

Fronas

Friends of the Australian National Botanic Gardens
Number 99 December 2021





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

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BILL HALL

Greenish Grass Dart: see article on p 14, and notice of butterfly walks on p 25

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Cover: *Eucalyptus macrocarpa*, photo by Graham Gall

Some Favourite Plants from *Flowers, Fruit and Foliage*

Ros and Ben Walcott

Motherhood statement - Ben and I love all the plants that we document in the brochure *Flowers, Fruit and Foliage*. When asked to write about our favourites we chose to feature some that either are unusual or showy, flower for a very long time, perform useful roles in the garden, have interesting stories attached and others that have great fruit or nuts.

These plants that we have chosen thrive in Canberra and are appropriate for smaller gardens including a few which can be grown successfully in pots in a courtyard or on a balcony.

***Acacia leprosa* 'Scarlet Blaze'** or **Cinnamon Wattle** is an ornamental small evergreen tree, 4-5m high, with weeping green foliage and many striking reddish fluffy balls of flower.

This plant is commonly known as Cinnamon Wattle because when its leaves are crushed in warm weather they release a cinnamon like fragrance

The cultivar 'Scarlet Blaze' has attracted attention because of a flower colour unique among wattles. The cultivar arose from a single red-flowered specimen discovered by bushwalkers in a Victorian state forest north-east of Melbourne. The original plant has since died.

This plant is rather brittle and needs to be protected from the wind, but will reward you with sheets of bloom for a month each year.

***Alyogyne huegelii* 'Misty'** is a very attractive selection of *A. huegelii* with pale mauve flowers with burgundy centres and coarse green foliage.

This shrub needs well drained gravelly soils and is moderately frost tolerant. In our garden we have given these plants some overhead protection and have been rewarded with months of flower.

Anigozanthos manglesii, or Red and Green Kangaroo Paw, is the floral emblem of Western Australia.



Acacia leprosa 'Scarlet Blaze'



Alyogyne huegelii 'Misty'



Anigozanthos manglesii



Boronia 'Purple Jared'

This plant, one of the most spectacular of the Kangaroo Paws, with its green flowers with bright red bases on red furry stems, is native to the southern part of the west coast of Western Australia. We grow these in pots with sharp drainage in our garden and treat them as an annual or biannual.

***Boronia* 'Purple Jared'** is a cross between *Boronia megastima* and *B. heterophylla* with fine green foliage and deep purple bell flowers. For those of you (75%) who can smell boronias, it has a glorious scent. This plant can be grown in the garden, with some overhead protection, or in a pot.

Correa alba, commonly known as White Correa, 1-2m high, with oval grey-green leaves with silver backs and white star flowers, is a versatile and reliable plant in the garden, and can be used as a hedge. This plant is native to eastern coastal regions of Australia from northern NSW to Tasmania and eastern South Australia.

This species was first formally described by Henry Cranke Andrews in 1798.

***Epacris longiflora* 'Nectar Pink'** is a very floriferous small shrub, 80cm high x 80cm wide, covered in slender pink bells with white tips in dense clusters along the stems. Each flower has lots of nectar and they are produced over a long period.

These plants grow in well drained soil in full or filtered sun in the garden or in a pot.

Pimelea physodes, or Qualup Bell, has grey-green foliage, held close to reddish stems, with pendant green bracts enclosing the small flowers and dark red outer bracts.

This plant is native to southwestern Western Australia and is considered the most outstanding of the genus. It can be grown successfully both in the ground and in a pot.

Some Favourite Plants from *Flowers, Fruit and Foliage* (contd.)



Correa alba



Epacris longiflora 'Nectar Pink'



Pimelea physodes



Grevillea 'Robyn Gordon'

Grevillea 'Robyn Gordon' has deeply divided green foliage and reddish pink flowers. This plant is very popular and has been planted widely in Australia and other countries. It originated as a chance hybrid from the garden of the late David Gordon of Myall Park, Glenmorgan, Queensland. David Gordon was a plant collector with an extensive collection of *Grevillea* species which (according to legend) he planted in alphabetical order by species. This meant that the Queensland species, *Grevillea banksii*, was close to the Western Australian species, *G. bipinnatifida*.

A plant that was later to become the cultivar 'Robyn Gordon' (named after the Gordons' daughter) arose by chance near these two parent species.

Philotheca myoporoides, or Long Leaf Wax Flower, forms a neat bush, 1-2m high x 2m wide, with aromatic, leathery, dull green foliage, pink buds and white star flowers, loved by bees and hover flies.

This plant is endemic to southeastern Australia and is useful in the garden for its long flowering time, hardiness and compact shape.

Prostanthera ovalifolia, or Purple Mint Bush, is a shrub, 2m high, with highly aromatic variable leaves and many purple flowers.

This plant is native to the inland areas of New South Wales and southern Queensland and is an outstanding plant when in flower.

Xerochrysum bracteatum 'Dargan Hill Monarch', is a magnificent yellow paper daisy with gold centres and green foliage. *Xerochrysum* 'Dargan Hill Monarch' is a herbaceous form of the well known Everlasting or Straw flower, which was found growing about one mile inland from Cunningham's Gap in southern Queensland in May 1961.



Philotheca myoporoides



Prostanthera ovalifolia



Xerochrysum bracteatum 'Dargan Hill Monarch'

Ros and Ben Walcott mark out a new *Flowers, Fruit and Foliage* trail each fortnight. They produce a handout describing the location of a variety of plants with some interesting information. You can find the current and past issues on the Friends website Home page where there is also a link to an accompanying video.

IMAGES SUPPLIED BY ROS AND BEN WALCOTT

Quality control of National Seed Bank collections

Gemma Hoyle, Seed Scientist, National Seed Bank

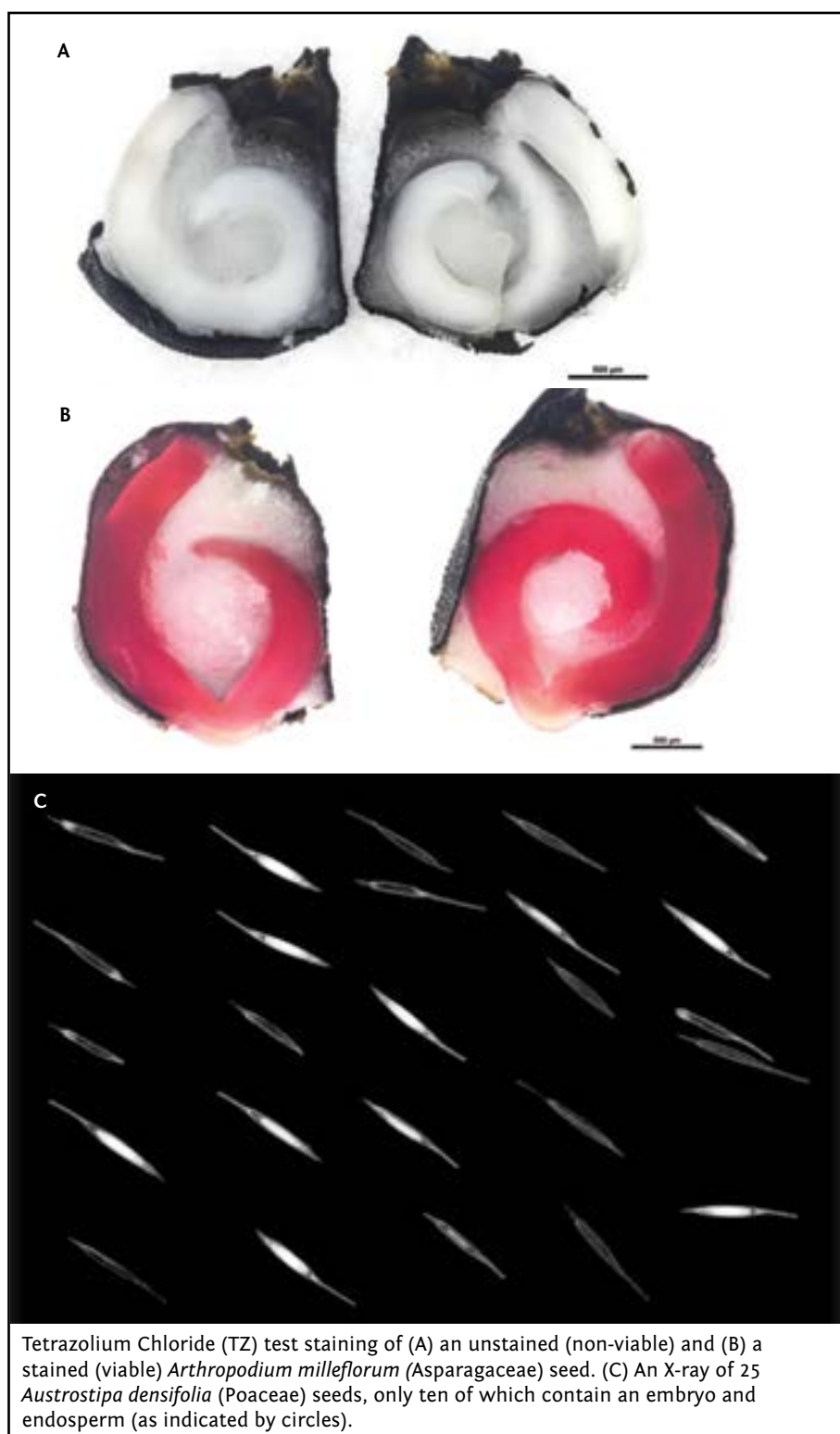
At the National Seed Bank, curating our 7,700 seed collections involves initial and ongoing monitoring of seed viability via periodic germination tests. Seed viability describes the proportion of seeds containing living embryos and we aim for ≥ 75 percent germination in order to 'Pass' a collection and deem it both viable and germinable. In the seed bank laboratory, we begin by mimicking temperatures that seeds would experience *in situ* and/or repeat test conditions that have been successful in the past for that species or related species.

But what happens when germination remains below 75 percent? It's important that we are able to differentiate between seed that is non-viable and seed that requires further investigation.

One tool for assessing the viability of a seed collection in the absence of germination is the Tetrazolium Chloride staining technique (or TZ test). Replicates of seeds are soaked in TZ solution overnight and then dissected and examined under the microscope. Viable embryo tissue stains bright red and non-viable embryo tissue remains unstained. Using this test we can estimate what proportion of a collection is viable. Another tool for assessing collection quality at the National Seed Bank is a seed X-ray machine. Native plants can produce seeds that may appear healthy and normal on the outside but are completely empty or damaged inside. Seed-fill describes the proportion of seeds that contain all the tissue essential for germination (i.e. intact endosperm and/or embryo), and can be determined by X-ray. Germination and TZ test results are then calculated as final mean percentage across replicates, adjusted for empty seeds.

Wild seed collections commonly include a proportion of empty and/or non-viable seeds. Identifying these seeds ensures that we avoid underestimating the germination potential of a collection

or wasting our time and resources investigating low quality collections. Where germination test results are not significantly different to TZ test results, a collection is awarded a 'Viability Adjusted Pass' and no further investigation is needed. However, collections that achieve low germination that cannot be explained by low viability or low seed fill offer exciting scope for further research into complex germination requirements and/or dormancy mechanisms.



Tetrazolium Chloride (TZ) test staining of (A) an unstained (non-viable) and (B) a stained (viable) *Arthropodium milleflorum* (Asparagaceae) seed. (C) An X-ray of 25 *Austrostipa densifolia* (Poaceae) seeds, only ten of which contain an embryo and endosperm (as indicated by circles).

