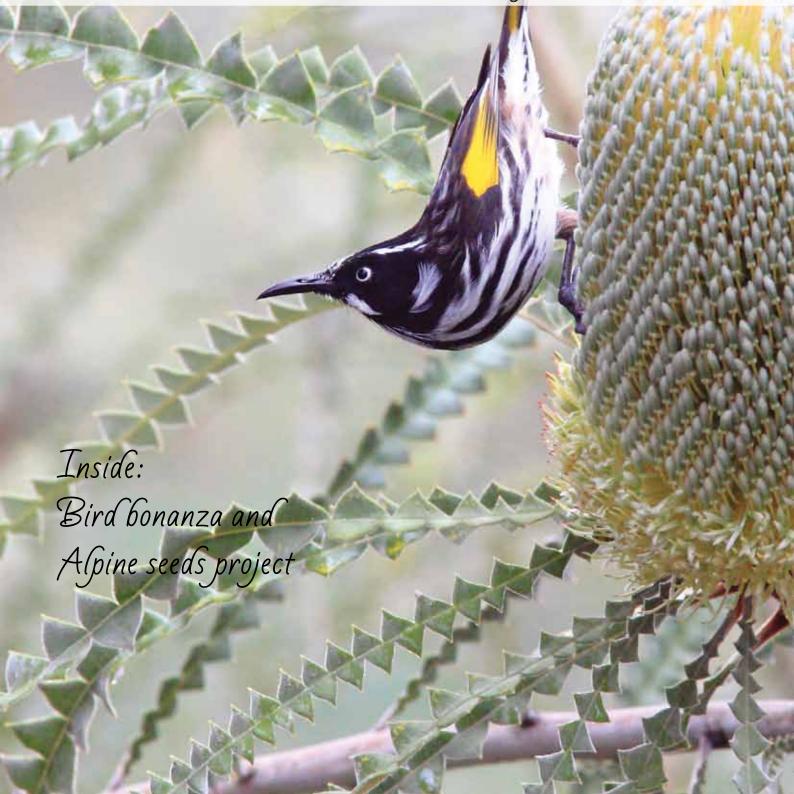


Friends of the Australian National Botanic Gardens Number 77 August 2014





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Fronds is published three times a year. We welcome your articles for inclusion in the next issue. Material should be forwarded to the Fronds Committee by mid-February for the April issue; mid-June for the August issue; mid-October for the December issue

Email or post material to the Fronds Committee at the above addresses 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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Our new Patron

We are delighted to inform members that Her Excellency Lady Cosgrove has agreed to take up the role of Patron of the Friends, recently vacated by Michael Bryce, who stood down following the move to Queensland of himself and the former Governor General, Dame Quentin Bryce. We thank Michael most sincerely for his input during his time as Patron.

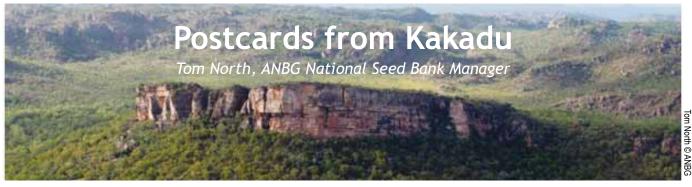
Lynne Cosgrove was raised in Sydney and studied art. She married Peter Cosgrove in 1976 and they have three adult children. She has been actively involved in the welfare of partners in the defence community and is the inaugural patron of Partners of Veterans Australia. She has worked with numerous voluntary organizations supporting aged and disabled people and endangered Australian wildlife. Her personal interests include art and architecture and nature and gar-

The Friends look forward to a very good association with Lady Cosgrove in coming years and we are sure she will be a great supporter of our national botanic gardens.

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Cover: New Holland Honeyeater on Banksia speciosa, taken by Pam Rooney, a member of the Friends' Photographic Group.





POSTCARD

Last February I sent postcards from Christmas Is. (see Fronds 76);



ín May I collected materíal from Kakadu Natíonal Park (KNP). I shared skills, presented classroom sessions and six days field experience with traditional owners, park rangers and local nursery operators on how to collect, handle and store seed. We collected seed from 14 species, including two of the threatened species, plus 6 herbarium specimens. In all six KNP staff, four traditional owners and two nursery staff received ANBG certificates in Seed Handling and Plant Identification. Thanks to KNP staff for hosting the two weeks, especially to Anne O'Dea and Steve Winderlich for coordinating.



