

# *Fronds*

*Friends of the Australian National Botanic Gardens  
Number 92 August 2019*





# Friends of the Australian National Botanic Gardens

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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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*Typha domingensis* (bulrush): watercolour on paper by Vivien Pinder at the recent Botanic Art Groups' exhibition. This common plant is a traditional food source for many Aboriginal peoples. The rhizomes can be roasted and eaten and the seed heads can be added to flour for baking. The plant is a good source of protein. (Report on the Exhibition, p8)

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Front Cover: *Corymbia ficifolia* cultivar thriving, along with many other beautiful plants, in the new garden along the main concourse, ANBG.

PHOTOGRAPHER, HELEN DAWES



## Behind the safety fence – the Banksia Garden

Pam Rooney

**Work is well underway on a major project: the new Banksia Garden scheduled to open in April 2020 in celebration of the Gardens' fiftieth anniversary.**

The plan is to grow not only eastern banksia species but also many from Western Australia, a very exciting, ambitious and experimental undertaking. *Banksias* have stringent growing requirements, particularly those from Western Australia. These requirements determined the landscape plan for this Garden – most species need very well-drained soil and maximum sunlight and many will not tolerate heavy frosts.

Basic work has already been completed. Some trees have been removed to increase sunlight hours. Trial gardens elsewhere in the Gardens have investigated soil profiles and mounding, and significant drainage has been installed in this new area.

The pre-existing stone walls have been incorporated into the plan and the heavy clay soil behind these has been removed to be replaced by the sandstone-based soil suited to *Banksias*. Additional north-facing thermal walls are planned for the area.

A new, and somewhat more formal, sandstone wall has been completed. It was constructed by Gardens' staff and encloses a raised garden bed; the top of this wall provides seating around the courtyard near the Banks building.

There is already a variety of growing conditions at the site, for example the site slopes down towards the north-east where existing *Banksia robur* and *B. serrata* are thriving in the damper soil.

Behind the scenes in the nursery, staff have been very busy and there are some spectacular plants ready for planting out. The plant map is still to be finalised. Plants will of course be arranged by their horticultural requirements, but the form and structure of each plant, including its height, leaf shape and colour and potential impact will all be considerations. Different species will be combined in single beds, there will be some massed plantings and some beds will feature individual plants.

And importantly, informing the plantings are the wonderful banksia narratives which include, among others, Indigenous and non-indigenous history, pollination and fire response.



New growth on *Banksia robur* in the Banksia Garden



View from north looking towards the Banks building showing pre-existing rock walls on the right



Recently completed sandstone wall



Soil replaced in new garden and in the distance excavating existing heavy soil from old garden beds



Spectacular plants in ANBG Nursery



# Linking woody weed removal in ANBG with collections management

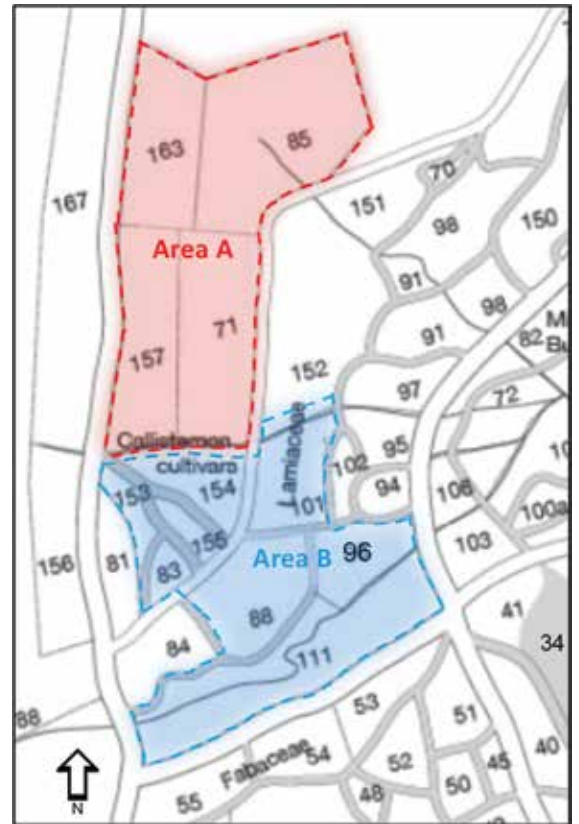
Rosemary Purdie, Friends of Black Mountain & Tamera Beath, ANBG Plant Records Coordinator

Since February 2013 the Friends of Black Mountain (FoBM) Weeding Group have periodically removed woody weeds in 'bush' (non-cultivated) sections of the Gardens located adjacent to the southern, western and north-western boundary fences. The rationale for the work is to prevent woody weeds within ANBG 'escaping' from the Gardens and invading adjacent bushland in Black Mountain Nature Reserve. The species removed have been a mixture of native Australian plants that have naturalised, largely from cultivated plants within ANBG, as well as naturalised non-Australian species.

In October 2018 FoBM approached ANBG to float the idea of the Weeding Group removing woody weeds from several cultivated sections in the upper part of the Gardens where species naturalised from ANBG plantings had the potential to become environmental weeds in the reserve. Of particular concern to FoBM was Sweet Pittosporum (*Pittosporum undulatum*),

a tree native to coastal areas of southern Queensland, New South Wales and Victoria. It is now a problem weed within and outside its natural range in Victoria, South Australia, Tasmania and Western Australia. Within the Gardens the Weeding Group had already removed many dozens of Sweet Pittosporum plants from the peripheral bush sections, and the occasional plant has been found inside the reserve near the ANBG boundary fence. In October, while marking up plants for removal in an ANBG 'bush' section, FoBM had noticed other cultivated native species that had naturalised in adjacent cultivated sections and appeared to have the potential to be highly invasive.

Following discussions, agreement was reached for the Weeding Group to work initially in contiguous sections 71, 85,



ROSEMARY PURDIE

Friend of Black Mountain weeders standing beside a large pile of Pittosporum and other woody weeds they had removed from the adjacent *Callistemon* cultivars section



157 and 163 (Area A on map), and later to extend the work to sections 153–155 (planted with *Callistemon* cultivars), and parts of nearby sections 83, 88, 96, 101 and 111 (Area B) where adventive *Pittosporum* plants were particularly prevalent. Gardens staff chain-sawed a patch of large adventive *Acacia* trees in Area A prior to the November weeding session as they were too large for the weeders to handle. **(To orient yourself: section 34, the grey area on the map, is the north-western edge of the Eucalypt Lawn)**

Given the low number of valuable accessions listed for this area, no stocktake had been carried out in Area A for many years. So while searching for, and tagging, woody weeds for removal, FoBM also marked any cultivated plants or metal name tags or stake labels observed. Where it was not clear whether individual plants had been cultivated or were self-sown, their status was clarified during a joint ANBG-FoBM on-ground inspection.

During their November and December 2018 weeding sessions the Weeding Group removed over 1300 woody weed plants from Area A and section 154 in Area B. They included just over 1160 individuals naturalised from 26 native species cultivated in the Gardens. The most common native species removed were *Ziera smithii* (345 plants) and two species of *Pittosporum* (around 300 plants of *P. undulatum* and *P. revolutum*). Woody weeds in the remainder of Area B were removed by FoBM in the February 2019 weeding session, with a further 600+ plants being taken out, including almost 500 *Pittosporum* plants. The December and February weeding efforts generated large piles of cut plants for ANBG to remove from the nearby roads where they had been dragged away from the cultivated beds. After the November weeding, ANBG carried out a detailed stocktake in area A. This involved the Plant Records Coordinator working with ANBG

stocktake volunteers to map the cultivated plants within these sections and update the associated database records, including “deading” records for plants that are no longer present. Where cultivated plants were missing metal name tags, they were matched to the relevant database records, and tags ordered and placed on the individuals. After consultation with horticultural staff, the cultivated *Zieria smithii* plants were removed from section 85 due to their highly invasive nature there; the taxon is secure elsewhere in the Gardens. A detailed stocktake of area B was subsequently commenced.

