcome resurgence of Fairy-wrens.

Overall, the Gardens are uniquely positioned to support this research, in both their proximity to the ANU and in providing a permanent and favourable home for the Superb Fairy-wrens. This has enabled continuous long-term research uncovering the details of the birds' breeding patterns, population trends and movements in the landscape. While focused on the Fairy-wren, the length and detail of the study provides a unique window into the causes of bird decline throughout the world. The more we understand about these fascinating birds, the better we can protect and conserve them in the future.

Reference - For Further Reading

Cockburn, A., Brouwer, L., Margraf, N., Osmond, H. L. and van de Pol, M. 2016, 'Superb fairy-wrens: Making the most of a good job', in *Cooperative Breeding in Vertebrates: Studies of Ecology, Evolution, and Behaviour*, eds Koenig, W. D. and Dickinson, J. L., Cambridge: Cambridge University Press, pp. 133–149. doi: 10.1017/CBO9781107338357.009.

Acknowledgements:

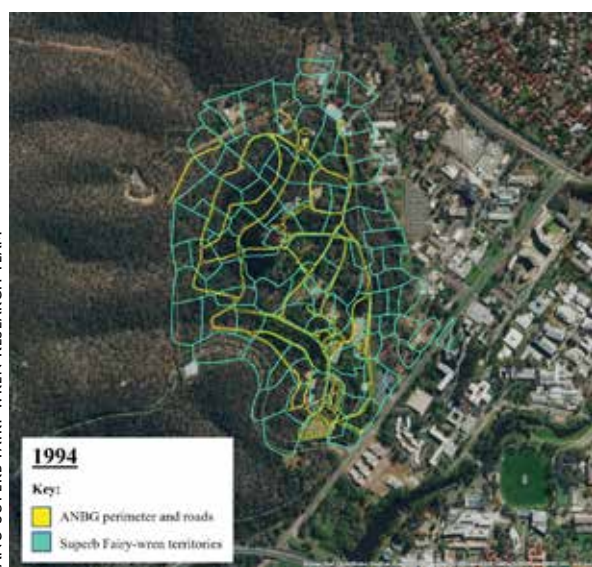
I wish to record a massive thank you to Emeritus Professor Andrew Cockburn, Research School of Biological Sciences, ANU and my supervisor Dr Zoe Knapp, Acting Manager, Biological Resources Study, Parks Australia Division, Department of Agriculture, Water and Environment, for their support and guidance over the past 12 weeks.

This internship would not have been possible without the partnership between the ANBG and the Australian National Centre for the Public Awareness of Science at the ANU.

Population Trends

Over this long-term study, Andrew Cockburn and his team have identified and revealed the locations of Superb Fairy-wren territories and numbers of individuals within the Gardens to a precise level of detail. These records have provided detailed insights into the Gardens' Fairy-wren population trends over the years.

Since the research began, Fairy-wren territories in the Gardens have expanded in area, and the population has decreased. This change is most likely due to recent droughts, but the impacts of environmental change on these birds is complex. For



The above images indicate the locations and sizes of Fairy-wren territories in the Gardens from 1994 and 2019. Over 25 years, the Fairy-wren territories have expanded, and the population has decreased.

Gardens Shorts

Executive Director's Report

This year is continuing to prove a busy one in the Gardens. Since re-opening the gates post shut-down last year, we have had some of the strongest visitor numbers in the Gardens' history. In addition, over 10,000 school students visited for educational excursions over the 2020-2021 financial year – an impressive number considering state border closures and limited interstate school travel.

We have commenced new landscaping, building a new main path and deck extension works around Pollen Café. The Friends have made a significant contribution to funding this project and it will transform the area surrounding the Café. At this stage, construction is estimated to be completed in September.

Construction is also now underway on the Ian Potter National Conservatory. Project Coordination Australia will undertake the build over the next 18 months with completion of the spectacular building expected in late 2022.

We were privileged in May to have the Honourable Sussan Ley MP, Minister for the Environment, unveil the designs for a new state-of-the-art National Seed Bank. The new National Seed Bank will help safeguard Australia's unique flora for generations to come. The new building will feature state-of-the-art laboratories to enhance our research and conservation programs and an integrated freezer seed bank 'vault' that will quadruple capacity of our long-term conservation collections.