POSTCARD



KNP is a timeless place. It is recognised as a global treasure, World Heritage listed for both its environment and living Aboriginal culture. The traditional owners Bínínj Mungguy have líved on and cared for this country for more than 50,000 years. More than half the park is Aboriginal land, and all of Kakadu is special to its traditional owners. They manage the park in partnership with Parks Australia, playing a key role in everything from Board decisions to hands-on management of threatened species and weeds and feral animals.



POSTCARD

KNP contains over 2,000 different plant species with more to be described. The composition of plants changes with changes in topography; from the coast and estuaries lined with mangroves in the north through waterlily-covered floodplains and billabongs and open wooded lowlands to rocky ridges and stone country in the south including pockets of monsoon rainforest. These landscapes are home to a range of rare and endemic plants and we aimed to collect eight of the listed threatened plant species To find these plants in some pretty inaccessible areas we travelled by helicopter, quad bikes, 4-wheel drives, but much of the day on foot.

Main photo: Kakadu National Park from helicopter. Postcards from top: Jenny Hunter (KNP) and Tom North (ANBG) pressing specimens; Jake Baird, Tom North, Stephan Anderson in the 'Stone Country'; Vulnerable Hibiscus brennanii .

Twenty years growing

Kath Holtzapffel

Before the Growing Friends came into existence the Friends were benefitting financially from plant sales of material grown at propagation workshops and from Gardens' surplus plants. In fact plant sales were the Friends main source of funds in 1992. At that time the Pesident of the Friends foreshadowed that an expanded propagation effort would go before the incoming Council. And in 1994 the Growing Friends began business.

'The Growing Friends—Now it's "Go Forth and Multiply!" This stirring call headed an article for the Friends' *Newsletter* (Winter 1994 Number 14). The article told how 18 members with a common interest in propagation gathered at the Banksia Centre on 16 April 1994 for the inaugural meeting of what was to become The Growing Friends (GF). There were 22 members at the first working meeting on 7 May.

The initial objectives expressed by the group were: 'To support Friends of ANBG in their objectives. The Gardens have some ideas for the future, such as propagation for the Gardens. Long term projects could be considered such as research, collecting etc.' Barrie Hadlow was ANBG Nursery Manager at that time, and took on liaison between the new group and the Gardens Administration.

Early members did a lot of walking in the Gardens. Meetings were held at the Banks Centre (now Banks Building), with propagation at the old Nursery site and plants transported to the igloo at the old cottage. The carport site, adjacent to the igloo, had to be cleared so that plants could be stored there on a bed of blue metal. Some early members are still active GFs: Ros Cornish, Karin Fyfe, Doreen Godtschalk, Kath Holtzapffel, John Wilkes, Pauline Wicksteed, Doreen Wilson.

In April 1995 we were told that we would need to move from the Cottage site much earlier than previously envisaged because of work on the new Nursery site. The igloo had to be dismantled and stored until we could move to our present site behind the Banks Building. We took over the raised beds and over time adapted them for plant storage and set up the igloo. A fogging unit was installed in the Banks Building glasshouse area. Our plants were stored temporarily at the old nursery. Members worked hard and had invaluable assistance from Gardens staff.

By about 1998 we had installed: a cutting bed with bottom heat and mister; a seedbed with bottom heat and capillary watering; a shade cloth cover over the benches and extra cover over the igloo for summer. In 2000 we got automatic watering but it was discontinued in 2007 because of water restrictions. A 10 000 litre tank was installed later that year. That involved a lot of site preparation and a mammoth effort lifting the tank over the wall, plus plumbing and installing a pump. We now use tank water for hand watering of plants but lake water provided to the



M.Fage



<u>≤</u>



M.Fag



Ron Hotch





Jnknown photographer





ANBG for misting and the seed bed.

We continued to learn from knowledgeable members and Gardens staff: about propagation techniques; plant families; Plant Breeders' rights; weed species; smoke water treatment; and the use of hormones. Much discussion ensued about how to best label our plants. From earliest days a database has been maintained to record details of the plants propagated and our success rate and this has proved very useful.