If you visit Area B now, in section 96 you’ll see several very large cultivated *Pittosporum* trees. ANBG has decided to remove all these cultivated *P. undulatum* and *P. revolutum* because if left, they will continue to provide an abundant seed source for ongoing naturalisation of the species. In the southern two-thirds of section 88, and along the creek corridor running through Area B, you’ll also see that many adventive *Pittosporum* plants remain, because these areas were unsafe for FoBM to work in. ANBG is planning to tackle these areas when they introduce a succession plan to convert section 88 from its current *Dodonaea* theme to a Black Mountain Flora theme to complement section 111.

This is the first time that volunteers have removed woody weeds from ANBG sections that contained small numbers of remnant plantings. It’s been a win-win situation: the threat of known environmental weeds jumping the ANBG fence into the reserve has been reduced; it has made it easier for stocktake activities to be carried out; and it has helped pave the way for planned works in a section badly needing renewal. From ANBG’s perspective it is an ideal “model” partnership with FoBM complimenting and enhancing the specialist collection management of ANBG staff and addressing the priorities for woody weed management within and outside the Gardens.

## Banksia Garden courtyard



*Banksias* have wonderfully diverse and often dramatic leaves. In order to display this, a concrete circle with *Banksia* leaves stenciled into it was planned for the new Banksia Garden courtyard. The radiating design is based on the arrangement of flowers on a *Banksia* spike. A collection of 489 leaves from 13 species of *Banksia* had been collected and pressed and on a sunny July 2019 morning ANBG staff gathered to implement their plan.



PAM ROONEY

# X-raying Seed

## Brook Clinton & Denis Warne

In seed banking, maintenance of seed viability is critical, requiring ongoing monitoring. Non-destructive testing is a holy grail, especially for small and precious collections. Recent acquisition of an X-ray machine by the National Seed Bank has made this possible for our collections, most significantly for the legacy collections. Once again, the Friends have provided support through the Public Fund, in this case funding a contract Technical Officer to undertake an initial round of X-ray screening.

Conventionally, the approach to assessing seed viability involves dissection of a sample of the seeds under a microscope. Such an approach is both destructive and time consuming, and is impractical in the case of small collections as is the case with some of the Seed Bank's heritage collections. The very factors that make a collection especially valuable – rarity of the plant, remoteness of the source, collection by a notable botanist – are factors which result in a small collection. While X-ray examination cannot tell the whole story of seed viability, it is efficient and a brief exposure, not affecting the health of the seed, can assess for embryo quality, predation or other damage.

An initial 100 accessions of older collections X-rayed yielded mixed results. A collection of *Mallotus philippensis* (Euphorbi-

aceae) from 1983, for example, was found to have no healthy embryos left. But this was unsurprising as the species is known to have short lived seeds and further research into seed conservation of such species is clearly needed. Conversely, a collection of *Isotoma petraea* (Campanulaceae) from 1968 yielded 97% seed fill.

X-ray imaging was also able to show the internal cause of aspects of external appearance. In the images of an *Acacia* collection shown here, external discolouration was found to be caused by insect larvae infestation. Such information can speed up future assessments.

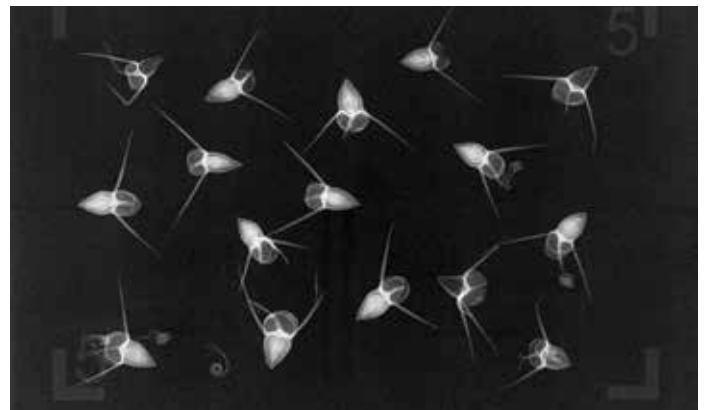
Over time, the Friends have been an active supporter of the Seed Bank both through volunteers and through funding. Previous funding support has included purchase of stereo microscopes and associated laboratory equipment, seed counting equipment, and a freezer. In the broader Gardens' scientific program, the Friends Public Fund has also supported activities such as digitisation of the Lichen Collection. (*Fronde* No 88, April 2018)

Scientific information is from an article by Brook Clinton, April 2019 *New seed X-ray to assist in Parks' seed conservation programs*, Parks Australia science news, Reproduced with permission.

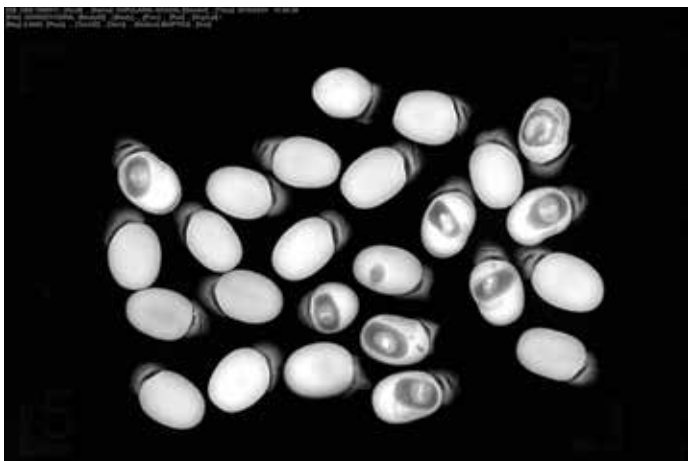
PHOTOS: BROOK CLINTON



a: Healthy *Gingidia algens* (Apiaceae) collection. Bright white areas show healthy seed tissue whereas darker grey is indicative of poor quality



b: *Calotis cunefolia* (Asteraceae), showing some empty seeds.



c: Infested *Acacia cupularis* seed.



d: Exterior view of *Image c* showing exterior discolouration



# History in the carpark

## Tim Kilby, Volunteer Guide

I recently put together a 'Carpark Walk' for use by Guides when the main part of the Gardens is closed. The carpark is often overlooked by visitors yet it is rich in plantings, particularly showing the diversity of tough Australian species that can handle, even enjoy, the heat from the bitumen. Many plants also reflect Australia's colonial history, and that is the journey I take here.

Begin with the top of the left-hand carpark as you drive in. Here are the ingredients for the slab hut so much a part of bush architecture. At one end of the top tier, two Mugga Ironbarks (*Eucalyptus sideroxylon*) bend curiously over. Their robust timber was one of several species that provided the slab walls. New techniques were needed to fashion the particularly hard wood. Indeed, a later set of immigrants who came to work on the Snowy Mountains Scheme adapted to this 'foreign' timber by running a nail through their Brylcreemed hair so they could drive it in. A Red Stringybark (*E. macrorhyncha*) stands at the other end. Its bark provided the roof for the hut. A termite mound on the next level down, amongst a variety of wattles provided the special 'earth' used for hut floors.

River Red Gum (*E. camaldulensis*), also evident on the top level, was instrumental in opening up of the interior via the

waterways. Paddle steamers were made of its timber. It also powered the steam engines that drove them.