From cultivated plant to environmental weed: ANBG and the Red Passionflower

Rosemary Purdie, ANBG Honorary Living Collections Botanist

Red Passionflower (*Passiflora cinnabarina*) is a native perennial vine distributed on the coast and ranges mostly south of Sydney, NSW to East Gippsland in Victoria. It has become naturalised more widely in both states as well as in Tasmania where it's described as an environmental weed¹. The species is considered to be native to the ACT, but only in a very localised area associated with Booroomba Rocks in Namadgi National Park. It has been promoted for cultivation since at least 1979² due to its attractive flowers. In the ACT it has been reported as a larval food plant for the Glasswing butterfly (*Acraea androacha*), an occasional vagrant in the territory³.

Cultivation within ANBG

The first cultivation record associated with ANBG comes from a herbarium specimen collected in April 1973 by Gardens Ranger Andy McWhirter. The herbarium label describes the plant's location as "Cultivated B Muffet, Black Mountain". Brian Muffet was in charge of the Gardens' nursery⁴ and probably living in one of the back cottages which, at that time, sat just outside the ANBG boundary fence. The specimen was the voucher for a seed collection although there is no record of them being germinated for further cultivation.

In January 1976 ANBG Horticulturist Geoff Butler collected cuttings and a voucher from Booroomba Rocks; the specimen was the first herbarium record of Red Passionflower growing in the ACT. Four cuttings (accession number ANBG 760148) were subsequently planted out in the Gardens: one each in sections 131, 147 and 174 (see Map 1); the location of the fourth is not recorded. Cuttings were taken three times from these first-generation plants, although there is no record of their planting dates. The second-generation plants comprised one each in sections 131, 140 and 148, and one in an unknown location. Cuttings were taken twice from the second-generation plants, giving a third generation comprising one plant each in sections 117, 147, 210 and 313 (the latter planted in 1990). A fourth generation cutting was also planted in section 131 in 1990 and a "mass" of fifth generation cuttings planted in section 191b in 1994. Planting records show two other undated cultivated accessions: one in section 147, and another whose location was not recorded.

Spreading and jumping the boundary fence

Although ANBG records indicate relatively few plants were cultivated in a small number of garden beds, horti-

culture staff subsequently reported Red Passionflower spreading to other parts of the Gardens. For example, in October 2015, Stuart Donaldson collected a herbarium specimen from section 165 (near the back gate), noting there was "heavy recruitment in dry woodland". Toby Golson collected a specimen in November 2017, reporting the species had naturalised in sections 62 and 140 (both at the top end of the rainforest gully; second generation plants had been cultivated earlier in section 140).

Herbarium records show the species had jumped the ANBG fence by at least 1998. In November of that year a specimen was collected by Lyn Craven (a taxonomist at the Herbarium) from the CSIRO Black Mountain site in an area "periodically mown". In January 2003, A. McRae collected a specimen from between CSIRO and the ANBG, in "scrub" behind the Black Mountain creche. I collected the species within Black Mountain Nature Reserve below the mid-level carpark on the east side of Black Mountain Drive in November 2009, and again in November 2015 along a creek near the ANBG's western boundary fence. Canberra Nature Map website⁵ photographic records also show the species was recorded on the upper south-west side of Black Mountain in October 2016.



Passiflora cinnabarina flower.



Red Passionflower plants covering the ground and climbing into Scribbly Gum branches, ANBG North Annex, April 2021.

Incipient environmental weed

Despite the sporadic records of self-sown plants up to 2016, the species ‘exploded’ in 2021. Dense infestations were present throughout the ANBG’s landscape depot surrounds and gullies in the North Annex and extended into the ANU Paleomagnetic Laboratory located in the old quarry at the end of Frith Road. Similar infestations were also present outside the north-eastern boundary of the Gardens, in the northern part of CSIRO, and between Barry Drive and Turner as well as being widespread within the Gardens itself. The latter infestations were mainly in sections never cultivated or no longer maintained, although small clusters of plants were also present in numerous maintained beds. Worryingly, the species was recorded in widespread locations within Black Mountain Nature Reserve, including one patch with a couple of hundred plants.

Assessment and response

The gradual spread of Red Passionflower in the decades after it was cultivated in the Gardens is most likely a combination of repeated fruit dispersal by animals and build-up of soil-stored seeds from fruits dropping to the ground below mature plants. The seeds and/or fruits are reported to be spread by birds and possibly possums⁶ and by the Grey-headed Flying Fox⁷; birds are probably the most likely vector within and beyond ANBG. It appears the wet conditions from February 2020 to April 2021 prompted mass germination of soil-stored seed, rapid growth of seedlings and copious regrowth of existing mature plants. The density and distribution of infestations highlighted the need for action to prevent it becoming a more widespread problem.

To minimise the species’ spread into Black Mountain Nature Reserve, the Friends of Black Mountain removed thousands of plants from the North Annex in May, July and August 2021. Their activity ranged from pulling many

cubic metres of biomass off *Eucalyptus* trees, native shrubs and the ground surface, to meticulously searching for and pulling up seedlings 2–3 cm tall among the rocks and herbage. From August onwards ANBG staff and others opportunistically removed localised infestations within the Gardens and in adjacent areas to the north-east, and from all known locations in the nature reserve. The work will continue over spring and early summer to try to remove as many plants as possible before mature fruits develop, to break the fruit dispersal chain.

Future prognosis?

ANBG staff are aware of the need to be a ‘good neighbour’ to Black Mountain Nature Reserve. Since February 2013 they have allowed the Friends of Black Mountain to remove woody weeds (most sourced from the ANBG Living Collections) in peripheral areas of the Gardens, the Bush Precinct and the North Annex to help prevent their further spread. However, no other species that has jumped the Gardens’ fence appears to rival the ability of Red Passionflower to smother native vegetation and become so widespread in the reserve.

It will be impossible to remove every Red Passionflower plant from the Gardens and adjacent areas: the seedlings and young plants are easy to miss, it’s likely that more seedlings will develop over time from seeds already in the soil, and there are probably unrecorded mature plants still around. However, substantially reducing the size of the current population should reduce further spread into the reserve and other areas and

make future control easier. It will require vigilance and active management during drier years to avoid future population explosions and spread in wet years.

The Red Passionflower environmental weed warning bells sounded loud and clear this year; let’s hope we can keep them silent in years to come.

1 <https://www.weeds.asn.au/tasmanian-weeds/view-by-common-name/red-passionflower-passiflora-cinnabarina/>

2 For example in Wrigley, J.W. and Fagg, M. (1979) *Australian Native Plants*, Collins

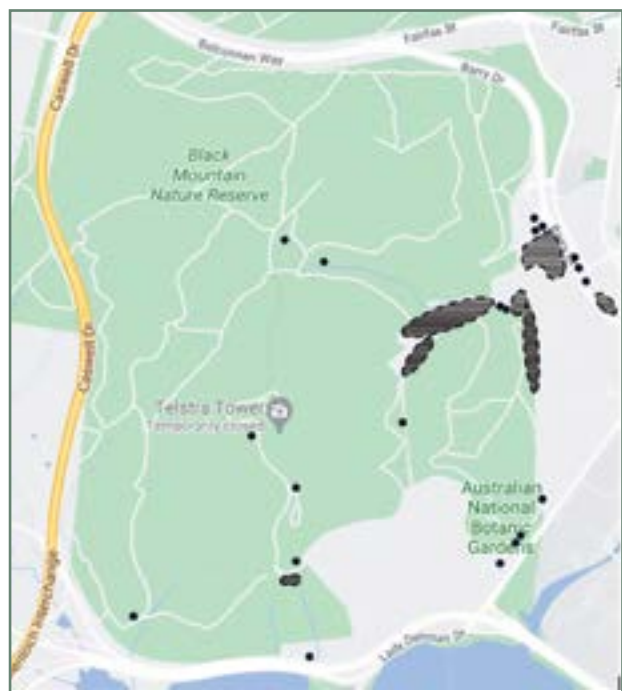
3 Bond, S. with S. Holliday and J. Stein (2016) *Field guide to the butterflies of the Australian Capital Territory*. National Parks Association of the ACT

4 <https://www.anbg.gov.au/gardens/about/history/oral-history/wrigley-1995.html>

5 <https://canberra.naturemapr.org/>

6 <https://www.weeds.asn.au/tasmanian-weeds/view-by-common-name/red-passionflower-passiflora-cinnabarina/>

7 Eby, P. (1995) *The Biology and Management of Flying Foxes in New South Wales*. National Parks & Wildlife Service, Hurstville



Map showing locations of self-sown Red Passionflower recorded outside ANBG, to 30 September 2021
● = isolated plants or small clusters; ■ = major infestations

Photographic Group

The photographic group did manage to have a few meetings before COVID-19 lockdown.

In May, Annie Stockton gave a very impressive presentation, *Photographic Equipment and Accessories*. This was followed in June by Peter Byron with an overview of the proposed master plan of the Gardens future developments, while in July we heard from Buvelot framers and printing. This was to prepare us for the special exhibition being held now.

We do encourage you to come and view our exhibition *Recovery* currently being held in the Visitor Centre. It comprises framed works, unframed prints, cards, calendars, photo bags and more. There is also a monitor of revolving images of the Gardens. A percentage of sales go to the Friends for use in projects in the Gardens.

You may also like to check out the 2022 Calendar that is available in the bookshop. All images were produced by Photographic Group members.

If you would like more information on the Photographic Group, please email us at photo@friendsanbg.org.au. We encourage potential speakers and new members and look forward to hearing from you.

Helen Dawes

Botanic Art Groups

Although this year has been disrupted by COVID-19 restrictions, the Botanic Art Groups (BAG) members have continued work on a number of projects while in lockdown. In June the ANBG invited BAG to participate in a project for the Ian Potter Conservatory to illustrate plants in pen. Expressions of interest were called for and visits to the glasshouses for interested artists began. It is anticipated that this project of illustrating plants in the Conservatory will be an ongoing exercise. COVID-19 restrictions and the closure of the Gardens have meant that the project has slowed somewhat but information on

the ANBG website has assisted artists to prepare preliminary drawings.

We all look forward to being able to complete this project and also to prepare work for the 2022 exhibition, which has as a theme *Growing in the Gardens*. The 14th annual exhibition is planned to take place in the Visitor Centre from 9 April to 8 May, 2022. Further information regarding the Friends preview on 8 April and a gift bookmark will be in the next edition of *Fronde*.

Kate Ramsey

Volunteer Guides

ANBG guides usually focus on plants. But here my focus is on the people: who we are, why we volunteered as guides, and our thoughts on being a guide.

People of many different occupations, personalities and paths find themselves becoming guides. What they have in common is love of the outdoors, observing nature and showing it to others. There are more than 60 guides, and everyone has

a different story. Here we hear

from three: Tim, Jo, and Rita.

Tim enjoyed guiding many friends around the sights of Canberra but hadn't thought of becoming a 'Guide' until 2015, when he saw the advertisement seeking guides at the Gardens. It seemed an opportunity to link his enjoyment of guiding and interest in Australian bush, trees, and birds. When

he found out that you develop your own tours, he knew it would suit him. It was Tim's creative approach that led to him designing a *Carpark walk*. Tim is particularly interested in how trees are associated with significant events and memories for most of us. He talks about these ideas in community presentations, and in specialised themed and booked walks. Being a guide, and the ongoing learning that goes with it, has added significantly to his and his family's enjoyment of road trips and walking in the bush.