In the very early days we were allowed to bring in cutting material. Then we were encouraged to seek our cutting material from within the Gardens and procedures were set up to obtain relevant permissions. Now we can only source cutting material from within the Gardens and seeds from reliable sources (including ANPS Plant Study groups).

While our main aim is to learn about propagation and to practice what we learn, there are all sorts of ancillary jobs. Maintenance has been an ongoing issue. Misting and heating are frequent offenders. Plants need regular care and watering. The site has to be kept clear of leaves and other debris. Storms can cause damage and some flooding of the shed. (Thanks to Andy Rawlinson who solves many technical problems.) Sand is mixed into potting mix. Cutting mix prepared. Supplies of pots, labels, gloves, hormones and other propagation supplies are bought. Much research is done for the database and plant lists at sales and a manual documenting current procedures is in preparation.

Sales to the public are a fortunate by-product of these activities, having evolved from small sales at the cottage, via Banks Walk to the present car park arrangements. In the years 2006 to 2010 inclusive we raised a net amount of \$28,756. During this period major purchases were two trolleys, replacement of shadecloth and the rainwater tank.

Former members who perhaps deserve special mention: Joan Rigby, a tireless worker who withdrew in 2001; Malcolm Fyfe, the driving force behind the formation of the group, who coordinated activities until mid-2007; Gwyn Clarke; and John Wanless. Countless other members have contributed their particular skills over the years. Dedicated involvement by current members continues to keep the group running smoothly.

ANBG staff have assisted us generously over the years. The Friends' Council has supported our needs for equipment and propagation supplies. We continue to learn and enjoy our propagation activities and are happy that we are able to help raise some funds for the Gardens. The name of the group says it all 'Growing' and 'Friends'!

Captions for photos

1991: Plant sale at Top Cottage; 1993: Official igloo opening outside Top Cottage; 1995: Friends igloo construction; Unknown date: Banksia Centre raised beds.

Page 5 2000: John Wilkes installing automatic watering system; 2001: Christmas party with Kath Holtzapffel, Ros Cornish and John Wilkes 2007: Raising the tank 2014: View of raised beds



Acacia baileyana near Cootamundra

Cootamundra Wattle (*Acacia baileyana*) first caught my attention when I moved to Canberra six years ago. Its bright yellow clusters of ball-shaped flowers produce a stunning burst of colour during the cold winter months, and it retains its attractive grey-green, fern-like, bipinnate leaves throughout its life. Growing to between three to 10 metres in height, it thrives in cool, higher rainfall areas and is very adaptable, hardy and fast-growing. No wonder it is such a popular garden plant.

Cootamundra Wattle is so ubiquitous in the open spaces of Canberra, I initially thought it must have been native to this region. However, I soon discovered that it is a pest plant in the ACT and that many volunteers spend countless hours removing it from our bushland reserves. It is also classified as an environmental weed in many other parts of Australia (Western Australia, South Australia, Queensland, New South Wales and Victoria) as well as overseas, in New Zealand and South Africa.

For such a hardy and prolific plant which grows so well in a wide range of climates and soils, Cootamundra Wattle intriguingly had a very restricted natural distribution at the time of European settlement. It only grew in the vicinity of Cootamundra, hence the common name, between Stockinbingal, Temora, Cootamundra and Bethungra (a distance of only about 50 km, east to west). Despite this, it is not considered to be at risk in the wild. Unsurprisingly, it is the floral emblem of Cootamundra and is on the logos of many local businesses, organisations and the Shire Council.

A. baileyana was first described by Baron von Mueller in 1888. He named it after the Queensland botanist Frederick Manson Bailey who collected the type specimen from a cultivated plant in Bowen Park, Brisbane in 1876. Bailey was a prolific botanist who made valuable contributions

to the characterisation of the flora of Queensland and was Colonial Botanist of Queensland for many years.

In 1935 the botanist Mr I.V. Newman undertook a seven month study on the status and natural range of Cootamundra Wattle, going some way towards trying to explain its contradictory character. He reported that across its native range the species was limited to elevated sites near the crest of the divide, at an altitude of between 400 and 800 metres, on outcrops of Silurian sedimentary rock associated with patches of granites and porphyries (igneous rocks with large crystals such as quartz), with an average annual rainfall of between 18 and 23 inches, and sheltered from the south and west by the high ground of the range. The only other similar area in NSW was a much smaller area just to the north.

