

# *Fron*ds

30  
years

*Friends of the Australian National Botanic Gardens*  
*Number 96 December 2020*





## Friends of the Australian National Botanic Gardens

President Neville Page  
Vice President Linda Beveridge  
Secretary Lynden Ayliffe  
Treasurer Helen Elliot  
General Committee Wendy Antoniak  
David More  
Alan Henderson  
Wanda Filsell  
Lesley King  
Public Officer Wendy Antoniak  
Exec. Director ANBG Dr Judy West  
Post: Friends of ANBG, GPO Box 1777,  
Canberra ACT 2601 Australia

Telephone: (02) 6250 9548 (messages)

Website: [www.friendsanbg.org.au](http://www.friendsanbg.org.au)

Friends' activities and contacts

**Fronds Committee:** Barbara Podger  
Cathy Robertson  
Denis Warne  
Pam Rooney

[newsletter@friendsanbg.org.au](mailto:newsletter@friendsanbg.org.au)

**Membership** Lesley Harland  
Pam Cooke

[membership@friendsanbg.org.au](mailto:membership@friendsanbg.org.au)

**Growing Friends** Maurice Hermann

**Guides** Lesley King

**Botanic Art Groups** Helen Hinton

**Photographic Group** Rhonda Daniell

**Plant Science Group** John Busby

**Social Events** Tricia Morton

**Talks Convenor** TBA

For all these groups contact:

[info@friendsanbg.org.au](mailto:info@friendsanbg.org.au)

**Booked Walks:**

[bookedwalks@friendsanbg.org.au](mailto:bookedwalks@friendsanbg.org.au)

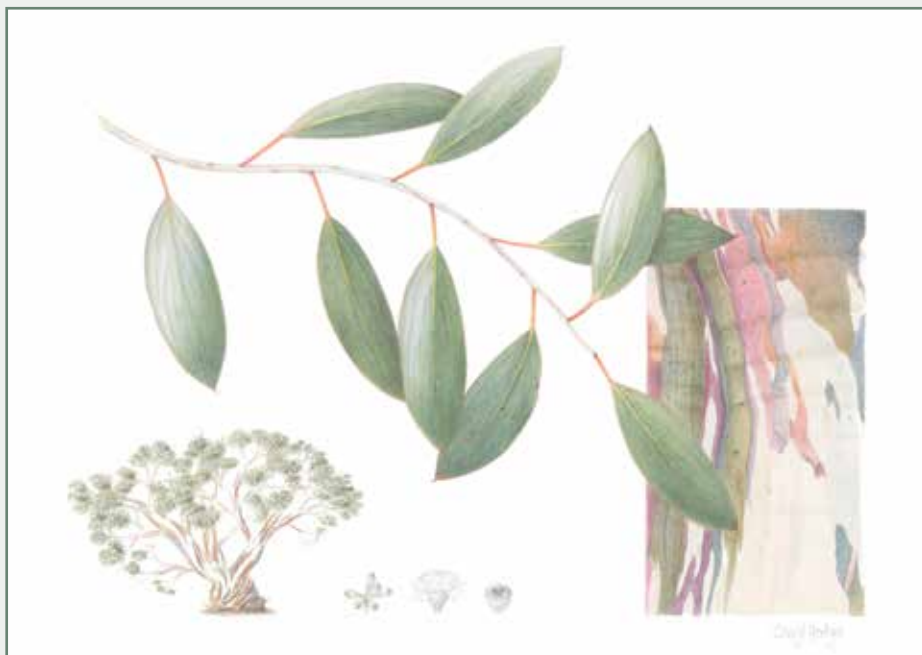
*Fronds* welcomes your articles and photographs.

*Fronds* is published 3 times per year; the deadline for articles is mid-February for the April issue; mid-June for the August issue and mid-October for the December issue. 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, every day, Editorial messages: telephone (02) 6250 9548.

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Cheryl Hodges' painting of Snowgum – *Eucalyptus pauciflora* ssp. *niphophila*, which was accepted into the Florilegium of the Royal Botanic Gardens of Edinburgh. They have works by artists around the world, but Cheryl is the only Australian. The exhibition is open in Edinburgh until December.

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Cover photo by Alison Milton, Spotted pardalote, ANBG, 2020.



# The Banksian Herbarium at the Natural History Museum London

Dr Mark Carine,

Principal Curator in Charge, Algae Fungi and Plants Division, Department of Life Sciences, NHM London

The herbarium of the eminent eighteenth-century naturalist and explorer Sir Joseph Banks (1743-1820) is a collection of great historical and scientific value. Alongside the collections of Sir Hans Sloane (1660-1753), it is one of the founding collections of the herbarium of the Natural History Museum in London (NHM).

During his lifetime, Banks assembled a natural history collection eclipsing that of the British Museum. His house in Soho Square became a renowned centre for biodiversity research, staffed by some of the best naturalists of the day. His death in 1820 led to the transfer of his herbarium and other natural history collections to the British Museum. Before his death, Banks bequeathed his herbarium to his librarian Robert Brown (1773-1858), himself a renowned botanist and student

of the Australian flora whose collections made on Flinders' *Investigator* would also become part of the NHM herbarium. Banks' bequest was on the condition that it would become the property of the British Museum on Brown's death unless Brown transferred it earlier. In reality, it was not long before negotiations for its transfer began.

The collection was transferred to the British Museum in 1827 with Brown appointed Keeper of the Banksian Collection. Brown subsequently reported that the general part of the herbarium contained 23,400 species arranged in 67 cabinets. There were another 1700 parcels of specimens still to be processed that he estimated to contain 5000 more species. The collection also included 64 drawers of fruits and seeds, a modest collection of material preserved in spirit and a number of

important historical collections that had been purchased by Banks and that were maintained separately.

At the time of its acquisition, the Banksian herbarium was undoubtedly one of the most significant in existence. It included the specimens that Banks had collected in the field – both in Britain and on his voyages – but they accounted for a relatively small, though scientifically important proportion of the collection. Far more numerous were the collections made by others – plants that he had acquired as gifts or exchanges through his extensive networks, those that were contributed by people he commissioned to collect, those that he acquired from gardens – a rich source of species new to Europe in the eighteenth and nineteenth centuries – and those that he purchased.

The Banksian collection contained significant early Australian herbarium collections. It included the collections of Allan Cunningham (1791-1839), made in New South Wales and during the circumnavigation of Australia by HMS *Mermaid*. But, it is of course, Banks' own Australian collections, made during the circumnavigation of the globe by *Endeavour*, captained by James Cook, that are of particular note in this year marking the 250th anniversary of their collection.

When, on 25 August 1768, the *Endeavour* left Plymouth, Banks was one of several supernumeraries on board. He was a late addition, but he assembled an impressive team to accompany him. The Swedish naturalist Daniel Solander, Assistant Keeper for the Natural History at the British Museum since 1763, was given leave to travel as Banks' companion and co-scholar. Two artists, Sydney Parkinson and Alexander Buchan, also travelled – Parkinson, responsible for botanical and natural history illustrations, with Buchan



Joseph Banks' herbarium in his house at 32 Soho Square, London. It remained there until 1827 when it was moved to the British Museum.  
Sepia painting by Francis Boott, 1820.  
© The Trustees of Natural History Museum, London.

focussing on landscapes and figures. The Finn, Herman Spöring, was Banks' assistant, secretary and reserve artist, and there were four servants: Thomas Richmond and George Dorrton, freed slaves, and Peter Briscoe and James Roberts from Banks' Revesby estate in Lincolnshire. Banks, Solander, Briscoe and Roberts were the only team members to survive the voyage: Richmond and Dorrton died in a blizzard in Tierra del Fuego; Buchan died in Tahiti and Parkinson and Spöring died after leaving Indonesia.

Banks' team was well equipped for collecting and documenting the plants and animals they encountered. Banks spent about ten thousand pounds on equipment – equivalent to one and a half million pounds today. In a letter to Linnaeus, the naturalist John Ellis suggested that: *...no people ever went to sea better fitted out for the purpose of Natural History, nor more elegantly.*



Type specimen of *Banksia integrifolia*, collected by Joseph Banks and Daniel Solander in Australia during Cook's *Endeavour* voyage. The genus *Banksia* was named for Banks by Carl Linnaeus the Younger who visited London in 1781-1782 and Joseph Banks' house and herbarium in Soho Square. CC BY 4.0. © The Trustees of Natural History Museum, London.

*Endeavour* returned to England in 1771 with 24 wooden chests and several kegs filled with specimens. They had spent around 300 days ashore collecting, amassing around 30,000 botanical specimens – an average of 100 specimens per collecting day. As with botanical collecting today, each plant specimen needed to be dried and then kept dry to prevent their deterioration – a huge undertaking in *Endeavour's* cramped conditions.

In NHM's botany special collections room is a loosely bound 'book' labelled *Madeira III*. It is one of the bundles of paper used on *Endeavour* to dry and store plant specimens. It contains specimens, each labelled with a small tag,



A specimen of *Acacia spirorbis* subsp. *solandri* collected by Banks and Solander in Australia in 1769. This plant was first recognised as new in a publication by George Bentham in 1864, nearly a century after it was collected. He named it in honour of Solander. © The Trustees of Natural History Museum, London.



and it provides a remarkable reminder of the botanical collecting practices on the voyage. The bundle comprises uncut sheets of pages from *Notes upon the twelve books of Paradise Lost* that had been published by Joseph Addison decades before the voyage. Paper was scarce and expensive in the eighteenth century and Banks needed lots of it for plant drying so printers' waste was purchased.

Banks' diary gives some idea of the challenges in drying specimens. His entry for 3 May 1770, soon after arrival in Botany Bay, Australia, explains:

*Our collection of Plants was now grown so immensely [sic] large that it was necessary that some extraordinary [sic] care should be taken of them lest they should spoil in the books. I therefore devoted this day to that business and carried all the drying paper, near 200 Quires of which the larger part was full, ashore and spreading them upon a sail in the sun kept them in this manner exposed the whole day, often turning them and sometimes turning the Quires in which were plants inside out.*

It is remarkable how little collecting practices have changed in the intervening 250 years: botanists still label specimens with paper tags and place them between paper to absorb moisture, investing great time and effort in drying.

Another similarity with botanists today is the collection of duplicates – multiple specimens from the same individual or from the same population. As a consequence, Banks' *Endeavour* specimens can today be found not only at the NHM but also in herbaria in Europe, Australia, New Zealand and North America.

Two hundred and fifty years on Banksian herbarium specimens are today finding new uses. Each specimen provides a record of a particular species at a particular place and time, and changes to plants and to the environment over the last 250 years. One recent study used a specimen Banks collected in New Zealand to examine changes in density of stomata (or pores) on the leaves of plants over the last 250 years in response to atmospheric carbon dioxide changes. However, it is in taxonomy – the science of describing and naming

species – that Banks' specimens have been most extensively used. Type specimens are specimens that were cited in the first description of species and they are an essential tool for ensuring the correct naming of plants. A 2012 study examined a sample of 100,000 type specimens from the NHM and other herbaria. The study found that more than half of all type specimens were collected by just two percent of collectors whereas around half of collectors contributed only a single type. The top two percent of collectors were referred to as 'Big Hitters'. Banks was one of them and many of those types were collected on the *Endeavour* voyage.

Whilst Banks was a prolific 'Big Hitting' collector, responsible for collecting many type specimens, he published the scientific names and descriptions for just a handful of species. It was left to others to use his collections to publish descriptions of species collected during his voyages, a process that continued for decades after the specimens were collected.

Some question whether Banks was really a scientist. What is indisputable is that the specimens and knowledge that he assembled from his voyages and through the subsequent development of his herbarium, created a remarkable resource allowing other scientists to document and describe plant diversity across the globe. His collection is a significant legacy and an important scientific resource today. His wider legacy is undoubtedly a mixed one. Banks was involved in projects that would have significant environmental impacts and there can be no doubt that some of his work, either directly or indirectly, furthered the institutions of slavery and imperialism.

Specimens collected by Joseph Banks can be viewed on the Natural History Museum's data portal: [data.nhm.ac.uk](https://data.nhm.ac.uk).



*Madeira III*, a loosely bound book made up of uncut pages of *Notes upon the twelve books of Paradise Lost*, that was used by Banks and Solander to dry and store plants collected in Madeira, the first port of call for the *Endeavour* voyage. © The Trustees of Natural History Museum, London.