Jo started her connection with the Gardens through Growing Friends and driving an electric vehicle at summer events. She trained to become a guide in 2019. She especially enjoys taking visitors on Flora tours, where they can appreciate the broad view, seeing communities of plants such as the rainforest, and how plants in these communities adapt and live alongside each other. She finds it particularly encouraging when visitors connect what they see at the

Gardens with the world beyond, remembering places they have

travelled to. Jo has been actively involved in organising and running the recently developed *Secrets of the Australian bush* family Flora tours and was especially delighted once when one of the young children on board enthusiastically hugged the guides at the end of the tour. She would encourage anyone interested in plants and people to apply to become

Would you like to join the volunteer guides?

See p. 26 for information



PHOTO PROVIDED

Tim



PHOTO PROVIDED

Jo

a guide. They will be well-trained and well-supported.

Most guides don't have a background in botany, but for Rita that was the inspiration that led her to guiding. Lindsay Pryor (who planned and established the ANBG before becoming Foundation Professor of Botany at ANU in 1960) was her lecturer in first year botany; and this long-term interest meant she was passionate about becoming an environment-oriented volunteer. Rita trained as an ANBG guide in 2013 and not only brings her prior botany training on eucalypt bark, leaves and nuts, but is also very enthusiastic about what guides can offer, in terms of stories about plants, their uses and habitats. She is confident that a guided tour, chatting with a guide, provides a rich, fun experience that adds a layer of interest that would otherwise be missing. Rita also enjoys the social aspects of being a guide, including collaborating on developing new walks (she has worked on 'Plants in art' and 'Iconic Australian plants' walks), and mentoring new guides.

All three commented on how much they enjoy ongoing research and learning that is part and parcel of being a guide. Working together as a group, guides can't help but recognise that there are so many ways of appreciating plants, that each group of visitors is different, and that every guide approaches their tour differently. We look forward to meeting many of the Friends at the Gardens, again, in the months and year ahead.

Lesley King



PHOTO PROVIDED

Rita

Nature Journaling

The Friends' newest special interest group is Nature Journaling. The group meets on the first Monday of each month at a different location in the gardens from 10.30 am to 12.30 pm. New members are welcome so if you would like to join us please contact me at lespage26@gmail.com. In any case, watch this space for chatter of our future activities.

Lesley Page

Growing Friends

It is early October, as I write this, and an abundant spring is in full swing. We humans, however, are locked in due to COVID-19. Growing Friends have not been able to work in or visit the propagation area.

However, our plants from previous plant sales are no doubt giving joy in gardens all around Canberra. The photos here illustrate some that are now firmly established in new garden homes.

More of these and other plants will be ready for the next Growing Friends' sale. And, with the wait, many will be offered in larger pots with more mature well-established plants. During the lockdown Gardens' staff have kindly watered our plants for us, and we are very grateful for their support. The Shade house plants are looking very happy.

Check the Gardens and Friends' websites for announcements of the next sale. Growing Friends thank the public for their strong interest in Australian native plants and enjoy offering unique specimens for purchase. New members are welcome to the group. More experienced Growing Friends are most happy to help answer your questions and offer solutions to plant propagation. For more information, please email growing-friends@friendsanbg.org.au

Donna Growcock

Growing Friends (contd.)



CHATTO K. APII X333,2001 ©

Alyogyne Huegelli 'West Coast Gem' or native hibiscus is growing on a well-drained rocky slope well covered by higher overhead canopy which is its environmental preference. It faces south-west/west. A cutting taken in February 2019 overwintered for 18 months in a pot and was planted in November 2020. With 12 months in the garden, it shows triple growth and will soon yield the mauve hibiscus-like flowers shown above.



DONNA GROWCOCK

Correa Bauerlenii or Chef's Hat Correa, growing from a cutting taken in March 2020 and bought in May 2021. It was planted in the garden this September. It has doubled in size and is showing flowers already.



DONNA GROWCOCK

Correa Glabra 'Coliban River' growing from a cutting was taken in March 2019 and kept 18 months awaiting garden soil renovations. It was planted in November 2020 and in 12 months has tripled in size.

Nature Journaling

Nature Journaling is a personal response to nature which can be quite whimsical. To express oneself in Nature Journaling can be in any medium including drawings, poems, writing photos. It's about observation of what you see and translating in your journal. These recordings improve memory of a given place, time and weather, animals and birds. The sounds of birds, the wind whispering in the trees, trickling of a creek, or the crashing of waves are all phenomena which we feel and see. To sit in a quiet spot and observe what is around you and then express what you see in a journal is very relaxing, a form of meditation. It also feeds one's curiosity. One begins to hear and see things we normally wouldn't see in a world that rushes from place to place.

A nature journalist doesn't need much equipment. A journal, pencil, maybe coloured pencils, watercolours, ink pen, a shoulder bag or small backpack to put your equipment in. Light portable stool, sturdy shoes, binoculars, camera. It is not an expensive pastime but a very rewarding one. It brings peace, a feeling of being at one with nature, leaving your cares and worries.

So, I am sitting quietly, doing nothing, soaking up the environment. Might sit for twenty minutes. The birds come

closer. I begin to verbalise my observations. What birds do you hear or see? Slow down, just watch and listen. Become aware of your senses. Describe what you smell. Draw what you see not what you thought you saw.

Is nature journaling Botanical Illustration? Close, but not really. Botanical Illustration is the accurate pictorial depiction of plants and plant traits for a scientific purpose. It is not really about your reflections on nature. It's a job recording visual data for a Botanist and yes, some illustrations turn into a work of art such as Ferdinand Bauer's watercolours. Before photography, explorers, travellers used illustrated diaries to record what they saw. Natural history was supplanted by photography. Nature Journaling is very flexible. It ranges from scientific drawings designed for professional publications to creative art whose principal purpose is to convey aesthetic pleasure. It can be private as are diaries or can be shared with others. It involves the illustrator directly in what she sees. The artist can strengthen her impression with written description and commentary.

Nature Journaling is not new. People have recorded the hunt or battle, the passage of time, the success of exploration. Pliny, Aristotle, cave man, indigenous tribes, Linnaeus were all naturalists writing up their findings.

Lesley Page



ARTIST: LESLEY PAGE



ARTIST: MAX BOURKE

Eucalyptus sieberi

Friends History

Friends' special interest groups are a key way for members to pursue their interests in the Gardens with others of like mind and, at the same time provide support in meaningful ways, be it fundraising, providing direct support, or enhancing the public experience. From time to time Fronds intends publishing a short history of one of our current groups. Here we start with the oldest.

Growing Friends

Growing Friends (GF) was the first special interest group formed within the Friends, with an inaugural meeting on 16 April 1994. Doreen Wilson and I are the only early members still active. Malcolm Fyfe was the driving force and co-ordinated the group until 2007. I followed as co-ordinator until 2017. Maurice Hermann is the current co-ordinator. GF moved to its current facilities beside the the Banksia Garden in 1995.¹

At monthly meetings and regular working bees, members learn about Australian plants, their propagation and maintenance. Sales of plants produced are normally held in spring and autumn each year and proceeds have ranged from \$7,246 in 2012 to \$15,146 in 2019. Funds raised have been a regular source of income for the Friends.

GF maintains a database recording every plant propagated, and how many plants reach the potting on stage. More recently we have been able to include details such as hormones used and any special treatments. A success report for the session 12 months prior, is a feature of meetings. We are grateful to Ros Cornish for setting up the original database and maintaining it until she left Canberra in 2016. Members can also access a manual of procedures, list of permitted plants (updated annually by Plant Records) and PowerPoint slides of species propagated.

¹ 20 Years growing, *Fronds* August 2014, pp.4&5, includes more details of GF's early years.

<http://friendsanbg.org.au/newsletter> and scroll down to 'Download Previous issues'

We work closely with ANBG staff, especially from Plant Records and the Nursery. Nursery staff have held propagation sessions for us as well as a grafting session. We sometimes receive excess nursery stock to add to our sales. A Plant Records staff member currently takes the propagator for the month out to collect cuttings.

Maintenance has been a major issue and we have lost plants due to electric and plumbing problems. In 2014 a large eucalypt limb fell on one corner of the shade house, causing major damage. We gave a large section of shade cloth to the Cryptogram Herbarium, where it hangs on a wall displaying 15 or more lichens species. The summer of 2019/20 was one of the worst summers for gardeners in Canberra, including GFs. Drought and extreme heat were followed by smoke pollution and then extensive hail damage. The Gardens were shut on various occasions due to fire risks, and



Damage caused to plants and shade house by January 2020 hail storm.



Cuttings propagated by Growing Friends, nurtured with base heating and automated watering

the aftermath of the hailstorm. Then came COVID with restrictions and lockdowns. While unable to access its facilities for many weeks, the group has had to nurture damaged plants, pot on root bound plants and try to sell some stock. Gardens' staff have helped with watering during lockdowns. During 2020/21 sales netted a total of \$8,270, but we don't know when the next public sale will be.

In 2021, we were buoyed to receive the Handbury Award from the Association

of Friends of Botanic Gardens awarded to: *A Friends Group who has made a major contribution to their respective garden....*

Members are keen to return to the smooth processes built up over many years of adapting to various challenges. With all the ups and downs, the knowledge and friendship built up from working together, using our diverse talents, has been enriching personally and for the Gardens.

Kath Holtzapffel

THRIVING TOGETHER, AABFG BIENNIAL CONFERENCE, April 29 - May 1, 2022, REGISTRATIONS OPEN

We invite ANBG Friends to the 2022 Conference at the Eurobodalla Regional Botanic Garden. The conference will bring together Friends' groups from across Australia for a chance to connect, engage and inspire. We hope that delegates will come away from the conference having learnt new skills and feeling energised.

The theme for next year's conference is "Thriving Together: Resilience and Renewal in a Changing World". Our



program will showcase inspiring speakers including Keynote Speaker Tim Entwisle, Director and Chief Executive at the Royal Botanic Gardens, Victoria who will bring his global and local experience and insights.

Speaking on the idea of resilience and renewal will be Michael Anlezark, Manager at the Eurobodalla Regional Botanic Garden, who has led the gardens since 2012 and through the recent 2019/20 fires.

The team from Community Greening at the Royal Botanic Garden Sydney will share their innovative outreach programs that recognise the benefit of gardens for both physical and mental health.

There will also be the opportunity for Friends to share their knowledge through interactive presentations and workshops.



Over the weekend there will be plenty of time to socialise with welcome drinks, conference dinner and a breakfast in the garden. Partners are invited.

Optional post conference tours will include a visit to Horse Island, a picturesque private garden rarely open to the public and a 'Behind the Scenes' tour of the Eurobodalla Regional Botanic Garden and the Wallace Herbarium which will give delegates an insight into the inner workings of the Garden.

Registrations are open and include a virtual conference option. Registration forms are available from

erbq.org.au and friendsbotanicgardens.org

Thursday Talks 2021 - a Half Year in Review

Liz Truswell, on behalf of the Thursday Talks Committee, Friends of the ANBG

Thursday talks were not possible for the last half of 2020 because of COVID-19 restrictions. We were however, fortunate in having speakers who were happy to have their talks transferred to 2021. So, for the first eight months of this year, we were rewarded with a highly interesting range of topics. Beginning with reflections on the impacts, and indeed on the causes, of the 'black summer' fires, they then covered a range of topics embracing place, ecology and environment – some were specific to Australia, others were more global in their context.

The year began in the theatre of Telstra Tower (the ANBG theatre being re-cabled at that time) when Drs Karen Ford and Kara Youngentob spoke of monitoring Koala populations whose habitat had been impacted by the fires. Basing their studies on koalas temporarily kept at the ANU, they spoke of well-defined feeding preferences, and made references to work being carried



Karen Ford providing the eucalyptus leaves preferred by an injured koala temporarily housed at ANU

out on the gut flora of koalas in order to understand their nutrition.