After reviewing all feedback from the *Have Your Say* period, the Gardens is now in the writing stage of our process for developing a new Management Plan that will set the direction for the future of the Gardens and guide its management from 2022–2032. A draft plan will be made available for public comment in November this year. The final Management Plan will be in place in 2022.

MEGAfauna exhibition

A special exhibition featured in June and July with original paintings of Australia's Megafauna by Australian wildlife artist, author and paleontological illustrator, Peter Schouten. We were very excited to have Peter's work displayed at the Gardens during our *MEGAfauna: once there were giants!* event.

Peter Schouten has an international reputation for his specialised area as a Paleontological Reconstructionist, which is the rebuilding of a fossil species.

Peter's works are featured in the collections of the Smithsonian Institute in Washington, the Natural History Museum in New York, the Naturalis Museum in Holland and in David Attenborough's private collection.

David Attenborough has termed his skills as 'rare and precious' and among the world's best. Peter even has a megafauna species, *Wakaleo schouteni*, named after him.



Diprotodon by Peter Schouten

Summer Sounds

For over 20 years, Canberrans and visitors alike have flocked to the Gardens to enjoy music, dancing and a twilight picnic during the month-long Summer Sounds concert series.

Initially presented as the Friends Twilight Music Series and held on the Garden's Café Lawn one evening per weekend in January, Summer Sounds expanded in 1999 to Saturday and Sunday evenings and later extended to take place over January and February.

With increasing patronage, concerts were moved to the larger Eucalypt Lawn

in 2010, attracting the average audience attendance of approximately 1,100 people per concert. Summer Sounds was named amongst the '100 things people like about Canberra' during Canberra's Centenary in 2013. However increased costs, rising summer temperatures, weather unpredictability and the introduction of a global pandemic has resulted in the decline of patron numbers over the years. With all this considered, the Gardens along with the Friends Council have decided to discontinue Summer Sounds, marking Summer Sounds 2020 as the indefinite finale.

The Gardens recognises and thanks the many Friends and volunteers whose work, in partnership with Gardens' staff, contributed to the longstanding success of Summer Sounds.

Weedy vols - horticulture volunteer trial

In May, a trial Living Collections Volunteer program welcomed six volunteers into the Gardens to assist our specialist horticulture team with weeding garden beds.

This program has been designed to expand our volunteer programs on site and to address our many requests from people in the Canberra and Friends community for a hands-on volunteering program in the Gardens. The horticulture team have welcomed the extra assistance to help combat the ever-reappearing weeds in the garden beds which assist in maintaining the beauty of the Gardens.

The initial six volunteers agreed to come in once a month for three months to trial the program, weeding some of the more noticeable garden beds.

The program has been very successful so far and it is likely that Gardens will be looking for more program participants in the spring of 2021. If you are interested in joining the mailing list for more information on the next cohort, please send an email to:

volunteer@anbg.gov.au.

We need your photos! **Teaching the PlantSnap App to identify Australian plants**

Imagine taking a photo of a plant and having an accurate identification in a



snap! PlantSnap is an easy-to-use plant identifier app. The Gardens have joined forces with Botanic Gardens Australia and New Zealand and Botanic Gardens Conservation International to help the app become better at identifying Australian and New Zealand plants. PlantSnap is constantly learning and improving, the more photographs taken, the more accurate the App becomes. The machine learning process needs at least 20 photos of each plant to learn to correctly identify it.

We are looking for keen photographers to provide photographs to teach the App. Photos must be taken in the Gardens, in focus, contain key features of the plant and be positively identified.

Visit <https://www.bganzt.org.au/bganzt-plantsnap-initiative/contributing-your-photos/> for more information on how you can be involved.

Proceeds from PlantSnap use go to conservation projects in botanic gardens around the country.

National Seed Bank

The Gardens enjoyed some great media coverage (print, radio, social) in May, with Minister Ley releasing the design plans for the new National Seed Bank and Costa Georgiadis,

National Seed Bank Champion, launching and promoting the *Seed the Future* online auction.