## 50 Years Ago, from the Gardens' Image Collection

In 1970, what is now the ANBG's Image Collection was two separate collections of 35mm slides, one with photos largely taken by Dr Betty Phillips and managed by the Herbarium, and the other with photos mostly taken by the Rangers and research staff and managed by what is now Living Collections. The two collections were amalgamated in the mid-1970s. This collection is now managed in two major categories: photos of plants and photos of 'non-plants'. The latter comprises images of the Gardens' development and other visual resources required to give public and scientific talks and for use in publications.

A few of the photos from the latter collection that were taken in 1970 are presented here.

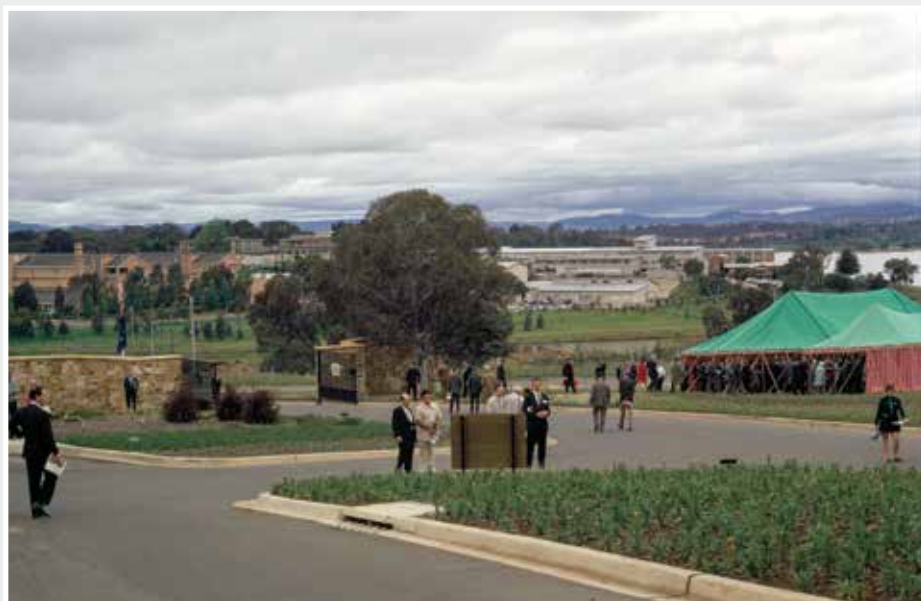


J. Wrigley © Australian National Botanic Gardens, 1970

Image L-43. In October 1970, John Wrigley took this photo of the 'Propagation House' at the Old Nursery (site of the current Red Centre Garden). It has a wooden frame supporting walls of plastic sheeting, and the young plants are all in small terracotta pots. The propagator is a Finnish gardener called Yaucko Jouhanien (*not sure of the surname spelling, can anyone help? M. Fagg*).



© Australian National Botanic Gardens, 1970



© ANBG Ranger, 1970

Image V-609. For the opening of the Gardens on 20 October a marquee was erected near the front gates, from where about 400 invited guests were served afternoon tea. The area was quite open with views to Lake Burley Griffin and parts of ANU. The tree in the centre of the photo, *Eucalyptus mannifera*, had been planted by the Director of Kew Gardens in the presence of Prime Minister Ben Chifley (who planted an oak) in 1949. It is still there.

Image D-23. In the lead-up to the official opening of the Gardens in 1970, there was a lot of activity to tidy up the site. Outside the fence on our northern boundary was a gully filled with rusting car bodies, known as the 'car dump'. In August 1970, a bulldozer was used to bury this eye-sore, but it is still there beneath the ground. The area later became part of the Northern Annexe of the Gardens, about where the current bulk storage facility is located.





Image V-610. On the day of the Gardens' official opening on 20 October a dais was built for the VIPs in the lowest level of the public carpark. Waiting for events to commence is Dr Bertram Dickson (grey hair, author of the 'Dickson Report' in 1935) being introduced by John Wrigley (then Curator) to his wife Marcia. The young girl is the Wrigleys' daughter Jenny who later presented a posy of native flowers to Mrs Bettina Gorton, wife of Prime Minister John Gorton. Behind Dickson is Lindsay Pryor (back to camera) who initiated the development of the Gardens in 1945.



Image S-23. One thing that did not go to plan in time for the opening of the Gardens was the flowering of the mass annual display, which was quite experimental in 1970. This can be seen in photo V-609 (opposite) where all the annuals are still in bud. This photo, taken three weeks later on 16 November, shows what it should have looked like. Most of these plants are *Rhodanthe manglesii*.

**Book review: *Black Mountain – a Natural History of a Canberra Icon*, Ian Fraser & Rosemary Purdie**  
Published by Friends of Black Mountain, 2020, \$35.00

What a gem! As Professor David Lindenmayer says in the preface: *Black Mountain has been a special part of my life for over 50 years, ...though in my case it is a little longer!*

And I thought I knew Black Mountain, but here is a book full of information to prove how little I knew. But then why would it not be rich in not only information but also the latest science. Written by two of Canberra's outstanding natural historian/scientists Ian Fraser and Rosemary Purdie the book began with a clever idea. In 2018 a Symposium was held where 18 of the leading researcher/scientists in different fields wrote a background paper of their special topic. Fraser and Purdie have used that material and then written an easily flowing narrative which is engrossing, dense with factual information and highly readable.

Twenty two years ago I wrote a piece to mark the 20<sup>th</sup> Anniversary of the wonderful, and then ground-breaking book on *Kosciusko Alpine Flora* by Alec Costin, Dane Wimbush, Colin Totterdell and Max Gray. Since that time these sorts of specialised publications have grown exponentially. I know because I own dozens of them. But this one sets the bar at an all-time high. It is beautifully designed, has many appropriate photos and excellent graphics that are clear and instructive. It is just right in size, in my case it fits my jacket pocket and has already been on two walks to places I did not know on the mountain.

With a solid grounding in geology and pedology the book flows through plants, animals to people. It has excellent 'guiding advice' on walks, good descriptions of current management issues and concludes with ideas for this place which lies at the heart of Canberra.

Huge congratulations to Friends of Black Mountain. Buy it for yourself or a Christmas gift!

**Max Bourke AM**

# Grasses in the Gardens

## Naarilla Hirsch

**G**rasses are not as spectacular as many other plants, so tend to be overlooked despite being both a large plant family and of fundamental importance to humans. With about 770 genera and more than 12,000 species, the Poaceae family evolved from a group of lily-like plants nearly 100 million years ago. They were important to humans in the transition from a hunter-gatherer to an agricultural lifestyle and remain a crucial part of the food chain for many species including ourselves.

Grasses occur in every continent – even Antarctica has its own grass, *Deschampsia antarctica* (Antarctic hair grass). Comprising about 20% of the world's vegetation, they grow in almost every terrestrial habitat, from desert to semi-aquatic and from sea level to mountain heights. In Australia there are about 1,320 native and naturalised grass species.

Grasses are monocots (i.e. a single embryonic leaf). They can be annuals or perennial herbs, ranging from very small to large and woody such as sugarcane and bamboo. Leaves are strap-shaped with parallel veins and usually a basal sheath. At the junction of sheath and leaf blade is a line of hairs or flap of tissue called a ligule – a useful feature in separating out grasses from most of the rushes and sedges.

Grasses have a variety of breeding systems, including cross-pollination, self-pollination, cloning and apomixis (i.e. forming embryos without fertilisation). They can propagate vegetatively by shoots from basal buds or by creeping stems. Their flowers have a different structure and nomenclature from dicot flowers. They are aggregated into spikelets, surrounded by bracts. Because they are wind pollinated, grass flowers have no

petals or bright colours and are small. However, the stamens and stigma are conspicuous beyond the bracts to take advantage of every passing breeze. While the attractiveness of grass flowers is often not obvious to our eye without a hand lens, some (e.g. *Themeda triandra* (Kangaroo Grass), *Joycea pallida* (or *Rytidosperma pallidum*) (Red Anther Wallaby Grass)) stand out to the casual observer.

Seeds are dispersed mechanically, e.g. by wind, water and animals. Consequently, they are produced in large quantities and are small and light, often with hairs, hooks, bristles, barbed spines or awns. Hairs help the seed disperse on the wind, acting as parachutes. Hooks and spines attach the seeds to animals to be carried elsewhere. Many awns react to changes in humidity by twisting, which helps the seed to penetrate into the soil. Other seeds are dispersed by being eaten. Again, a close look is needed to appreciate the variety and attractiveness of many grass seeds.

**Grasses are of fundamental importance to humans since our major cereal crops are grasses.**

Grasses have been successful on an evolutionary basis because of their herbaceous habit, reproductive flexibility and their different photosynthetic pathways that match with climatic conditions. Their structure allows light to penetrate to most of the plant, and the protected location of the growth zones helps recovery after grazing and other damage. This evolutionary success means that grasses are pioneer species when land is cleared or disturbed, so they easily become agricultural and environmental weeds – local examples are African lovegrass, serrated tussock and Chilean needlegrass. Grasses occur wherever there is enough light penetrating to the ground storey of an ecological community. In our native grasslands they are the dominant species, and in grassy woodlands the dominant ground storey species. As tree



*Joycea pallida* (Red Anther Wallaby Grass)



*Themeda triandra* (Kangaroo Grass)



cover increases, they become fewer but some grasses can still be found in rain-forests. In our local critically endangered Natural Temperate Grasslands ecological community, grasses can comprise about 90% of the biomass but might only be 20% of the species present if there are sufficient inter-tussock spaces for forbs to grow. Native forbs include sedges, rushes, orchids, lilies, and broad-leaved herbs such as daisies. Grasslands are important habitat for native animals. As well as the grass leaves being a food source for grazing animals, grass seeds are eaten by birds, ants and other animals, and species such as the Golden Sun Moth eat the roots of some grasses. They act as a shelter for fauna, particularly tussock species such as *Triodia* spp, which provide shelter for small marsupials, skinks, snakes and small birds.

Grasses are of fundamental importance to humans since our major cereal crops (wheat, rice, maize, barley, oats, sorghum, rye) are grasses. They also provide grazing for both domestic stock and wild herbivores. Other uses include: alcoholic beverages (e.g. beer, whisky, gin and vodka); cereal grains and sugar cane as industrial starch used in the paper and plastics industries; construction uses such as building with bamboo and thatching house roofs; and numerous minor uses such as garden ornamentals and clarinet reeds from *Arundo donax* stems. Lemon grass tea is a *Cymbopogon* species from south-east Asia.

Aboriginal people had many uses for grasses. As well as crushing seeds into flour for cakes, stems and leaves were used to make nets, traps, string, bags and baskets. Gum from resinous species such as *Triodia* spp. was used to fix heads to spears and barbs to woomeras. Some species were used to build humpies or to pad coolamons for carrying babies. Medicinal uses included the treatment of skin sores, coughs and colds, infected eyes and as a skin hardener (e.g. *Triodia* spp., *Cymbopogon* spp.).

Grasses are not well represented in the ANBG, one reason being grazing pressure from rabbits and kangaroos. Gardens staff have persevered and we now have a lovely display of different grasses in the Grassy Woodland Garden, including *Bothriochloa macra*, *Dichelachne crinita*, *Poa labillardierei*, *P. meiorectus*, *P. sieberiana*, *Rytidosperma caespitosum*, *R. pallidum* and *Themeda triandra*. Other areas where grasses can be found are the Rock Garden (*Triodia scariosa*, *Cymbopogon ambiguous*), the Red Centre Garden (*Triodia scariosa*), the Monocots section (*Austrostipa ramisissima*, *Cymbopogon refractus*) and

in Section 210 along the main path (*Austrostipa ramisissima*).

The bushland precinct provides an opportunity to appreciate some of our native grasses in their natural habitat.



Naarilla Hirsch

*Rytidosperma caespitosum*  
(Common Wallaby Grass)



*Tragus australianus* (Small burr-grass)



*Bothriochloa macra* (Red Leg Grass)

Photos of Seeds, News of Friends of Grasslands, John Fitz Gerald, National Seed Bank

# My place in the landscape

Anne Joyce

The interview was going well in spite of the difficulty I'd had locating the venue – a demountable off one of the main paths through the Australian National Botanic Gardens in Canberra late in 1989. Spring rain gently greeted me as I left the car park and ventured into the unfamiliar terrain. Breathing deeply to settle my nerves I inhaled the earthy, mellow smell of dripping foliage and wet ground. It came as a surprise. Why hadn't I anticipated this delightful scenario? I felt myself relaxing as I walked passed a shack proclaiming itself to be the Seed Store and, rounding a corner opposite the rainforest, spotted a sign inviting applicants to enter the rear of another temporary construction. All pretty basic and unprepossessing I thought. After all, this was a job interview.