The Thursday Talks then returned to the ANBG Theatre, but with restricted attendances due to COVID-19 regulations. The first of the talks there reflected the multiple hazards of our times, when Nerilie Abram of ANU spoke of the black summer bushfires, which can be read in more detail in the following open access paper <https://www.nature.com/articles/s43247-020-00065-8>. Nerilie has recently been appointed to a new global climate change advisory

body, Climate Crisis Advisory Group, as the only Australian on that group. In her talk she drew attention to the scale and power of our fires, noting that they were unprecedented in their scale and power, and followed Australia's hottest and driest year on record. The type of weather that spawned the fires is becoming more frequent and prolonged.

Many of the Thursday Talks focussed on Place as a theme. In the first instance, the place was Warlpiri in the Tanami Desert, when Linda Broadhurst spoke on Connecting indigenous and scientific plant names. The project is founded on increasing interest in indigenous ecological knowledge, and its long history on this continent. The talk was attended by Alex Marley who is the CSIRO CERC post-doctoral fellow undertaking much of the work, and who answered questions from the audience.

A sense of a new and exciting place to come – an 'Enlightened Conservatory; Design and Plants' was jointly presented by Peter Byron and Joe McAuliffe.

Peter spoke of the design concept for the ANBG's new conservatory and its selection after a design competition. He referred to walls some 15 m high to encompass rainforest trees – to a 'plant library' downstairs, to 'listening posts' and its energy efficiency. Joe reviewed the plants selected, and the challenges of keeping plants growing appropriately in advance of the Conservatory opening.

Another talk with a specific reference to place was Patrick De Deckker's talk on Lake George, and to its 200 years of data relating to lake levels, and to the role of H.C. Russell, who was in charge of the Observatory in Sydney, in maintaining that data. Lake levels are known back to 1816. Patrick discussed the relevance of these records in line with current climate changes, and reflected, too, on the proposal that Australia's capital city might have been based on the lake shores.

Wetlands are special places. Kathy Eyles' overview of the Ramsar Convention,

established in Iran in 1971, noted that it has been described as the first environmental treaty. Sites listed under Ramsar must be truly representative, rare or unique, and important for conserving biodiversity. The Cobourg Peninsula in the Northern Territory was the world's first listed Ramsar site. There are now 66 sites in Australia. In the ACT the Ginini Flats is a Ramsar site. There, control of introduced Sambar Deer has been a recent priority.



KATHRYN EYLES

Blue Lake, Kosciusko National Park is an Australian wetlands site that has been listed by Ramsar

Naturally, the evolution of Australia's flora featured strongly in the Talks. Heidi Zimmer completed her doctorate on the Wollemi Pine, the iconic genus in the Araucariaceae, and which is thought to have declined over the past 50 million years due to increasing aridity. The highest threat of extinction in the wild is their restricted distribution. She sought to establish a new population using plants propagated at Botanic Gardens and by commercial suppliers, on vegetation and soils similar



DOUG LAING

Birdwatchers flocking in Central Park New York during birds' spring migration along the Atlantic flyway

Help record Gang-gang behaviour

to the original sites, but with higher light - to promote faster growth. In the first year after planting, *Botryosphaeria* (a common pathogen) killed approximately 10 percent of the plants, especially those growing in deep shade. After this, survival rates remained high.

Alexander Schmidt-Lebuhn, who uses DNA sequencing to resolve phylogenetic relationships to understand the evolution of Australian native daisies, spoke of the way the application of such knowledge assists with biological control of weeds. As an example, he described the biological control research on Cape Ivy and Fireweed (both Asteraceae) and how it led to the discovery of a new genus of Australian daisies, the *Scap-isenecio*, named after the long flower stalks (scapes) characterising the plants.

In 'Living on the Edge; How do Plants of Threatened Ecological Communities Cope with Extreme Temperature?', Adrienne Nicotra and Veronica Briceno Rodriguez described the building of an Australian Research Council supported partnership between the ANU, UTS, ANBG, SBG and the NSW Save Our Species program. Understanding that temperature extremes are key drivers for species evolution, the joint project provides critical data on the physiological tolerances of Australian native plants from alpine, desert and temperate environments. The outcome of the work should provide predictive power for managing a broad range of species from threatened ecological communities.

Another talk with fauna being foremost was Doug Laing's talk 'Fall of the Warbler', which was sparked when Doug was fortunate to observe these birds in New York's Central Park at the time of their spring migration. His presentation was richly supported by recent maps of the flyways of this and other species when they migrate from the USA to South America. These and the phenomenon of Central Park as a magnet for bird watchers, made this one of many enjoyed in the first half of 2021.

The Canberra Ornithologists Group (COG) is keen for all Friends to help record Gang-gangs wherever we see them.

As part of its 50th Anniversary celebrations in 2014, COG conducted the Gang-gang Cockatoo Citizen Science Survey. A number of Friends of ANBG participated in that survey. At the ANBG, recently fledged begging young were observed next to a tree hollow and this was the only breeding confirmation in urban Canberra during the survey.

Then between the 2016 and 2018 surveys additional breeding sites at the ANBG were confirmed with records of Gang-gangs going in and out of a nesting hollow on multiple occasions, and another site confirmed as breeding, with non-flying young seen at the entrance of a nesting hollow.

The ANBG also seems to have had the first sighting of 4 fledglings from one nesting hollow, photographed in Spring 2018 (see photo below). Up until this record, the previous maximum seen anywhere was 3 fledglings.

Due to the 2019/20 bushfires there has been an increased concern about the fate of the Gang-gang Cockatoo with much of the breeding habitat affected by wild fires.

The Federal Government has provided financial assistance to help in the collection of diet and tree hollow data across the range of the Gang-gang. Continuing on from the Gang-gang survey con-

ducted over the past couple of years in the ACT, we are urging members of the public to record any indications of breeding within the ACT and local region and to record their observations on Canberra Nature Map. We are particularly interested in any recent or historical observations from rural areas including the Brindabella Ranges, Tidbinbilla, Namadgi and the Tinderry Nature Reserve.

The information we are after is directly related to increasing our knowledge on breeding events in urban and non-urban areas and in areas affected and not affected by the latest bushfires.

Gang-gangs can be found around tree hollows at any time of the year but the behaviours we are particularly interested in are as follows:

- Seen entering or leaving a hollow
- Seen looking into a hollow
- Seen perched or near a hollow
- Chewing bark around a hollow

If possible, we would like records to be submitted to Canberra Nature Map so that all observations are stored in one place. To enter observations log onto Canberra Nature Map, click on 'Add a sighting', add an image or click the location on the map, click on Identification-Birds- Parrots- Gang-gang and then answer the questions or provide further information. For additional information on Gang-gangs enter 'Gang-gang' in the 'Quick Search' box.

Photos are preferred but not essential with the geo-coordinates obtained by clicking the site location on the map.

Any queries please contact Michael Mulvaney mulvaney@netspeed.com.au or Chris Davey chris_davey@aapt.net.au

Linda Beveridge



STEVE ROGERS

Four fledglings from one nesting hollow, 2018

Butterflies are Back!

Dr Suzi Bond

Summer is here and the butterflies are back! Our gardens and local bush reserves are wonderful places to look for butterflies, with this time of year being the peak of butterfly activity in Canberra. The ANBG is easily one of the best and most accessible butterfly hotspots in the ACT and is a great place to watch and photograph butterflies. Typical species found at the ANBG in summer include Macleay's Swallowtail, Barred Skipper, Common Brown, Australian Painted Lady, Two-spotted Line-blue and Common Grass-blue.

Many Canberra butterflies, along with other insects, employ a mate location strategy known as 'hilltopping'. This is where the male butterflies travel to the high points in the landscape, usually summits and ridges in Canberra Nature Park, and there they compete with each other to set up courtship territories. Males defend their turf against rival males, often in spectacular dogfights. Females visit these sites to find suitable mates and then return to their usual habitat after mating. Often the hilltopping sites are not in the same habitat as the breeding habitat of the butterfly. It is also worth remembering that not all butterfly species hilltop.

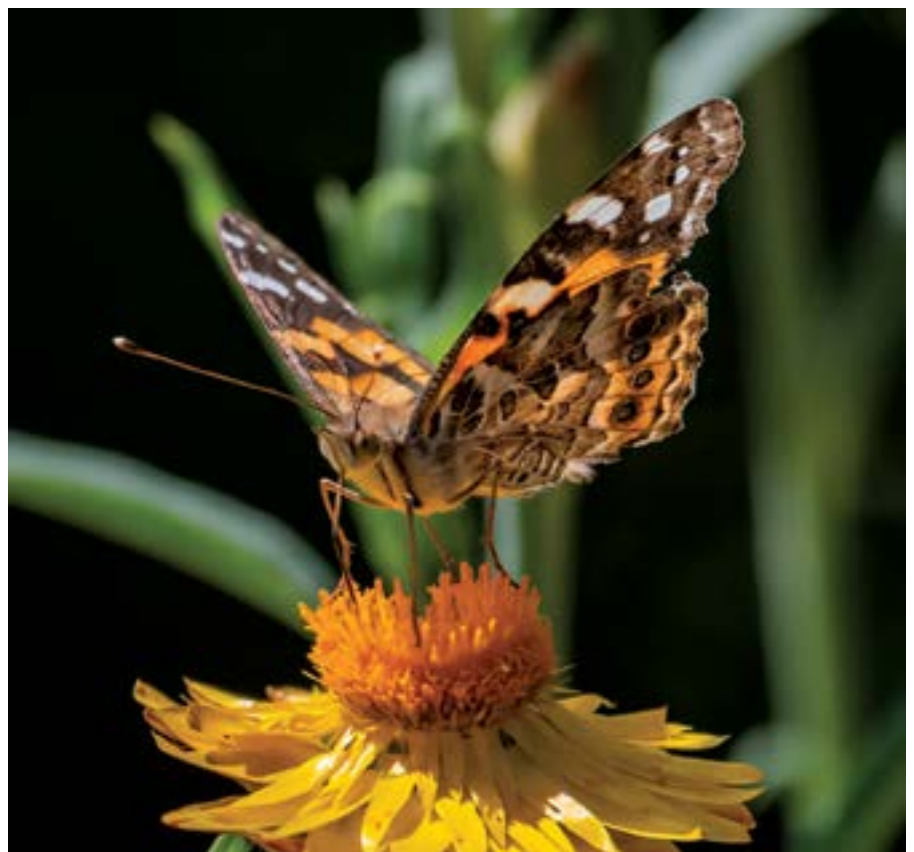
Butterflies are attracted to the variety of habitats on offer at the ANBG, so you can find a wide range of butterfly species in a relatively small area. If it is a hot sunny summer's day, they can take refuge in the cool shady rainforest gully, or if it is a cool overcast day, they can bask in the warmth of the rock garden. Edge habitat between two different habitat types is also important. For example Common Browns love flying around the southern edge habitat of the rainforest gully and Macleay's Swallowtails love the northern edge of the rainforest gully. Other good edge habitat popular with butterflies is around the Sydney gully, as is the interface between the Gardens and the native bushland of Black Mountain reserve. The provision of habitat features like leaf litter, rocks and logs allows for shelter and pupation sites for many species.

