

Fronts

*Friends of the Australian National Botanic Gardens
Number 86 August 2017*





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RICHARD SNASHALL 'REELSPIN' AUDIO VISUAL.

Costa has a strong interest in conservation and is keen to get involved and support and promote collaboration. He accompanied threatened species partners including ANBG, Wollongong Botanic Gardens, NSW National Parks & Wildlife Service and the NSW Office of Environment & Heritage on a field trip collecting and making observations on *Pomaderris walshii*. (PAGE 5)

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Cover: Public Art: the new Treehouse. Very soon visitors will see a dramatic treehouse among the melaleuca trees in the lower reaches of the Gardens. Page 3. (PHOTOMONTAGE SUPPLIED BY ARCHITECTS, CAVE URBAN)

Public Art: the new Treehouse

Lesley Jackman, President

Very soon visitors will see a dramatic treehouse sitting amongst the melaleuca trees in the lower reaches of the Gardens – a place for early morning bird-watching, for quiet reflection, for kids to climb, explore and learn.

When the Friends began discussing a new major project for the Gardens in 2014, we had in mind an artwork that should become a destination in its own right and attract younger visitors and their families to a part of the Gardens not at present heavily used. Information and education are central to this project, as is remediation of the melaleuca area; this will enhance the Gardens holdings and add to the basis for research and the genetic basis for this genus.

In May 2017 Cave Urban, an international collective based in Sydney, was chosen. The use of recycled timber in the Cave Urban design, some of which will be salvaged from the Gardens, and the natural way the treehouse links with the

surrounding gardens greatly impressed the judging panel.

The design features recycled timber preserved by Yakisugi, the traditional Japanese technique for carbonising wood. Cave Urban architect Nici Long said: “It is not only a symbol of bushfire and regeneration, it also preserves the timber and provides a textural finish that actually reduces the fire risk”. Construction is expected to begin mid-2017, with completion towards the end of the year.

A partnership approach

This project, the largest contribution so far of the Friends, is the result of a partnership involving the Gardens and the Friends (including our Public Fund). The Friends have agreed to underwrite the project to a limit of \$280,000 (GST exc), with cash contributions already committed from the Gardens (\$40,000) and the Public Fund (\$30,000). The Friends have been able to put money aside over several years and are very well-placed to meet the balance of this cost.

Promoting the Public Fund of the Friends

The Friends have also decided that the involvement of the Public Fund in the project presents an excellent opportunity to enhance its profile. The treehouse is one of three projects with Fund involvement featured in a new brochure inviting Friends and others to donate to the Public Fund. Friends will receive the brochure with membership renewals later this year.

The Public Fund was established in 2004, under provisions of the Income tax Assessment Act, as a way for donors to receive tax-deductibility. Its support for projects that range across the Gardens’ scientific, education, conservation and recreational responsibilities gives the Public Fund a very important role in helping the Gardens to do things that would not otherwise be possible. I invite you to take this coming opportunity to support the Public Fund and help the Friends to help the Gardens.



PHOTOMONTAGE SUPPLIED BY ARCHITECTS, CAVE URBAN

Golden Wattle in the capital on National Wattle Day?

Suzette Searle

You can see the Golden Wattle (*Acacia pycnantha*), Australia's national floral emblem, in full flower in Australia's national capital, on National Wattle Day (1 September), if you know where to look. This symbolic coincidence could, however, be a real feature in our bush capital for the spring-time pleasure of Canberrans and tourists alike.

Ironically, other countries do celebrate spring with Australian wattles as tourist attractions to support rural towns, nurseries, florists and gift shops. Travel to southern France and Italy to see Australian wattles (called mimosa in Europe) as the floral focus of spring festivals and special days. In Provence you can follow the Mimosa Trail from village to village to see Australian wattles grown across hillsides for their fragrant flowers, enjoy various mimosa-themed events and buy mimosa-infused perfumes. In Italy, Russia or Albania men give bouquets of mimosa to the special women in their lives on 8 March for International Women's Day. Why then is Australia's capital not ablaze with Golden Wattle on 1 September?

A. pycnantha is a showy and hardy shrub/small tree, 3-8 m high, that occurs in South Australia, Victoria, New South Wales and the ACT. On the southern tablelands specimens were collected by Charles Weston at Mt Jerrabomberra near Queanbeyan NSW in 1917 and by Max Gray in 1969 from Mt Ainslie (2001 *Flora of Australia* Vol. 11A Mimosaceae Acacia part 1).

Canberra used to be planted with many acacias. When Canberra was founded as the national capital in 1913, tree-clearing and overgrazing by sheep, cattle and rabbits had left it a bare windswept landscape. To help vegetation grow back and new plantings survive, Weston innovatively designed dense plantings of locally-collected *A. pycnantha*, *A. mearnsii* (Black Wattle) and *A. baileyana* (Cootamundra Wattle) as temporary cover crops for wind protection, soil moisture retention and immediate visual impact (John Gray, 1999 *Review of Weston's Contribution to the Landscape Foundations of Australia's National Capital*. PhD thesis Univ of Canberra). At the time, the particular interest in planting *A. pycnantha* was commercial rather than symbolic, as its bark was highly valued for tanning leather.

Walter and Marion Griffin planned to 'paint' the bare inner hills of Canberra with colourful plantings of native and exotic plants. Mt Ainslie, for example, was going to be 'Golden Hill' and planted with yellow flowers and foliage such as 'Acacias and Brooms etc'. But according to John Gray (1999), these plans never eventuated despite the fact that in 1915-16 Weston was holding 11,000 acacias in the Yarralumla Nursery. Why not 'paint' the national capital now with the national colours – green and gold? As *A. pycnantha* flowers early in spring, it would provide colour to Canberra before Floriade's annual plantings of exotic flowers bloom in mid-September.

A. pycnantha lives for 10-15 years and has big, fragrant yellow 'balls' (each with 40-80 densely crowded flowers) and handsome green phyllodes. First suggested in the 1890s as a possible floral emblem, it wasn't until the Bicentennial year of 1988 that the Hawke government formalised *A. pycnantha* as the national floral emblem.

So where can *A. pycnantha* be easily seen in Canberra today? It has been continually planted in the ANBG where it was launched as our national floral emblem with a bit of spadework by Hazel Hawke on 1 September 1988. At the time the Gardens promoted awareness of the new national symbol by designing and distributing kits with packs of *A. pycnantha* seed and fact sheets. Since 2016 it has also been planted in the STEP Forest at the National Arboretum Canberra. There are a few plants in the native gardens around the new Parliament House, and sometimes solitary specimens can be seen in people's gardens.

If you want your own patriotic planting of our national floral emblem however, it is surprisingly difficult to find *A. pycnantha* in local nurseries. Horticulturalists do not appear as yet to have made the most of the natural variation in *A. pycnantha* or created cultivars (standards, prostrate or dwarf forms for example) as they have with other acacias such as *A. cognata* (Bower Wattle) and *A. baileyana* (Cootamundra Wattle). So best to buy your own, or grow them from seed and then prune them to the size and shape you want.

Suzette Searle is an expert in temperate tree-form Australian acacias and is Communication Manager for the Wattle Day Association.

Why then is Australia's capital not ablaze with the Golden Wattle on 1 September?



Golden wattle (*Acacia pycnantha*)

SD SEARLE ©

Partnerships, projects & collaboration on rare *Pomaderris*

David Taylor: Curator, Living Collections

The Australian National Botanic Gardens' conservation partnerships continue to go from strength to strength; we currently have more than 15 active partnerships at various stages of activity, including several that include plants specifically destined for translocation and biodiversity conservation.

Our biggest project, 'Seed biology, cytology and production of threatened *Pomaderris*', is tackling the challenge to:

- Collect, source and secure seed and living plant material of New South Wales and ACT *Pomaderris* that are threatened or likely to be threatened. (Species collected so far are *Pomaderris adnata*, *P. bodalla*, *P. brunnea*, *P. cotoneaster*, *P. parrisiae*, *P. reperta* and *P. walsbii*.) Collection quantities are suitable for long-term storage and active restoration across a range of species and maintained across institutions.
- Enhance the methodology used to establish production areas and translocation programs by investigating the biological traits (seed germination and cytology) that may affect the reproductive success of *Pomaderris* species in the wild or in production.
- Produce threatened and at risk *Pomaderris* plant material ready for translocation.

The first year of this three-year project has delivered a number of successful outcomes by securing collections across many species and populations, underpinned by strategic sampling of genotypes (using an agreed project-specific method) both within and across each population sampled. This ensures there is plenty of scope across these collections by having both good genetic diversity and linking all collections to key traceable documentation and information. This enables the research team to explore all the priorities for Years 2 and 3 of the project.