These facts led him to hypothesise that 'it seems possible, therefore, that it is a relict of a species which may have flourished widely before physiographic changes initiated a losing battle between it and the environment'; and later: 'It is either an old species living in a restricted habitat or it is a new species that did not spread far before the coming of settlement'. Perhaps we will never really know.

What we do know is that it is now a weed. Waltraud Pix, the Coordinator of the Friends of Mt Majura Parkcare group for 10 years until 2013, actively coordinates the restoration of endangered Yellow-box Red Gum Grassy Woodland at a site in North Watson every Friday morning, where one of the main activities is eradicating Cootamundra Wattles by either the 'cut and paint' or 'frilling' methods. I asked her recently why they are such a problem. 'The mature trees produce large quantities of seeds every year, which are spread by water and birds over large distances and remain viable in the soil for decades,' Waltraud said. 'It easily invades our natural areas, espe-







Bipinnate leaves and flowers of Acacia baileyana (Cootamundra Wattle); Bipinnate leaves and flowers of Acacia dealbata (Silver Wattle); Cootamundra Wattle in Dryandra Street, O'Connor, ACT.

cially after any disturbance, and competes with native shrubs, small trees and ground flora. They can form dense thickets excluding light and preventing the regeneration of indigenous native species.'

'Cootamundra Wattle also frequently hybridises with the local, closely related, Silver Wattle (A. dealbata), which could potentially threaten the long term survival of Silver Wattle in this area,' Waltraud added. 'Therefore I suggest to anyone with Cootamundra Wattle in their gardens, especially if they live near bushland, to replace it with a noninvasive species sold from bush friendly nurseries.'

The best place to view Cootamundra Wattle in its natural habitat is Jindalee National Park, which covers an area of 1,076 hectares and supports isolated stands of near threatened and vulnerable open forests dominated by Red Ironbark, Grey Box, Black Cypress Pine, Red Stringybark and Scribbly Gum. It was only recently declared in 2011 after many years as a state forest. The wattles are most plentiful

in the smaller south-eastern section of the park on the right hand side of Berthong Road, approximately 14 kilometres north of Cootamundra. Drive in through the gate, park in a suitable spot and just take a walk around. Specimens growing in the dense regrowth forest tend to be somewhat spindly whereas in open sites they are much more robust and profuse, with many large thickets to be found. Unfortunately, the park suffers from the effects of illegal dumping, vehicle access and fire wood collection.

A few years back a Cootamundra Wattle self-seeded in my back garden, which left me in a bit of a quandary. At first I was loath to remove it, but as much as I enjoyed its splendour, I eventually bit the bullet. Now there are a few Silver Wattles growing in its place, which are just as splendid.

Jo Lynch, a self-confessed 'plant spotter', works for the Australian Network for Plant Conservation, which is based at the Gardens and aims to promote and improve plant conservation. www.anpc.asn.au

Floresco chef a winner

Water dragon on the barbie? Braised kangaroo? Fricasee rabbit? All these as well as bush spices and fruits could be served at Floresco if Head Chef, David Lockwood, could source his ingredients really locally. Luckily for the Gardens' fauna and flora, ingredients on the new Spring menu will not be sourced quite so close to home. But David's new menu will include a variety of dishes featuring bush herbs and spices, and he will be serving kangaroo as one of his specials. He sources his ingredients from local suppliers and enjoys trying out new recipes from all over the world, adding an Australian bush food twist. While introducing new dishes, David also enjoys giving traditional favourites a new taste. His secret for the popular fish and chips dish - the addition of cider to the batter, to make it light and airy.

David started at the Hellenic Club in 2011 and was promoted to head the Floresco team soon after the cafe opened, and has been running the kitchen since. His enthusiasm, ability and hard work recently resulted in him winning Clubs ACT's Young Achiever of the Year award.

Your reporters now declare our conflict of interest as David made for us his delicious French toast with raspberry sorbet and mixed berry compote. It was delicious and filling.