Thank you to Friends members who supported the *Seed the Future* online auction – and in doing so are helping the National Seed Bank to protect our Australian native plant species. This joint initiative between the Gardens and National Parks Conservation Trust raised over \$60,000 during the 10-day auction period. Framed Microscope seed images were a popular auction item – thanks to the wonderful volunteers, many of whom are Friends, who made these framed images and donated these items to the Gardens.

The funds raised through the auction, together with a Friends Public Fund donation of \$20,000 in the 2021-22 financial year, will make the purchase of specialist seed banking equipment possible. This is exciting as this specialist equipment will make a difference every day, enabling the National Seed Bank team to secure more threatened plant species for future generations.

You can still make a tax-deductible donation to support the important plant conservation work at the National Seed Bank – donations will support research critical to uncover germination secrets of how to grow species to enable wild populations to be restored, and help the Gardens give back to volunteers through learning and development opportunities. Over 34 volunteers work

at the National Seed Bank, assisting with field collection, cleaning, assessing, packaging, databasing and imaging seed collections. For more information visit: <https://parkstrust.org.au/projects/seed-the-future/>

More than a word

As part of National Reconciliation Week, about sixty staff and volunteers from the Gardens participated in cultural training workshops, facilitated by Tyronne Bell from Thunderstone Aboriginal Cultural Services.

The workshops were designed to teach an Acknowledgement of Country in Ngunawal language - the language of the traditional inhabitants of the ACT and surrounds. The session included an overview of when it is appropriate to do an Acknowledgement of Country as well as a brief history of Ngunawal language and culture.

The staff and volunteers found the session engaging, informative and helpful in developing a deeper understanding of Aboriginal culture. Many now feel more confident in using Ngunawal words and the Acknowledgement of Country in language for education and visitor tours and are keen to learn more.

Thunderstone Aboriginal Cultural Services is dedicated to educating the wider community through participation about the culture, history and stories of the Ngunawal people of Canberra and region.



Volunteers and staff gained a deeper appreciation for the Acknowledgement of Country

Letters to the editor

We are delighted to have received a number of letters from members in response to our last issue, two in response to the article by Murray Fagg about his digitisation of the 35mm slides of the late John Wrigley.

Dear Editorial Committee

I really enjoyed perusing your April edition (Issue Number 97) of your excellent magazine *Fronds*. The article by Murray Fagg, wherein he described his involvement in the curation of the 35mm slides of the late John Wrigley, really struck a chord with me. This is because, on my retirement in 2006, I volunteered to check and prepare for incorporation into the slide collection of the Library of the Botanic Gardens of South Australia, the slide collection of the late Noel Lothian, former Director of the Gardens from 1947 to 1980. Imagine my surprise to discover there were approximately 22,000 slides!

Noel's writing was famously almost illegible but I struggled on, checking current plant names and localities, converting distances in these localities to metric measurements. Slides covered Botanic Gardens, Heritage and National Trust Gardens on every continent of the world and habitat and landscape photographs from many countries with a large number in the arid zone in Australia, dating back to the late 1940s. There was a large number of slides which reflected the social history of Adelaide and South Australia; these were donated to our State Library. There was also a number of more personal photographs which were returned to the Lothian family and a number were discarded. All-in-all approximately 9,500 slides were prepared for incorporation.

To celebrate the 35th anniversary of the founding of the Friends of Adelaide Botanic Gardens that group donated \$35,000 to have the slides digitised and entered into the Library collection. This means that this valuable resource will be more readily available to researchers in the future.

(Dr) Ed McAlister AO,

Editor of the Gazette of the FBGA, Botanic Gardens of South Australia

Subject: [newsletter] *Fronds* Number 97 April 2021

Greetings,

Karin and I want to thank you for sending us another wonderful edition of *Fronds*. We very much miss ANBG and *Fronds* at least gives us some feeling of continuing connection and involvement.

Our very best wishes to all concerned.

Malcolm Fyfe (Member number 130)
South Coast, NSW

Moore Creek 2340

The Editor

Fronds

Friends of the Australian National Botanic Gardens.