The field collecting has been such a success due largely to the shared ownership and collaboration amongst the collection team. This is made up primarily from members of the South

East NSW Bioregion working group, a group of Botanic Gardens working in partnership with the NSW Office of Environment and Heritage, and in collaboration with land managers and custodians. The aim is to improve the trajectory for and knowledge of the rare and significant flora and the biota they support from the south east bioregions of NSW (covering from south of Sydney to the Victorian border). The Botanic Gardens involved are ANBG and Eurobodalla, Wollongong, Booderee and Mount Annan Botanic Gardens.

One of the collecting challenges was variability of seed available in the field, across species, geographical area and populations. Substantial quantities of seed were collected from many collecting events, yet others realised very few seeds, and in some cases no seed. This demonstrates the importance of project design, whereby both seed and cutting methods have been employed to ensure better chances of success, particularly where seed was not available in the field.

The securing of collections and successful propagation of many plants ensures the project is well placed and ahead of schedule to deliver translocation ready plants by the end of the project. Some preliminary germination experiments have already been done on *P. cotoneaster* and *P. brunnea* at the University of NSW to understand variation in germination among populations and looking at possible causes for this. Germinants from these experiments have been sent to Wollongong Botanic Garden to grow up for future use. Some of the plants grown from seeds and cuttings collected will be planted in the ANBG's new *Pomaderris* Garden.

The project team has developed a specific protocol for collecting: 'A targeted and prescriptive field collection method and checklist, a template for success?' Plans are underway to present this at future forums such as the BGANZ conference in October 2017.

This is a three-year project assisted by the NSW Government through its Environmental Trust.



RICHARD SNASHALL 'REELSPIN' AUDIO VISUAL.

Gregory Andrews (Threatened Species Commissioner) helping Greg Baines (ACT) and ANBG staff with *Pomaderris pallida* collecting event, Tuggeranong ACT.



M FAGG APIII © ANBG

Pomaderris brunnea ANBG

The challenge of improving *ex situ* collections for threatened plants: the example of the Velvet Zieria (*Zieria murphyi*)

Martin Henery, Project Officer - ANBG Saving Threatened Species Project

One of the main aims of the ANBG Saving Threatened Species project is to identify species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) that have very low levels of genetic diversity held *ex situ* in botanic gardens. This includes the seed and living collections at the ANBG as well as the Royal Botanic Gardens Victoria and NSW. A genetically representative *ex situ* collection of a species is essential if that material is to be used to reverse species declines or prevent extinctions. One of the threatened species identified in this process is *Zieria murphyi* commonly known as the Velvet Zieria.

Reasons to improve *ex situ* collections of the species

Z. murphyi is a small shrub endemic to the Sydney region. The species grows in open, dry sclerophyll forest, in sheltered sites on sandy soils over sandstone (Armstrong, 2002). The species has trifoliate or occasionally unifoliate leaves covered in a layer of hairs, which is very soft to the touch, hence the species common name. It produces small, white to pale pink flowers in spring (Oct-Nov). The species has a disjunct distribution with one known population recorded in the Blue Mountains near Mt Tomah and others in the southern highlands, at Penrose/Bundanoon (Armstrong 2002; Harden 1991). The populations in Blue Mountains and Morton National Parks number fewer than 1000 plants (Briggs & Leigh 1996). Perhaps surprisingly, given the small numbers and the restricted distribution, it is only listed as Vulnerable under the EPBC and the NSW *Threatened Species Conservation Acts*.

The species was not well represented in seed banks or in botanic gardens. The ANBG holds an accession from the Mt Tomah population in the living collection obtained in 1991 but the number

of genotypes represented may be as few as one. The Australian Botanic Garden at Mt Annan holds only small seed collections from one site at Bundanoon and the Mt Tomah population. Thus for conservation purposes this species could be considered as poorly represented *ex situ* and an ideal target to improve diversity held in *ex situ* collections for the species.

An added imperative to collect the species was based on the observed decline in abundance at its best known location in Morton National Park near Lovers Walk at Bundanoon (K. McDougall, personal communication). Monitoring by the NSW Office of Environment and Heritage (OEH) has shown this population now numbers 15–20 plants, reduced from approximately 130 plants in 1996. An unsuccessful attempt to burn this site to stimulate some population recovery was undertaken in 2016 but the fire did not reach the *Zieria* plants (G. Bush, personal communication). The reason for the decline at this site is not clear although the vegetation structure has changed considerably over the period (K. McDougall, pers comm). This population is now so small that it is not feasible to achieve a seed collection of significant size from it. Thus it was necessary to locate additional populations in the Bundanoon/Penrose area from which to collect seed.

Aside from the known population at Lovers Walk, there are numerous records for *Z. murphyi* in the Bundanoon/Penrose area, both recent and historical, including what is presumably the eponymous type specimen collected by Ethleen Murphy in 1938. The feature of the majority of the reliably located records is that the species occurs in a narrow strip of habitat along the upper margins of deeply incised gullies that are eroded into the sandstone plateau and drain the north-east section of Morton NP. The habitat appears to be restricted

to the dry sclerophyll open forest that is perched above the closed forests and wetter gullies that form tributaries of Bundanoon Creek and Tallowa Gully. It is possible that areas adjacent to these deep valleys have specific climatic conditions that suit the species.



MARTIN HENERY



MARTIN HENERY



MARTIN HENERY

Zieria murphyi flowers and immature fruits. Plant being inspected for fruit production illustrates average size of individuals

Locating the plants

For some threatened species surveying for and locating populations of species can be a significant undertaking and is often only possible with assistance of knowledgeable contacts and a bit of detective work. It was apparent from OEH staff that no targeted survey for the species had previously been conducted in the national park or surrounds. This is perhaps unsurprising as the terrain is very rugged and the vegetation dense. In addition the diminutive stature of the plants and their inconspicuous nature in the understorey meant that finding the plants was going to be a challenge. The largest population in the Penrose area within Morton National Park was estimated at 1000 plants in 1997. This population is currently regenerating after a hazard reduction fire in 2015 and the plants are not yet mature enough to produce seed.

The relevant OEH Threatened Species Officer was identified and contacted but

had little knowledge of the species in the Bundanoon area, being primarily responsible for a suite of species in the Blue Mountains region. Significant progress was made by following up two suggested local contacts. Both had observed the

Field assistants in the form of volunteers from the Friends of the ANBG were vital in undertaking these trips.

species on private property neighbouring the national park. This in turn led to contact with the relevant landholders who granted permission to survey for the species and collect seed. In addition one helpful contact was able to guide us directly to the plants. The lack of targeted surveys for *Z. murphyi* in the Bundanoon area meant that, even with assistance, it required the largest investment of time to locate populations, survey them and,

ultimately, successfully collect seed for any of the target species in the threatened species project.

Field assistants in the form of volunteers from the Friends of the ANBG were vital in undertaking these trips. Starting in September 2016 nine Friends were involved in five multi-day trips and nine single day excursions all around southern New South Wales, from Gosford to Bombala and Holbrook to Lake Bathurst. As well as collecting seeds and cuttings from *Z. murphyi*, they collected material from at least four other threatened species. The Friends donated \$25,000 to the project with about half being spent on the field trips and the other half employing an assistant in the Seed Bank to prepare seeds for viability and germination testing.

Conservation outcomes

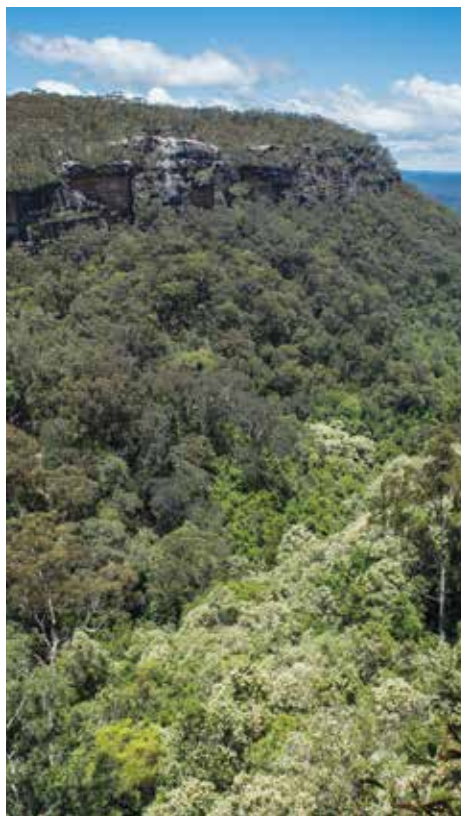
The two populations in the Bundanoon area were separated by 5.5 km and one proved to be relatively large with over 200 individuals scattered along a one km edge of the escarpment overlooking Coalmines Creek. In common with other *Zieria* species and other Australian genera in the Rutaceae, the *Z. murphyi* seed is ballistically dispersed from the dehiscent fruit. This necessitated collections to be made by bagging individual plants to collect seed at a later stage. This resulted in a significant seed collection of 4700 seeds collected in 34 single plant maternal seed lots across the two populations. It was also possible to estimate the size and extent of these populations.