The ANBG has a wonderful diversity of native Australian plants including non-local species that butterflies use to breed

on and feed from. The plants within the ANBG are also well-watered and this makes them attractive for butterflies to breed on in times of drought and heat. Imperial Hairstreaks for instance have successfully bred on a species of wattle not found in their range, the Barrier Range Wattle *Acacia beckeri*. Plants exotic to Canberra also attract the attention of vagrants to breed on, sometimes even setting up temporary populations. The Flame Sedge-skipper currently breeds in clumps of Tall Saw-sedge *Gahnia clarkei* and the ANBG is the only breeding site known for this species in the ACT; the larvae create larval shelters to hide in and they leave distinctive feeding marks on the leaves. This is quite special because this species can be uncommon and localised throughout their range. It is more of a challenge to see adult Flame Sedge-skippers at this breeding site however, and records of adults tend to be from hilltopping individuals at the summit of Black



Spotted Brown, male



Australian Painted Lady

Mountain during their flight period from November to January. Likewise the Yellow Albatross, an occasional migrant to the ACT, was suspected breeding on *Drypetes* in the rainforest gully in 1998, and the Glasswing is thought to sometimes breed during the summer on *Passiflora cinnabarina* in the ANBG.

Having lots of different plants in flower concentrated in one location throughout the summer months is a big draw-card for butterflies, as they are important nectar resources for the adults. This coincidentally allows for great viewing and photographic opportunities, particularly for species that can otherwise be hard to see, with the butterflies being momentarily stationary and distracted by feeding. Probably the best flowers for butterflies are daisies. Having many butterfly observers attracted to the one place also undoubtedly is why there are records of so many vagrants and occasional migrants for the ANBG, such as the Blue Triangle, White Migrant, Black Jezebel and the Monarch.



Flame Sedge-skipper, larva

Discover ANBG's butterflies on a Butterfly Walk with Suzi Bond, see p 25

The proximity of the ANBG directly adjacent to the dry eucalypt forest reserve of Black Mountain is another important factor in the richness of the ANBG's butterfly assemblage. Black Mountain reserve forms part of the Canberra Nature Park urban reserve system and has critical butterfly larval food plants like mistletoe, dodder vine, native peas and grasses; it hosts attendant ant populations for relevant lycaenids; and it has one of the best-documented hilltopping sites in the ACT at its summit.

These resources attract butterflies from the surrounding landscape, and these species are often then attracted to the ANBG. Species like the Varied Dusky-blue is an example of a species which relies on larval food plants (*Cassytha*) in Black Mountain reserve, hilltop at the summit, and can be found on flowering plants in the ANBG. Likewise, species breeding in the ANBG can often be found hilltopping at Black Mountain. This hilltopping site is a reliable site for species like the Montane Ochre, Spotted Jezebel and the Broad-margined Azure.



Flame Sedge-skipper, adult



Gahnia clarkei: food plant of the Flame Sedge-skipper larvae

Gardens Shorts

Executive Director

I would like to begin by thanking all of you, the Friends of the Gardens, for your continued interest and support for the Gardens as we navigate the end of another challenging year. It has been satisfying to see the return of visitors and Friends to the Gardens after a two-and-a-half-month closure due to COVID-19 restrictions from August through October.

Despite challenges, we have managed progress on many exciting projects. Some of this year's highlights include the construction of the Ian Potter National Conservatory and the Café zone redevelopment commenced in June 2021. The Café area is planned to be completed by the end of this year, and the National Conservatory by late 2022.

In May 2021, the Minister for the Environment Sussan Ley unveiled designs for a \$7.2 million state-of-the-art new National Seed Bank and horticulture centre ensuring the long-term protection of Australia's precious native plant species.

We have just completed the public comment period on the Draft Management Plan that will guide the future of the Gardens for the next 10 years. A *Have Your Say* public comment period in February 2021 informed development of the Draft Plan. The final Management Plan will be released in September 2022.

The Gardens recorded visitation levels of 505,273 visitors in 2020-21. During the year 10,261 students visited the Gardens, which is a great result considering the numerous lockdowns that occurred throughout the country.

Our Visitor Experience team delivered an Australian first, *MEGAfauna: once there were giants!* - an opportunity for the Gardens to promote unique plants and habitats through the use of life-sized giant sculptures of animals that went extinct thousands of years ago.

A major visitor survey designed by the University of South Australia during

March this year showed a 99 percent visitor satisfaction rating – the highest on record.

After refurbishment, the Banksia Centre re-opening as the primary venue for Gardens' education and learning was live-streamed in December 2020 with Mrs Tammy Fraser.

We continued with eighteen conservation partnerships with government, non-government, research and corporate sectors and pursued numerous new partnership opportunities for future years.

The National Seed Bank team has managed the delivery of 15 externally funded projects (nine ongoing and six new projects) over 2020-2021 and made good progress on our seed banking targets for the ACT flora and Parks Australia. Many of the new projects utilise seed banking to assist with bushfire recovery.

The Germination Retesting Program continued to track seed viability and longevity in long-term storage conditions, an essential part of managing our seed collections to international standards.

The NSB team and students are actively sharing their work with the scientific community through conference presentations and scientific publications.

The Parks Trust and the Gardens launched the *Seed the Future* campaign, that included an online auction, to raise funds to support the purchase of specialist equipment to secure more plant species.

Significant improvements were implemented to the Gardens' Living Collections database and applications.

In January 2021, ten participants from Queensland, New South Wales, the ACT, Victoria and South Australia completed the Centre for Australian Biological Research Volunteer Botanical Training Program through an innovative online program.

Judy West

Behind closed gates

Gardens staff were happy to return to work and welcome visitors after closure due to the ACT's COVID-19 lockdown.

While the Gardens was closed, horticulturalists worked hard behind-the-scenes to cultivate and protect plants. Following a mild and wet Canberra winter with reduced on-site staff capacity, the teams were busy managing lockdown-oblivious plant growth, plant pests and weeds.

The Nursery team focused on maintaining greenhouse facilities, and keeping plants thriving through watering, repropagating and repotting. The team also applied beneficial insects to manage the spring plant pest influx. This is especially important for plant collections that are intended for placement into the new National Conservatory.

Staff out in the Gardens had the massive job of spring weeding, fertilising and mowing along with spring plant-out. A bit of tree surgery was also necessary on fallen trees. Stocktaking of the Gardens scientific collection continued, and the many plants in flower provided opportunities to collect herbarium voucher specimens. Our steady return-to-work has been only the beginning to address the backlog of work that has built up.

Curating historic collections

Staff at the Australian National Herbarium took advantage of time working from home to process backlogs of several important historical specimens to allow these collections to be accessioned. These included:

- specimens from the ex-Waste Point Herbarium in Kosciuszko National Park, mostly collected 1950s–1980s
- an extensive collection from the site of the former Newmarket Saleyards in Melbourne, documenting native and exotic species introduced via stock transport and;
- an unusual collection of parrot-feeding detritus (various fruiting fragments collected after parrots have extracted the

seed), which is important in understanding the evolution of Australia's parrot fauna and their food plants.

The procedure involves checking each specimen against existing collection records (in the case of the Waste Point Herbarium material; any duplicate specimens can be sent to other herbaria in Australia or overseas) and updating the identification if needed. Specimens are remounted using archival board or other archival materials as appropriate, while retaining any original labels and annotations. Then collection data is loaded into the electronic specimen database; and all specimens incorporated into the main collection.

Processing these collections during lockdown will make them available for study sooner across the widest audience of national and international researchers. It will also free up space in the Herbarium, since not everything made the cut!

A guide to propagating Norfolk Island Plants

The Norfolk Island Plants Handbook is a new guide to propagating plants from seed for Norfolk Island's native plants. Norfolk Island is a remote subtropical island in the South Pacific with 46 threatened plant species, most of them endemic.

The handbook details techniques for collecting, storing, and propagating some of Norfolk Island's threatened or endemic plant species to improve seed-based conservation and restoration efforts on the island.

The handbook, which will be published in the coming months, was led by University of Queensland PhD student Leah Dann, in collaboration UQ research staff, Gardens' National Seed Bank staff, and Norfolk Island National Park staff. Leah is supported by a scholarship from the Friends of the Gardens.

The partners in the project are the Australian Government's National Environmental Science Program (NESP) Threatened Species Recovery Hub, the Norfolk Island National Park and Botanic Garden, the Australian National Botanic Gardens, Friends of the Australian National Botanic Gardens, and the University of Queensland.

Australasian Seed Science Conference goes virtual

The Gardens was proud to host the virtual 2021 Australasian Seed Science Conference presented by the Australasian Seed Bank Partnership in September. The global event was opened by

Gardening guru Costa Georgiadis and brought together 425 delegates from 34 countries. Themes covered included seed dormancy and germination, seed storage, conservation and utilisation, establishment and management of seed conservation facilities, as well as seed ecology and cultural knowledge and use of native seeds.

The Australian Network for Plant Conservation also launched its third edition of the *Plant Germplasm Conservation in Australia guidelines*. These guidelines are targeted at conservation agencies, scientists, seed banks, nurseries and anyone interested in applied plant biology. Twelve Parks Australia staff were involved as co-authors or provided plant conservation case studies related to the ANBG, Booderee and Christmas Island National Parks.

A click ahead for school excursion bookings

This year the Gardens has joined with twelve other national attractions across Canberra to automate and centralise education excursion bookings in an online Book Canberra Excursions (BCE) platform.

This web-based booking system provides a single place for visiting school groups to book activities. There are over 10,500 schools, 300 tour operators and 175 social groups registered as users.

From October 2020 – October 2021, the Gardens booked and delivered 216 school bookings through BCE. The system has been an asset during the COVID-19 pandemic allowing schools and tour operators to cancel or reschedule their bookings themselves, saving valuable staff time.

The Gardens bookings team is also working with a Parks Australia e-commerce project team to integrate BCE schools bookings data with our venues bookings so that all can be seen by staff in one place. The system will also streamline and automate invoicing and payment processes.



DAVE ALBRECHT, © CENTRE FOR AUSTRALIAN NATIONAL BIODIVERSITY RESEARCH 2021

A specimen of *Poa orba* from the former Waste Point Herbarium, collected from Lake George in 1955. This uncommon grass species, only formally described in 2006, is restricted to semi-saline lakes in southern Australia and very few collections are known from NSW.



Norfolk Island plant, *Hibiscus insularis*

MARK SCOTT

New Director of Philanthropy – Parks Trust

The National Parks Conservation Trust welcomes Meredith Dellar as the incoming Director of Philanthropy. Meredith is enthusiastic about understanding, protecting and experiencing the world around us, which she looks forward to doing with the Parks Trust. Prior to joining the Parks Trust, Meredith was the Development and Communications Manager at the Museum and Art Gallery of the Northern Territory for over 3 years,

Meredith will be based at the Australian National Botanic Gardens and can be contacted at meredith@parkstrust.org.au.



Meredith Dellar, incoming Director of Philanthropy, National Parks Conservation Trust

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 2021 and all of 2022.

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 or phone (02) 6201 9400.

Estelle Margaret Canning 2 December 1936 – 30 June 2021

One of the foundation staff members of the Australian National Botanic Gardens recently passed away. Estelle Canning worked as a botanist at the Gardens from 1967 until 1995, and continued as a volunteer for some years after her retirement.

Estelle grew up in Wangaratta in northern Victoria, one of five children of Walter and Olive Canning; her father was an accountant. She won a scholarship to teachers college and taught History and English Literature in regional Victoria and then for three years in Papua New Guinea.

After taking a year off to study singing at Covent Gardens in England, supporting herself working as a barmaid, she did a Science degree majoring in Botany at Melbourne University.

She joined the Gardens first as a vacation student in early 1966, collecting for Dr Betty Phillips at Happy Jack's Plain in Kosciuszko National Park. Then, around September 1967, she was employed by the Gardens as a 'Junior Botanist Class 1', a position mainly involved with field collecting and subsequent identification of plants.