I have just received *Fronds* No 97 and was so pleased to see the article on John Wrigley whom I knew many years ago when I was an art teacher at one of the High Schools in Coff's Harbour. I am now retired, being 90 years of age.

Since these photos, taken in 1993, I have ventured around the world, gained another degree (this time Honours in Archaeology and * Palaeontology) and have generally enjoyed life including joining Friends of ANBG.

I still have the original stencils and I could create more prints if you are interested. In these days of Covid-19 restriction I rarely leave the house. At the moment I am working on a series of landscapes that are historical. That is, what places looked like before White Settlement. They are large oil paintings which is my preferred medium. I was trained at the National Art School before acrylics by people like William Dobell, Harold Abbott etc. and in the same class as Tony Tucker, Margaret Ellis and Tom Bass. (and many others).

Yours sincerely

* Palaeoanthropology.

Sybil Small



Sybil Small's 1993 exhibition of prints at Coff's Harbour Botanic Gardens was opened by the late John Wrigley

Stencil prints, gouache on black paper, *Eucalyptus* series

IMAGES WERE SUPPLIED BY SYBIL H SMALL



What's on at the Gardens

August to November 2021

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, free 1 hour walks

Meet a Volunteer Guide at the clock near café bridge for a guided tour.

Flora Explorer tours

Weekends & public holidays,

11.30 am,

Cost: \$8 for adults, \$5 for children and concessions. Children under 3 travel free.

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

Colour in Winter

9 – 15 August, 11.00 am & 2.00 pm, free 1 hour walks

Join a guided walk and discover the beauty of the Gardens in winter. Meet at the clock near the café bridge.

Wattle Walks

30 August – 5 September, 11.00 am & 2.00 pm, free 1 hour walks

Celebrate Wattle Week with a free guided walk exploring the Gardens' collection of wattles. Meet at the clock near the café bridge.

Wake Up with the Birds

7.45 am Saturday & Sunday mornings, 25 September to 10 October.

Cost: \$15 for Friends of the ANBG, and \$20 for others. (Not suitable for children under 8 years old.)

Bookings essential: see Friends website www.friendsanbg.org.au and use the link to the booking site. Enquiries: email birds@friendsanbg.org.au or telephone 0410 577 677 (details p4)



Spring Flower Walks

4 – 10 October, 11.00 am & 2.00 pm, free 1 hour walks

Join a guided walk and discover the colours of the Gardens in spring. Meet at the clock near the café bridge.

Telling the Time by the Sun, An Enlightening Afternoon

Friday 8 October, 1.30 pm

Gardens Theatre

Cost: Tickets \$25

Friends members are invited to celebrate the 20th anniversary of the gifting of the ANBG sundial to the Gardens by the Friends. Hear creator, Marg Folkard talk about the art and science of sundials, and show us how the ANBG one works. Enjoy a delicious afternoon tea, then drive to Mt Stromlo to experience a different type of sundial and tell the time with your own shadow. (See p.7 for more details)

Australian Native Plants Society Canberra's Spring Plant Sale

16 October, 8.30 am

A wide variety of Australian native plants for sale. Come early for best selection.

Culture on the Move - Traditional Weaving Workshops

17 October, 9.30 am – 12.00 pm & 1.00 pm – 3.30pm

Cost: \$135 per person. Bookings essential. Suitable for ages 15+, all materials included.

Join Ronnie Jordan, a Kalkadoon Pitta Pitta woman from Mt Isa, as she provides a hands-on weaving experience, empowering participants with a sense of connection and the opportunity to learn an age-old skill.

Fire and Water Walks

8 – 14 November, 11.00 am & 2.00, free 1 hour walks

Join a volunteer guide on this special-themed walk. Meet at the clock near the café bridge.

Growing Friends Plant Sale,

3 November, 8.30 am – 12.00 pm,

Shop for a great range of rare and hard-to-find plants.



Sundial ANBG

EXHIBITIONS

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

Fruit, Flowers, Feathers & Fur

28 July – 15 August,

An exhibition of botanical and wildlife treasures by four local artists - Wendy Antoniak, Maria Boreham, Cornelia Buchen-Osmond and Vivien Pinder.