I'd responded to an advertisement in the *Canberra Times* seeking someone to fill the newly created position of Gardens' Public Relations Officer. At the time I was happily employed as a Guide in the fairly recently opened and very grand new Parliament House. We were considered an elite group of people. The hours were part-time, the pay reasonable, the

task enjoyable and the colleagues and location special. I considered myself extremely fortunate. So why even consider another position? It was inevitable when I read the criteria which included all the skills and expertise I had gathered throughout my working life. I simply had to have a go. No requirement for a botanical background was mentioned. It seemed to have been tailor-made for me.

As I climbed the steps into the rickety trailer I suddenly felt quite out of place and very nervous. My inquisitors composed a team of three: Executive Director of the Gardens, a tall bearded Canadian, who, I later discovered, was passionate about Bonsai. I also discovered this softly spoken gentleman was a person of high ethics and great integrity. The other man on the team was the Director of Visitor Services, who, if I was successful, would become my boss. The lady present was Executive Officer of the Friends of the National Museum. Part of the job description was the task of developing a Friends group for the Gardens and her experience as manager of volunteers eminently qualified her to assess my suitability.

*What programs might you develop to attract the community into the Gardens?*

asked the Director. Aha ...! I was ready for this one. The diverse list of activities I had prepared met with nods of approval and my confidence grew. Next we discussed Media Releases.

*Let's talk about promoting one of those activities.* This was comfortable ground and I waxed eloquent, my creative juices freely flowing.

*Could you go next door and write a Media Release publicising a proposed public event?* In anticipation of this request I had been fumbling in my bag on the floor. My fingers finally found the spectacles, which at that precise moment decided to disintegrate in my grasp. I pulled them into my lap without flinching, maintaining concentration on the delivery of the instructions. I was dispatched to an adjoining room where I heard the first mirthful titter which blossomed into hilarity. They had noticed and were having a good laugh. How was I going to accomplish the task with lens-less specs? I feverishly scribbled on the blank sheet provided, glasses askew as I peered through one lens and an empty frame. The finished product looked like the ramblings of a drunken driver. No way could I hand this in. Returning, I suggested I read the



Rain Forest Gully, ANBG



Photos: Pam Rooney



Release to them thus saving my embarrassment. They cheerfully acquiesced and I proceeded to present a most creative improvisation of a Media Release, ending with a quote attributed to the Director. *Wish I'd actually said that*, he commented graciously.

Gathering what was left of my dignity, I thanked them and stepped out into the gentle rain, disappointed at appearing such a clutz. Up went my umbrella and into the adjacent rainforest gully I walked the path towards the car park. It was quiet, and soft, green and embracing; I felt wrapped in empathy. As though the drenched foliage and towering trees secretly understood my feeling of failure but, by their benign presence, reassured and comforted me. I was enthralled. A stream on the forest floor meandered over rocks and mosses, its gentle gurgle and the rhythmic plink of raindrops the only sounds. I felt my pace slow as I morphed from a purposefully driven retreat to an appreciative stroll in this unique eco system. It occurred to me that this wouldn't be a bad place to spend ones working hours. Too bad I'd left such a bumbling impression.

Oh well ... back to the marble and glass of Parliament House. At least we got to use the gym and pool when the pollies weren't sitting and the flexible hours allowed me to indulge my passion for acting.

Wheels turn slowly in the Public Service and I settled back into both my current roles as a Guide and actor, although, after six months, I was beginning to feel doubtful whether I could live the rest of my working life smiling at disgruntled public berating and blaming the government for various inadequacies. Meanwhile I was totally absorbed in rehearsing a new play in the theatre. However my walk in the rainforest was imprinted on my mind and joy overflowed when they eventually offered me the job.

Shedding my Guide's uniform I joined the Gardens in late May, and began a period of twelve years unprecedented personal growth in a unique landscape I helped to shape and prosper. From day one I knew this was where I belonged.

From the crystal ice-encased branches on the edge of the rain forest after a frosty night to the spring blooming of the white waratah in the Rock Garden, the natural beauty never ceased to enthrall me. And what excitement and gratitude for the generosity of James Blundell doing a concert at a greatly reduced rate (an event which attracted 10,000 patrons.) Walking to the uppermost reaches trying to sooth my grief stricken heart on the death of my mother; no other environment could have given me such a multitude of diverse experiences and relationships, passionate professionals and quirky, earthy characters, introductions to people and venues all over Australia and elsewhere focussing on caring for flora, fauna and the environment. I revelled in boundless opportunities to encourage the community to engage with their Gardens and saw visitation increase dramatically which resulted in physical and financial support.

From the Tasmanian section at the entrance, to the wild, unkempt bush almost at the top of Black Mountain, the Botanic Gardens provided for me a source of inspiration, challenge, personal growth, immense pleasure and satisfaction. From 1990 to 2002 it was definitely my place in the landscape and truly where I belonged. My life has been bountifully enriched from the experience.

**Anne Joyce was appointed to the newly created job of Gardens Public Relations Officer in 1990, retiring in 2002. She is a Life Member of the Friends**



After a frosty night



White waratah in the Rock Garden

# The underground story in the Banksia Garden

Boronia Halstead

**E**xtrême horticulture is one of the themes of the Banksia Garden, and while visitors will appreciate the above-ground display most, there is an exciting underground story to be told. This relates especially to the extreme challenge of growing Western Australian (WA) species in-ground in the Canberra climate, and delivering a display of around 80 species which showcases the full magnificence of the genus throughout the year. The horticultural team responded by building a partnership with experienced growers around the nation, with expert knowledge of growing requirements and grafting techniques that could be applied in the ACT environment, where only one banksia occurs naturally (*Banksia marginata*).

## What banksias need to thrive

The fossil record shows that banksias have evolved on the Australian land mass over a 60 million year period. Over this time, different species of *Banksia* have evolved to occupy particular environmental niches. Species from WA adapted to thrive in very ancient soils which are mostly sandy, weathered and leached and thus very nutrient poor, particularly with regard to phosphorus and nitrogen. These soils have not been revitalised by seismic or glacial activity for a very, very long time - longer than eastern states' soils. Curiously, the amazing biodiversity that is found in the Southwest of WA is actually a response to these impoverished soils. The Proteaceae family in which the *Banksia* genus sits contributes a large slice of this biodiversity.

Many of these WA species are well-adapted to very sandy soils, and do not cope with wet feet. They are adapted to a Mediterranean climate where most rainfall comes in winter and very little in summer. Canberra has more summer rainfall and summer thunderstorms can deliver a heavy drenching.

Phosphorus is essential for healthy plant growth. WA banksias have

adapted to soils which can have 100 times less phosphorus than unfertilised soils found in Europe. They have developed special strategies to extract the minute amounts of phosphate found in these ancient depleted soils, and use this phosphorus very efficiently to grow and invest in the next generation of plants. They have not had to develop an 'off switch' for the take-up of phosphorus. So, when supplied with more than they need, they keep absorbing it and are fertilised to death.

## Site preparation

In preparation for the Banksia Garden, the horticultural team established a trial site beside the Main Path. Twenty-five WA species were planted in test mounds using similar substrate to that ultimately used in the construction of the Banksia Garden. There was a ninety per cent survival rate of these plantings, and even those that died showed strong root growth. These results confirmed the suitability of the growing media, and the importance of avoiding soil saturation at all times.

In the Banksia Garden, WA species are mainly planted on the upper slope of the site. The first step in preparing the site for

these plants was to remove the existing soil and subsoil and replace it with layers of suitable growing medium, sculpted into quite high mounds to further promote sharp drainage. The underlying principle is to provide extreme drainage everywhere, and supplement this with additional water and nutrients for particular species according to their specific needs. Drippers will be used to top up soil moisture.

## The composition of the layers of the mounds

Below is a diagram showing the soil profile used in the high mounds on the upper side of the Banksia Garden where only WA species have been planted.

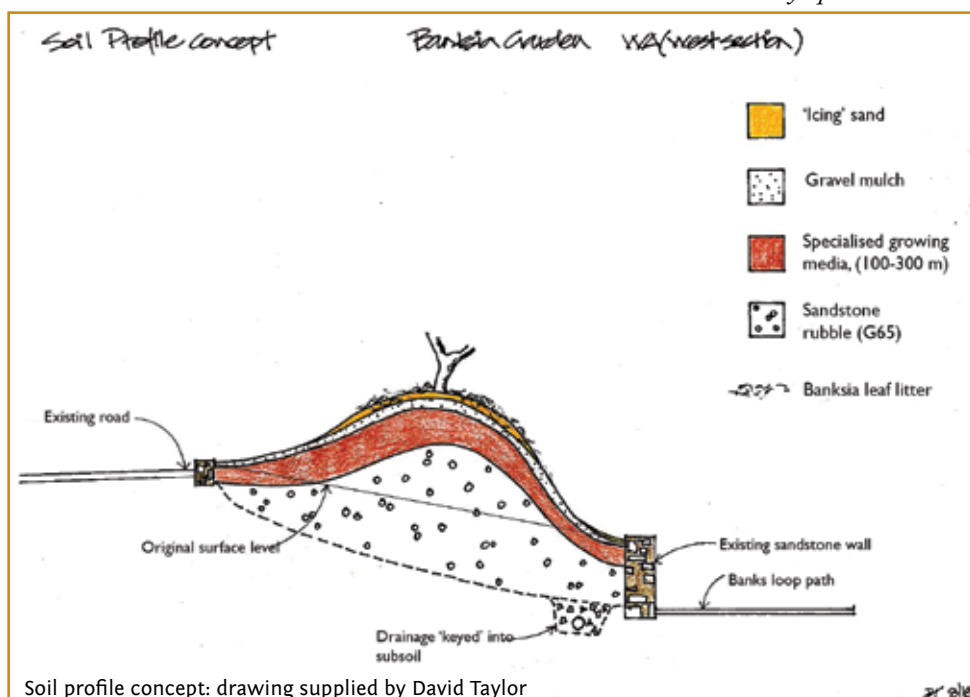
### Mulch layer

Some of the mounded areas are capped with a layer of finer grade sandstone gravel and sand containing quartz feldspar crystals which sparkle in the sunlight. Banksia mulch/leaf litter will also be used in the future.

### Specialised growing media layer

The table on page 13 sets out the composition of the growing media layer.

Care has been taken considering the source of materials used in the garden to minimise the risk of *Phytophthora*



Soil profile concept: drawing supplied by David Taylor



contamination, and all tools and equipment used in the Garden are cleaned and/or sterilised where applicable.

#### Base layer

Under the growing media layer is a very thick layer of G65 sandstone, which is a standard quarry product. This layer is a mixture of sandstone rubble of a particular size range, and sandstone being porous holds a bit more moisture than would harder substrates such as granite. An extensive underground drainage network has been put in place on the western side of the garden (containing the majority of the WA Banksias) to ensure all water moving through the spoil profile is able to escape.

Exceptionally fussy species have been planted in moveable pipes so that they can be protected from frosts and/or moved into view when they're giving their peak display. The mix used in these pipes is similar to the specialised growing media mix described above (32% coarse ash: 48% fine ash: and 20% potting mix). This mix has been

pasteurised to manage the risk of *Phytophthora* contamination.

This mix is designed to produce a percolation rate of 600 mm high column, equivalent to 43 cm/hour, a technical measure of drainage or the rate at which water moves through the soil mix. The ash component will provide a long-term, structural element in lieu of organic matter which breaks down too fast and is thus less suitable for this site over the longer term.

The existing soil on the lower side of the Garden where the eastern states species are planted remains more or less as it was, though the site was dug over to improve drainage, and topped with sandstone gravel. Eastern species are generally not as fussy regarding drainage, with *B. integrifolia*, *B. serrata*, *B. oblongifolia*, *B. robur* and *B. spinulosa* all tolerant of less than perfect drainage. The lowest side of the Banksia Garden has water-harvesting swales, and is planted with the ANBG's own beautiful new *B. robur* cultivar 'Purple Paramour'.

#### Use of grafted banksias

In addition to careful site preparation, the horticultural team has planted almost 30 WA species that have been grafted onto eastern states rootstock, which is much better able to cope with imperfect drainage and potential *Phytophthora* infection. Some of these species are in danger in the wild because of their susceptibility to infection, including *B. brownii*. The ANBG already had some long-lived grafted specimens elsewhere in the Gardens, such as a *B. speciosa* grafted onto *B. serrata* rootstock that survived for twenty years before it was removed a couple of years ago. Grafting techniques are still being refined and the longer-term compatibility and strength of the graft unions will be watched carefully as the plants become larger and potentially more top-heavy. A longer-term grafting plan may lead to most WA species being grown on eastern states rootstock over time.