Estelle was fortunate to be included in the Gardens' second major collecting trip to Western Australia, starting in August 1968 for a period of three months. Two vehicles were involved with botanical and horticultural staff rotating back and forth to Canberra by plane. Estelle collected nearly 3,000 specimens on that trip.

She was very involved with getting plant name labels out into the Gardens for its official opening in October 1970, as at that time the physical labelling and stocktake of the living collection was the responsibility of the Herbarium.

She was instrumental in developing the Public Reference Herbarium at the Gardens, a legacy that can still be used today in the Botanical Resources Centre next to the Friends' office in the Ellis Rowan Building.

Estelle continued to be actively involved with field-collecting until the early 1990s, and by the time of her retirement in September 1995 she had collected about 10,500 specimens.

In 1985 she had bought her beloved Kunama Cottage property, near Dalton, a small village west of Goulburn. There she had a flock of 'coloured' sheep and processed their wool, spinning, dyeing and knitting, often winning prizes at the Canberra Show.

In retirement she was heavily involved with the Canberra Recorder and Early Music Society, playing recorder and teaching Renaissance dance. She was a long time member of the Canberra Spinners and Weavers as well as a member of the Dalton Craft Group, Yass Spinners and Weavers, the Yass Choir, and the Local Bush Fire Brigade and various other groups in and around Canberra.

Estelle died at the age of 84 at Kunama Cottage on 30 June 2021 and her funeral in Canberra on 14 July was attended by a wide range of people from her various hobby interests and her botanical career. Unfortunately, due to COVID-19 restrictions her family members could not attend.

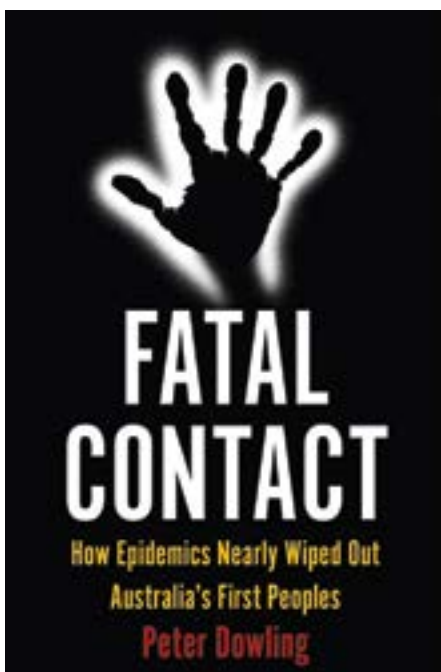
Murray Fagg, ANBG



Estelle Canning, 1998

Fatal Contact: How Epidemics Nearly Wiped Out Australia's First Peoples, Peter Dowling, 2021, Paperback, 306 pages, \$34.95

Fatal contact explores the devastating infectious diseases introduced into the Indigenous populations of Australia after the arrival of the British colonists in 1788. Epidemics of smallpox, tuberculosis, influenza, measles, and sexually transmitted diseases swept through the Indigenous populations of the continent well into the twentieth century. The consequences still echo today in Aboriginal health and life expectancy. Peter Dowling addresses the complexities of disease infection and immunology, and considers the individual medical history of a Tasmanian Aboriginal woman to create a deeper and personal understanding of how First Nations Australians suffered and yet survived.



Canberra's Amazing Nature: A guide to discovering Canberra's Natural Heritage, Conservation Council ACT Region, 2021, Soft cover, 36 pages, Colour photographs, illustrations, \$19.00

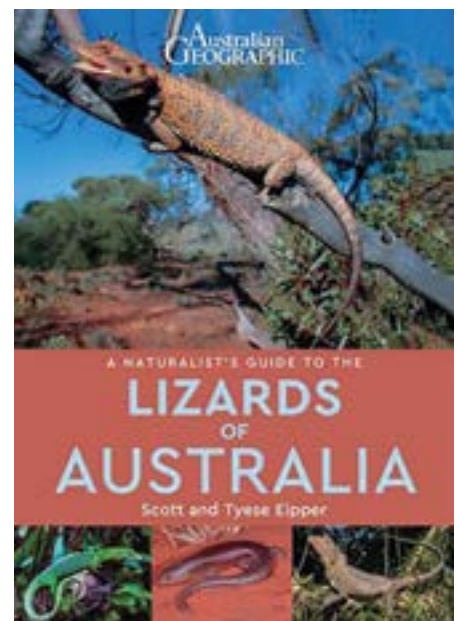
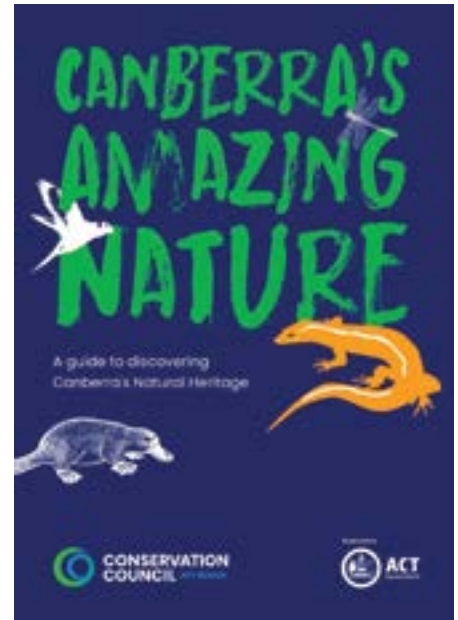
An exciting new book for children to help them discover Canberra's Natural Heritage! This book is packed with colour photos, a list of useful contact groups, things to find in both the bush and in your own backyard and includes a bunch of fun projects to build. Why not make a bee hotel, a nest box, a lizard lounge or create a frog friendly pond?

Basic ecological concepts are introduced including ecosystems, producers, consumers, communities, habitat, and threats to the environment. The main ecosystems of the ACT are then looked at in more detail with a peek at the various animals and plants that live in those environments.

An excellent guide for families and young children who love exploring the beautiful bushland, waterways, and nature in and around Canberra.

A Naturalist's Guide to the Lizards of Australia, Scott and Tyese Eipper, 2021, Paperback, 176 pages, Colour photographs, \$25.00

A nifty little introductory guide to 280 Australian lizards! Each species is accompanied by descriptions including identifying features, distribution, habits, and habitat. Colour photos of the lizards will help with identification and its great 'pocket size' makes it perfect



for the backpack or glove box! This series of natural history books by Australian Geographic also cover Australian Birds, Butterflies, Dangerous Creatures, Insects, Mammals, Reptiles, Snakes and Frogs.

Reports from Friends AGM October 2021

Friday 29 October was a day to celebrate as the Gardens re-opened at last, and the Friends were able to hold our 33rd Annual General Meeting at the Shine Dome, and award two Life Memberships.

Despite the year's COVID-19 difficulties, the President's and Treasurer's reports both remarked on the many positive achievements of the Friends of the year, including continuing growth in our membership. The report by the Executive Director, Dr Judy West, also highlighted the year's major developments including the start of construction of the National Conservatory.

Elections were held for the position of Vice-President which was filled by Linda Beveridge for another term, and Kerry Moir was elected to the vacant General Member position on Friends Council.

The Reports presented here are edited versions, the full versions and full financial statements being available on the Friends website.

President's Report 2021



The President, Neville Page, began his report by acknowledging that the past year has been a difficult one for everyone. The Growing Friends managed to sell \$8,000 worth of plants using "click and collect", and just for good measure earned a Hanbury Award from the Australian Association of Friends of Botanic Gardens. The Volunteer Guides introduced two new popular guided walks. The Projects Committee committed a further significant amount of money to Gardens projects. A new Nature Journaling Group was formed. And to top it off, our membership grew to almost 3,000 members.

MOU with ANBG: The relationship between the Australian National Botanic Gardens and the Friends of ANBG is defined by a Memorandum of Understanding, reviewed every three years. The latest review was signed in November 2020.

ANBG Management Plan: Periodically, the Gardens prepares a 10 year Management Plan which is open to public comment, and which eventually is tabled in the Federal Parliament. The current Management Plan expires in May 2022. In February this year, Friends Council prepared a submission to the Director of National Parks for consideration in preparing the new Plan. We await the plan being available for general public consultation, expected in November 2021.

Growing Friends: The Group was able to resume monthly meetings in November 2020, after six months with no meetings, but was unable to run either of its planned public plant sales. After agreeing strict COVID-19 safety plans with Gardens management though, it was able to restart propagation and resume plant maintenance activities towards the end of 2020. It was also able to run a number of 'order-and-collect' sales for groups of Friends and Gardens' staff. These sales raised over \$8,000, a pleasing result in the circumstances.

The Group enjoyed increased membership. A highlight of the year was the Group being presented with a Hanbury Award by the Australian Association of Friends of Botanic Gardens Inc (AAFBG). This award recognized the group's fund raising over many years and the 'indomitable spirit' of the group to maintain a high level of activity despite the terrible summer of 2019-20, the extensive damage caused by the hail storm of January 2020 and then the 2020 shutdown due to COVID-19 restrictions.

Projects Committee: In 2020-21 the Projects Committee brought forward recommendations for a further \$67,486 for Friends and Public Fund projects.

Since our inception in 1990 and the establishment of the Public Fund in 2004, we have expended a cumulative \$1.74 million on projects supporting the mission of the Gardens. To gain a good appreciation of the significance of our support over the years, I commend to you an article by the Vice President, Linda Beveridge, in the December 2020 edition of *FronDS*, entitled *Friends Funded Projects*. One exciting project I wish to mention is the wonderful video on Conservation activities at the Gardens; the Public Fund will be contributing \$10,000 next year toward its cost.

Another very large commitment agreed in 2020-21 was a Friends contribution of \$235,000 and Public Fund contribution of \$30,000, toward the redevelopment of the East Core Precinct.

Botanic Art Group: Botanic Art Group meetings were held intermittently during the year due to COVID lockdown. The 14th Annual Botanic Art Group Exhibition was held in April 2021. This year's theme was *From the Desert to the Sea. The Fruit, Flowers, Feathers & Fur Exhibition* held in July, displayed works by four group members.

In June 2021, two paintings were purchased by the Friends and presented to Executive Director Judy West on behalf of the Gardens to add to their art collection.

Photographic Group: Two photographic exhibitions were held during the past twelve months: a Schools Retrospective (October-November 2020); and *Reflections* (November-December 2020). Two photographs were selected from the second exhibition for purchase by the Friends and presentation as a gift to the Gardens to add to their collection. A further exhibition is planned for November.

Thursday Talks: Thursday Talks were on hold for the last half of 2020, and started again in February 2021.

During the year audience numbers in the theatre have been limited to 40

people due to COVID-19 restrictions. A booking system has been in place for all talks. The program of Thursday Talks has included scientific research undertaken by ANBG staff and partners, along with other speakers from CSIRO, a range of research departments at the ANU, and other organisations. (See p12 report from the Thursday Talks committee)

ANBG Volunteer Program: The Friends continue to provide moral and financial support to the various Gardens Volunteer activities including the Guides, Seed Bank Volunteers, Visitor Centre Volunteers, and Library Volunteers.

In the last 12 months Volunteer Guides have been able to offer guided tours daily, from September 2020 until early August 2021. The highlight of the year has been two new guiding experiences, which have proved to be very popular: Family Flora tours on the theme of *Secrets of the Australian Bush* during school holidays; and rostered tours on specific, seasonal themes for one week during most months. These tours have been widely advertised, and attracted many Canberrans in particular, to visit or re-visit the ANBG, increasing visitor numbers on guided tours.