The dry sclerophyll vegetation which comprises the habitat of the Velvet *Zieria* is prone to fire. As the species appears to be an obligate re-seeder, and plants are killed by fire, it is possible that it may have a higher reproductive effort immediately post fire when vegetation is more open. Thus some regular fire disturbance may be required to maintain populations. Given that the largest populations are in conservation reserves the threat

CONTINUED NEXT PAGE



BRIAN HAWKINS



BRIAN HAWKINS

Zieria murphyi habitat near Penrose/Bundanoon which is commonly in sheltered sites above deep valleys in the north of Morton National Park

The challenge of improving *ex situ* collections...

to the species appears to be fire regimes that negatively impact populations. However very little is known about the ecology of the species, including what timing or intensity of blaze would enhance or maintain populations. Another potential threat is that *Z. murphyi* appears to be browsed by native mammals, most likely Swamp Wallaby (*Wallabia bicolor*). It is currently unknown whether this is detrimental to persistence at some sites although it was observed that browsing resulted in reduced seed set and intensive browsing potentially contributed to the death of some plants (M. Henery, personal observation).

Conclusions

Small populations of small, perennial plants generally produce small annual seed crops and present a great challenge for seed collection. In addition, seed production may be further impacted by environmental factors such as herbivory or time since fire. For a species we know relatively little about like the Velvet Zieria a significant investment in time and effort to gather intelligence can reap rewards when attempting survey and collections. The seed sample now obtained will enable long-term storage in the Seed Bank, as well as material for germination experiments to assist identification of optimum germination conditions for the species. Knowledge of germination requirements is essential if enhancement of wild Velvet Zieria populations is to be undertaken in the future.

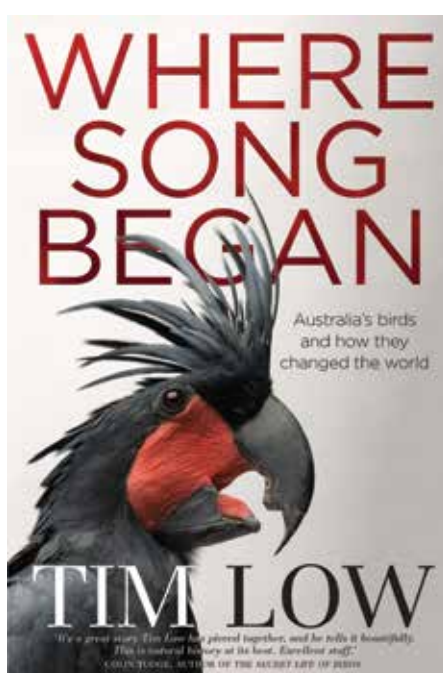
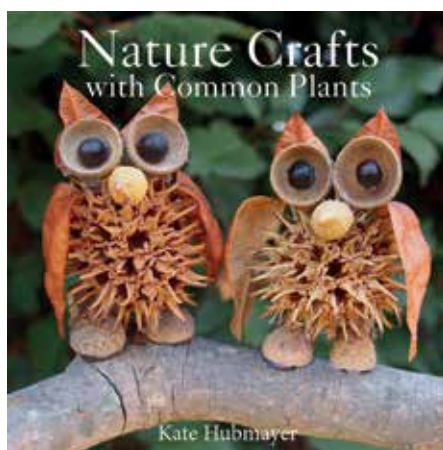
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- Harden, GJ 1991. *Flora of New South Wales* Volume 2. UNSW Press, Sydney.
- Acknowledgements – the ANBG Saving Threatened Species Project, of which *Zieria murphyi* was a component, was made possible via funding mobilised by the Threatened Species Commissioner and the Director of Parks Australia, as well as financial and volunteer contributions from the Friends of the ANBG. I would like to thank Steve Douglas and Keith McDougall from OEH for providing information about *Z. murphyi*.



Nature Crafts with Common Plants
2017, Kate Hubmayer, Paperback, 64 pages, Colour photographs, \$27.50

Unleash your creativity! This book follows on from the success of *Nature Crafts for Aussie Kids*, this time broadening the selection of plants that can be used in the fantastic projects and craft ideas. In this book Kate Hubmayer looks at plants from around the world including oaks, maples, liquidambar, conifers etc, with comprehensive information about each plant and its uses, as well as its potential uses for craft projects. The fantastic full colour photographs showing examples of completed artworks are inspiring and make you want to race outside, collect some plant materials and string and glue and get busy! Mandalas, mobiles, seedpod birds, eco prints, wreaths, seed mosaics... lots of imaginative ideas plus beautiful plants equals heaps of fun!



Where Song Began

2014, Tim Low, Paperback, 407 pages
Colour photographs and black & white photographs, \$33.00

Australia is known as the land of marsupials... well, it seems we have even more to learn about the fascinating animals of this country... this book will show that birds too are truly amazing, and perhaps even more extraordinary!

This well written and thoroughly researched book looks at the importance of Australia's birds and how they have changed the world. Biologist Tim Low has pieced together this fascinating story highlighting the importance of the Australian continent in the evolution of birds, explaining that unlike the mammals, some bird species have spread around the globe: more than half the world's birds, including all its songbirds and parrots, many pigeons, and even the dodo, can be traced back to Australia. His tale of our birds is a rich and revealing portrayal of the Australian continent itself, from the deep past to the human present.

A thoroughly readable book, including photographs and interesting historic references, *Where Song Began* will change the way you think about the country we live in and the birds we share it with.

ClimateWatch in the ANBG

Lesley Harland & John Fitz Gerald

ClimateWatch is an Australia-wide citizen-science project that was developed in partnership with the EarthWatch Institute in which the timings of seasonal life stages of selected plants and animals are recorded and entered into an on-line database linked to the Atlas of Living Australia. One of the aims of the project is the study of periodic plant and animal life cycle events and how these are influenced by climate change.

The Gardens launched the ANBG Climate Watch Trail on 22 May 2012 in conjunction with the International Day for Biodiversity. The Friends funded the signage (see photo) for the specific plants that were to be monitored around the Gardens. Around that time some Friends attended sessions to learn how data could be entered, either on-the-spot via a smartphone app, or later via a website. Observations to be recorded include the start and end of flowering, leaves changing colour or falling, open seed pods etc. A total of 14 plants are on the trail as well as two spots to 'Listen for Frogs'. There is also a list of birds, mammals, insects and reptiles for which data can be recorded.

See www.climatewatch.org.au/trails/australian-national-botanic-gardens for more information including a map of the Trail.

The species on the ANBG Trail are *Doryanthes excelsa* (Gynea Lily), *Kunzea ambigua* (Tick Bush), *Actinotus helianthi* (Flannel Flower), *Melia azedarach* (White Cedar), *Epacris longiflora* (Fuchsia Heath), *Ceratopetalum gummiferum* (NSW Christmas Bush), *Grevillea speciosa* (Red Spider Flower), *Grevillea robusta* (Silky Oak) and *Stenocarpus sinuatus* (Firewheel Tree).

Since the Trail opened the state of each plant has been observed at least 35 times. During that time the specified Flannel Flower specimen behind the Crosbie Morrison Building died but a group in the Sydney Basin Section has been monitored since then.

Whilst it is fascinating to watch the life stages of all of the plants, perhaps one of the most interesting events along the Trail occurred last month when the *Stenocarpus sinuatus* on the edge of the Rainforest Gully came out in full flower (see photo). Toby Golson, horticulturalist for the Rainforest Gully, explains this tree was one of three planted 15 years ago as advanced trees and that, whilst it flowered lightly for the first time in autumn 2016, this year was the first big flowering event – but you needed to look up !!!



WILLIAM HALL



PAM ROONEY

Wake Up With the Birds

7.45 am on weekends
23 September to 15 October
Bookings essential

The ANBG provides a fantastic habitat for many of Canberra's birds, with water and nectar in abundance. During Floriade join us for a 1½ hour guided walk to see many of the Gardens' amazing birds. This year we are not including breakfast but you are welcome to purchase a coffee or breakfast following the bird walk at Pollen – the Gardens Café (bookings at: www.pollencafe.com.au). If you wish to stay, the guides will be present to chat after the walk.

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

We can show you how to identify our most common black birds: magpies, currawongs and ravens, choughs and magpie larks; introduce you to some cockatoos, parrots and honeyeaters; and show you the habitat where they are most commonly encountered in the Gardens.

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

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

Bookings essential: see Friends website www.friendsanbg.org.au and use the link to the booking site. Enquiries: email birds@friendsanbg.org.au from 1 August and 0421 131 898 after 24 August 2017.



PAM ROONEY

Eastern Yellow Robin ANBG

Friendly Chatter

Friends Photographic Group

The Photographic Group is having a busy year including talks by various interesting speakers. Members of the group David Cox and Bill Hall demonstrated their skills in macro photography and showed a range of equipment that would assist. Pam Rooney gave a very informative talk titled 'Ordering the chaos: elements of design in photography' in anticipation of our forthcoming exhibition.