Home gardeners wishing to grow banksias can modify the general principles used in the site preparation for the Banksia Garden, depending on the particular species. Some WA species can only be grown in a sharp draining, low-nutrient growing medium in a pot. Commercially-available native plant potting mixes might need additional sand or perlite to ensure adequate drainage. Potted plants need only 200mls or so of water daily, except for very cool or overcast days.

The horticultural team will continue monitoring the placement of plants, whether they do better with or without the use of mulch, fertilisers and iron, and modifying their methods accordingly. The Banksia Garden is already a marvellous tribute to the cutting-edge skills of the horticultural team and the partnerships they have formed to present this gift in celebration of the 50<sup>th</sup> birthday of the ANBG to lovers of Australian plants.

Pam Rooney



ANBG staff removing pre-existing soil from the upper side of Banksia Garden, May 2019

#### Specialised growing media layer mix (100-300mm layer)

Component	Percentage	Source
Coarse ash	35%	Coal power station waste
Fine ash	20%	Coal power station waste
Soil	25%	Commercial sandy topsoil
Potting mix	10%	9 parts standard potting mix designed for Australian plants with 1 part white quartz sand
Coir	10%	Commercial
Trace elements and pH modifiers (flowable sulphur) as required	Amounts depend on lab testing of final mix (some of the components have natural variability)	Commercial

## Book Review: *Miracle on Black Mountain – A History of the Australian National Botanic Gardens*, Don Beer, Halstead Press, 2020, RRP \$28.00

Associate Professor Don Beer taught history at the University of New England from 1964 to 1998. Upon retirement he moved to Canberra and became a member of the Friends of the ANBG, a Friends Council Member, and Convenor of the Gardens' Volunteer Guides. He has written a number of books, including a history of Sir Allan Napier MacNab (1798 – 1862) who was a Canadian political leader. So Don Beer is well qualified to write a history of our very own Australian National Botanic Gardens.

The ANBG was officially opened in October 1970 by Prime Minister John Gorton. But Don Beer's book covers a much longer period than the past 50 years: the book dates back to the very first days of Canberra, when Walter Burley Griffin's winning plan for the National Capital actually made mention of "botanical gardens". This long span of history is one of the reasons that Don Beer's book makes fascinating reading. Many of the formative events impacting

on the ANBG's history occurred when it was part of the Parks and Gardens section of the Department of the Interior, and well before 1970.

The book is written in six parts. The first part chronicles the so-called Foundation Document: the Dickson Report of 1935, followed by the Lindsay Pryor Years: 1944 to 1959. Lindsay Pryor was succeeded by his deputy, David Shoobridge, and Part Two covers the Shoobridge years (1959 to 1975), including the "Golden Years" of 1971 to 1975. The Robert Boden years of 1979 to 1989 are comprehensively described in Part Four. Don Beer doesn't shy away from the fact that over its history, the Gardens experienced many ups and downs: Part three is titled *Conflict and Consolidation, 1976 to 1979* and describes differences of opinion on the role of the Gardens, financial stringency, and involvement of the National Capital Development Commission (NCDC). Part five is titled *The ANBG in Hard Times, 1989 to 2009*.

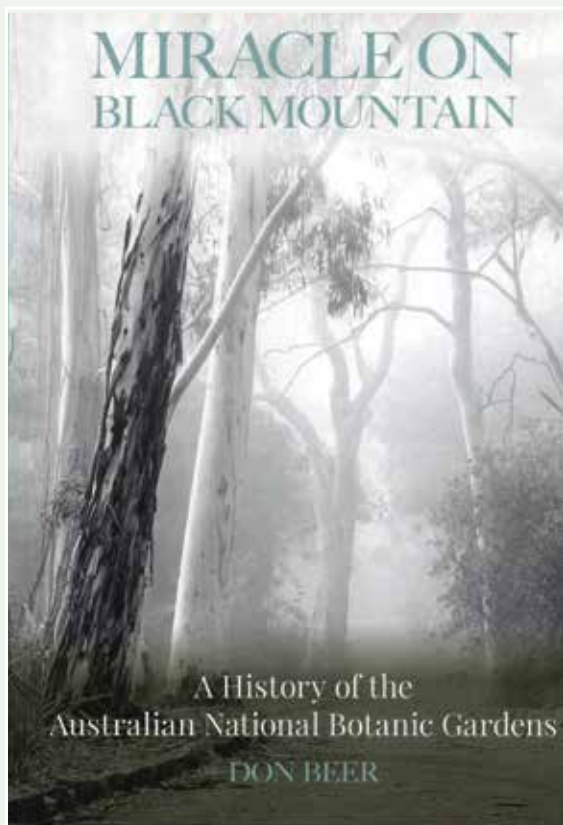
Here we learn about the frustrations of declining support in certain areas, cutbacks in Federal funding, and attempts from some quarters to make the Gardens a suburban park. The "Hard Times" were not devoid of positive events though: creation of the Friends of the Gardens in 1990, and establishment of the Volunteer Guides in 1992, contributed significantly to the Gardens' interaction with the public, and growing public support.

*Miracle on Black Mountain* is a well-researched and comprehensive history of the ANBG from the early twentieth century to the present time. It uncovers many stories about the history which have become buried with the passing of time,

but which are worthwhile to know about. Statements by public figures, and events affecting the Gardens have been meticulously verified with detailed and accurate endnotes. The detailed endnotes allow readers to follow up stories of particular interest via source documents. It is clear that Don Beer has spent many thousands of hours searching through library documents and government archives in compiling this book. To my mind, *Miracle on Black Mountain* is a significant and valuable contribution to our knowledge of the Gardens.

The book is available from the Botanical Bookshop at the Gardens. A Friends discount is available at the Bookshop, and postage within Australia is an additional \$10.

**Neville Page, President,  
Friends of the ANBG**



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

more information on our Facebook page at 'Botanical Bookshop'



## Friends Funded Projects



### Linda Beveridge

The main aim of the Friends is to support the Gardens, and financial support is a very important part of how we do that. Since the Friends was formed in 1990 we have contributed \$1.6 million in financial support, and funded many, varied projects. The Public Fund was established in 2004 as a way for the Friends to receive tax-deductible donations.

In addition to the items featured on the map (which can be used as a lift-out for a self-guided walk to explore some of the Friends projects), the Friends have funded other projects related to the ANBG's goals: including garden features, research projects, conservation of Australian native plants and natural and cultural heritage, learning interpretation and enjoyment, and national and international relations. The funds have come from multiple sources, including memberships, donations to the Public Fund and many Friends' activities.

The funded projects support the goals of the ANBG in a number of areas. Special plants, gardens and an environmental monitoring system (2010–11, \$49,000), X-ray assessment of legacy collections of the National Seed Bank (2018–19, \$15,200) and the Threatened Species project (2016 to 2018, \$25,719) are examples of contributing to **showcasing and conservation of Australian native plants**.

To complement those goals, Friends have funded assistance with **research** projects, such as three stages of the Alpine research project and symposium report (2010–11 to 2014–15, \$67,495). Several alpine plants on display in large pots near the Visitor Centre have been grown from seed collected during the Alpine research project. The Norfolk Island project is currently underway (\$15,000 a year for three years) plus some volunteer research assistance, and the Thermal Tolerance of Australian Native Plants research (2019–20, \$25,000 to date) is underway, too.



Bindi Vanzella

Anne Campbell, Meredith Cosgrove and Adrienne Nicotra collecting seeds as part of the Alpine Research project.

The Friends also funded the *Climate Watch* signs in the Gardens (2011–12, \$2,731), for a citizen science project that contributes to national research.

A key role for the ANBG is to provide a **gateway for knowledge about Australian plants**. Friends have made valuable contributions to gateways and their enhancement over the years, for example

- to the Fungi Website <https://www.anbg.gov.au/fungi/> (2001 and 2005, \$14,150)
- the Bryophyte Website <https://www.anbg.gov.au/bryophyte/> (2005, \$6,350) as well as
- the Australian Lichen Website, and the later Lichen Digitisation project <https://www.anbg.gov.au/lichen/> (2010–11 and 2017–18, \$36,150), and
- more recently, the *Find a Plant* app <https://www.anbg.gov.au/fap> (2019–20, \$13,636).

Many Friends and other visitors come to the Gardens to **learn more about, interpret and enjoy** Australian native plants in various ways. Interpretive signs along the way have been funded by Friends over the years, as well as self-guided walks such as:

- the *Aboriginal Plant Use Trail* which can be downloaded from the website <http://www.anbg.gov.au/gardens/visiting/exploring/aboriginal-trail/> (2012–13 and 2015–16, \$11,259)
- the *Eucalypt Discovery Walk* <https://www.anbg.gov.au/gardens/visiting/exploring/walks/eucalypt-walk> (2012 to 2014, \$18,114)
- the *Birds of the ANBG* brochure by artist Frances McMahon <https://www.anbg.gov.au/gardens/visiting/exploring/faunal/birds/index.html> (2011, \$8,000), and
- *Flowers, Fruit and Foliage* (previously known as *In Flower This Week* from 1999 - 2016), is prepared by volunteers with a new version each fortnight. The latest, and previous, versions are available on the Friends website at <https://www.friendsanbg.org.au/FlowersFruitFoliage>.

A prototype for children's guided walks (2003, \$3,000) was a project that has lived on in various forms, including *Who lives here?*, a booklet available from the Visitor Centre and from the ANBG website. [https://www.anbg.gov.au/gardens/education/programs/pdfs/who\\_lives\\_here\\_book\\_layout.pdf](https://www.anbg.gov.au/gardens/education/programs/pdfs/who_lives_here_book_layout.pdf)

So many children (parents and grandparents, too) greatly enjoyed the Carramar Koalas (2018–19, \$5,000), which was a special attraction to the gardens.

# 30 years of Friends funded projects at the Australian National Botanic Gardens

## 1 Bottle Tree at front entrance to the Gardens

2004 | \$8,000

## 2 Grassy Woodland Garden signage

2010–11 | \$8,550

## 3 Friends Cascades

2006 | \$17,000

The Cascades were opened in 2006 by Dr Robert Boden, a former Director of the ANBG. The honour of starting the Cascades, with a trickle of water, was the prize in a lucky draw, and went to the daughter of one of the gardeners.

## 4 Video wall and film in foyer

2019–20 | \$52,143

## 5 *Macrozamia moorei*

2004 | \$6,000

Transported from Queensland.

## 6 Flora Explorer

2011–12 | \$36,000 | Electrically powered people mover

2013–14 | \$3,700 | Audio system installed

Tours every weekend and public holidays and some school holidays. Booked tours available.

## 7 Drinking Fountain

2013 | \$5,400

## 8 Clock

2010–11 | \$1,300

Erected to publicise Guided Walks.

## 9 Crosbie Morrison Amphitheatre shelter

2010–11 | \$47,300

Used by school groups primarily but also by public.

## 10 Section 131 – Ellis Rowan garden bed

2003 | \$5,000

Redeveloped by Gardens staff to display plants suitable for cool climate home gardens.

## 11 Botanic Resource Centre

2008 & 2015–16 | \$5,350

Set up costs and new computer. Opened by Friends' Patron, Marlena Jeffrey.

## 12 Friends Lounge

For use by all Friends. Small library.

## 13 Banksia Garden

2018 to 2020 | \$98,000

2018–20 | \$17,200 committed (Public Fund)

## 14 Growing Friends

2007 to 2020 | \$20,340

Equipment costs including water tank, canvas for area, and shelving.

## 15 Paperbark Treehouse

2014 to 2018 | \$246,700

Treehouse including feasibility study and landscaping.

## 16 Conservatory

2018–19 | \$18,600

Interpretation consultant.