Guided tours operate according to COVID-19 safe protocols, and the guides now use small voice amplifiers. Nevertheless, amidst the uncertainties and vicissitudes of the year, a small number of guides have retired. We appreciate their contributions and wish them well.

Membership: We currently have 2059 memberships with 2984 members, an increase in memberships as compared to this time in 2020.

A successful New Members' Welcome event was held in March 2021. Unfortunately a similar event in August had to be cancelled because of the COVID-19 lockdown announced the Thursday before the planned event.

Member Communications: We have three key means of communicating with Friends members at large: the E-News email goes out once a month, plus ad

hoc emails when special announcements are made; *Fronde*, a truly high quality journal, published three times a year; and the Friends website which keeps us informed of all announcements, news and details of activities. All three of these require a great deal of effort from their various teams.

2020 Volunteer Recognition: Each year the Gardens and the Friends jointly hold a Volunteer Recognition Ceremony which is a formal thank you to those people who give freely of their time to contribute to the ANBG Volunteer Program, and to the Friends Special Group activities. A ceremony was held in November 2020 and a similar event has been planned for December 2021.

30th Anniversary Event: After initially being postponed, the 30th Anniversary of founding of the Friends organisation was finally celebrated with a gathering at the Gardens in November 2020. The ceremony included presentations to long standing members, Life Members, and Founders including Anne Joyce. Not only that but we also shared a birthday cake!

Flowers Fruit and Foliage: Rosalind and Benjamin Walcott have continued to set out the *Flowers, Fruit and Foliage* Walk in the Gardens every fortnight. The brochure produced each fortnight is highly informative and very popular with visitors. An initiative this year was a video recording with commentary of each walk. This video is uploaded to YouTube and is available on the Friends website.

Nature Journaling: This new Group was formed in June 2021, and plans to meet once a month on the first Monday of each month.

MOU with Trustees of the National Parks Conservation Trust: The Everlasting Circle program is a bequest program which invites interested persons to remember the Gardens in their will. During the year the ANBG Friends signed a Memorandum of Understanding with the National Parks Conservation Trust, supporting this initiative.

Seed the Future – Seed Bank Fund Raising (National Parks Conservation Trust): In May 2021 the Gardens launched a fund raising for the National Seed Bank, titled *Seed the Future*. The fund raising was launched by Costa Georgiadis, host of the ABC's Gardening Australia program.

Having completed one year as President of the Friends of the Australian National Botanic Gardens, I feel very positive about the relationship the Friends have with the Gardens. In particular, Executive Director Judy West, and General Manager Peter Byron, have provided enormous support to me in my role as President. I also appreciate the assistance provided by the various Gardens liaison personnel.

Council of the Friends and Convenors of the various Special Interest Groups have done a great job, and I thank them sincerely. I also thank all the volunteers involved for their dedication and hard work.

Your membership of the Friends of the Australian National Botanic Gardens is as important today as when you first joined, if not more so. Please stay in there with your support and participation, and best wishes for the coming year.

Neville Page
Friends President

Treasurer's Report for the year ended 30 June 2021

The Treasurer, Helen Elliot, presented her sixth Treasurer's Report for the Friends of the ANBG Inc.

Even though activities were again hampered by COVID restrictions, the dedication of our Special Interest Groups and volunteers meant that some events were still held, generating welcome income and celebrating some milestones along the way.

It is almost 12 months since the Friends 30th Anniversary Garden Party was held on the lawns and 100 'ticketed'

members were allowed to attend. With all the planned activities for our 30th anniversary in 2020 it was pleasing to see one major event come to fruition. Thank you to the volunteers who worked so tirelessly to make the party a great success for our members.

Income: Thursday Talks resumed on 18 February 2021 after almost 12 months in abeyance and in the 19 weeks to 30 June still managed to raise \$914 in donations.

Growing Friends managed to hold five internal sales of propagated plants with pre-ordering and contactless collection. Historically, the Growing Friends plant sales are one of our largest revenue raising events, if not the largest, and this year still managed to raise \$8,270 for the Friends.



Helen Elliot, Friends' Treasurer

The Photographic Group's exhibition in November-December 2020 raised \$1,618 for the Friends.

The Botanic Art Group held two exhibitions during the financial year with total income raised for the Friends of \$8,196.

Booked Walks, was also impacted by the restrictions but still generated \$1,200 in income, slightly down on last year.

Membership Fees, at \$101,440 not only exceeded expectation but broke the \$100,000 mark for the first time. Membership renewals remained strong, and this coupled with 341 new memberships resulted in a 7.5 per cent increase in receipted fees over the previous year.

The Treasurer thanked all the volunteers who worked so tirelessly to generate income and profile the dedicated work of the Friends. All Friends' volunteers and members should be proud that their efforts have been rewarded with over \$195,000 in income for the year. In the main, the income will be donated towards projects proposed by the Gardens.

Donations to the Gardens for eight varied projects plus donated artworks totalled \$67,486.

Among the larger donations the Friends have made, it was pleasing to donate to the Gardens some smaller, but very worthwhile items such as microscopes

(\$10,225) for use by school children; nine wearable, portable voice amplifiers to be used during guided walks (\$4,500); and an interactive smartboard (\$7,580) for use by special interest groups and educators.

We also donated \$5,000 towards the editing of Don Beer's new book *Miracle on Black Mountain, A History of the Australian National Botanic Gardens* published for the 50th anniversary of the Garden's official opening.

The consolidated Balance Sheet for 30 June 2021 states total assets of \$462,749.

The Friends and Public Fund have project commitments this coming financial year to 30 June 2022 of almost \$340,000, with a significant commitment to the new East Core Precinct development on the lawns outside the Pollen Café and to an Online Education Resource.

Both the Friends' Council and the Public Fund are always willing to consider new project proposals.

The Friends Public Fund is a registered charity established in 2004 to receive tax deductible donations from members and others. This year the Public Fund issued tax deductible receipts for \$28,893 an increase of 11 per cent over the previous year. There were 225 donations being an increase of 28 per cent on the previous year, and it is pleasing to see the awareness of the Public Fund broadening. During the year, the Public Fund made the final payment towards the interpretation signs in the Banksia Garden (\$8,611) and an international speaker for the Seed Science Conference (\$6,878).

There are two sets of Financial Statements, a consolidated statement of the Friends accounts which includes the Public Fund's accounts and assets of \$111,525; and separate Financial Statement for the Public Fund, to provide transparency for our deductible gift recipient status. Council is confident that the accounts are in a robust finan-



Volunteer Guide with ChatterVox, a headset microphone and voice amplifier

Friends Briefs

cial position to continue our work, as per our Constitution, *"for the purpose of supporting the Gardens."*

The Treasurer thanked the Gardens management and staff who are very collegiate, Council members, Public Fund management committee and of course all the members of the Friends for their continuing support and renewal of membership.

(The full Treasurer's Report may be read on the Friends website.)

Helen Elliot



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Always welcomes Friends!

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

No discount on redemption of gift vouchers.

www.botanicalbookshop.com.au

more information on our Facebook page at 'Botanical Bookshop'

Projects Committee Report: 2020–21

Alan Henderson, Convenor, Projects Committee

The Friends have a proud record of funding projects in support of the Gardens' mission. Buoyant memberships and donations enabled the Project Committee to recommend further projects for Friends Council and Public Fund approval in 2020-21.

Significant support has been provided for the Banksia Garden. Friends have contributed a total of \$99,963 with a final payment of \$1,867 in 2020-21. Tax deductible donations to the Public Fund have provided a total of \$10,961, including \$8,611 in 2020-21 for interpretive signage in the Banksia Garden. Three items of equipment were funded: an interactive smartboard installed in the Celia Rosser Room (\$7,580); a set of voice amplifiers with headset microphones to assist educators and guides during tours (\$4,500); and a set of 24 classroom microscopes and an electronic microscope allowing projection on the smartboard (\$10,225).

A further payment of \$14,000 was made to supplement the scholarship of doctoral student, Leah Dann, researching barriers to the recruitment of threatened plant species on Norfolk Island. A final payment to supplement Leah's scholarship will be made in 2021-22. In November 2019 Friends Council and the Public Fund agreed to jointly provide annual supplements of \$7,500 for three doctoral scholarships, each for three years. The selection of students under this scheme has been delayed by the pandemic.

The final of three annual instalments of \$12,000 was made to the Australian Research Council Linkage project examining the physiological tolerances of nearly fifty Australian native species from a wide range of alpine and desert threatened ecological communities. The partners in this project include the ANBG and researchers at the ANU under the leadership of Professor Adrienne Nicotra.

Public Fund sponsorship (\$6,878) of the keynote speaker at the scheduled 2020 Australasian Seed Science Conference became a casualty of the COVID-19 pandemic. The conference scheduled for 19 March 2020 was cancelled. However, the speaker Dr Sichong Chen from the Millennium Seed Bank of the Royal Botanic Gardens, Kew, UK, was able to visit and make presentations in Perth and Melbourne before making a hasty return to London. (The Conference was finally held online in October 2021.)

As is customary, Council again approved the selection of exhibits at the annual exhibitions of the Botanic Art Group (BAG) and the Photographic Group for presentation to the Gardens (\$1,825 in 2020-21).

During the year Council and the Public Fund also agreed several forward commitments, by far the most substantial being a contribution toward the redevelopment of the East Core Precinct of the Gardens (Friends \$235,000, Public Fund \$30,000). The redevelopment includes an expanded deck beyond Pollen, which will overlook a dedicated Friends Lawn. A fitting recognition of cumulative Friends and Public Fund project expenditure of \$1.74 million since 1990.

(See the full version of Alan Henderson's report on the Friends website.)



Classroom microscope



BRIAN MOIR-FORD

Barbara Hamburger (left) and Tricia Morton who were awarded Life Memberships of the Friends at the AGM, with President, Neville Page

Life Memberships

The Friends awarded Life Memberships to Barbara Hamburger and Tricia Morton in acknowledgement of their commitment, energy and reliability during their respective years of contributing outstanding service.

Barbara Hamburger has been a member of the Friends of the ANBG for 16 years. For 14 years she has attended the Thursday Talks every week (except for when she took annual leave). She cheerfully welcomes attendees, collects the voluntary donations and ensures that the number of attendees does not exceed that allowed in the Theatre (including ensuring adherence to COVID-19 restrictions) then consistently records the donations and attendance. Barbara is an outstanding stalwart of the Friends' Thursday Talks Team.

Tricia Morton joined the Friends in 2008, and completed the Volunteer Guides training course that year, and has been active in roster management, themed walks and Guides' professional development over the years. Tricia has been involved in the Friends' Social Events and Activities Committee, including being convenor for 5 years, and being closely involved with *Breakfast with the Birds* and *Wake up with the Birds*. She also coordinated Friends' support for aspects of ANBG activities such as *Summer Sounds* and *Luminous Botanicus*. She is an initiator, tireless organiser, selfless contributor, hands-on achiever and inspiring leader of the Friends for many years.



BARBARA PODGER

Bev Fisher (with her husband Ron, and granddaughter Alice) was awarded Life Membership of the Friends in 2010

Bev Fisher

We are sad to farewell Life Member of the Friends, Bev Fisher.

Joining the Friends in November 1993, Bev made a huge contribution to the development and financial viability of the organisation. She was a member of the Friends Council, and served as voluntary Treasurer for over 16 years.

Bev described herself as a 'failed guide' as she originally responded to the first ANBG advertisement for volunteer guides. Anne Joyce, who was interviewing, recognised Bev's incredible organising skills, and instead persuaded her to help organise the Spring Fling events at the Gardens.