We have initiated increased liaison with other photographic Groups in Canberra and as a result Helen McFadden, President of the Canberra Photographic Society, gave a presentation on Botanical Photography and Chad Addison, Convener of U3A Camera Club gave a talk on low light photography.

Out in the gardens, the Group set up a stand to sell cards and prints for the Botanic Gardens Australia and New Zealand Open Day on 28 May and we also ran a series of photographic walks for interested visitors.

Forward planning is well underway for an upcoming exhibition at the Visitor Centre. The exhibition, titled "Exposed", is to run from 5 October to 23 October 2017, coinciding with the Guides Conference and Floriade. The exhibition will comprise framed works, unframed mounted prints, cards and bookmarks. These will all be for sale with a percentage of sales going to support the Friends. A photo slide show will also be installed in the exhibition space.

Future events include a continuation of the very successful early morning walks and guest speakers. An overnight excursion to Booderee National Park and Botanical Gardens is planned. The Group always welcomes potential speakers and new members. Contact us at photo@friendsanbg.org.au

Brenda Runnegar

Volunteer Guides

In April we had the opportunity to share guiding experiences with Peter Girling, the Coordinator of volunteer guides at the University of Oxford Botanic Garden. Peter visited the ANBG and met with Christianna Cobbold, Convenor of the ANBG guides, and Jan Finley, a guide and member of the Friends Council. The Oxford Garden was established in 1621 as a physic garden and was used to grow medicinal plants for the medical students at the University. It is now the oldest botanic garden in the United Kingdom. Despite the differences in size and focus between the ANBG and the Oxford Garden, we discovered many common interests around voluntary guiding.

During a walk around the ANBG and subsequent discussion we shared knowledge and experiences. The voluntary guiding program in Oxford was established by Peter a year ago after 20 years of involvement in guiding at the Bristol Botanic Garden. He was particularly interested in our recruitment and training program, and our new Professional Development Program which was introduced this year with the support of the ANBG.



Bill Hall with display for BGANZ Open Day



Gumnuts by Patricia Morris

(*Fronde* apologizes for attributing this beautiful artwork to Patricia *Harris* in our April issue)

ANBG's Professional Development Program was developed by a small group of guides following extensive discussion with all guides. It asks all guides to make a commitment to undertake at least two activities to enhance their knowledge of Australian plants and two activities to improve their guiding skills during the year.

Christianna Cobbold



Guide Joanne Smith leads her walk 'It's not just Nuts and Berries' in preparation for the Guides Conference

Australasian Botanic Gardens Volunteer Guides Conference

Sunday 15 – Thursday 19 October

Spring is always a busy time of the year for the volunteer guides. This year will be busier than usual with the arrival of volunteer guides from botanic gardens across Australia and New Zealand who will be attending the biennial botanic gardens volunteer guides conference which is being hosted by the Friends of the ANBG. This will be a great opportunity to showcase our Gardens to guides from other gardens.

Our visitors will have an opportunity to see the Gardens at all times of the day. They arrive here on the afternoon of Sunday 15 October when there will be orientation walks within the Gardens. That evening, at least half of the registrants have elected to go on a night walk through the Rainforest Gully and up to the Red Centre Garden. One of the day outings on Wednesday starts with an early morning bird walk in the Gardens. The 'new' guides, who completed their

training in 2016, have proved to be a great asset and they have been responsible for the development of three of the themed walks that will be offered. We will be offering thirteen different walks and tours of the ANBG on Monday afternoon and Thursday morning. The professional development component of the monthly guides' meetings includes training for all these walks. ANBG staff have generously offered to show conference delegates the Seed Bank, the Nursery, the Library and the Cryptogam Herbarium.

Registration for the conference is progressing smoothly. The early bird offer ends on 15 July and registration closes on the 31 August. The post conference tour to private gardens and historical sites of the Monaro high plains was fully booked within three weeks.

Conference website, www.friendsanbg.org.au/guides-conference-2017/index.php

Jane Keogh

Growing Friends

At Growing Friends' last meeting, we were treated to a grafting session with Peter Bredell, Nursery Horticulturalist at the Gardens (see photo). It was a fascinating and informative session, followed by our attempts at grafting onto cuttings of *Myoporum insulare* as the stock with *Eremophila subflucosa* and *E. maculata* as the scions. We used a top wedge cutting graft which is carried out



in exactly the same way as a top wedge graft except that, in this case, the stock has no roots and the graft is treated as a cutting. In this way both grafting and propagation of the stock were carried out at the same time and the resultant cuttings have been placed in a plastic humidity box on the seed bed.

Our next native plant sale will be on Saturday 11 November 8.30am to 11.00 or earlier if sold out, in the carpark near the Crosbie Morrison Building. Details of the plants will be available on the website www.anbg.gov.au/friends a week prior to the sale.

Feel welcome to join our monthly meeting on the first Saturday of each month at 9.00am during spring and summer and 9.30 in autumn and winter in the Joseph Banks Building. We also have a working bee on the third Tuesday of each month.

Yvonne Robinson

Plant Science Group

The monthly talks on the first Monday (public holidays excepted) continue with a good diversity of topics and speakers. Talks from March to June have featured speakers associated with the ANBG, either currently or formerly.

'Native seed conservation and research', by Dr Lydia Guja, Research Scientist and Manager National Seed Bank, ANBG & the Centre for Australian National Biodiversity Research, CSIRO, Canberra. Lydia discussed the seed banking strategies and processes being applied in the context of the more than 1,250 plant species which are listed as threatened with extinction in Australia.

'Transition zones between Australian plant provinces (phytogeographic regions): from plants and myxomycetes', by Dr Peter Wellman, Research Associate, ANBG. Peter looked at the nature and scale of the boundary regions between the six main plant geographic regions of Australia. Indeed the transition zones cover about 40% of the country.

'All things *Pelargonium* – genetic variation and evolution in South African and Australian *Pelargonium*' by Dr Caroline Chong, Research Technician, ANBG Seed Bank. Caroline shared some of the author's recent post-doctoral research.

'*Davesia*: What does Australia's largest pea-flowered legume genus have in common with the 1988 movie *Twins*?', by Emeritus Professor Mike Crisp, Ecology & Evolution Unit, Research School of Biology, ANU and a former ecologist at the Gardens. Mike covered aspects of the biology of the genus, including its taxonomy, evolutionary diversification, biogeography and adaptive traits, and especially the impact of different pollinators (birds vs bees).

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

Anne Campbell

Documenting Nancy's photos

Murray Fagg

About 20 years ago the late Alison McCusker gave me a wooden box of 35 mm slides taken by Nancy Burbidge in the 1950s '... to see if I could do anything with them'. Dr Burbidge had been the first director of the Australian National Herbarium and a major force in shaping the direction of Australian taxonomic botany and plant ecology, as well as being co-author with Max Gray of the *Flora of the ACT* in 1970.

My initial elation turned to despair when I came home and looked at the slides. Most of the photos had been taken on Kodachrome film, so they were well preserved, many were sharp and well composed, but there was very little information written on the cardboard slide-mounts. In most cases the basic information that we require for photos in the 'Australian Plant Image Index' (APII) was missing. Few slides had precise dates and I could only find one with a number written on it which



Dr Nancy Burbidge (1912-1977) photographed later in her life, possibly at the time she was made a Member of the Order of Australia in 1976. (ANBG Photo Collection)

appeared to match a collecting number on a herbarium specimen.

I put the photos aside and didn't look at them again for 20 years.

This was not the first time that I had been disappointed in this fashion. In 1991 I had similarly inherited the slide collection of Dr Hansjörg Eichler, who had succeeded Dr Burbidge as head of the Australian National Herbarium in 1973. I found most of his slides to have so little documentation as to be useless for the APII collection.

It made me reflect on why these botanical scientists, renowned for their attention to detail in documenting their herbarium specimens and in applying correct plant names, were so sloppy in documenting their photographs.

The 1940s and '50s saw the slow rise in popularity of 35 mm colour photography but it was not widespread in the community. It was mainly used by people who wanted to give talks and presentations to an audience.

Thirty-five mm film came in rolls of 20 or 36 frames, and was usually returned from a processing plant glued inside cardboard 'mounts'. In 1936 Kodak's factory in Victoria became the first place outside of North America to process Kodachrome film, which was fortunately much more archival than many film brands that came on the market later.

The only way to view the photos in detail was to project them on a screen for an audience, but this meant that when people saw the photo any information written on the slide-mount was hidden in the projector. The presenter had to have the information in their head, or written separately, reducing the incentive to annotate the slide mounts.