Illustrating five Australian regions and their flora and fauna: illuminating the Book of Psalms

18 August – 12 September

An exhibition by Fiona Pfennigwerth featuring around 250 illustrations taken from the book of Psalms illuminated by naturalistic watercolour depicting the regions of Tasmania, The Kimberley, The Grampians, The Red Centre, The Hunter and their flora and fauna.

Our Forest in Focus

15 September – 3 October

Presented by the Canberra Tree Network and photographed by local photographer Graham Gall, this photographic exhibition showcases some of the region's most spectacular trees. This exhibition is a collaboration between ACT Government and Government House, Parliament House, Yarralumla Nursery, Australian National Botanic Gardens, Namadgi National Park, National Capital Authority, the National Arboretum Canberra, ANU, Parks and Conservation.

Fired Earth: Inspired by nature

6 – 31 October

Presented by Claybodies an independent collective of local artists who share a passion for ceramics, this exhibition explores the connection between the earth and the Australian flora. The works focus on the diversity of ecosystems, native plants and aspects of the earth such as boulders, stones and other strata.

Schools' Photographic Competition Exhibition

4 – 21 November

An exhibition of photographs taken within the Gardens by local school students. Part of the annual Friends of the ANBG Schools Photographic Competition. (details page 5)

Recovery, Friends Photographic Group Exhibition

25 November – 12 December

An exhibition of photographs of flora and fauna taken within the Gardens by the Friends of the ANBG Photographic Group. (details page 10)

Reclaiming the Bush

15 December – 23 January

Artist Stephanie Jakovac invites viewers to get up close and observe the minute details of beautiful native flora found in the Australian bush.



Two watercolours from an exhibition by Fiona Pfennigwerth, 18 August – 12 September

Banks Books winners

Thanks to everyone who entered our competition in the December 2020 issue of *Fronde* to win the book *Banks* by award-winning Australian author, Grantlee Kieza.

The winners, Alison, Fanny and Victoria, have now been notified and have received their prizes.



***Friends of the
Australian National
Botanic Gardens***

Notice of the 2021 Friends AGM

The Annual General Meeting this year will be held at 5.30pm on Thursday, 21 October, 2021. Venue will be advised closer to the date.

THURSDAY TALKS: AUGUST – NOVEMBER 2021

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 coins donation. The talks are in line with COVID-19 guidelines which can change rapidly. Bookings are essential, and the booking link for each talk is on the www.friendsanbg.org.au/calendar entry for the talk. Bookings can be made from the Friday before the talk until Wednesday night before the 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' coins 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 the talks to the Thursday Talks Team: email talks@friendsanbg.org.au

AUGUST

Thursday 5 August

Emeritus Professor Andrew Cockburn 'Love Life of Blue Wrens'

Andrew is an Emeritus Professor at ANU where his research centres on the evolution of mating systems in birds. DNA fingerprinting of fairy wrens debunked the myth that these birds lived in faithful monogamous pairs. But why are the birds in declining numbers?

Thursday 12 August

Roger Farrow 'Recovery of native vegetation from the recent catastrophic fires: a "remarkable" phenomenon or a natural response. The Nerriga experience.'

For many years Roger has studied the sandstone flora of Moreton National Park along the Nerriga Road with members of ANPS. After the park was entirely burnt by the 2019 – 2020 fires, a unique opportunity arose to examine the regeneration of the vegetation, as there was great concern that some species could have been lost.

Roger is happy to sign copies of his books after the talk.

Thursday 19 August

Dr Leo Joseph 'Australian bird names are all sorted out. Yes? No? Maybe?'

Leo, Director of the Australian National Wildlife Collection, CSIRO, will focus on birds from northern Australia to show where knowledge of the names we need to apply to birds still needs a lot more work. Examples from lorikeets, friarbirds, orioles, quail-thrush,

whipbirds, black-cockatoos, pigeons and maybe a few more!

Thursday 26 August

Professor Justin Borevitz 'Precision Landscape Regeneration'

Justin, Professor, Research School of Biology Center of Excellence in Plant Energy Biology, ANU, will introduce the components of precision landscape regeneration and the outsized role Australia can have in the world. Landscape Genomics methods in Eucalyptus foundation species rebuild agro-ecosystems and boosting soil carbon with microbes and management. Integrating and scaling these land-based solutions can build planetary health and resilience.