Bev believed that it was very important that the Friends find a range of ways to attract members and to raise funds for the Gardens. She played a major role in initiating and organising many Friends' activities including Twilight Jazz, Sunday Serenade, the summer concerts, schools photographic competition, Grazing in the Gardens and the Friends Public Fund.

Bev enlisted the help of her husband Ron, and together they instigated the sale of wine and soft drinks on these occasions. She also organised and led the collection of donations with the help of volunteers. The summer concerts became the major source of fundraising for the Friends, and the income from the 'wine table' was significant.

Bev was appointed a Life Member of the Friends in 2010, recognising her great support of the Friends and her wonderful work in ensuring its success and financial viability. Our warmest sympathies to Ron and the family on their loss.

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

Free Guided Walks

Recommencing 1 December.

11.00 am for one hour, daily

Enhance your visit to the Gardens by taking a free guided walk with a volunteer guide. Tours are available for up to 10 people.

Flora Explorer Bus Tours

Recommencing 4 December, Saturday, Sunday and Public Holidays, 11.30 am

\$8 adult, \$5 child & concession holders

Sit back, relax and be taken on a 45-minute highlight tour of the Gardens. Tickets from the Botanical Bookshop.

Book a Private Tour

Costs apply

Tour the Gardens with your own tailored guided walk or Flora Explorer bus tour to suit your special interests, or purchase as a gift. Tours can be booked for up to 12 people. Conditions apply. For more information contact

bookedwalks@friendsanbg.org.au or floragroups@anbg.gov.au

Storytime

First Friday of the month from

February 2022, 10.00 – 11.00 am

\$5 for one child or \$10 per family

Join us for family fun with our entertaining storyteller weaving stories about Australian plants and animals. Each themed session is packed with stories, songs and crafts, just perfect for pre-schoolers.

Sunset Cinema, 25 November

– 26 February

Wednesday – Saturday evenings

Enjoy a movie under the stars this summer. Tickets, seating and dinner options available from

www.sunsetcinema.com.au/canberra

Removing Woody Weeds from Black Mountain and/or within ANBG

Saturday 4 December, 8.30 – 11.30 am

Saturday 1 January, 8.30 – 11.30 am

Saturday 5 February, 8.30 – 11.30 am

Saturday 5 March, 8.30 – 11.30 am

Saturday 2 April, 8.30 to 11.30 am

Some may be in the ANBG but the dates not yet confirmed, but will be on the Friends ANBG website and Friends of Black Mountain website. Check Friends website for meeting place for each weeding work party. Please email your name and phone number to

friendsofblackmountain@gmail.com or phone Linda (0437 298 711) or Libby (02 6296 1936) so there is enough delicious morning tea.



Summer Butterfly walks

Sunday 23 January 2022

10.30 am to 12.00 noon and

1.30 to 3.00 pm

Bookings Essential

Join our local expert, Suzi Bond to see and hear about butterflies and the plants they like in the ANBG. Book via the link on the Friends Website. Numbers are strictly limited. This event is for Friends of ANBG only.

Copies of the *Field Guide to the Butterflies of the Australian Capital Territory* by Suzi Bond with Steve Holliday and John Stein are for sale

in the Botanical Bookshop.

Bring: Binoculars to see the butterflies more clearly if you wish.

Water. Wear: Sturdy walking gear, including hat and stout shoes.

Australian Plants as Bonsai Exhibition

26 & 27 February, 9.30 am - 4.00 pm
\$5 adults / \$3 concession & children

This annual exhibition showcases the best of Australian bonsai. Visit the exhibition to discover the diversity of species and approaches for using Australian plants as bonsai specimens.

Telling the Time by the Sun, An Enlightening Afternoon

Friday 18 March 2022,

1.30 pm (new date)

Starts in Gardens Theatre

Tickets \$25, Bookings Essential

Friends members are invited to celebrate the 20th anniversary of the gifting of the ANBG sundial to the Gardens by the Friends. This event has been delayed twice now due to COVID lockdowns, so we are hoping third time will be lucky! Hear creator, Marg Folkard talk about the art and science of sundials, and show us how the ANBG one (in the Rock Garden) works. Enjoy a delicious afternoon tea, then drive to Mt Stromlo to experience a different type of sundial and tell the time with your own shadow. Further details will be on the Friends website closer to the date, with information on how to book. A reminder will also be sent out once bookings open, via the Friends e-Newsletter.

World Storytelling Day

Sunday 20 March, 10.00 – 11.30 am

Celebrate World Storytelling Day with entrancing stories told by members of the ACT Storytellers Guild.

Volunteer Guide Opportunity

Do you have a passion for Australian plants? Do you enjoy the outdoors and spending time with like-minded people? Do you wish to expand your skills and knowledge?

Then the Volunteer Guides Program at ANBG is for you!

The ANBG is now recruiting for Volunteer Guides to start in 2022. No botanic background is required to apply. We offer a training program, mentorship and professional development opportunities to equip you with the knowledge and skills you need for guiding.

You can apply to become a Volunteer Guide and select to work as a walking and/or driving guide.

Walking tour Guides provide free 1-hour guided walks daily at ANBG. Guides are encouraged and supported to deliver seasonal and themed walks which offer key information about native plants and the Gardens science and conservation work.

Flora Explorer bus Guides provide 45-minute tours to visitors on weekends and public holidays, during school holidays and for group bookings. Flora Explorer seats up to 12 passengers and offers an accessible tour via a set route, visiting key areas of interest in the Gardens.

If you're interested please download the Volunteer Guide Application Form www.anbg.gov.au/gardens/about/volunteers/.

For further details, you can email volunteer@anbg.gov.au and/or attend an information session on Wed 12 January 2022 at 10.30 am or Thur 20 January 2022 at 5.00 pm in the ANBG Theatre.

EXHIBITIONS

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

25 NOVEMBER – 12 DECEMBER

RECOVERY

Friends Photographic Group Exhibition

An exhibition of photographs of flora and fauna taken by the Friends of the ANBG

15 DECEMBER – 23 JANUARY

RECLAIMING THE BUSH

Explore the minute details of native flora found in the Australian bush. Artist Stephanie Jakovac offers a sensory experience of bush flowers during the bushfires and the human involvement trying to contain the destruction.

26 JANUARY – 20 FEBRUARY

ILLUMINATING THE BOOK OF PSALMS: FIVE AUSTRALIAN REGIONS AND THEIR FLORA AND FAUNA

An exhibition of naturalistic watercolour depicting different regions of Australia and their flora and fauna, set within their natural habitats.

23 FEBRUARY – 3 APRIL

BIMBLEBOX 153 BIRD

A unique installation of artist prints, poetry, prose and musician's birdcalls by over 450 people worldwide. Each of the 153+ bird species is given voice by a writer, an artist and a musician. Inspired by the birdlife of the Bimblebox Nature Refuge.

9 APRIL TO 8 MAY

GROWING IN THE GARDENS

The annual exhibition by Botanic Art Groups



Grevillea insignis subsp. *insignis*
Cornelia Büchen-Osmond
BAG annual exhibition, 2022

THURSDAY TALKS: FEBRUARY — APRIL 2022

Lunchtime talks are held at 12.30 pm every Thursday from February to November in the Gardens' Theatrette. Talks last for 1 hour. Admission is by gold coins donation. The Friends use the 'gold' coins donations received at each activity to support Gardens' programs and development and thank all those who have donated.

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

The Friends of the ANBG thank the speakers who volunteer their time and talents to further the knowledge of all attending events in the Gardens. Some summaries or PowerPoint presentations of Thursday talks are available to Friends from the ANBG library. A donation to the Friends for the use of this material will be gratefully accepted. Please direct queries about the talks to the Thursday Talks Team: email talks@friendsanbg.org.au

FEBRUARY

Thursday 3 February 12.30 pm

Dr Penny Olsen 'The Norfolk Island Morepork: rebuilding a population from the last survivor'

Penny is an Honorary Professor in the Division of Ecology and Evolution, ANU. In 1986 she organised a group to visit Norfolk Island and conduct a search for the Morepork. But what do you do with only one owl? A recovery program began and today a small population persists.

Thursday 10 February 12.30 pm

Dr Sophie Lewis 'Climate change and Australia's extreme events'

Sophie, ACT Commissioner for Sustainability and the Environment, will discuss human influences on past, present and future extreme climate events in Australia. Are our recent extremes a sign of a new normal and how bad could it get?

Thursday 17 February 12.30 pm

Con Boekel 'Local extinctions of birds from Canberra's inner north nature reserves'

Con, formerly of the Commonwealth Environment Department and now a citizen scientist since retirement, studied the patterns of occurrence of six woodland species of birds in 16 inner north natural and semi-natural fragments. He will present the study findings and discuss some implications for the urbanisation of the Lower Molonglo.



Dr Sophie Lewis, currently ACT Commissioner for Sustainability and the Environment, was named 2019 ACT Scientist of the Year in recognition of her research, particularly on weather extremes and how climate change contributes to events such as bushfires and droughts.

Thursday 24 February 12.30 pm

Professor Justin Borevitz 'Precision Landscape Regeneration'

Justin, from the Research School of Biology, ANU, will introduce precision landscape regeneration, including methods in Eucalyptus foundation species to re-build agro-ecosystems, methods for boosting soil carbon with microbes and management, and the outsized role Australia can have for world's planetary health and resilience.

Professor Borevitz's Thursday Talk will include Land-based carbon drawdown to enhance the earth system.



MARCH

Thursday 3 March 12.30 pm

Dr Denis Saunders AM 'A working life with Carnaby's Cockatoo 1968 - 2021'

Denis will talk about his research on Carnaby's Cockatoo. Classified as "vermin" in 1968, this magnificent species was reclassified in the 1980s as endangered by the WA and Commonwealth governments, and internationally. He will provide results of a study of one breeding population from 1969 to 2020.

Thursday 10 March 12.30pm

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

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

Examples from lorikeets, friarbirds, orioles, quail-thrush, whipbirds, black-cockatoos, pigeons and maybe a few more!

Thursday 17 March 12.30pm

Jo Harding and Kate Garrock 'Bush Blitz - 11 years old and going strong!'

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

Thursday 24 March 12.30pm

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

Black Summer 2019 / 2020 left many people in Canberra with personal insight into the health impacts of our changing climate. Arnagretta is Human Futures Fellow, ANU, and a Senior Lecturer in the Rural Clinical School at ANU Medical School. Her discussion

will explore both the health impacts of climate change and the health benefits of our natural environment.

Thursday 31 March 12.30pm

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

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

APRIL

Thursday 7 April 12.30pm

Michael Mulvaney and Chris Davey 'Gang-gang nesting ecology'

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

Thursday 14 April 12.30 pm

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

Simon, who is Director, School of Culture, History & Language, will tell the fascinating story of tiny fungi that live on dung and what they tell us about giant animals that roamed the earth.

Thursday 21 April 12.30 pm

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

Stuart, a visitor at the Research School of Biology, ANU, has been with the Little Eagle Research Group, which has amassed a wealth of data on the breeding ecology and range of the eagle, and a botanical perspective helps explain the bird's distribution.

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, Canb.

Centre

You also receive:

Advance details of lectures

Advance bookings for some events

Discounts on some events

ANBG library membership -

borrow books, serials, videos,

DVDs plus use of computers and

interactive CD ROMs

Function facilities - special rates

for functions at ANBG

And opportunities to:

Join Botanical Art Groups

Growing Friends

Photographic Group

Nature Journaling Group

Assist with Gardens' research projects

Become a Guide

Relax in the Friends Lounge

in the Ellis Rowan Building,

open to members 9.30 am to

4.30 pm. Relax with tea/coffee

and lots of interesting reading.

Pollen



Open daily | 9am to 3pm
pollencafe.com.au