Acacias on the second level have a wonderful diversity. Australian acacias earned their name 'wattle' because of their limber branches' ability to be 'wattled'. That is, woven between stakes planted in the ground forming the internal foundation of a wall over which clay would be applied. Such 'wattle and daub' abodes date back centuries in Europe and were the first permanent structures to be built in Australia's early settlement. Ironically, the first bush used for wattling was not an acacia. *Callicoma serratifolia* did have a pom-pom flower so any plant with a similar inflorescence was thus deemed a wattle.

On the third level down an information board describes the importance of 'The Long Paddock' in Australia's rural life. Travelling Stock Routes allow sheep and cattle to be transferred along wide fenced roadways to better pastures. Supplanted by road trains in the late 1900s, their lack of use has allowed suppressed vegetation to return and many now serve as conservation areas. The very first stock route, the Snowy Route, began in the drought of 1828 when local Aboriginal people directed stock owners to a route from Lake George to good grassland at Berridale.

Close by the information board are symbolic decaying post-and-rail fence posts. Again, fashioning these from termite-resistant and water-resistant timbers required new skills for the early settlers. The grasses surrounding the board are a reminder that Australian sheep and cattle graze on the grasses available to them in abundance thanks to millennia of Aboriginal management.

This is an insight into just a small part of the carpark. The entrance itself is worth a visit – many visitors only get a glance of the Bottle Tree, Cabbage Tree Palm and Bunya Pine when they are leaving. They have their place in history too. And the main carpark... the stories it could tell... Next time you park, take time to marvel at the paradise that is the ANBG parking lot.



Travelling Stock Routes information



Mugga Ironbark (on right) bends over the top carpark

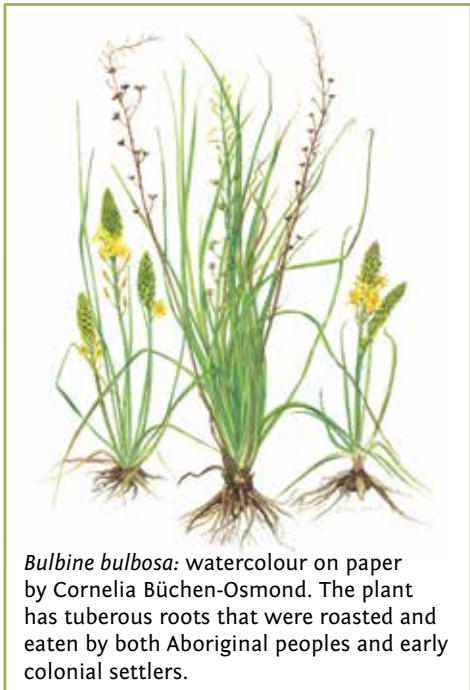


Post-and-rail fence posts

# Friendly Chatter

## Botanic Art Groups

Our 12th exhibition, held in autumn, titled *More than Just a Pretty Plant* was an outstanding success with more than 50 per cent of artworks sold and many complimentary comments from the over 2,600 visitors. The exhibition was opened with a fascinating talk by Tim Kilby discussing the many uses of Australian plants, not only in the past by Indigenous peoples and colonists, but also for contemporary applications. Two beautiful paintings were purchased by the Friends for the Gardens' collection. They were Cornelia Büchen-Osmond's *Bulbine bulbosa* and Viv Pinder's *Typha domingensis*.



*Bulbine bulbosa*: watercolour on paper by Cornelia Büchen-Osmond. The plant has tuberous roots that were roasted and eaten by both Aboriginal peoples and early colonial settlers.

This year for the first time the Friends published a book, also entitled *More than Just a Pretty Plant*, featuring many of the works. It has proved sufficiently popular to cover the cost of printing and to make a small profit. It makes an excellent memento or gift, and remains available for sale on the Friends website for \$25.

Well done and thank you for an enormous effort by the artists, volunteers, members of Friends, raffle prize donors and Gardens staff who made it all possible!

Kate Ramsey

## Photographic Group

The Photographic Group has had a successful start to the year with presentations and workshops. On 3 May we held a memorial lecture in memory of David Cox. Over forty members of the Friends and friends of David attended a presentation by guest speaker, Brent Wilson, a horticultural photographer from Sydney. Brent then ran a macro workshop in the Gardens for members including Heloisa, David's partner. Presentations will continue throughout the year on the last Friday of the month at 10.30 am in the theatre opposite the Visitor Centre – see the events calendar on the Friends website.

In September, we are planning an excursion to the Eurobodalla Botanic Gardens on Friday 20 and Saturday 21 September. On Friday afternoon and Saturday there will be plenty of time to take pictures in the Gardens. On Friday evening we will join the Eurobodalla Photography Club for dinner followed by a show & tell session. If you would like to join us on this excursion please email: [photo@friendsanbg.org.au](mailto:photo@friendsanbg.org.au).

**A bookmark is included in this issue to keep as a reminder of our annual photographic exhibition, 'Treasures', to be held from 20 November until 8 December.**



Photographic Group self-portrait with Brent Wilson (front)

In April next year we will be repeating our workshop "Learning Digital Photography". This is a great opportunity to improve basic photographic knowledge.

If you are a member of the Friends and wish to join the Photographic Group contact: [photo@friendsanbg.org.au](mailto:photo@friendsanbg.org.au).

Helen Dawes

## Growing Friends

Growing Friends are continuing to propagate plants, using seed and cuttings collected from plants in the Gardens, in preparation for the November plant sale. These sales are popular, so turn up early to get fantastic plants at even better prices!

**The sale will be held at the Banks building and carpark on Saturday 9 November from 8.30 am until 11.30 am (unless sold out earlier).**

We meet on the first Saturday morning of each month, have morning tea and then propagate plants collected and showcased by some of our members. These sessions are a great way to learn about plants grown in the Gardens.

New members are welcome. Talk to one of the Growing Friends today, or



phone John Connolly (0477 257 188) or Maurice Hermann (0429 361 256) if you are interested in joining us.

**Wendy Merritt**

### **Plant Science Group**

Anne Campbell is moving on (see note below) and John Busby has taken over the role of Plant Science Group convenor. The diverse and fascinating series of speakers for meetings has continued:

- March: Projects at the Australian National Herbarium and the wider Centre for Australian National Biodiversity Research (Brendan Lepschi, Curator, Australian National Herbarium).
- April: International collaboration to reconstruct the evolutionary history of eucalypts and close relatives (Emeritus Professor Mike Crisp, ANU).
- May: Impact of climate change on insect-plant relations may have more immediate impact on sub-alpine woodlands than expected (Dr Mathew Brookhouse, ANU).
- June: Rehabilitation projects relating to management of threatened species at mine sites on Christmas Island (Alasdair Grigg, Parks Australia).
- July: Evolution of sexual deception as a pollination strategy in orchards (Alyssa Weinstein, ANU).

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

**John Busby**

Anne Campbell is moving back to her home city of Adelaide. Over the years, not only has she been active in the Plant Science Group but her support to the Gardens and Friends has extended far and wide. She has been a volunteer guide since 2008 and has supported guiding with the development of

resource material and handbooks. Anne was one of the original Flora drivers, has regularly sold drinks or collected donations at Summer Sounds and other activities, has served on Friends Council, and even volunteered on the desk at the Visitor Centre. Our loss, Adelaide's gain (Editor)

### **Volunteer Guides**

We are pleased to welcome 15 graduating Guides to our team. It has been a long process for the trainees, starting with written applications last October, interviews in December, and the 12-day course itself, conducted over six weeks, from March to May.

Training drew upon wide expertise, including Gardens horticulture and visitor experience staff, CSIRO researchers, and current Guides. A highlight of the program was a 'speed dating' session, where each trainee had two minutes to exchange information and talk with each of 15 Gardens staff from across the organisation, including Dr Judy West.