Red Centre Garden  
17 18

Ducrou Pavilion

Eucalypt Lawn

Eucalypt Lawn

Rock Garden

Rock Garden

Rainforest Gully

25





- 17 **Red Centre Garden artwork**  
2012–14 | \$115,000  
Friends' Canberra Centenary gift to the Gardens, a centre-piece of the Red Centre Garden. Grandmother's Country by Teresa Purla McKeenan.
- 18 **Termite Mound in Red Centre Garden**  
2013 | \$4,320 (Public Fund) | \$6480
- 19 **Rock Garden Lawn Shelter**  
2007 | \$38,400  
Opened by Marlena Jeffery, Patron of Friends, in November 2007. First project of the Public Fund.
- 20 **Asteraceae Garden development**  
2014 | \$13,000  
Opened in November 2014 by Lady Cosgrove, Patron of Friends.
- 21 **Sundial**  
2001 | \$4,000
- 22 **Rock Garden project**  
2002 | \$8,000
- 23 **Bottle Tree project**  
2005 | \$8,500
- 24 **Seed Bank**  
2011 to 2019 | \$93,183  
Specialised equipment.
- 25 **Ferns and palms for Rainforest Gully**  
2002 | \$8,500
- 26 **Palms for Rainforest Gully**  
2003 | \$6,600
- 27 **Fogging system and extension for Rainforest Gully**  
2004 and 2009 | \$18,700
- 28 **Rainforest Lighting**  
2011–12 | \$30,000  
**Climate Watch trail signage**  
2011–12 | \$2,731  
Various places in the Gardens.



The Eucalypt Discovery Walk includes brochure and interpretive signs along the way.

The Friends have provided stereo display microscopes in the Visitor Centre and the Education Centre to assist with learning about botany (from 2003 and 2016–17, \$11,500).

For many people a guided walk or a ride on *Flora Explorer* is an intrinsic part of the enjoyable visit and to learn more about the plants and the Gardens. The guided walks are available each day that the Gardens are open. Over the years Friends have contributed to Volunteer Guides' expenses (such as uniforms and professional development) (2001 to 2020, \$43,268).

The Thursday Talks have been a popular way to learn more about recent developments in botanic and other environmental sciences for more than 14 years, and Friends have funded theatre equipment such as the hearing loop, video projector, data projector and screen (2012–13 to 2019–20, \$24,194).

Scholarships or bursaries, and more recently book vouchers for Botanic Interns, are other aspects of learning that have been supported by Friends over the years (pre-2001 to the current year, \$18,288).

Many friends, as well as the Friends of ANBG, have provided garden seats which add to the enjoyment of the Gardens, for example the Sydney Basin seating (2001, \$4,500). The electric scooters add to the enjoyment of the Gardens for less mobile people (before 2001 to 2017–18, \$17,948).

**Valuing and conserving natural and cultural heritage:** the Gardens has benefited from Library book grants (from 2005 to 2017, \$10,127). One of the books, *The Banksias*, by Celia Rosser will be on display at the Banksia Centre for some Friends events at the Banksia Garden. If you wish to view a book at another time please contact the librarian.

Highlights of any year are the exhibitions by the Botanic Art Group and the Photographic Group, and the Schools Photo Competition. Selected botanic art and botanic photography works are purchased by the Friends for the ANBG's collection (2010–11 to 2019–20, \$6,425) and the Friends have provided prizes for the Schools Photo Exhibition since 2003 (2003 to 2019, \$48,443). The Friends also contributed to the Seed Bank Exhibition last year (2019–20, \$8,826). A purchase this year for the ANBG collection, *Banksia solandri* by Susan Grieves, will be on display in the Banksia Centre, too.

The Gardens also **facilitate and collaborate in national and international policy and practice**, which the Friends supported through the years; for example, full or partial sponsorship of national and international conferences, and attendance by some key speakers.



Brian Moir

*Banksia solandri* by Sue Grieves, purchased from the Botanic Art exhibition, being presented to Dr Judy West, Executive Director ANBG by Max Bourke AM, President of Friends ANBG, for the ANBG collection.

Further details about Friends Funded Projects are available at [http://www.friendsanbg.org.au/Projects\\_List\\_start\\_present](http://www.friendsanbg.org.au/Projects_List_start_present)

These successful projects have been made possible by Friends members, and valuable donations to the Public Fund that are also tax-deductible. The Friends are supporting a number of other projects for the ANBG and if you would like to contribute to this further support you can donate to the **Public Fund** online or go to the website [https://www.friendsanbg.org.au/fundform/public\\_fund.html](https://www.friendsanbg.org.au/fundform/public_fund.html)



## Friends ANBG, Life Members 2020

Life Membership of the Friends was awarded to four of our members at the AGM in October.

### Lesley Harland

Lesley has been a Friend for 30 years, being one of the original members, holding Household Membership number 24. She commenced with the Memberships team in 2008, sometimes with a second person assisting over the years but sometimes on her own. Every week she leads the processing of membership applications and Public Fund donations, as well as replying to emails. During the particularly busy membership renewal period of about eight weeks during October and November of each year, she leads the process twice a week. Her knowledge of the membership process is unsurpassed.



Lesley Harland

Lesley has also been an active participant in the Plant Science Group over many years. She is also a very supportive member of the Friends IT Working Group that is searching for a new software package for online membership and updating the members' database. She has been assisting David More with various trials and testing of new IT systems.

### Marion Jones

Marion was Treasurer for Friends of ANBG between February 2010 and February 2016. As a volunteer guide between 2008 and 2020, she made outstanding contributions to the Friends' *Breakfast/Wake Up with the Birds* walks, to Guides' learning activities and the development of themed walks, and as a *Flora Explorer* driver. Marion is also an active and



Barbara Podger

enthusiastic contributor to many other Friends activities.

### Barbara Podger

Barbara has been a member of Friends since 1999. She has been a Member of the *Fronds* editorial committee since 2008 and shares responsibility for its preparation and publication.

Between 2007 and 2012 Barbara was Vice President of the Council of the Friends of ANBG. She has also been a Member and Chairperson of the Public Fund for a number of years.

Barbara has been a Guide for more than 20 years, has mentored many new Guides and coordinated *Flora Explorer* since its inception. She has also been a member of the Social Events and Activities Committee for many years, which has included coordinating volunteers at many public events organized jointly by this Committee and the Gardens. She also continues to contribute to many other Friends' activities.

### Anne Rawson

Anne has worked on *Fronds* for at least 15 years, since before it was called *Fronds*. She joined the team when Barry Brown, who was an employee at the ANBG, ceased doing the design and layout of the Friends newsletter. Anne took over the design and layout role, working with Andrew Walker, Elizabeth Bilney and Anne Phillips.

Although Pam Rooney took over the design and layout role in 2016, Anne Rawson remained on the editorial team undertaking roles including writing, editing, proofreading, and liaison with the ANBG.

The Friends of ANBG acknowledge her commitment and the outstanding work that Anne has done in producing *Fronds* for so many years.

**Linda Beveridge, Vice President**  
**15 Oct 2020**



Marion Jones



Anne Rawson

# Friends Annual General Meeting

## Summary of the Report from the President, Max Bourke, AM

Friends' President Max Bourke introduced his report by noting that although he had enjoyed his role, hearing loss made it exceedingly difficult to chair meetings, so with considerable sadness he was standing down. Max remarked that 2020 was the most bizarre of years for the lives of people and he personally had found it a most disappointing year, due to the cancellation of the wonderful menu of events planned for the Friends 30th Anniversary.

Max explained that although there was much disappointment that the celebrations had been cancelled, the Gardens themselves had kept him going, as they did many members and staff. Although it might be expected that closures due to bushfire smoke, the hail storm and travel restrictions due to COVID-19, would drastically reduce the number of visitors, in fact the Gardens have been extremely popular with local people in these difficult times.

Max thanked the Executive Director Dr Judy West and General Manager Mr Peter Byron and the many Gardens staff for the excellent rapport between the Friends and the Gardens' staff. He expressed his sincere thanks to the Friends' Executive, Linda Beveridge, Helen Elliot and Lynden Ayliffe for their dedication. He acknowledged the support of the Friends' Council including Wendy Antoniuk, Alan Henderson, Neville Page, David More and Peter Heaume as well as regular invited attendees Barbara Podger, Tricia Morton, Lesley King, David Coutts and his staunch predecessor Lesley Jackman.

He praised the Friends Groups for the skills and energy that keeps Friends going, thanking all members and leaders of the Special Interest Groups, who not only raise money for the Gardens but enrich the lives and understanding of our members and the general community through their work. He particularly acknowledged the *Fronds* and Website teams, the Plant Science Group and

the *Flowers Fruits and Foliage* team, whose leaflet is highly popular with the increased number of new and regular visitors. He also publicly acknowledged on behalf of all members of Friends the huge amount of work done by the Membership Team, Lesley Harland and Pam Cooke.

Raising and carefully spending funds for the Gardens is a tricky business but essential to our national focus on the understanding of Australia's native plants. It is a task that requires more than the contribution of the Commonwealth Government which of course is central to its operations. It also requires the immediate and deep support from a focussed group of people, the Friends who love this enterprise.

The Friends made major investments despite the appalling events of 2020. The Friends' contribution of \$73,000 for the Banksia Garden was the largest project to be supported by the Friends this year. The second major project was the video wall in the Visitor Centre. There were also two smaller scientific projects: a PhD student research project on the flora of Norfolk Island and a study into the *Thermal Tolerance of Native Plants*, the latter enabling ANBG staff to engage with a collective of researchers from a number of institutions, examining the role, and possible management of plants as climate changes, clearly an urgent issue.

The *Find a Plant App* is now live. The Friends purchased an audio loop to enhance the experience of the hearing impaired in the theatrette. The Friends also supported the publication of *Miracle on Black Mountain- A History of the Australian National Botanical Gardens* by Don Beer.

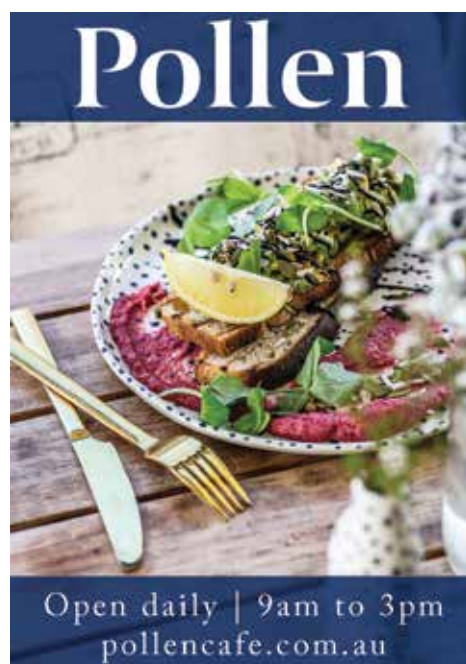
Funds raised from the works of special interest groups and from special events all contributed to the pool of funds given by the Friends to support Gardens projects. All the work, raising, managing and disbursing the funds, is done by volunteers.

In conclusion, Max cited the words of Genevieve Jacobs, a powerful voice in Canberra's local community, spoken before COVID-19, struck at a ceremony to announce the Gardens' 50th Anniversary celebrations:

*This place is an ark – a carrier of deeply significant information - but it is also a covenant, a promise to ourselves that the beauty and the infinite variety of Australia's plant life matters at the most profound level. To see it here arrayed in all this sweeping variety and to know that what can be represented here is just a fragment of everything on this remarkable continent should more than make us pause.*

He reflected that as a cultural institution, the Gardens play a role in the lives and emotions of all Friends as we hopefully seek to conserve, display, and educate our children and others, about the role that our plants play in human survival. This is the work that so many of us have successfully focussed on this year.

He wished his successor, Neville Page, good luck and promised to continue to find ways to contribute in the future, doing so with the profound sense of being among Friends!





## Report to the Friends' AGM from Executive Director, Dr Judy West

Dr West opened her remarks by recalling that the Gardens' 50th Anniversary had been planned as a year of celebratory events, exhibitions, parties, new garden openings and so much more – and instead the Golden Anniversary year had been plagued by bushfires, hazardous smoke, hail storms and the COVID-19 pandemic!

Despite these unfortunate events beyond anyone's control and witnessing firsthand the strength, flexibility and sheer resilience of Gardens' staff, volunteers and the Friends, Dr West said she was even more proud to be celebrating 50 years of a wonderful institution and the people who continue to make the Gardens a very special place.

The new Banksia Garden was completed with the official opening postponed from April and scheduled to be opened by the Minister on 21 October. The Friends' funding the Garden was a significant gift to the ANBG for the 50th anniversary.

The Banksia Centre had a significant refurbishment, with most of the work occurring during the COVID shutdown period. The building was severely damaged during the hailstorm and the new transformation makes the Centre even more functional than before.

Although many of the planned 50th celebrations have not been able to proceed, there will be a special ANBG feature in the weekend *Canberra Times* and in the *Canberra Weekly*.