Both Nancy and Hansjörg worked for institutions with full-time photographers on staff. These professional photographers were called upon to take any 'scientific' photos, which were invariably



Examples of Nancy's photos, many have nothing written on the slide-mount

black and white, as few, if any, scientific journals reproduced colour photographs at that time.

My theory is that there was a complete disconnect in the eyes of these scientists between 'scientific photography' in B&W and their 35 mm colour photography, which was seen in the context of entertainment, education and public relations. All their scientific rigour seemed to have evaporated when it came to coloured slides.

So, returning to Nancy's photos — when I revisited the slides earlier this year a lot had changed. In fact an entire digital revolution had occurred over the last twenty years.

During that time we had completed 'Australia's Virtual Herbarium' (AVH), digitising the data attached to every Australian herbarium specimen on the web. By calling up Nancy's specimen details in AVH, sorted in the order of

her field collecting numbers, I had a record of where she was in the field, with accurate dates for almost any time she left Canberra.

Kodachrome 35 mm slides at that time had no date indicating the time of processing, but a few had Nancy's annotation of a month/year. Odd abbreviations written on the slide-mount start to make sense when you can access the herbarium label data with station names in central Australia or the Pilbara where she collected over that month.

If she only collected one *Swainsona* specimen at that location and we have a photograph of a *Swainsona* that matches her description in the 'notes' field of her specimen label, then we can make a fairly safe assumption that these are linked. Consecutive numbers (1-36) printed on slides can indicate that close-up photos and whole-plant or habitat photos were of the same plant.

Sometimes there was a coded abbreviation of a plant name on a slide-mount. The 'Australian Plant Name Index' (APNI) helped link plant names that Nancy might have used in the 1950s to the names that would be applied to her herbarium specimens today.

In between plant photos Nancy was taking landscape photos. By taking the co-ordinates from herbarium specimen data and feeding that into Google Earth I was sometimes able to provide fairly reliable coordinates for a habitat photo.

It was quite a shock to find that some undated photos could only have come from a 1947 trip across the Nullarbor.

Apart from the historical interest in having images in the collection from such a prominent figure in Australian botany, what else can we glean from these photos, especially the landscapes? Having recently returned from a field-trip to the MacDonnell Ranges in central Australia, one thing that immediately jumped out at me was that Nancy's photos represented a

(CONTINUED NEXT PAGE)



The photo above was taken by Nancy Burbidge on 16 August 1947 showing chenopod shrubland of *Maireana sedifolia* with *Aacia papyrocarpa* and the grass *Austrostipa nitida*. Although there is no date on the slide-mount, she lists the dominant plants and adds "Myall country N of Trans Railway, SA.". There is only one day where her field collecting book has a matching locality "Barton, Trans Rlway, SA"; (a railway-siding with the name 'Barton', honours our first Prime Minister). From the locations on Nancy's specimens it is obvious that she was travelling by car rather than the railway. (a.25453) www.anbg.gov.au/cgi-bin/phtml?pc=a&pn=25453&size=3



Nancy's photo of a beautiful prostrate pea plant, now known as *Leptosema aphyllum*, was taken north of Northhampton, WA. She does not appear to have collected it, but from the information on her other collections we can deduce that it was photographed on 4 September 1959. (a.25435) www.anbg.gov.au/cgi-bin/phtml?pc=a&pn=25435&size=3

Documenting Nancy's photos

literal 'snapshot' of the region before the introduction of Buffel Grass (*Cenchrus ciliaris*) by CSIRO in the mid-1950s. Whole generations of Australians have never seen these landscapes without this scourge.

There are still Burbidge slides waiting in the wooden box to be checked using the electronic tools now available to us, and there are also slide collections from other plant photographers that have found their way to us via donations and bequests that have not been assessed yet. These historic collections are being reviewed and added to the collection alongside the more recent and better-documented vouchered digital images. It will be some time before we can retire our slide-scanners and rely purely on digital photography, and who knows what extra information we'll gain along the way from scanning old slides.



The photo above by Nancy Burbidge is the only one in the collection where she has written a number on the slide-mount that matches a collecting number for one of her specimens: "*Swainsona villosa* (No.4583) N of Kulgara N.T."

(a.25464)

www.anbg.gov.au/cgi-bin/phtml?pc=a&pn=25464&size=3



Nancy called the Ghost Gum *Eucalyptus papuana* in 1955; now it is known as *Corymbia aparrerinja*. Today it would be almost impossible to take such a photo without the foreground being dominated by the introduced Buffel Grass.

(a.25440)

www.anbg.gov.au/cgi-bin/phtml?pc=a&pn=25440&size=



This photo of *Cullen pallidum* was labelled *Psoralea pallida* by Nancy Burbidge with the words "sandhill S of Alice Springs, Sept 1955". Checking the dates of her field collections we could determine that it was taken on 29 September, collecting number 4379 on a trip with Max Gray. Both matchboxes and cigarette boxes feature as 'scales' in Nancy's photos; she was a smoker and would always have these close at hand. Who would know the size of an Ardath cigarette packet today? (a.25472)

www.anbg.gov.au/cgi-bin/phtml?pc=a&pn=25472&size=3

The biggest bee in the Gardens

Roger Farrow

A large specimen of *Acronychia littoralis* (Scented Acronychia, from northeast NSW), is situated at the edge of the rainforest gully and was flowering profusely during the month of April. It is highly scented, like many in the citrus family (Rutaceae), and is very attractive to nectar-seeking honey bees. On April 5, I noticed a large black bee feeding at flowers at the top of the shrub, well out of range of my camera, but on April 18 I found a similar bee (or the same one) feeding lower down and I was able to take some close up pictures. These showed it to be a carpenter bee in the genus *Xylocopa*, the largest of our native solitary bees. There are no records of any species in this genus from the local area and it was subsequently identified by Michael Batley (Department of Entymology, Australian Museum, Sydney) as *Xylocopa (Lestes) aerata*, the Green Carpenter Bee. This species does not appear to have been recorded since 1938 from Victoria and mainland South Australia and the last sightings in inland New South Wales, according to specimens held in the National Insect Collection, were from the northern tablelands in 1970. There are no other records from inland NSW. The most recent records are from coastal NSW north of Sydney where it coexists with another species, *X. bombylans*. *X. aerata* is listed as regionally extinct in Victoria.

According to Remko Leijts, a carpenter bee expert from South Australia, the decline of *X. aerata* in inland Australia is attributed to the loss of habitat in agricultural areas and possible competition from honey bees. Very little is known about this bee's ecological requirements, apart from the need for nesting sites in softwood stems. It is not known where these carpenter bees are nesting in the Gardens but there is a wide range of potential nesting sites in different host plants. It is possible that carpenter bees will use artificial holes drilled in wood, including those used in bee houses.

Carpenter bees in the genus *Xylocopa* are found worldwide, including the remote Galapagos Islands. Over 500 species are listed in a large number of sub-genera but all have the same

basic appearance. The females are large and glossy black and some have white abdominal bands and others a yellow furry thorax, while the males are generally smaller and furrier. In Australia eight species in two subgenera are recognised.

Their common name comes from their habit of excavating their nests in soft wood although the Australian species commonly use soft, pithy wood found, for example, in *Banksia* and *Xanthorrhoea* stems. Some species are regarded as pests because of their habit of boring in domestic softwood, notably in the USA.

Carpenter bees live a solitary existence. Each spring a new generation of bees emerges from the cells where they have overwintered. The life of the males is a short and merry one as they fight over females to earn a right to mate and pass on their genes. The females spend the summer drilling nesting holes in softwood and provisioning a sequence of cells with a paste of pollen and nectar. The larvae develop in their cells over summer and pupate when fully grown towards winter. By autumn the females, worn out from parenting, die off.

It is very rewarding to rediscover a species that has disappeared over much of its range in inland Australia in our botanic garden. It would have been very useful to locate where this individual was nesting to ensure it and any others had adequate protection and further surveys are warranted for the next summer season.

I would like to thank Michael Batley and Remko Leijts for confirming the identity of this bee and Kim Pullen for checking the records in the National Insect Collection.

Further reading.

Glatz Richard V, Remko Leijts & Katja Hogendoorn (2015) Biology, distribution and conservation of green carpenter bee (*Xylocopa aeratus*: Apidae) on Kangaroo Island, South Australia. *Technical Report*. SA Gov.

Steen, Zeta & Michael P. Swartz (2000) Nesting and life cycle of the Australian green carpenter bees *Xylocopa (Lestes) aeratus* (Smith) and *Xylocopa (Lestes) bombylans* (Fabricius) (Hymenoptera: Apidae: Xylocopinae). *Austral Entomol.* 39: 291-300



Green Carpenter Bee, *Xylocopa aerata*. ANBG.