SEPTEMBER

Thursday 2 September

Check www.friendsanbg.org.au/calendar for details

Thursday 9 September

Jo Harding and Dr Kate Grarock 'Bush Blitz – 10 years old and going strong!'

Jo and Kate from Bush Blitz, will describe how Bush Blitz has been discovering more than 1700 new species since 2010, across 41 expeditions, including a voyage on RV Investigator. They also engage with land managers, traditional owners, teachers and students.

Thursday 16 September

Dr Arnagretta Hunter 'Climate change and our health and wellbeing'

Black Summer 2019 / 2020 left many people in Canberra with personal insight into the health impacts of our changing climate. This discussion will explore both the health impacts of climate change and the health benefits of our natural environment.

Thursday 23 September

Dr Prame Chopra 'Melting ice and rising seas; how much, how fast?'

This talk will discuss the uncertainties in the future paths of ice volume and sea level, the machinations of the imperfect Intergovernmental Panel on Climate Change (IPCC) and the likely consequences for us all.

Thursday 30 September

Dr Michael Mulvaney and Chris Davey 'Gang Gang nesting ecology'

Chris Davey and Michael Mulvaney will reveal how citizen science research by hundreds of Canberrans has contributed to the scientific and wider understanding of Gang Gang and how this research is to be continued with a focus on trying to answer why the Gang-Gang numbers have been stable but declined in other places.

OCTOBER

Thursday 7 October

Professor Simon Haberle 'What you never knew about poo!'

The fascinating story of tiny fungi that live on dung and what they tell us about giant animals that roamed the earth.

Thursday 14 October

Dr Stuart Rae 'The Little Eagle – a botanical perspective'

Stuart, a visitor at the Research School of Biology, ANU, has been studying Little Eagles in the Canberra area for the past three years as part of the Little Eagle Research Group, which has amassed a wealth of data on the breeding ecology and range of the eagle, and a botanical perspective helps explain the bird's distribution.

Thursday 21 October

Lindy Butcher 'ACT Wildlife and its wombat programs'

Lindy is Wombat Coordinator for ACT Wildlife. The group cares for thousands of injured or orphaned wildlife each year. The most endearing wildlife is the wombat, and we look forward to sharing some of their journeys with you.

Thursday 28 October

Nancy Tingey '27 years in the Garden – The Story of Painting with Parkinsons'

A team of facilitators and voluntary helpers have, over the years, enriched the lives of people with Parkinson's with a program which looks at the challenges raised by the condition and addresses them with a tailor-made approach to relieve stress and encourage self-expression. Nancy is happy to sign copies of her book after the talk.

NOVEMBER

Thursday 4 November

Anthony Whalen and Anna Fuchs 'Global alignment of biodiversity informatics systems'

Anthony and Anne play different roles at ANBG, in the Australian National Species List. With an estimated 600,000 or more organisms native to Australia, and many millions found globally, the task of keeping up with published names and taxonomic concepts is a significant one in Australia, and contributes to the Catalogue of Life and other international initiatives.

Thursday 11 November

Professor David Lindenmayer 'The Great Forest'

David, from Fenner School of Environment and Society, ANU, will present intimate insights into the biology and ecology of Mountain Ash and Alpine Ash forests and outline how human and natural disturbances can interact to threaten these magnificent environments. David concludes with important initiatives to reshape the future trajectory of these tall, wet eucalypt forest ecosystems.

Thursday 18 November

Ian Fraser 'How Did Australian Birds Get English Names?'

Ian will describe how stories of these creations can be intriguing, funny, erroneous and sometimes downright ridiculous. Names usually tell us more about us than the birds. This talk is a celebration of birds, words and history

Thursday 25 November

Ian Walker 'Climate Resilient Environments and Communities'

Ian, ACT Conservator for Flora and Fauna will talk about looking after our natural environment as we face climate change with increased fire risk and different patterns of rain, and how communities will cope with the impact of climate change.

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
Nature Journaling 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.



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