Much was covered: communication and guiding skills, the work of ANBG,

and botanical knowledge. Learning took place through site visits, classroom presentations and guiding practice. Site visits rated highly, particularly to behind-the-scenes locations, including the Seed Bank and Nursery. Existing Guides contributed by supervising trainees' practice and, afterwards, in one-on-one mentoring. For the first time, the training included the Flora Explorer. The final day was dedicated to the trainees' own themed walks.

Each trainee is assessed to qualify as an 'ANBG Guide', and then joins the team. Visitors over the coming months might expect to hear new stories and fresh ways of appreciating the Gardens.

**Lesley King**



Two Guides graduating, June 2019, (Kerry Moir and Jane Cottee)



New Guides visiting the conservation garden with David Taylor



'Speed dating' – Guides-in-training with ANBG staff and Friends



## Native Orchid Conservation – recovering the ground for nature’s masterpieces to flourish

Dr Fiona Fraser, Director, Office of the Threatened Species Commissioner

(Edited by Cathy Robertson)

The 2019 Orchid Symposium held at the Royal Botanic Gardens Victoria in June 2019 was the occasion for participants to celebrate five years of solid progress for orchid conservation. The Symposium brought together community groups, practitioners and scientists to exchange knowledge on current conservation research and on ground action and to increase collaboration.

Dr Fraser’s keynote speech focused on the role of the Australian Government’s Threatened Species Strategy in the recovery of threatened plants. The Threatened Species Commissioner is responsible for leading implementation of the Strategy, including ambitious targets for seed banking, improving the trajectory of priority threatened plants and supporting recovery actions for these species. The presentation acknowledged the excellent work being undertaken by the Royal Botanic Gardens Victoria through initiatives such as the Orchid Conservation Program, and the many other contributors to orchid recovery, and demonstrated the importance of working together for orchid conservation.

In her presentation, Dr Fraser provided an overview of nationally threatened species listed under the Environment Protection and Biodiversity Conservation Act, of which 17 per cent are orchids - more than any other plant family. Thirty nationally listed threatened plants have been identified as priority plants under the Threatened Species Strategy and, of these, four are orchids: the Blue Top Sun-orchid (*Thelymitra cyanapicata*), the Fleurieu Leek Orchid (*Prasophyllum murfettii*), the Mossman Fairy Orchid (*Oberonia attenuate*) and the Glossy-leafed Hammer-orchid (*Drakaea elastica*).

### Threatened Species Strategy: the four priority orchids

The four orchid species included in the Threatened Species Strategy are part of 30 priority threatened plants which were chosen for inclusion in the Strategy based on prioritisation principles including conservation status, environmental importance, umbrella benefits, geographic range and their ability to leverage broader action. Research and conservation actions for these four orchids, and for some other threatened orchids, is being supported through Australian Government funding including the National Landcare Program, the Threatened Species Recovery Fund and the National Environment Science Program’s Threatened Species Recovery Hub. These orchids share similar threats – including habitat loss and degradation, invasive weeds, fire, site disturbance, grazing animals, and salinity. These threats, of course, don’t just affect these four orchids, but are contributing to the decline of many orchids listed under National Environmental Law. Dr Fraser gave an update from leading field research personnel about the work funded by the Australian Government on these four orchid species.



Blue Top Sun-orchid

**Blue Top Sun-orchid** (*Thelymitra cyanapicata*), is critically endangered, with a population of about 130 individual plants, known in only one place on the Fleurieu Peninsula, South Australia, where they grow in Manna

Gum swampy woodland. The species was a traditional food resource for local Aboriginal people, having an edible underground tuber. Blue-top Sun-orchids are being germinated with their mycorrhizal fungi by scientists from the Royal Botanic Gardens Victoria and Adelaide Botanic Gardens resulting in approximately 400 seedlings to date.



Fleurieu Leek Orchid

**Fleurieu Leek Orchid** (*Prasophyllum murfettii*), a tall flowering orchid, is found in swamp habitats associated with the critically endangered Swamps of the Fleurieu Peninsula Threatened Ecological Community, South Australia. The remaining fragmented populations have suffered since the quality swamp habitat has declined by around 75 per cent. Threats to the species include habitat loss and degradation, stock trampling and changed hydrology. Priority actions that may support this species include: protection of existing habitat, particularly the threatened ecological community; management of fire regimes and collection of seed and associated fungus and protection in off-site conservation populations. The plan is to establish symbiotically propagated ex-situ populations (with their mycorrhizal fungi essential for orchid germination) for later use in reintroductions. Half of the



seed collected will be stored in perpetuity with their mycorrhizal symbiont to protect each of these species from unforeseen loss.

**Mossman Fairy Orchid** (*Oberonia elastica*) is critically endangered, being highly endemic in the Mossman Gorge, Queensland. Until 2015, it had not been seen since the 1960s, and had been declared extinct. Over many years botanists had been surveying the area where it had last been located. In 2015 an unknown orchid was found in Mossman Gorge and experts confirmed the orchid to be the long lost *Oberonia*. Following its rediscovery, the species was added back onto the national threatened species list as critically endangered. The Australian Government supported research to better understand the ecology and recovery actions for the Mossman Fairy Orchid, including the importance of harvesting whole flower spikes to ensure at least some seed-pods are captured at the correct stage of maturity.

**Glossy-leafed hammer-orchid** (*Drakaea elastica*) is endangered and occurs in south-west Western Australia and grows only at 42

locations with a total population size of around 230 plants. A recent project was funded through the Threatened Species Recovery Fund to help protect a major population at Carrabungup Nature Reserve in WA from key threats which include grazing, and illegal vehicle and motorbike access. Fencing and track barriers were installed. The species is pollinated by one wasp species which limits seed production, so hand pollination was trialled. These two strategies were shown to improve seed production. There are many wicked challenges surrounding the conservation of orchids. The complex and mysterious ecology of orchids coupled with ongoing threats to their conservation require innovative research and ongoing community engagement to be effective. The symposium was an excellent opportunity to improve understanding about orchids and key steps required for orchid recovery.

Dr Fraser gave the keynote address at the **2019 Orchid Conservation Symposium** held on 18-19 June 2019 at the Royal Botanic Gardens Victoria. This article is an edited extract of her presentation.



ASHLEY FIELD

Mossman Fairy Orchid



PHOTO UNKNOWN ORIGIN, O.1164 APII ©

Glossy-leafed Hammer-orchid



# The Solander Garden at the Swedish Embassy

## Trish Munro

On Saturday 23 March, members of the Friends of the ANBG attended the launch of new plantings in the Solander Garden at the Swedish Embassy in Canberra.

The Swedish Ambassador, His Excellency Mr Pär Ahlberger and his wife Helene Ahlberger le Deunff, welcomed everyone to their residence, explaining that it is the second oldest Embassy in Canberra, being established in 1951. It has extensive grounds, with lawns and many established trees. However, as Ambassador Ahlberger explained, many of the plantings were ageing and some, such as the Silver Birches, were not thriving in the Canberra climate and were suffering from dieback.

Ambassador Ahlberger and his wife are themselves ardent gardeners at their home in Sweden. There they are

presently undertaking a project that will see them restore their home garden to the style that matches the 1880s when their home was built.

Fortunately, they brought their love of gardens to Canberra and quickly decided that there was a need to establish a garden of interest to visitors within the Embassy. They were concerned that there was nowhere for visitors to wander, when they came seeking visas.