Female Metallic Carpenter Bee, *Xylocopa bombylans*, Muogamarra Nature Reserve, Sydney

Gardens Shorts

Executive Director Report

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

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

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

The Gardens continues to strengthen our commitment to conservation



Rare and Threatened *Swainsona recta*

with currently more than 15 active partnerships targeting different rare and threatened plants, including *Banksia vincentia*, several *Pomaderris* species, *Zieria baeuerlenii*, *Swainsona recta* and more. Excitingly, our horticulture team have managed to cultivate from seed the Christmas Island mangrove, *Bruguiera gymnorhiza*, which will be included in the Ian Potter National Conservatory. This mangrove species is particularly interesting as it grows along a permanent freshwater stream emerging from a cliff on an uplifted marine terrace about 35 m above sea level. In the wild this tree grows to 30 m high – it might stretch the conservatory!

Many people would be surprised to know the level of cooperation between the Gardens and other parks and conservation agencies to protect rare or endangered species, however collaboration among organisations is vital for today's conservation work.

Judy West

Dazzling array of colours from eucalypts

Local artist Sally Blake spent six months last year recording the colours extracted from the leaves of 230 eucalypt species and the bark of 100 eucalypt species growing in the Gardens.

Sally crafted her results into textile, basket and paper-based works which were on display in the Gardens' Visitor Centre Gallery during June in her exhibition, *The Colour of Eucalyptus*.

Each dye was recorded on a small-pieced sampler made from seven different fabrics, as each fabric showed the dyes uniquely. Many eucalypts gave unexpected results such as bright oranges and reds on wool.

Together the hundreds of coloured samplers created a Dye Diary. The eucalypt Dye Diary from the Gardens is the fourth she's created, each developed with eucalypts from different environments.



SALLY BLAKE

The highlight of *The Colour of Eucalyptus* exhibition was the mosaic of fabric displaying the range of colours from eucalypts created on linen, wool and silk dyed during the project.

Rare plant rediscovery: following the footsteps of famous botanist

Rare plants not seen in more than a decade were rediscovered on a historic two-day field trip following in the footsteps of famous botanist Baron von Mueller in the South East Forests National Park near Bombala. A team, including two Gardens' staff, Joe McAuliffe and Dave Albrecht, and scientists from the Office of Environment and Heritage and The



Sally Blake & Peter Byron at *The Colour of Eucalyptus* with the art work Sally presented to the ANBG

National Parks and Wildlife Service, trekked for seven hours through steep rocky gorges and dense undergrowth to find the plants. (PHOTO PAGE 2)

The team took cuttings of the plants, including the Genoa River Correa that had originally been discovered by von Mueller in 1860, to grow at the Gardens and seeds to build insurance populations for the species.

Other species rediscovered in the region during the expedition include the *Boronia deanei* (Deane's Boronia) *Pomaderris cotoneaster* and *Nalbaugh nematolepis*.

The expedition and conservation work is part of the NSW Saving our Species program aiming to secure NSW's threatened species in the wild for the next 100 years.

Governor General plants the rarest Banksia in the world to launch BGANZ Open Day

His Excellency Governor General the Honourable Sir Peter Cosgrove AK MC (Retd) and Lady Cosgrove were joined by children from Jerrabomberra Primary School in planting the rarest *Banksia* in the world, *Banksia vincentia*,



Joe McAuliffe, Gardens' Nursery Manager collecting.

to launch Botanic Gardens Australia and New Zealand Open Day.

The critically endangered *B.vincentia* was only discovered in 2008, and there are only six known plants in the wild confined to a single small population near Jervis Bay, NSW (see also page 18). The planting by His Excellency and Lady Cosgrove of this threatened species signifies the Gardens' ongoing commitment to conservation of plants for future generations, and the important work of all botanic gardens across Australia and New Zealand.

The ANBG was one of over 70 botanic gardens across the two countries to invite the community to celebrate and promote the role of botanic gardens in protecting plants for the future through a range of activities including behind-the-scenes tours, craft activities, botanic art demonstrations, face painting, yoga, massage and more. The BGANZ Open Day is an annual event held on the last Sunday of May.

A Boost for Button Wrinklewort

This flower may sound like it belongs to the pages of Snugglepot and Cuddlepie, but we've been growing

the endangered Button Wrinklewort, *Rutidosia leptorrhynchoides*, in our Gardens' nursery in anticipation of a big day to reintroduce them back into the wild. With our partners at ACT Parks and Conservation Service and Greening Australia, we have planted out a new population established around Barrier Hill in the ACT to boost the numbers of this locally and nationally endangered wildflower.

Much of the original habitat of the now very rare Button Wrinklewort has been destroyed or isolated. By increasing the number of self-sustaining populations in the wild we can reduce the plant's risk of extinction in the future.



Button Wrinklewort, *Rutidosia leptorrhynchoides*

J MCAULIFFE APRIL © ANBG



His Excellency Governor General the Honourable Sir Peter Cosgrove AK MC (Retd), Lady Cosgrove and Jerrabomberra Primary School children plant the rare *Banksia vincentia* to launch the BGANZ Open Day.

Celebrate life in the Gardens

For many Friends of ANBG and people living in the Canberra region, the Gardens are a central part of life: a place of engagement, discovery or renewal. Whatever the reason, the Gardens are a focal point for many in life. In response to requests we have developed a number of programs to enable that relationship to continue after that person has passed away.

One such opportunity is the concept of leaving a 'gift in your will', commonly known as a bequest. Often

there is a misconception that such a gift needs to be above a certain amount and that it is complicated to set up. The opposite is true. Bequests come in all shapes and sizes.

Sometimes targeted at a particular area (like education or science), sometimes not. Sometimes people nominate a specific amount and sometimes a percentage of the estate is used. Whether the donor chooses to leave the gift to the Friends or to the Gardens directly, the process

can be as simple as having a codicil to your will (a brief paragraph). The ANBG Partnership Manager, Trevor Capps, can help with the wording.

For many people the thought of a gathering point to remember a family member or friend is a special way of being able to share moments with someone dear that they have lost. The memorial bench program has just been renamed the 'celebration' bench program to recognise that for many people the point of remembrance is an opportunity to celebrate a person's life. The new term also allows people who want to dedicate a bench to commemorate a special life event such as special wedding anniversary, the birth of a child or other momentous life event.

A new option of remembrance is the 'in memoriam' program which has been developed to allow people at a remembrance service to nominate that a gift be provided to the Gardens in lieu of flowers.

If you would like more information on any of these programs please email partnerships@anbg.gov.au

Trevor Capps





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



Banksia vincentia in flower at ANBG

Rarest Banksia in the world

The critically endangered *Banksia vincentia* is known from a single population of now six plants. Conservation involves storing and germinating seed as well as cultivating new plants from cuttings at the ANBG and Wollongong Botanic Gardens. Material has also been sent to the Kew Royal Botanic Gardens in England. *B. vincentia* grows as a squat, spreading shrub 30-75 cm high, one to two metres wide and with branches growing horizontally for 20-30 cm before veering upwards.

B. vincentia was described by Margaret Stimpson and Peter Weston in 2014, having been initially discovered in 2008 by local nursery owner Jacki Koppman who came across the plant and, suspecting it was a distinct species, sent material to the NSW Herbarium for assessment.

Friends Briefs

Annual General Meeting 2017

The 29th AGM of the Friends of the ANBG will be held on Tuesday 31 October 2017 at 5.30 pm in the Gardens Theatre. Light refreshments will be served from 5 pm in the Dickson Room.

Elections will be held for the position of President and Secretary and two ordinary members of Council. If a current ordinary member of Council nominates for and is elected to a vacant executive position, there will be an additional vacancy for an ordinary member. In addition the agenda will include an award of Life Membership.

The AGM will be followed by an address by Mr Peter Byron, General Manager of the ANBG, on his attendance at the 6th Global Botanic Gardens Congress held in Geneva in late June.

(See the back of your *Fronde* Address Sheet for more details, including information on how to nominate)



Podocarpus: Cornelia Buchan-Osmond from *Fruit, Flowers, Fungi and Feathers*. (See 'Exhibitions', page 21)

Australian Association of Friends of Botanic Gardens

On Saturday 20 May Friends from 14 botanic gardens around the country came to the ANBG for the AGM of the Australian Association of Friends of Botanic Gardens (AAFBG). The President is Dennis Ayliffe, one of our ANBG Friends. The AGM did the usual things of electing a new Committee with members from Ballarat, Melbourne, Melton, Adelaide, Orange, Benalla, the Arboretum, and Brisbane, and changing the constitution.

Dennis outlined three objectives for the coming year, namely: to secure future funding through grants or philanthropy, concentrating on what can be done for members, and ensuring the success of the 2018

conference in Benalla. ANBG Director Judy West told the meeting about the work of the ANBG, which is very different to what happens in most members' Gardens that are run by local Councils. Glenys Bishop told the meeting about the upcoming Guides Conference and highlighted the assistance it can give to guiding in small Gardens.