There have been many other achievements to celebrate this year. The Conservatory is one step closer to construction with a tender being finalised for a builder. Over the next month the terms with the preferred builder will be negotiated and it is hoped that construction will be underway soon.

The National Seed Bank project has progressed with the appointment of a local architect Guida Mosely Brown and

they are already making good progress on the initial design.

The Gardens was part of a new infrastructure funding package from Government for Parks Australia. This will include the development of the Horticulture Centre adjoining the new Seed Bank in the northern precinct and an extension of the boundary fire suppression system – these projects will get underway next year.

A five-year Education Strategy was developed, and there will be new online education products to expand outreach to students throughout Australia, not only the ones that visit the ANBG.

The National Seed Bank managed to collect 135 new accessions including two *Environment Protection and Biodiversity Conservation Act* listed species. They also successfully germinated the critically endangered Dales' Waterfall Fern from Christmas Island from spores and this is now being grown on by our nursery staff and will be displayed in the Conservatory

The Friends funded *Find a Plant* app was upgraded and this now lets visitors find more than 29,000 individual plants

The Friends funded video wall and pollinator film has become a big hit with visitors and gives us scope to display a range of films and information

With COVID restrictions progressively lifting there has been a resurgence of 'locals' visiting the Gardens over recent months. During the long weekend with perfect weather the Gardens were full most of the time and September visitor numbers were only five percent down from September last year. Considering thirty-to forty percent of visitors are from interstate or overseas this is very positive and once interstate travel opens up the Gardens should enjoy increased numbers of visitors.

Dr West gave special mention to our many volunteers who have supported

the Gardens during the COVID shutdown period, sent messages of support and have come back and resumed their volunteer activities.

She also thanked all the members of the Friends for their ongoing support of the Gardens. Under the leadership of the Friends Council and Public Fund the Friends' support of the successful projects each year makes a significant impact on the quality of visitor experiences and enhances conservation and research activities.

Dr West concluded by saying how much she enjoyed working closely with Max Bourke as President, that his leadership and passion for the Gardens and Australian plants is inspirational and that she looked forward to working with the new Council and President, Neville Page.

### Choose the Shine Dome for your next event



The iconic Shine Dome is the home of the Australian Academy of Science and the perfect venue for Canberra meetings and events. The Academy is now taking bookings for the venue for late 2020 and all of 2021.

So please get in touch with our team who can help you plan any of your upcoming events.

For all enquiries visit the Shine Dome website or contact the team on [shinedome@science.org.au](mailto:shinedome@science.org.au) or phone (02) 6201 9400.

## Friends AGM: Summary of the Report from the Treasurer, Helen Elliot for the year ended 30 June 2020

The Treasurer, Helen Elliot tabled her fifth Friends of the ANBG Treasurer's Report along with the Auditor's Report, the Friends' Financial Statements and the Friends' Public Fund (PF) Financial Statements for the year ended 30 June 2020.

Explaining that the first nine months of the financial year was business as usual, Helen noted that the COVID-19 virus disrupted so many plans by so many people. With the Gardens forced to close late March, a number of Friends planned events could not proceed – the half yearly Growing Friends plant sale, always well patronised and a large income earner for the Friends, the "Meet and Greet" of new members, the Photographic Group's workshop and the Botanic Art Group exhibition. She also noted that 30th Anniversary events were cancelled and Thursday Talks, always so popular, will not recommence this year.

Helen directed members attention to page 2, the Income Statement of her Report, where the decrease of thirty percent in income is noticeable caused by cancelled events due to COVID-19.

She noted that the membership renewals remained strong, and this coupled with an increase of 252 new memberships resulted in a nine percent increase in income from Membership Fees to \$94,305. She praised Friends' volunteers for their tireless efforts, resulting in \$191,000 income for the year, a small decrease of eight percent.

Helen thanked the Project Committee for reviewing project proposals and tabling them to the Friends Council for discussion and decision. This resulted in donations to the Gardens for ten varied projects valued at \$239,353, more than double the previous year: a rewarding outcome. A second tranche of \$71,338 (of the Friends \$100,000 commitment) was invested in the new Banksia Garden. Other large donations were \$7,645 for the hearing loop in the theatre, \$52,143 towards the pollinator

film and the new video wall installed just outside the theatre.

She noted that as the Friends Public Fund is a registered charity it receives tax deductible donations from members and the public. The PF issued tax deductible receipts for \$25,916 and with these donations, the PF contributed to the Seed Bank exhibition with \$8,826 and \$2,350 towards interpretation signs in the Banksia Garden. The PF also committed other funding but the projects were not finalised in time for 30 June.

Helen noted that the consolidated Balance Sheet at 30 June 2020 shows total assets of \$414,324, including PF assets. Council is confident that the accounts are in a robust financial position to continue our work, as per our Constitution, *for the purpose of supporting the Gardens*.

In conclusion, Helen thanked all the volunteers who work so tirelessly to generate income and profile the dedicated work of the Friends. She also thanked the Gardens management and staff who are very collegiate, Council members, PF trustees and of course other members of the Friends for their continuing support and renewal of membership. The full statement is available at: [www.friendsanbg.org.au/news](http://www.friendsanbg.org.au/news)



## COMPETITION

### Win your own copy of *Banks*

Three copies of Grantlee Kieza's book *Banks* (reviewed on p27) are available to be won by careful readers of this issue of *Fronde*. These copies will go to the three Friends who email correct answers to all three questions below to [newsletter@friendsanbg.org.au](mailto:newsletter@friendsanbg.org.au). Entries will close on 13 December, and will be put into a hat. The first three correct entries drawn will win the books.

There are several items about *Banks* and *Banksias* in this issue of *Fronde* and all answers can be found therein.

1. Banks amassed perhaps the most significant natural history collection of his day at his home in Soho Square. Who did he bequeath it to and on what condition?
2. What biological specimen did Joseph Banks exchange an old pair of underpants for when trading with New Zealand Maoris?
3. The ACT has only one native species of *Banksia*. What special step(s) has the Gardens taken to grow Western Australian species in the Banksia Garden?

### Our history: This photo was sent to us by Liz Baker, a former editor of the Friends Newsletter.

She said that in the past "...we had a stall just before Christmas to sell items made by the ANBG Friends Craft Group. The Group had several keen members, all of whom were Guides at the time (including Doreen Wilson who is still guiding). I was also on Council and was the *Newsletter* editor. At that time it was just me, and I did the desktop publishing too . . . Bernard Fennessy was always happy to write another *What's In a Name* article."



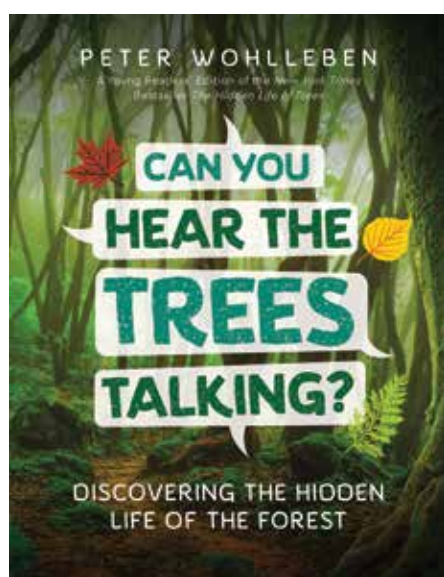
## *Can You Hear The Trees Talking?*

**Peter Wohlleben 2019, Hard cover, 84 pages, Colour photographs and illustrations. \$30.00**

Have you ever wondered...can trees talk, do trees sleep at night, or how do trees know when it's spring?

In this appealing book Peter Wohlleben, author of the internationally bestselling book *The Hidden Life of Trees* and global advocate for forests and our relationship with trees, shares the mysteries and magic of the forest in language kids will love and understand.

*Can You Hear The Trees Talking?* has a colourful and engaging presentation and includes exciting quizzes, photographs, and hands-on activities. It is sure to both foster an interest in nature and extend the knowledge and engagement of children who are already keyed into science, the environment and ecology. It would also make a great resource for family activities.



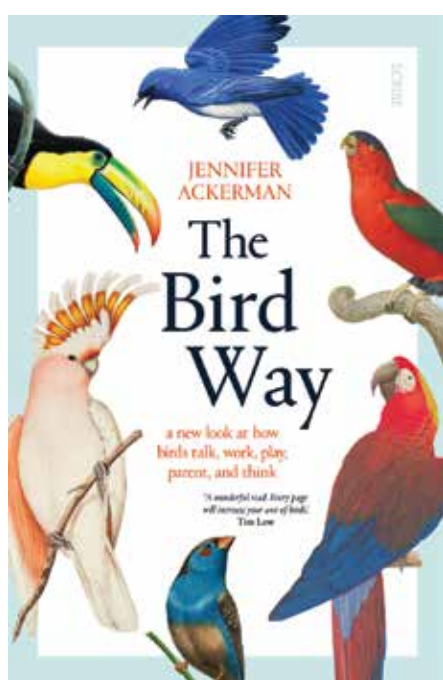
## *The Bird Way*

**Jennifer Ackerman 2020, Soft cover, 368 pages, line drawings. \$35.00**

Jennifer Ackerman has been writing about science, nature, and human biology for almost three decades, and in *The Bird Way* she brings us a new way to look at how birds talk, work, play, parent and think. Ackerman draws on personal observations, the latest science, and on her bird-related travel around the world, including Australia, Japan, Austria, and Alaska, and shows there is clearly no single bird way of being. *In every respect — in plumage, form, song, flight, lifestyle, niche, and behaviour — birds vary. It's what we love about them.*

Every chapter is packed with stories, descriptions, updates on previous ideas about birds, and questions about what is not known. There are many fascinating bird behaviour facts which you will feel compelled to share with your family and friends whether they want you to or not! Ackerman includes birds from every continent and as a bonus for those with an interest in Australian birdlife, there is a special focus on Australian birds.

This book is a wonderful read for those who enjoy nature, biology and of course, perfect for bird enthusiasts.



## **Spotted Pardalotes, ANBG**

Spotted Pardalotes (*Pardalotus punctatus*) have been nesting in the Gardens for many years. They typically nest at ground level digging a tunnel into a dirt bank. One pair consistently built their nest in the same place in the Proteaceae section until last year.

This year there have been at least three nesting pairs all within a small radius. One pair took advantage of a pre-drilled hole in a concrete cylindrical planting pot adjacent to the Sydney Gully section. The two other pairs were in very close proximity, with one pair digging their tunnel into the brickwork above a water drain alongside the track. The third pair built their nest into a bank of the nearby Asteraceae section. All three nests are within a foot or two of a walking path, which would seem counterproductive to concealment of the nest and survival of their chicks. However, I have observed other nests adjacent to paths in various Canberra Nature Reserves.

It's good to see so many nesting pairs this year and there are undoubtedly more in other areas of the Gardens. They are such attractive little birds.

**Alison Milton**  
(photos & text)



### From the Executive Director

As this year draws to a close, we have much to celebrate despite the fact that our 50<sup>th</sup> Anniversary year has not evolved quite as we had expected. Although most of our public activities were cancelled due to COVID-19, we held a special ceremony to honour the dedication of our staff, and our annual volunteer recognition on 10 November event to thank our many volunteers. The Hon Sussan Ley MP officially opened the Banksia Garden on 21<sup>st</sup> October to commemorate the Gardens' 50-year contribution to growing, understanding, promoting, appreciating and conserving Australian native plants.

We have engaged an architecture firm to design the new National Seed Bank, with construction planned to commence early in 2021.

Work on the Ian Potter National Conservatory has involved an intense period of design and light modelling to ensure enough natural light for growing our unique Australian tropical plant collection. Construction will be underway soon.

Our education team has developed the ANBG Education Strategy 2020-2025

with aims to diversify and expand our educational products and services, position ourselves as leaders in native plant education in Australia, inspire and engage learners and expand our reach and use of new learning technologies.

It has been a challenging year for our Living Collections team recovering from hail, drought and high temperatures, smoke and then record weed growth following welcome rains. Yet we remain involved in over 15 external partnership projects delivering conservation outcomes for priority threatened species and securing external funding.

The National Seed Bank has secured 135 accessions of 55 species from the ACT, NSW and QLD. The team is continuing research on Norfolk Island plants, threatened Tropical Mountain species and alpine plants.

I commend the Visitor Experience team for their proactive approach to adapting to changing COVID recommendations with a comprehensive COVID strategy for the Gardens, and all Gardens staff and Friends for rising to the challenges presented by the unprecedented circumstances this year. I look forward to a productive 2021.