An idea grew to initiate a garden that would highlight the contribution made to Australian flora by Daniel Solander, the Swedish naturalist who accompanied Joseph Banks on Cook's voyage to the Pacific in 1768-70. Solander had trained under the esteemed Swedish botanist and physician, Carl Linnaeus, who formalised binomial nomenclature for the modern system of naming organisms.

On this voyage Solander became the first Swedish university-educated scientist to set foot on Australian soil. The Solander garden commemorates his legacy and coincides with the 250<sup>th</sup> anniversary,

in 2020, of Cook's first voyage to the Pacific.

The garden was established with close cooperation and assistance from the ANBG. It has informative interpretation panels in the style seen in our Gardens. Several ANBG staff, including Pete Feilen and Janine Hunstone who attended this event, have been closely involved with the construction and plant selection. Most of the plantings in the Solander garden represent plants collected by Banks and Solander in 1770.

At the launch, both Pete and Janine spoke of their roles in the garden's establishment and of the plants selected which include: *Banksia integrifolia*, *B. marginata*, *B. blechnifolia*, *Correa alba*, *Chrysocephalum apiculatum*, *Myoporum parvifolium*, *Allocasuarina torulosa*, *Grevillea* 'Lady O', *Grevillea* 'Fireworks', *Gahnia seiberiana*, *Lomandra longifolia*, *Dianella caerulea* and *Goodenia obovata*.

The ANBG staff had brought a large potted *Banksia solandri* for display. The name is surely a fitting blend of the contribution of both Banks and Solander.



TRISH MUNRO

*Banksia solandri* on display from the ANBG



TRISH MUNRO

From left: Dr Aoife O'Brien, Curator for Oceania at Varldskulturmuseerna in Stockholm, ANBG staff, Pete Feilen and Janine Hunstone and Ambassador Ahlberger.

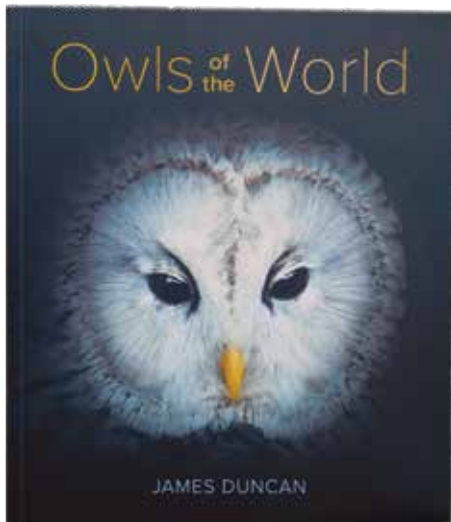


***Owls of the World***

**James Duncan. First published 2016, paperback edition 2018, soft cover, 192 pages, colour photographs, \$35.00**

This lavishly illustrated and entertaining book looks at the fascinating world of owls. With photographs of owls flying, feeding, roosting, owl chicks and more, this book really opens our eyes to these beautiful birds.

We found the chapter on adaptations in owls particularly fascinating...their amazing head rotation, facial disks (which can gather sound energy emitted by mice and small prey and focus it onto their ears), ear-tufts (not all owls have these), eyes (often the most colourful part of the owl), bill (used to grip prey and to keep themselves cool), talons and toes (nearly all owls have feathered toes), feathers (owls have special feather adaptations to help them fly almost silently), camouflage (the photographs in the book show this the best!), colour morphs (some owls can vary in plumage colour due to different factors) and sexual dimorphism (female owls tend to be larger on average than male owls). Also included are chapters on Owl Behaviour and Ecology and Owls of the World by Families and Genera.



***ANBG 2020 Calendar***

**\$13.00**

Our popular ANBG Calendar is now available. It will take you through 2020 and features 13 beautiful images taken by members of the Friends Photographic Group.



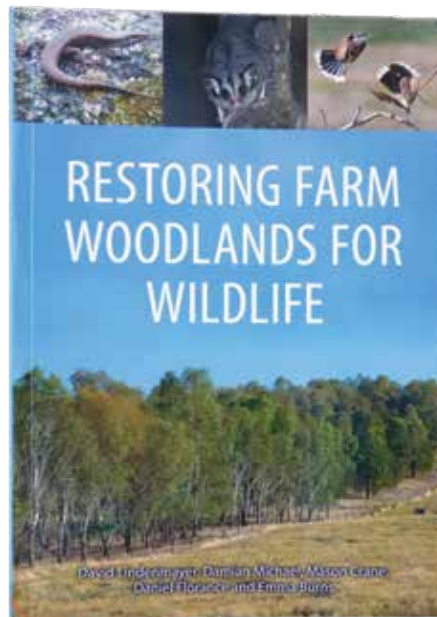
***Restoring Farm Woodlands for Wildlife***

**David Lindenmayer, Damian Michael, Mason Crane, Daniel Florance and Emma Burns. 2018. Soft cover, 122 pages, Colour photographs & diagrams, \$40.00**

‘Millions of hectares of temperate woodlands and billions of trees have been cleared from Australia’s agricultural landscapes. This has allowed land to be developed for cropping and grazing livestock but has also had significant environmental impacts, including erosion, salinity and loss of native plant and animal species. Restoring Farm Woodlands for Wildlife focuses on why restoration is important and describes best practice approaches to restore farm woodlands for birds, mammals and reptiles. Based on 19 years of long-term research in temperate agricultural south-

eastern Australia, this book addresses practical questions such as what, where and how much to plant, ways to manage plantings and how plantings change over time’.

Packed with colour photographs and useful diagrams this important book will be a key reference for farmers, natural resource management professionals and policy makers concerned with revegetation and conservation.



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

No discount on redemption of gift vouchers.

[www.botanicalbookshop.com.au](http://www.botanicalbookshop.com.au)

more information on our Facebook page at 'Botanical Bookshop'



## Gardens Shorts

### From the Executive Director

I am delighted to announce that the funding to construct the National Seed Bank has now been secured. We will be engaging an architect to develop the design in the coming months and the final design will be highlighted in a future *FronDS* edition. The National Seed Bank fund raising campaign will now focus on securing specialist equipment for the fitout of the Seed Bank. The complex design work for the Ian Potter National Conservatory has involved detailed analysis of design options to maximise light throughout the year. The architects are utilising the latest technology in modelling the internal environmental conditions within the Conservatory. The plans are expected to be finalised later this year and we will then go to tender for a builder. Plans for celebrating our 50th anniversary in 2020 are being finalised. One such activity is the Banksia Garden – a project jointly funded by the Friends is under construction and on track for an April 2020 opening. Take a look through the fence next to the Banks Building to see the great work from our staff in building the sandstone retaining walls.

Thank you to our volunteers who assisted with a major visitor survey undertaken during March and April, through the University of South Australia. The results were remarkable with 95% respondents “satisfied or very satisfied” with their visit; approximately 30% of visitors were from interstate or overseas; visitors rated the education experience as the key role for the Gardens and enjoyed the health and relaxation benefits of their visit.

Those of you who have been around the Gardens in recent months will be aware that we have undertaken a range of asset enhancements such as resurfacing the carpark, replacing areas of the Main Path, painting the Rainforest Gully bridge and handrails. New funding in 2019-20 will allow us to upgrade

our computerised irrigation system to reduce water usage and provide improved growing conditions for the living collection.

Judy West

### The Gardens turn 50 next year!

The Australian National Botanic Gardens (ANBG) celebrates the 50th anniversary of its official opening on 20 October, 2020. The Gardens, then known as the Canberra Botanic Gardens was formally opened by Prime Minister John Gorton on Tuesday 20 October, 1970. The Gardens was actually opened to the public in September 1967, three years before the official opening. The ANBG’s 50th anniversary celebrations will include key events such as the Summer Sounds 50th Anniversary Concerts; the Banksia Festival and opening of the new Banksia Garden; a sod turning ceremony to mark commencement of construction of the Ian Potter Conservatory; and the ANBGs 50th Birthday Garden Party – a family focused open day providing visitors with an opportunity to picnic, play games, explore images from our past and discover how much we have grown and changed. These events will be underpinned by a year-long public program of specialist talks, workshops, exhibitions, and social media stories.