The rest of the weekend was taken up with guided tours round the ANBG and a visit to the Arboretum. Our thanks to Lesley Jackman for hosting the AGM and to Trish Keller, President of the Friends of the Arboretum, for arranging our visit to the Arboretum.

Anne Rawson



Friends representatives Cecilia Melano, David Cox, Glenys Bishop, Jann Ollerenshaw, and Kim Liston were guests at a reception for ACT Patronages at Government House on 18 May.

Letter to the Editor

We read with great interest the article by Rosemary Purdie about *Grevillea ramosissima* subsp. *ramosissima* (p 4, *Fronde*, April 2017).

Karin and I first encountered this grevillea in the early 1970s when we were having our first encounters with Australian native plants. Some of our older members might recall that there was a gentleman living in Queanbeyan who propagated and sold native plants – quite a pioneer. His name may have been Kirby. He told us that the plant could only be found around Queanbeyan. Regrettably our lack of experience with native plants at that early stage meant that the precious thing did not survive for very long.

We now have a very small and very sandy garden on the south coast. Our efforts to improve growing conditions are showing some success and we have thirty-two native species in a bed at the front of the house.

I was pleased to see Kath's touching obituary for Pauline Wicksteed. We knew Pauline and Stuart for many years. Both delightful people - a privilege to have made their acquaintance.

Kind regards and best wishes to all,
Malcolm Fyfe

Response from Rosemary Purdie:

Grevillea ramosissima has been known from Mt Jerrabomberra in Queanbeyan since the late 1960s; the first record for the ANBG populations was 1971, ie around the same time. I've heard of others who cultivated it in the 1970s, at least one with some success!

Friends Briefs

Book review

Discovering Australian flora: an Australian National Botanic Gardens experience. Fanny Karouta-Manasse. CSIRO Publishing, 2017. Paperback, 95pp, colour photographs. ISBN 9781486397814.

Knowing Fanny's stunning flower photographs I was half expecting a lavish coffee table book. But CSIRO Publishing probably doesn't do coffee table books. Instead this is a smallish (21 cm square) paperback, but still full of photographs, some of them stunning. For example, there is the close-up of *Telopea speciosissima* that graced the front cover of *Fronde* back in 2014.

Fanny is well known around the ANBG, as a Friend, a member of the Photographic Group, and a volunteer at the Seed Bank. Before she came to Australia she gained a degree in plant biology and a PhD in marine ecology in France. She wrote this book first in French and then translated

it into English. Unsurprisingly there are details about four early French explorers and botanists who contributed much to the knowledge of our strange flora.

The main focus of the book, of course, is the photographs, of the living collection of plants plus the animals and birds that live in or visit the Gardens. The text briefly covers the plant groupings in the Gardens, describes the major genera, *Eucalyptus* and *Acacia*, plus the role of fire, the high percentage of endemism, the dominance of sclerophyllous plants and the richness of flora growing on poor soils. These topics are essentially scientific but Fanny explains them in a brief and accessible manner.

The book records Fanny's exploration of the ANBG and will assist others who come to the Gardens with a limited knowledge of Australian flora. It is a beautiful little book.

Anne Rawson



LINDELL EMERTON

Fanny Karouta-Manasse with Ian Fraser who launched her book, *Discovering Australian Flora: an Australian National Botanic Gardens experience*, in May

Binoculars for the Birds!

A generous donation to the Friends by the Ryan family in memory of their mother, Rosemary, has meant we could buy a set of seven binoculars to loan out to visitors to the Gardens. These have now been presented to the Gardens.

Rosemary was very fond of watching the bird life in the Gardens and these binoculars will be used for early morning bird watching tours, including the Friends' *Wake Up with the Birds* tours in September and October. However, binoculars will also be available for all visitors to use free of charge when visiting the Gardens.

The new loan service has only been operating for a few weeks, but has already been popular with a range of visitors of all ages. Next time you are in the Gardens and would like to enjoy a spot of bird watching, pop in

to the Visitor Centre and ask to borrow a pair of binoculars.

The Friends would like to thank the Ryan family for their gift which will enable many more people to appreciate the wonderful bird life in the Gardens.



BARBARA PODGER

Friends President, Lesley Jackman, presents binoculars to Ranger Alex

Pollen
Lunch

Opening Sunday **Champagne**
9 April 2017 **Craft beer**
Cider

Table reservations:
pollencafe.com.au

Music

Local wines Juices

Food & drink Smoothies

Breakfast Alfresco dining

Bird watching

Australian
National Botanic
Gardens

Pollen

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

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

Some summaries or PowerPoint presentations of Thursday talks are available to Friends from the ANBG library. A donation to the Friends for the use of this material will be gratefully accepted.

Bush Magic Storytime

First Friday of month, 10 to 11am \$5 per child
Follow the signs from the Café bridge
Enjoy stories and craft activities in the Gardens. Suitable for pre-schoolers.

Free Guided Walks

Daily at 11.00am and 2.00pm
Meet a volunteer guide at the Visitor Centre for a free one-hour tour of the Gardens.

National Science Week: Sat 12 Aug – Sun 20 Aug

Prices and full details at www.anbg.gov.au/gardens/whatson

Seed Treatment Workshop -
Undertake an experiment to test what seed treatments work best on one of our local natives

Film Night – Screening of two environment films - *Sticky*, an animated film about the Lord Howe Island phasmid and *Maratus*, a film documenting the local story of a citizen scientist discovering a new species of peacock spiders.

afterDARK tours

First Saturday of every month

Prices and full details at www.anbg.gov.au/gardens/whatson

Experience the sights, sounds and smells of the Australian National Botanic Gardens' native flora by night. These specialised tours reveal various biodiversity and habitat regions. Bookings are essential as numbers are strictly limited.
August – Firefly Tour
September - November (TBA)

Flora Explorer tours

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

Drawing in the Landscape Workshop

Saturday 19 & Sunday 20 August / 10am – 3pm
Saturday 26 & Sunday 27 August / 10am – 3pm
Adults \$180. Bookings essential; Prices and full details at www.anbg.gov.au/gardens/whatson
An intensive weekend of drawing in the landscape with local artist Genevieve Swift.

EXHIBITIONS

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

DIRKSWIRKS

1 – 26 AUGUST

An exhibition of mosaic reliefs & sculptures using bark, crosscuts of branches & recycled fence palings.

FRUITS, FLOWERS, FUNGI AND FEATHERS

30 AUGUST – 1 OCTOBER

An exhibition by local artists, Cornelia Buchen-Osmond, Maria Boreham, Vivien Pinder & Wendy Antoniak. Paintings will be for sale & commission will be given to the Friends.

EXPOSED

5 – 23 OCTOBER

Annual exhibition by Friends Photographic Group.

FRIENDS OF THE ANBG 2017 SCHOOLS PHOTO COMPETITION

25 OCTOBER – 12 NOVEMBER

Annual exhibition of student photographs taken in the Gardens.

Junior Ranger Program

Last Sunday of each month from
10 am – 11 am

Become a Junior Ranger and explore Australia's amazing environments. Learn more about its plants and animals. Different theme each month. Suitable for ages 7 – 12.

Single sessions – \$15; 6 sessions – \$75
(save \$15 and use for any six sessions)

*Additional costs for materials.

Bookings essential. Book through
www.friendsanbg.org.au

Sunday 27 August

Build your own bee hotel. Help conserve native bees by building a bee hotel for your home and get free pollination of your plants from your resident bees.

Saturday 23 September

Twilight Forest Adventure. Unlock the Gardens gate and shine a spotlight into a whole new world and explore the rainforest at night and spy on our nocturnal wildlife.

Sunday 29 October

Breakfast with the Birds. Experience the Gardens in spring when birds are most active and nesting and learn how to use binoculars to identify birds and their habitats.

Sunday 26 November

Our furry friends. Dive into the world of marsupial mammals and what makes them special. Make your own paper using kangaroo poo!!

Annual General Meeting of the Friends of the ANBG

Tuesday 31 October, 5.30 pm ANBG Theatrette

Meeting commences 5.30 pm, light refreshments served from 5.00 pm (see back of *Fronds* Address Sheet for more details).

Bushland Nature Trail

Saturday 4 November, 9:30 to 11/11:30 or Thursday 16 November, 9:30 to 11/11:30

Join us in an early celebration of the first anniversary of the opening of the Bushland Nature Trail. The trail is in the Bushland Precinct of the Gardens, and part of the local Black Mountain environment. Accompanied by a guide, discover the plants flowering at this time of year and enjoy spectacular views over Lake Burley Griffin. Our walk will end at the Lookout and return along the trail to the Visitor Centre.

Meet: Visitor Centre, ANBG.

Bring: Water, snacks, and wear walking gear.

Gradient: Class C – easy to moderate difficulty on a formed track with some uneven ground, a few steps and some short steep sections.

Distance: 3.2 km return from the Visitor Centre

Cost: Free. Please note this is a Friends ONLY event.