**Judy West**

### Banksia Garden Officially Opened

We are proud to announce that the new Banksia Garden at the Gardens was officially opened by the Hon Sussan Ley MP, Minister for the Environment, on 21 October this year.

Special thanks go to the Friends of the Gardens who played a key role in funding the Banksia Garden as a 50th anniversary gift to this precious national institution.

Featuring more than 70 different types of banksia from across Australia, the garden includes many threatened, unique and rarely cultivated species and is a stunning addition to the Gardens in its 50th anniversary year.



Minister Sussan Ley, and Friends President Max Bourke plant a *Banksia solandri*, Dr Judy West and David Taylor assist.

Barbara Podger



Dr Judy West signs the contract for design development for a new National Seed Bank.

Sabrina Sonntag



## The Job of a Lifetime

Long-term Gardens horticulturalist Keith Edwards retired earlier this year after 40 years of service.

During that time, Keith has cared for a huge area of the Gardens, ranging from the Rock Garden when it was first developed, to the Rutaceae. Most recently he has been the custodian for the whole top end of the developed part of the Gardens.

Working to create a curated yet natural feel, for which the Gardens is renown, Keith was often approached by visitors commenting on his contribution to enhancing their experience. "People would thank me and say, 'You've got the best job in the world' and 'I love being here'," Keith says. "One highlight was definitely seeing Princess Diana and Prince Charles opening the Gardens' Visitor Centre in 1985."

In his parting words to fellow staff, Keith revealed "I am proud of the Gardens and proud to have spent my life working here." Thank you, Keith, for your passion and commitment!

## Propagation Success for Dales Waterfall Fern

National Seed Bank scientists from the Gardens are contributing knowledge and expertise along with Christmas Island National Park and the Australian Tropical Herbarium in a Parks

Australia project to grow and secure ex situ populations of the critically endangered Christmas Island fern, also known as the Dales Waterfall Fern, *Pneumatopteris truncata*.

As few as 50 plants remain in the Australian wild, but this project aims to secure the future of this exceedingly rare fern. The native fern can only be found in the wild at an internationally recognised wetland known as The Dales in Christmas Island National Park.

Gardens and Christmas Island National Park staff collected spores from the fern in the hope that Gardens National Seed Bank scientists could figure out how to germinate spores and horticultural experts at the Gardens' nursery could then propagate the species.

After 18 months working out requirements for each step from collecting to germination and growing, our staff have managed to grow 80 plants to a height of 40 cm. Fully grown, the frond length of the Dales Waterfall Ferns reach up to 120 centimetres.

The fern will be available for the public to view and to learn more about the species with the opening of the new Ian Potter National Conservatory.

## 50 Years Celebrated with Stamps

Australia Post Collectables marked the Gardens' significant anniversary with a special Australian National Botanic Gardens: 50 Years stamp issue.

The two plants featured on the stamps are representative of the native flora grown in the Gardens.



AusPost image



AusPost image

Silver Banksia, *Banksia marginata*, was the inspiration behind the logo of the Australian National Botanic Gardens.

Wee Jasper Grevillea, *Grevillea iaspicula* is one of Australia's rarest plants.



M Sawa



Sabrina Sonntag

Keith Edwards retires from the Gardens after 40 years of service

Gardens Nursery Manager, Joe McAuliffe, holds up a Dales Waterfall Fern which will be on display in the Ian Potter National Conservatory.

## Garden Shorts (cont'd)

Check the Australia Post No. 367 September October 2020 stamp bulletin for information on the stamp issue and associated products. Send them to friends and family, add them to your collection and show your support for the Gardens and Australia Post!

### History in the Making

The first steps are underway towards construction of the Gardens' new National Seed Bank.

Dr Judy West, Executive Director of the ANBG, enthusiastically signed the contract last month for design development of a new state-of-the-art facility with John Guida of Canberra-based Guida Mosely Brown Architects.

The new National Seed Bank will expand our capacity to preserve Australia's seed biodiversity and continue to safeguard Australia's flora into the future as part of our national seed bank network.

The new facility will include integrated seed drying rooms, incubation space for germination testing and improved laboratories with greater research capacity.

### Growing your own....

In addition to the *Astrolasia* Lemon Essence (see *Fronde* December 2019) two more native plants have been added to the ANBG label for your home garden. They have been selected by the Gardens' expert staff for their horticultural potential, interesting aesthetic



*Brachyscome* Whitewash (*Brachyscome diversifolia*)

appeal or just first time availability commercially. Each plant featured under the Gardens label undergoes a rigorous trial process under industry conditions before it is released for sale. Funds from sales of these plants will go towards supporting our living collections and threatened species conservation programs. A member of the *Rutaceae* family, *Zieria citriodora* is a delightful plant that should be more widely grown. It is a woody sub-shrub that grows to 15 cm and spreads by rhizomes.

*Brachyscome* Whitewash (*Brachyscome diversifolia*) is a compact Australian native daisy with fine ferny foliage and large white flowers. It is very long flowering, producing masses of flowers for most of the year, a spreading ground cover attractive on terraces and embankments and perfect for rockeries and pots/hanging baskets. A terrific plant for mass displays, *Brachyscome* will attract butterflies and other beneficial native insects to your garden. It is a great soil stabiliser and is very easy to grow. Suitable for a full sun position and requires little water once established.

The plants are available for sale in many plant nurseries including Cool Climate Natives, Pialligo, ACT where members of the Friends are eligible for a five percent discount on purchases.



Lemon scented zieria, *Zieria citriodora*

## Book review: *Banks*

Grantlee Kieza, 2020, hard cover, 485 pages, RRP \$39.99

Its cover describes *Banks* as a tale of "Lust, science, adventure". It is a lively tale, but it is also a serious biography and record of the times.

The Prologue is set in Botany Bay, presenting Banks as most of us know him. The voyage with Cook to Tahiti and the east coast of New Holland was no doubt significant, but he undertook many other adventures major and minor, all focussed on expanding knowledge, especially botanical but spanning the gamut of natural history and indigenous cultures. However, Cook sailed without Banks on his second voyage to explore the Pacific further south because, in a rather arrogant tantrum to the navy, Banks insisted that he was to have total command of the ship or he wouldn't go.

Banks' sexual escapades, from London to the south seas, filled the scandal pages of the day. He had connections with slavery though he did change his views on that over the years. Some of his practices would be unacceptable now – one being the collection of indigenous human remains, particularly heads either preserved or as skulls. In one case, dealing with Maoris in New Zealand, he exchanged an old pair of underpants for a human head.

Ultimately, he married and became a country gentleman, but maintained absolute and generous commitment to science as President of the Royal Society and as sponsor of collection activities and voyages of others. A master of networking, he had correspondents all



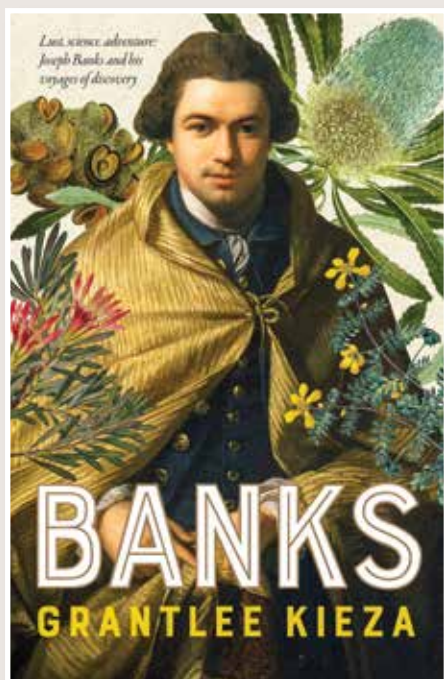


over the world and he maintained a relationship with Australia right up to his death, corresponding with governors and advocating on the colony's behalf back in London.

I became totally engrossed in the book. It is a lively read and tells the story of Banks and his historical context in all its richness. Kieza has undertaken considerable research and has provided 73 pages of bibliography, endnotes, and index, making it a useful reference source of both of Banks and of contemporary historical threads.

Kieza's *Banks* is a welcome addition to my bookshelf. **To win a copy for yourself go to page 22 of this issue to enter our competition.**

Denis Warne



## Book review: *Field Guide to the Orchids of the Southern Tablelands of NSW including the ACT*

Jean Egan, Tony Wood, Roger Farrow and Tobias Hayashi, \$49.00

This field guide is an absolute delight. Dedicated by the rest of the team to the late Tony Wood whose photographs have been used throughout, the book aims to provide bushwalkers, citizen scientists and serious orchid hunters with photographic identification of 32 genera and 181 species of orchids found locally. It also introduces the reader to orchid biology, life cycles, distribution, habitats, conservation and pollination. It is amazing to read that orchids are believed to have evolved in Australia 112 million years ago. The region covered is well illustrated by a map. The text is clear and concise, providing flowering times, habitat, bloom details and notes.

Compact size makes the book easy to take into the field, though the glossy quality pages make it slightly heavy. This is completely offset by the photographic clarity. Multiple photographs of each orchid provide a wonderful aid to identification of the orchid itself and various parts of the flowers. Some photos show the pollinators in action bringing an interesting element of entomology.

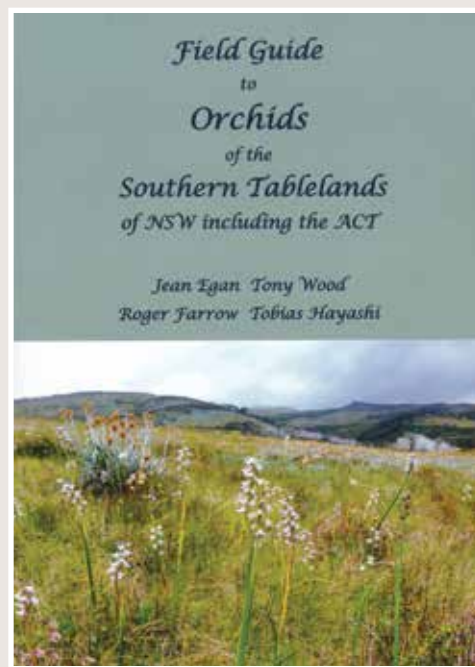
As a gardener, amateur photographer and pleasure walker, I particularly enjoyed taking this guide into the field increasing my pleasure in enabling identification of local orchids. It encourages me to seek out and ramble in different habitats and provides information about when and where to look for orchids. The orchid photography tips were especially helpful as were the indexes which cover both the scientific and common orchid plant names. Useful also is the

glossary in enhancing the understanding of the text.

Thank you, authors, for a thoroughly quality guide about plants of rare and fragile beauty, so seasonal in their display, and many so small as to be easily missed. I recommend you, the reader, to a book that encourages both an outdoor orchid quest and/or simply delightful armchair browsing.

Yvonne Kilgour

The Field guide can be purchased at the Botanical Bookshop, with a 10% discount for Friends, it is already rushing out of the door.



Yvonne Kilgour



*Caladenia fuscata*, Dusky fingers,

Yvonne Kilgour



*Caladenia cucullata* - Brown Cap,

At left are two of Yvonne's images, taken on Black Mountain, where she went with her copy of *Field Guide to the Orchids of the Southern Tablelands of NSW including the ACT* in hand.

# Friendly Chatter

## Botanic Art Groups

Our group was ecstatic to be able to mount our exhibition, *Legacy of Banks and Solander* in October this year after so many postponements due to COVID restrictions. The exhibition was much appreciated by the public and we achieved sales of over 60% of the works. This is a remarkable level of sales that would be the envy of many commercial galleries and results in pleasing fund raising from commissions for the Friends.

Artworks ranged across various species of banksias, kangaroo grass painted on kangaroo vellum, scraperboard works, and work using coloured pencils and inks. The Friends Committee purchased a work of the rare King Island *Banksia solandri* by Sue Grieves for the Gardens. Sue had commenced her study of these banksias before the disastrous fires wiped out so many of the species.

Plans are already underway for next year's exhibition in April which will feature a variety of native plants with a special feature of plants from the desert. The Botanical Art Groups have just recently resumed meetings at the Gardens in the beautiful new Banksia Centre. There are several sessions each month on the second Thursday, second Saturday and fourth Wednesday. Members meet for relaxed sociable sessions to paint or draw specimens collected for us by the horticulturalists. Friends of the Gardens are most

welcome to join us if they are interested to try their hand at botanical art. Follow the link on the Friends' website to find out more information.

Kate Ramsey

## Growing Friends

Like all groups under the Friends umbrella, Growing Friends has had a very difficult year. But, members are looking to the future, in a changed world, rather than dwelling on the past.