The 50th anniversary celebrations will highlight the importance of ANBG’s partners: the Friends, conservation partners, NGOs, Parks Australia and the Department of the Environment and Energy, the Canberra community – who make up the largest proportion of visitors to the Gardens, and both past and present staff and their expert knowledge and commitment. All these contributors have been, and continue to be, crucial to the success of the Gardens.

Peter Byron

### Ex-situ conservation of the Christmas Island fern *Pneumatopteris truncata*

Fern reproduction has a long history of mystifying humans. In medieval times it was believed that fern seeds were invisible and magic, bestowing upon their finder powers of invisibility, strength, and the ability to speak to birds and find hidden treasures.

While not quite invisible, fern spores and their propagation still hold many mysteries, posing a challenge to the conservation of many threatened species.

National Seed Bank scientists from the ANBG are contributing knowledge and expertise along with the Christmas Island Minesite Forest Rehabilitation Program, Christmas Island National Park and the Australian Tropical Herbarium in a Parks Australia project



Ex situ conservation of the Christmas Island fern: A busy day in the lab setting up the spore germination trial on four growing media. Fanny Karouta, Sally Hawkins, Caroline Chong, Joe McAuliffe, Julie Percival.

## Gardens Shorts

to grow and secure ex situ populations of the critically endangered Christmas Island fern *Pneumatopteris truncata*.

Spores were collected on Christmas Island and a germination trial at the National Seed Bank and the Gardens' Nursery has successfully produced the first ferns to be secured ex situ at the Gardens. The success of this trial will inform further propagation of the species on Christmas Island.

### Connection to Country through language

Old Man Saltbush, *Atriplex nummularia*, is known in the indigenous Arrernte language as Irreye. It is one of several Red Centre Garden plants native to central Australia to be translated into the local language by a group of Arrernte Cert III students from Alice Springs, who visited the Gardens as part of a program to learn and share knowledge as part of their language studies.

On their first-ever visit to Canberra, the students spent time in the Red Centre Garden connecting common and scientific plant names with the Arrernte names.

Not all plants were named because some grow more towards the Top End and others may not have an Arrernte name if they aren't useful for survival.

The students created a list of twenty species known to be useful for survival and to grow in the region in and around Alice Springs with Arrernte plant names and another ten in Western Desert languages. The final list has now become a collection item at the Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) and a knowledge base to build upon for future visits to the Gardens. The reflection from students was that it was one of the best things they did in Canberra.

The annual program is coordinated between the Alice Springs Languages Centre and AIATSIS as part of their work to promote knowledge and understanding of Aboriginal and Torres Strait Islander cultures, traditions, languages and stories, past and present.

### Threatened Species Children's Art Competition

The Threatened Species Children's Art Competition exhibition will return to the Gardens in September 2019.

The competition helps primary aged children unleash their artistic creativity while learning about threatened native plants and animals. The competition has a plant prize category to bring more focus to threatened plants. Forty young Canberra artists will have their artworks exhibited in the Gardens around the *Who Did That* children's trail in the Paperbark Garden.



One of the 2018 winning artworks: *Wollemi Pine* by Meera age 10



Arrernte Cert III students from Alice Springs, with Ranger Bruce

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Australian National Botanic Gardens



## Friends Briefs

### Tony Wood: 22 January 1942 - 31 October 2018

To many members of the Friends Tony was known for his spring orchid walks on Black Mountain. His last walk was just three weeks before his untimely death.

Tony combined his interests in the bush, plants and photography with the fascination of orchids. He was an avid contributor to the ACT Orchid e-mail Group, and the main photographic contributor to the Field Guide to the Orchids of the Australian Capital Territory. At the time of his death he was collaborating on a new field guide for orchids of the Southern Tablelands.

He was a volunteer for twenty years at the National Herbarium, recently a moderator for orchids on the Canberra Nature Map, and a member of the Gardens Photographic Group. With all his activities he was generous in sharing his knowledge.

He is survived by his wife Joyce, son Peter, daughter and son-in-law Naomi and Colin and five grandchildren.

Jean Egan

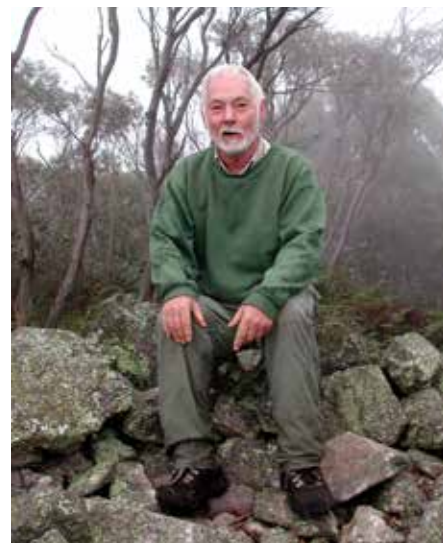


PHOTO SUPPLIED BY PETER WOOD

### Schools Photographic Competition: explore the gardens with your camera

**If you are or know an enthusiastic school age photographer, now is time to think about visiting the Gardens. This year, the Friends of the ANBG have extended their Schools Photographic Competition to include primary school students. The competition has now been running for 23 years, but has previously only been open to high school and college students.**

Getting to know the Gardens' hidden gems early means you have plenty of time to get that special photograph that may win you cash prizes. There are prizes for both monochrome and

coloured photographs. High school and college students may also enter altered reality images.

Entries may be submitted individually or through the student's school or college, but must be taken in the ANBG. The closing date is 2 October 2019, with an exhibition of the best photographs in the Visitors Centre from 30 October to 2 November 2019. For entry forms, and more information, see the Friends website Home page, under Latest News ([www.friendsanbg.org.au](http://www.friendsanbg.org.au)). Or email [schoolphoto@friendsanbg.org.au](mailto:schoolphoto@friendsanbg.org.au) for further information.



Aidan Giddings, Canberra College; *Katrina in the Wild* (2018)

### Wake Up With the Birds 2019

7.45 am on weekends

28th September to 20th October

**Cost:** \$12 for Friends of the ANBG, and \$15 for others. (Not suitable for children under 8 years old.)

**Bookings essential:** see Friends website [www.friendsanbg.org.au](http://www.friendsanbg.org.au) and use the link to the booking site.

**Enquiries:** email [birds@friendsanbg.org.au](mailto:birds@friendsanbg.org.au) or telephone 0410 577 677

The ANBG provides a fantastic habitat for many of Canberra's birds, with water and nectar in abundance. During Flori-

ade 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](http://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 as well as Red-browed Finches

Meet at the Visitor Centre at 7.45 am. Please wear comfortable footwear and warm clothes. Some binoculars will be provided, but bring your own if you have them.

Details of events are correct at the time of printing. For changes and updates please check the Friends' website at [www.friendsanbg.org.au](http://www.friendsanbg.org.au) or the Gardens' site at: [www.anbg.gov.au](http://www.anbg.gov.au)

### Guided Walks

Daily at 11 am and 2 pm

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

### Flora Explorer tours

Weekends & public holidays, 10.30 am and 1.30 pm. 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.

### Storytime in the Gardens

10 am – 11 am. Cost: \$5.00 per child

First Friday of every month, Suitable for pre-schoolers.