The Gardens: a birding hot-spot

In a recent Friends' Thursday talk, Duncan McCaskill, coordinator of Canberra Ornithologists Group's (COG) Garden Bird Survey (GBS), analysed a range of survey data to find out which birds are more likely to be found in the ANBG than in your average Canberra garden. He found the ANBG is definitely the hot-spot for sightings of:

- Eastern Yellow Robins
- Fan-tailed Cuckoos
- New Holland Honeyeaters
- Rose Robins
- Crescent Honeyeaters

The stand out species is the Eastern Yellow Robin, which is commonly reported in the Gardens (where it is probably resident) but which hasn't been reported in any urban GBS site, including sites not far from the Gardens, in the last eight years.



Easterrn Yellow Robin

New Holland Honeyeater and other Garden birds

Geoffrey Dabb

The New Holland Honeyeater (NHH) is a rather small (18 cm long) honeyeater, one of more than seventy species of that family in Australia. The curious name dates from 1790 when John White, the Surgeon-General to the First Fleet at Port Jackson, published his *Journal of a Voyage to New South Wales*. White wrote of a 'New Holland Creeper' and included an illustration of a bird of that name. While the bird was soon recognised as a 'honeyeater' the original specific name is still in use.

The species is a familiar one in many towns in south-eastern Australia. In the 1830s John Gould wrote in his *Birds of Australia* it was 'one of the most abundant and familiar birds inhabiting the colonies of New South Wales, Tasmania and South Australia: all the gardens of the settlers are visited by it'. He added: 'the strikingly-contrasted markings of its plumage, and the beautiful appearance of its golden-edged wings, when passing with its quick jumping flight from shrub to shrub, rendering it a most conspicuous and pleasing object'.

At times, they are very aggressive towards other honeyeaters and others of the same species that enter their territory, engaging in bill-snapping chases and aerial fights, and sometimes wrestling and tumbling grapples.

The NHH is mainly a species of coastal shrubbery. Although it is regularly recorded in suitable habitat around Canberra, it is not generally common here, and its movements are not well understood. It is resident in localised pockets where there are plantings of out-of-area banksias and grevilleas, those being its favourite sources of nectar in this area. The Canberra Ornithologists Group (COG) has long-running occurrence records of local species, and the results for the year to June 2013 show more



A painting by Sarah Stone published in 1790 in the journal of John White, Surgeon-General to the First Fleet.

Use of COG records for this note, and the help of Steve Wallace, COG statistician, is acknowledged. All bar Gang-gang photo on next page by Geoffrey Dabb.

than half the NHH records (118) were from Jerrabomberra Wetlands and Norgrove Park, with 39 from ANBG. The other records (50) were from widely separated sites.

The NHH has been described as an 'altitudinal migrant' in our area, suggesting it is one of those species, like the Crescent Honeyeater, that breed in the ranges and come down to Canberra's woodlands and gardens in the colder months. However, for the NHH a year-round presence at the Canberra hotspots, like ANBG, is clearly established. There are also year-round reports of its presence, sparingly, at higher altitudes. It seems likely that slightly higher recording in the Canberra suburbs in the colder months is due to wandering birds seeking nectar sources outside the breeding season, rather than a significant altitudinal movement.



The Eastern Yellow Robin can often be seen perched on sprinkler heads and signs. The sexes are alike. This robin sometimes builds its lichendecorated cup nest in the Gardens. The nest shown was in the dense shrubbery of the Rhamnaceae sec-



The Rose Robin is a typical 'altitudinal migrant', being seen around Canberra gardens in the cooler months. Like most robins it generally feeds by flying down from a low perch to take food items on the ground. The rose-pink breast of the male is often the first sign of the presence of one of these birds.







Fan-tailed Cuckoo

Sighting ANBG's Gang-gangs

As part of celebrating 50 years of activity, COG is running a citizen science project to learn more about Gang-gangs. Surprisingly little is known about the ecology of these engaging birds, about their abundance, movement patterns, food preferences, or the frequency or success of breeding events. As input to the project, several ANBG Friends are keeping an eye and ear out for them anywhere in the Gardens. There will also be heightened observing during the COG 'Muster Weeks' in August and November.



During the May Muster a pair of Gang-gangs were seen grooming in the Rock Garden and a gang of 24 at the Eucalypt Lawn.