Growing Friends has three principal aims – for members to learn about Australian native plants and how to propagate them; to work with the Gardens to propagate plants found there; and to make plants found in the Gardens available to the public through our sales. Early on in the COVID restrictions, it became obvious that we were going to have trouble meeting those aims this year. However, with hard work, a lot of patience and strong support from both the Friends' Council and Gardens' management, we are looking to a brighter future.

With no public sales possible this year, we have had a couple of pre-order, COVID safe, sales to our members and other people who have supported us through this trying time. We are also up-sizing (i.e. re-potting) some of our plants which were bursting out of their original pots, so that they will be in peak of health for sale in 2021.

Throughout all this turmoil, we have not lost sight of the human side of what we do and the friendships developed amongst members. With this in mind, one of our members, John Connolly, produced a newsletter each month, covering group-relevant COVID developments, short bios of some members, and interesting facts about native plants.

By the end of September we had reduced our stock of potted plants to a manageable level, but we had virtually no newly propagated cuttings or seedlings coming through the pipeline. However, as COVID restrictions continued to ease in Canberra, and in ANBG meeting venues, we started to ramp up our propagation activities. We now look forward to 2021, anticipating that we can return to learning more about native plants and getting our hands dirty with lots of propagation.

If you would like to join us, or learn more about what we do, then please email:

[growingfriends@friendsanbg.org.au](mailto:growingfriends@friendsanbg.org.au)

Donna Growcock  
Maurice Hermann

## Photographic Group

This year has been challenging for us but throughout the COVID-19 pandemic we have utilised Zoom as a meeting format for both committee and group members. When the Gardens reopened



Botanic Art Groups Exhibition, *Banksia solandri* by Sue Grieves, third from the right, was purchased by the Friends and donated to the Gardens



to the public, we alternated between Zoom meetings and, with safe distancing practised, walks in the Gardens.

The PG group celebrated its 10th birthday by gathering on the amphitheatre steps in front of the Crosbie Morrison centre and sharing birthday cakes provided by committee members, coffee being purchased at Pollen café. Subsequent meetings were held at the Gardens in appropriate venues, with new members involved.

Currently, until December 6, we have our 2020 annual photographic exhibition *Reflections* on display at the Visitor Centre. Framed prints, unframed prints and other items are on sale to help raise funds for the Friends of the ANBG.

Next year we plan an exhibition, titled *Recovery*, complete with awards. Details will be provided on the website in the New Year.

To join our group either pick up an application from the Visitor Centre, or via the website under the *Get Involved* section, or by email:

[photo@friendsanbg.org.au](mailto:photo@friendsanbg.org.au)

**Helen Dawes**

## Volunteer Guides

Once again, you can see Guides leading visitors around the Gardens, pointing out various plants, or explaining the design or history of different areas. You might notice a few differences too. All active Guides have participated in COVID-safe training, and adopted safe guiding practices. This involves using a neat 'Chattervox' voice amplifier, to allow clear communication whilst maintaining safe physical distances between people. The guided groups tend to be smaller, limited to people from two households/ groups, with up to a maximum of ten people. And we have made some changes to our guiding routes, to ensure we stop at locations with ample space, and mostly out of the way of the main path.

Finding new routes has allowed us to introduce some new features into our walks. During September and October, we focussed on spring flowers and wattles; and since then we have been spoilt for choice with the proliferation of flowers. The opening of the Banksia Garden has allowed us to showcase the cutting edge horticultural work involved in its development, the appeal of Banksia

art and of course, the Banksia 'wow' factor. Banksias like it hot; so make sure you visit there before the middle of summer. As the season progresses, we are reorienting our routes to feature shade in summer, and the various ways plants manage summer heat. For those less inclined to walk or wishing to go further afield, the Flora Explorer has now returned from repairs, and weekend tours are underway.

Given the limitations in numbers on our routine rostered tours, we have also introduced new opportunities for families and small groups/'bubbles' to book their own walks and tours: that way you can choose your preferred day and time, and even ask for a particular focus. You can also now buy a gift voucher for a booked walk or tour - a perfect present!

Guides are always delighted to see what is particularly eye-catching in any given week (at this time, as I write, it could be orchids, waratahs or xanthorrhoea) and how that changes. So, if you do see Guides wandering in ANBG, please don't hesitate to ask us what is special that day, and any other questions you may have.

**Lesley King, Convenor**



Friends Photographic Group, tenth anniversary celebrated with coffee and cake

Alison Milton

## Thursday Talks

The unfortunate advent of COVID-19 meant the cancellation of the popular talks for the year in March 2020. This was necessary because the theatre is relatively small, so that it is not possible to ensure appropriate social distancing in that setting.

However, the good news is that we already had an exciting line up of speakers for the remainder of 2020, and most of those have agreed to defer their talks until 2021. Meanwhile the Talks Committee, in conjunction with the Friends Council and the ANBG is currently exploring ways to present future talks digitally.

It seems rewarding here to review something of the breadth of talks covered by speakers in 2019, and in the first months of 2020. As always, audiences have enjoyed a high standard of presentations, and a wide and varied range of topics. February 2019 opened with a view of the active earth, with Prame Chopra's tale of volcanoes, enlivened by some terrifying videos. The geologic theme was continued by Graeme Worboys' well-illustrated plea for conserving Australia's geoh Heritage, with particular reference to the Ediacara sequence in the Flinders Ranges, with its outstanding evidence of early life forms. The way in which geological sequences have influenced the biological, social and economic history of Australia was presented by Marita Bradshaw in her *Seven Rocks that Made Australia*.

The evolution of Australia's flora featured strongly in the program. Boronia Halstead focussed on the rich flora of the Southwest; Mike Crisp considered the past and present distribution of the coniferous *Callitris*. The shifting stresses on the Australian flora – with lessons learnt from the desert flora – were described by Andy Leigh. Sue Fyfe's discussion of photosynthetic stresses on Australian seagrasses touched another aspect. Invasive species can also be a stressful element on native species, and this was well illustrated by Leah Dann's

ongoing study of the Norfolk Island flora. Rosemary Purdie's *Simpson Desert Revisited* described a traverse through an area of extreme dryness, with a description of what happens when you 'just add water'.

Human history entered the scientific story too. Jennifer Rowland spoke of Humboldt – this year marking the 250<sup>th</sup> anniversary of his birth – and his holistic view of the natural world. Patrick De Deckker reviewed the scientific work carried out on board the *Belgica* when that vessel was trapped in the ice of the Antarctic winter in 1898.

Art and science came together in two talks: ANBG librarian Jane Black presented a selection of 'delights' from the library and archives, which includes eleven of Celia Rosser's *Banksia* paintings. Sharon Field's very different artwork, her exquisite pencil drawings of dieback on the Monaro, included an exhibition on the stage.

In a most informative talk, Kate Auty, then Commissioner for Sustainability and the Environment ACT, described the issues and methodology in compiling the four-yearly *State of the Environment* report, touching on the broadest possible range of subjects. We were privileged to have Jim Peacock, formerly Australia's Chief Scientist and

head of CSIRO's Plant Industry, address us on the issue of how plants could meet the needs of food security.

Given that 2019 was the hottest year on record in Australia, characterised by drought and unprecedented bushfires, it was appropriate that speakers in the first quarter of 2020 – February and March – focussed on issues related to these extremes. Peter Kanowski's introductory talk for the year ranged widely, dealing with aspects of forest management at global, national and local levels. Jason Sharples looked at the processes driving extreme bushfires. He described pyro-convection – the effects of fire-heated air forming local weather, and the phenomenon of 'deep flaming' – the way in which separate fires can rapidly join up into a giant blaze.

This is just a selection of the talks enjoyed. We are optimistic that the talks promised for 2021 will be just as exciting, albeit in a COVID-safe format.



Professor Kate Auty.



Leah Dann: research on tropical plants

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Australian National Botanic Gardens

Image by courtesy of the  
Canberra Times

Threatened Species Recovery Hub  
University of Queensland



## Friends Briefs

### Find a Plant Application Enhancements

**Find a Plant** was first announced in the April 2019 edition of *Fronds* and has already proven a most useful tool to Friends, Gardens staff and visitors who wish to locate specific plants held in the Gardens. Just recently, its user interface and functionality have been enhanced.

You can now search by accession number, choose to view a summary of all taxon in a section or all individual plant records, choose to see just mapped plants or all plant records, and choose whether the records are presented as both mapped and unmapped records together or in separate blocks. When displaying individual details about a plant, all clones can be displayed. Changes have been made to the colours, icons and legends to allow a more consistent mapping interface.

**Find a Plant** can be accessed at <https://www.anbg.gov.au/fap> or by navigating from the Gardens home page (anbg.gov.au) > Gardens > Living Plants > Find a Plant and then click the link

under the heading for “Find A Plant Interactive Map”.

The application should be accessible on any web browser, including mobile phones but works best on Google Chrome or Firefox. Development of this capability has been a project supported by the Friends financially (about \$13,600) and through volunteer input.

**David Coutts**

#### Editor's Note

I couldn't resist having a play with the help of Anne Fuchs of the Gardens and her notes. Precise mapping of all plants is still a work in progress, but I found that I could do the two things I wanted: find specimens of a plant of interest and identify a plant that I encounter in the Gardens. The first uses the search features, the second relies on identifying the relevant dot on the interactive map and clicking on it. And, I could do both on my mobile phone with appropriate fiddling of screen real estate.



Suzanne Harrison

Remember the hail storm – our plants on the road to recovery

### Volunteer Recognition Ceremony, 10 November 2020



Barbara Podger

Tricia Morton receiving award



Cathy Robertson

Friends President, Neville Page addresses attendees

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)

## Sunset Cinema

**19 November – 9 January 2021**

Head outdoors for an unforgettable night of film under the stars.

## 50<sup>th</sup> Reflections, outdoor exhibition

Select locations throughout the Gardens

**Until 31 December, 8.30 am – 4.30 pm**

Step back in time and see how the Gardens have transformed over the last 50 years.

## Thursday Talks

Due to the COVID-19 pandemic Thursday Talks could not be held in the theatre during 2020.

The Friends are looking at ways to present Talks online in 2021.

Progress on online talks, including speakers and topics will be reported in the Friends' e-bulletin 'News of Coming Events' and the website.

## Removing Woody Weeds from Black Mountain including ANBG

Check Friends website for meeting place for each weeding work party.

Please email your name & phone number to [friendsofblackmountain@gmail.com](mailto:friendsofblackmountain@gmail.com) or phone Linda (0437 298 711) or Libby (02 6296 1936) so there is enough delicious morning tea.

Saturday 5 December 8:30 to 11:30am

Saturday 2 January, 8:30 to 11:30am

Saturday 6 February, 8:30 to 11:30am

Saturday 6 March, 8:30 to 11:30am

Saturday 3 April, 8:30 to 11:30am

## Exhibitions

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

*Please confirm dates on either the ANBG or Friends website*

**Until 6 December, 9.30 am – 4.30 pm**

### Reflections: Friends Photographic Group Exhibition

Photography exhibition by the Friends Photographic Group. Framed and unframed photographs and other items for sale.

**9 December – 31 January 2021, 9.30 am – 4.30 pm**

### Dirkswirks Timber Mosaics Exhibition

A sculptural feast of three-dimensional decorative wood mosaics by Dirk Lejeune. Inspired by his fascination of the Australian bush his artworks consist of timber, bark and crosscuts of branches.

**3 – 28 February, 9.30 am – 4.30 pm**

### Detritus

An exhibition exploring the finer details in native flora – colours, textures, shapes, patterns drawing attention to tiny imperfections and the beauty they can hold. The artist, Emille Patteson, uses hot glass to encase and burn plant specimens, as well as creating natural dyes to stain paper. She explores life cycles of growth and decay by simultaneously destroying and preserving plant matter.

**4 – 28 March, 9.30 am – 4.30 pm**

### A Brush with Porcelain

An exhibition portraying the beauty and diversity of Australian native flora and fauna through a variety of shapes and forms of porcelain/ceramics, both hanging and free standing, with jewelry and cards depicting painted works, by the ACT Porcelain Artists Association. Includes live demonstrations.

## Friends Benefits

*As a Friend you are entitled to:*

Three issues of *Fronde* a year

Three hour free parking pass

Discount at:

Botanical Bookshop (most items)

Pollen

Jindii Eco Spa

Cool Country Natives in Pialligo

Australian Choice, Canberra.

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, Ellis Rowan Building, open to members 9.30 am to 4.30 pm. and with tea & coffee and lots of interesting reading.