Science Week: 10 – 18 August

Wattle Day: 1 September

National Threatened Species Day: 7 September

Pollinator Week: 11 – 18 Nov

### Creating a Nature Journal: Using Art to connect with Nature

Sun 18 August 10.00 am – 12.30 pm

Cost: \$65.00, Book via ANBG website

Julia Landford from NatureArt Lab puts on an inspiring, creative session with guidance on basic drawing techniques, and ideas for nature journaling practices. The workshop focuses on learning to see what is around us in nature, while also developing a creative visual art diary reference.

### NatureArt Kids Club

Sun 25 August, Sun 29 September, Sun 24 November

10.00 am – 12.30 pm, meet at Banks Building

Cost: \$48.00 Book via ANBG website

NatureArt Kids adventures are designed for children aged 5-12years. It's an exciting exploration of nature in the Gardens and involves drawing and observation, nature journaling, painting and hands-on activities. Activities will include getting to know the birds, insects, marsupials and reptiles as well as the unique Australian plant communities featured in the Gardens.

### Botanicals in Blue

Saturday, 31 August, 10 am – 4 pm

Cost \$215 per person

Join PhotoAccess and leading local photo-media artist Kim Sinclair for a one-day, hands-on workshop exploring how to create striking cyanotype prints capturing your experience of the Gardens in beautiful late winter bloom. All materials included. To enrol visit [www.photoaccess.org.au/learn/classes](http://www.photoaccess.org.au/learn/classes)

### Threatened Species Children's Art Competition 2019 outdoor exhibition

Sat 7 September – Sun 13 October,

9.30 am – 4.30 pm. Book via ANBG website

The Threatened Species Children's art competition helps to unleash kids' creativity while learning about the extinction crisis facing our native plants and animals. It aims to encourage the next generation of environmental leaders.

## EXHIBITIONS

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

BUSHLIFE AND BIRDLIFE 31 July – 25 August

This father/daughter exhibition by Kevin Baker and Penny Deacon explores the beauty of Australian flora in local landscapes, and the wildlife which it attracts.

30:30 – THE TRANSFORMATIVE NATURE OF MOSAICS 28 August – 29 September

This exhibition highlights the diverse styles and materials used in mosaics and showcases the work of members of the Mosaic Association of Australia and New Zealand.

A GARDEN OF LETTERS 2 – 27 October

Canberra Calligraphy Society exhibit the artistic form of lettering using a botanic theme.

23<sup>RD</sup> ANNUAL SCHOOLS PHOTOGRAPHIC COMPETITION 30 October – 17 November

This competition is an excellent opportunity for students to become aware of the value and beauty of the Australian National Botanic Gardens and to share that beauty with other visitors.

TREASURES: 21 November – 8 December

Friends' Photographic Group annual exhibition



## What's on (contd.)

### Two Spring Walks:

*Now You See Them, Now You Don't*

Friday 6 September, 11:30 am to 1:00 pm

Saturday 7 September, 11:30 am to 1:00 pm

Celebrate Threatened Species Day with a stroll through the ANBG with Volunteer Guide, Naarilla Hirsch. This walk will take in the diversity of threatened species and communities on show at the ANBG. Discover the range of threats faced by these plants and on a positive note, explore the critical role the ANBG plays in conserving them.

### *The ABCs of the Amazing Bryophytes and other Cryptogams*

Wednesday 25 September, 9:30 to 10:30 am

Can you distinguish between a bryophyte and other cryptogams? Where do fungi and lichens fit in? Discover the amazing world of bryophytes and other cryptogams with Dr Chris Cargill, Curator of the Cryptogam collections of the Australian National Herbarium, on this one-hour stroll through the ANBG.

**Cost:** These walks are free

**Bookings essential:** [www.friendsanbg.org.au](http://www.friendsanbg.org.au) under **Coming Up**. (Please note that numbers are limited.)

**Enquiries:** 0421 131 898 or [member-swalks@friendsanbg.org.au](mailto:member-swalks@friendsanbg.org.au).

**Meet:** Visitor Centre, ANBG.

**Bring:** Water, appropriate footwear.

### *Treasures in Timber*

4 – 7 October

Discover the finest work of the ACT Woodcraft Guild, meet the members and discover a variety of woodworking techniques through demonstrations and workshops.

### *Sunset Cinema*

Thu 21 November – Sat 11 January 2020 every Wednesday, Thursday, Friday and Saturday

Enjoy the latest movies in a lovely garden setting. Information ANBG website

### *School Holiday Programs – NatureArt*

Tuesday 8 – Friday 11 October

10.00 am – 2.00 pm

\$70.00 per session. Book via ANBG website

High quality educational and fun art science experience for children aged 5-12 years. Run by experienced science communicators and artists who inspire a love of nature through drawing, painting, animal encounters and outdoor play.

### *Wake up with the birds*

Saturday 28 & Sunday 29 September

Saturday 5 & Sunday 6 October

Saturday 12 & Sunday 13 October

Saturday 19 & Sunday 20 October

(see page 16 for details)

### *Australian Native Plant Society – Plant Sale*

Saturday 19 October, 8.30 am – 1.30 pm or earlier if plants sell out

A great range of native plants including many local species, suitable for Canberra's climate and soil. Prices range from \$6.00 - \$10.00. Plant list at [nativeplantscbr.com.au](http://nativeplantscbr.com.au)

### *Nature Photography Workshop*

Saturday 19 & Sunday 20 October 9.00 am – 4.30 pm

\$750 for 2 days Book via ANBG website

Join Steve Parish for a weekend workshop that includes interactive seminars combined with practical photographic sessions in our unique botanical setting at the peak of the wildflower season.

### *Growing Friends Plant Sale*

Saturday 9 November – Banks Building and carpark

8.30 – 11.30 am

### *Bees Wax Wraps Workshop*

Sunday 10 November 10.00am – 12.30 and 2.00pm – 4.30pm

Cost: \$30.00 Book via ANBG website

Make your own Bees Wax Wraps. Use less plastic at home and get creative at the same time. Suitable for 18 years & over. Bookings essential.



LINDELL EMERTON

Spotted Pardalote gathers nesting material, ANBG. **Wake up with the birds:** for more information see page 16



## Friends of the Australian National Botanic Gardens

### **ANNUAL GENERAL MEETING 2019**

The 31st AGM of the Friends of the ANBG will be held on Thursday 17 October 2019 at 5.30 pm in the Gardens Theatre. Light refreshments will be served from 5pm in the Dickson Room.

### **Nominate for Council:**

Elections will be held for the position of Vice President, Secretary and two ordinary members of Council. Nominations are invited from members for these positions. (See the Friends website for more details including information on how to nominate.)

The AGM will be followed by a discussion of the arrangements for the 30th Anniversary of the Friends of the ANBG in 2020.

Apologies may be emailed to [secretary@friendsanbg.org.au](mailto:secretary@friendsanbg.org.au)

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## THURSDAY TALKS: AUGUST – NOVEMBER 2019

Lunchtime talks are held at 12.30 pm every Thursday from February to November in the Gardens' Theatrette.

Talks last for one hour. Admission is by gold coin donation. There is no need to book but please note that for safety reasons the ANBG Theatrette seating is strictly limited to 90 people. The Friends of the ANBG thank the speakers who volunteer their time and talents to further the knowledge of all attending events in the Gardens. The Friends use the 'gold' coin donations received at each activity to support Gardens' programs and development and thank all those who have donated.

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. For more details on speakers' topics and biographies see the Friends' website <https://www.friendsanbg.org.au/calendar>

Please direct queries about Thursday Talks to Jan Finley; [jfinley@webone.com.au](mailto:jfinley@webone.com.au)

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### AUGUST

#### Thursday 8 August

##### **Damian Wrigley 'Australian Seed Bank Partnership'**

Damian, from the Australian Seed Bank Partnership (ASBP), will outline how the ASBP is contributing to global conservation efforts and will give an update on the Seed Science Forum to be held at the ANBG in 2020.