Bookings essential: www.friendsanbg.org.au on Home Page under 'Coming Up'.

Enquiries: memberswalks@friendsanbg.org.au

Butterflies in the ANBG

Saturday 18 November 2017

10am to 11:30am or 1:00pm to 2:30pm

Butterflies have been described as an inexhaustible source of spiritual and aesthetic delight. They have a practical value as well. We owe many glorious and sweet-scented flowers to the butterflies and moths that pollinate them. Join our local expert, Suzi Bond, for a wonderful opportunity to observe these elusive creatures in the Gardens. Meet: Visitor Centre, ANBG.

Bring: Water, snacks and binoculars, and wear walking gear (it will be an easy walk). A limited number of binoculars will be available to borrow.

Cost: Free. Please note this is a Friends ONLY event.

Bookings essential: www.friendsanbg.org.au on Home Page under 'Coming Up'.

Enquiries: memberswalks@friendsanbg.org.au



Meadow Argus ANBG

PAM ROONEY

Orchid walks on Black Mountain

Sunday 8 October 10am & 1.30pm

Meet at the car park on Caswell Drive (head south towards Glenloch interchange)

Join Tony Wood and Jean Egan to discover some of the spring flowering native terrestrial orchids, and to learn something of this fascinating group of plants. Some off-track walking involved so wear sturdy shoes. Bring a hand lens if you have one.

Numbers are limited to 15 for each walk so early booking is essential. For more information and to book ring Tony on 6254 1795. The afternoon walk is a repeat of the morning walk.



Glossidia major: Black Mountain

TONY WOOD

Wake up with the Birds

Weekends from 23 September to 15 October at 7.45 am

New format for our 14th season of the ever popular early morning walk to spy birds in the beautiful ANBG led by expert guides. Breakfast, tea or coffee at the recently renovated Pollen café is an optional extra and should be booked separately.

Bookings essential: www.friendsanbg.org.au

Cost for guided walk only: \$12 for Friends members, \$15 non members (FOR MORE INFORMATION SEE PAGE 9)



DAVID COOK

Growing Friends – Native Plant Sale

Saturday, 11 November, 8.30 to 11.00 am or earlier if sold out,

Carpark near the Crosbie Morrison Building. Details of the plants will be available on the website www.anbg.gov.au/friends a week prior to the sale.

Weeding Black Mountain

Removing Woody Weeds from Black Mountain and ANBG Annexes

Saturday 5 August 9.00 – 12:00 noon

Saturday 2 September 9.00 – 12:00 noon

Saturday 7 October 8.30 to 11.30 am

Saturday 4 November 8.30 to 11.30 am

Saturday 2 December 8.30 to 11.30 am

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.

Thursday Talks: August to November 2017

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 coin donation. There is no need to book but please note, that for safety reasons the ANBG Theatrette seating is strictly limited to 90 people. So, do come early for a seat at a Thursday Talk.

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

AUGUST

Thursday 3 August 12.30 pm

Angus Stewart 'History of Australian Plant Breeding'

Angus, an expert in Australian native plants and a media personality, will talk about the history of Australian plant breeding and share his experience in breeding iconic kangaroo paws.

Thursday 10 August 12.30 pm

Dr Lydia Guja 'News from the National Seedbank: from coast to desert'

Lydia, manager of the National Seedbank at ANBG, will outline her work with Parks Australia, from Christmas and Cocos Keeling Islands in the west to Norfolk Island in the east, to Uluru-Kata Tjuta in between.

Thursday 17 August 12.30 pm

Max Bourke AM 'Out of the Woods'

Max, agricultural scientist and inveterate volunteer, will be talking about the early history of tree planting in Canberra and the planters themselves: Charles Weston, Max Jacobs and Lindsay Pryor.

Thursday 24 August 12.30 pm

Dr Liz Truswell 'The woman who mapped the oceans'

Liz, Visiting Fellow at ANU and practising artist, will describe how geologist/cartographer Marie Tharp, working with the artist Heinrich Berann, produced maps of the global sea floor that contributed significantly to the development of plate tectonics.

Thursday 31 August 12.30 pm

Geoffrey Kay 'How the marbled gecko helps science reconnect fragmented farm landscapes'

Geoff, research ecologist at the Fenner School, ANU, examines how the quality of farming landscapes influences the movements of small, ground-dwelling fauna, like reptiles.

SEPTEMBER

Thursday 7 Sept 12.30 pm

Catriona Donnelly 'Wild Flowers of South Australia - the beautiful botanical illustrations of Fanny Elizabeth de Mole'

Catriona, a curator at National Museum of Australia, will explore the life and art of Fanny de Mole, one of a select group of colonial women botanical illustrators, in de Mole's *Wild Flowers of South Australia* (1861).

Thursday 14 Sept 12.30 pm

The Alison McKenzie Memorial Lecture

Martin Butterfield 'The Wide Black Land: reflections on the Carwoola bushfires'

With his lifetime interest in birds, Martin will reflect on the responses to these fires by the vegetation, birds, animals and invertebrates in his garden and elsewhere as his property gradually recovers.

The Friends of the ANBG are delighted to announce that Icon Water will continue their support of the Summer Concerts. We thank them for their support in 2017 and again for the upcoming 2018 Summer Concerts

Thursday 21 Sept 12.30 pm

Professor Rob Heinsohn 'Can we save Swift Parrots from their introduced predators?'

Rob, Professor of Evolutionary and Conservation Biology at the ANU, will outline the impact of introduced Sugar Gliders on nesting Swift Parrots in Tasmania, and ponder the long-term future of these threatened birds.

Thursday 28 Sept 12.30 pm

Tom North 'Kakadu – collecting, sweat and tears'

Over the last four years the National Seed Bank has conducted six collecting trips to Kakadu National Park. Tom, Curator at the National Seed Bank, will talk about these trips, timed to capture as much as possible the seasonal variance in fruiting and masting events for target species.

OCTOBER

Thursday 5 Oct 12.30 pm

Brian Fox and Michael Keats 'Gardens of Stone National Park'

Brian and Michael will describe their forays into the Greater Blue Mountains region; resulting in books and articles about bushwalking, historic map makers, and origins of Blue Mountains geographical names.

Thursday 12 Oct 12.30 pm

Catriona Donnelly & Julie Ryder 'Flowers of the Sea, and unravelling the identity of the Port Phillip seaweed album collector'

Catriona, a curator at National Museum of Australia, and Julie, a textile designer, reveal an album of pressed algae from Ireland, the Cape of Good Hope and the Port Phillip areas, and the seaweed collector's identity.

Thursday 19 Oct 12.30 pm

Associate Professor Christopher Fulton & Ms Mae Noble 'Murray crayfish as icons of healthy streams'

Chris and Mae, aquatic ecologists at ANU, will explain why this iconic species can be an effective indicator of riverine health, and be a flagship for community efforts to conserve freshwater streams in south-east Australia.

Thursday 26 Oct 12.30 pm

Mary Lovett 'The Wonders of the Pilbara'

Mary, a volunteer guide at the Gardens, will talk on the significant biodiversity in the Pilbara of W.A.

NOVEMBER

Thursday 2 Nov 12.30 pm

Dr Ted Edwards 'The night shift: moths of the ACT'

Ted, a Lepidopterist, CSIRO Fellow, and author, will reveal what is known – and just as importantly, what is not known – about some of the moths in the ACT; a home rich in moth fauna.

Thursday 9 Nov 12.30 pm

Associate Professor Cris Brack 'How trees surprise us'

Cris, an Associate Professor at ANU, will encourage us to wonder about a future where trees could provide many of society's needs. Trees produce some beautiful wood, but they can also produce some other incredible things too.

Thursday 16 Nov 12.30 pm

Dan Carmody 'All things Range ring true and Uluru Kata-Tjuta National Park'

Dan is a Visitor Services Ranger at the ANBG, whose talk will reveal his experiences of the Uluru Kata-Tjuta Park's flora, fauna, and one of the world's oldest living cultures still managing the land today.



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Australian National
Botanic Gardens

FRIENDS BENEFITS

As a Friend you are entitled to:

- Three issues of *FronDS* a year
- Three hour free parking pass
- Botanical Bookshop: discount on most items
- Discount at Pollen
- Discount at Jindii Eco Spa

You also get:

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

And opportunities to:

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

Thursday 23 Nov 12.30 pm

Dr Darren Leroux 'The Urban Frontier: Rethinking ecological opportunities in a changing world'

Darren, an Environmental Project Officer with the ACT Parks and Conservation Service, will argue from recent urban ecology research for new and exciting restoration and conservation strategies for cities.

Thursday 30 Nov 12.30 pm

Dr Bryan Lassard 'All the buzz on Australia's secret gardeners'

Bryan, an OCE Postdoctoral Fellow at CSIRO, will challenge many of the popular myths about Australian flies, and emphasise their status as essential pollinators (and composters) of many iconic Australian plants.