#### Thursday 15 August

##### **Glenn Cocking 'Moths & Bushblitzes'**

Glenn, a volunteer curator at the National Insect Collection, will discuss the moth fauna of Black Mountain in the context of some general observations about moths, and how to understand the families present in the ACT. He will tell some stories about an eclectic selection of particular species from wider afield.

#### Thursday 22 August

##### **Dr Laura Rayner 'Parrot Central for a Bird on the Edge'**

A conservation ecologist, Laura will bring us up-to-date on her research on Superb Parrots – a superb bird pushed to the very edge of its natural range by climate change and land clearing. It is now a race against time to determine what pressures the parrot is facing and what needs to be done to secure its future.



Superb Parrot, Mulligan's Flat, ACT

#### Thursday 29 August

##### **Anke-Maria Hoefler 'Frogwatch: Successfully Marrying Citizen Science and Community Engagement Since 2002'**

Anke-Maria, from the ACT and Regional Frogwatch Program, will introduce you to the program that engages hundreds of volunteers each year. The data collected feeds into a wide range of frog projects, including frog census, climate change investigations and frog habitat studies.

### SEPTEMBER

#### Thursday 5 September

##### **Dr Phillip Kodela 'Wattle we do with Acacia'**

Phillip, from the Department of Environment and Energy, will discuss interesting facts and figures about this genus and related taxa, including recent taxonomic debates and developments in the *Flora of Australia* and the plant identification tool WATTLE.

#### Thursday 12 September

##### **Dr Patrick De Decker 'The Belgica Expedition in Antarctic Waters 1897-1899'**

Patrick, an Emeritus Professor, at the ANU, will tell the tale of amazing scientific achievements and human endeavor on The Belgica Expedition. He will discuss scientific data obtained during the expedition and their subsequent publication over 40 years.

#### Thursday 19 September

##### **Dr Jim Peacock 'Can Plants Meet the Challenge of the Food Needed for the World's Growing Population'**

Jim, a CSIRO Fellow and former Australian Chief Scientist, is a leader in plant molecular biology. He has made a significant contribution to Australian science, agribusiness and science

education in schools. His talk will focus on the critical question, can plants meet the challenge of the food needed to meet the world's growing population?

#### Thursday 26 September

##### **Jennifer Rowland 'Alexander von Humboldt, Scientific Traveler'**

Jennifer, a former demographer, and also a member of the Friends of the ANBG and Cactus and Succulent Societies. To mark the 250th anniversary of the birth of Alexander von Humboldt, Jennifer will discuss his life, plant discoveries, trip to Central America and legacies which are still being considered as the foundation of many scientific and artistic endeavors today

### OCTOBER

#### Thursday 3 October

##### **Professor Kate Auty 'Sustainability and the Environment'**

Kate, the ACT Commissioner for Sustainability and the Environment, will talk about innovative new strategies for the ACT's reporting on the State of the Environment which include: providing accurate, timely, and accessible information; evaluation; and increased community and government understanding of environmental and sustainability trends and interaction.

#### Thursday 10 October

##### **Brett McNamara 'Life of a Rain Drop – Protecting the Cotter Catchment'**

Brett, Manager, Namadgi National Park, will talk on the emergence of the threat on Canberra's principal water supply from feral horses, along with deer and noxious weeds. Brett will provide context to the contemporary challenges confronted by land conservation managers as they manage the high county of the bush capital.



**Thursday 17 October**  
**Professor Simon Haberle 'The Wonders of Pollen: A Truly Canberra Perspective'**

Simon, from the ANU, will focus on the remarkable part pollen is playing in the science of food, health and history. He will explore its use in the science of honey, allergy studies and the deep-time history of our environment – each told using examples of research from the Canberra region.

**Thursday 24 October**  
**Dr Lydia Guja 'The Seedy Side of Alpine Bogs and Fens'**

Lydia, Seed Conservation Biologist and Manager of the National Seed Bank, will speak on the conservation of endangered alpine bogs and fens, and share new results on research into seed dormancy and germination of bog and fen plants, highlighting the important role seeds play in ensuring the persistence of these communities.

**Thursday 31 October**  
**Steven Petkovski and Natalie Schroeder 'Palaeobotany in the Commonwealth Palaeontological Collection'**

Steve and Natalie, both from Geoscience Australia, will talk about the Commonwealth Palaeontological Collection at Geoscience Australia which contains over 45,000 published fossil specimens. The talk will provide: an overview of the collection; an introduction to palaeobotany and its importance; and information on the collection of Mary White.



*Roupala sapindifolia*, Family Proteaceae, of Eocene age (56 to 33.9 million years ago). From Vegetable Creek NSW. (White, Mary, 1988, *Australia's Fossil Plants*, photography Frazier, J, Reed Books, p132).

## NOVEMBER

**Thursday 7 November**  
**Dr Marita Bradshaw 'History of Australia in Seven Rocks'**

Maria, a leading petroleum geologist, will identify seven rocks that have had a wide-ranging and profound influence on Australian society, historical events and biology. These include: the mineralization of Mount Isa; the Cretaceous shales of the former inland sea which gave us the Great Artesian Basin; and the Cenozoic limestones of the south coast.

**Thursday 14 November**  
**Leah Dann 'When Aliens Invade: The Impact of Invasive Species on Norfolk Island's Native Vegetation'**

Leah, a PhD Student at the University of Queensland will discuss Norfolk Island's vegetation and some major threats to native plant establishment, particularly the impact of invasive species such as rats and feral chickens. Strategies to mitigate key threats and secure native vegetation communities are vital.

**Thursday 21 November**  
**Dr Penny Olsen 'Night Parrot the Bird and the Politics'**

Penny, an Honorary Professor at the ANU, will talk about the Night Parrot. The first museum specimen of the Night Parrot was collected in 1845 but lay unrecognized until well into the 20<sup>th</sup> century. Since then the parrot has continued to elude seekers, revealing itself only intermittently. The recent discoveries of small populations in south-east Queensland and Western Australia, have heightened interest in the bird.

**Thursday 28 November**  
**Michael Doherty 'Vegetation Types, Vegetation Dynamics and Fire Ecology on Black Mountain'**

Michael, a plant ecologist, will focus on the long-term ecological monitoring which is an essential component of sound fire management practice on Black Mountain. Given the proximity of Black Mountain to Canberra's academic institutions and an engaged and interested community, the mountain remains a fertile ground for ongoing botanical and ecological research.

## FRIENDS BENEFITS

*As a Friend you are entitled to:*

- Three issues of *FronDS* a year
- Three hour free parking pass
- Discount at:
  - Botanical Bookshop (most items)
  - Pollen
  - Jindii Eco Spa
  - Cool Country Natives in Pialligo
  - Australian Choice, Canb. Centre

*You also receive:*

- Advance details of lectures
- Advance bookings for some events
- Discounts on some events
- ANBG library membership – borrow books, serials, videos, DVDs plus use of computers and interactive CD ROMs
- Function facilities – special rates for functions at ANBG

*And opportunities to:*

- Join Botanical Art Groups
  - Growing Friends
  - Photographic Group
  - Plant Science Group
- Assist with Gardens' research projects
- Become a Guide
- Relax in the Friends Lounge in the Ellis Rowan Building, open to members 9.30 am to 4.30 pm. Relax with tea/coffee and lots of interesting reading.

## Pollen



Open daily | 9am to 3pm  
[pollencafe.com.au](http://pollencafe.com.au)