If you see or hear any Ganggangs in the Gardens, please

help by completing a data sheet in the Guides office and have your observation included in the database. If you would like to join a group of surveyors for 20 to 30 minutes please contact Linda on 6262 5551.

Memories of meeting birds with Kurt Thaler

Kathryn Fry

Looking as crisp as his freshly ironed ranger clothes, Kurt Thaler addresses the group gathered at 7am on a summer morning in 2000. I'm not an expert, we'll just take a walk and see what we can see. Last night was windy and this season has been cold, so by now we would normally have the Whistlers - the Golden and Rufous, but they aren't here yet. After a while I decide he is an expert. He's worked at the Australian National Botanic Gardens for 30 years and can whistle up the birds.



Female Leaden Flycatcher



Sacred Kingfisher

By the path he calls a male Leaden Flycatcher that appears followed by the female. We see her yellow throat. He tells us: Often the Noisy Friar Bird and Leaden Flycatcher nest near each other. If you find one, you generally find the other within a few yards. Why? The Friar Bird makes such a noise, it is a good alarm for the Flycatcher so they stay near each other.

He points to a nest used by the Sacred Kingfisher at the top of the gully - the pond nearby with frogs, all it could want, he says. We pass by a Satin Bower Bird's nest; he tells us the Currawongs got the babies and the Bower Birds never came back.

This is a good spot, he says; normally by now there are so many birds active in the Kangaroo Paw but not today. The Red-browed Firetails love the nuts of these plants – at a good time, you may see 30-50 of them here.

Kurt shows us the nest of the Grey Fantail – very neat with gossamer and small leaves. He tells us: *It is narrow and long and before they fly, the babies are sitting one on top of the other, it is so cramped.*

In the Tasmanian section, we come across Eastern Water Dragons, one particularly green. *That size there*, he points to a juvenile though not the smallest in the group, a Kookaburra comes here and grabs it and a little while later you see it wondering what to do with the tail.

He speaks with a thick Austrian accent having been born there in 1939. After training as a stonemason before migrating to Australia, he joined the Gardens in 1970. His eyes are steely grey and penetrating, used to spotting activity. He has a broad, high brow and a bushy mop of greying hair that matches the grey of his uniform jumper.

Those two hours we see so much wildlife: a Ring-tailed Possum shaken from its basket-nest; the special stand of Casuarinas where Yellow Robins come in the summer (the gully is wet and it's the next gully from the Brindabellas); the Treecreeper, tail moving in beat with its call; Bronzewing Pigeons up a gum tree with the female on the nest (they are on their honeymoon); and many nests that he identifies. Finally, Kurt explains that when banding birds, they had to be careful of the Pied Currawongs that would investigate the region of banding after the men left. They found this out by setting up a false site. Any Currawongs scavenging too many baby birds are given a special diet of lead, he says with a hint of a smile.

Kurt died in 2012. He often conducted educational tours for school groups and any interested public. He had a major input into the development and interpretation of the Nature Trail at the Gardens in the late 1970s. Many will remember him.



Breakfast with the Birds

September:
Weekends 20, 21 and 27, 28
October:
Weekends 4, 5 and 11, 12
Meet at Visitor Centre at 7.45 am

In its 11th season another excellent opportunity for early morning access to the Gardens to view birdlife with a knowledgeable guide, followed by breakfast in Floresco Café. Bring binoculars if you have them. Walk will only be cancelled in extreme weather conditions. Please note: this walk is not suitable for children under eight years. BOOKING: www.friendsanbg.org.au on the Home page ENQUIRIES: birds@friendsanbg.org.au, or phone 62916396 COST: \$32.00 for Friends and \$35.00 for others

Barbara Daly retires

Rosalind Walcott



Barbara Daly has retired from writing *In Flower This Week* (IFTW) after 26 years of devotion to the task. Barbara must surely be one of the longest serving and most diligent volunteers in the Gardens' history. She is a Life Member of the Friends and received an acknowledgement of her 25 years of service to the Gardens in 2012. A severe car accident in 2013 has brought about her retirement, but Barbara assures us she will still be seen in the Gardens (maybe on the Gardens scooter) whenever she can manage to get there.

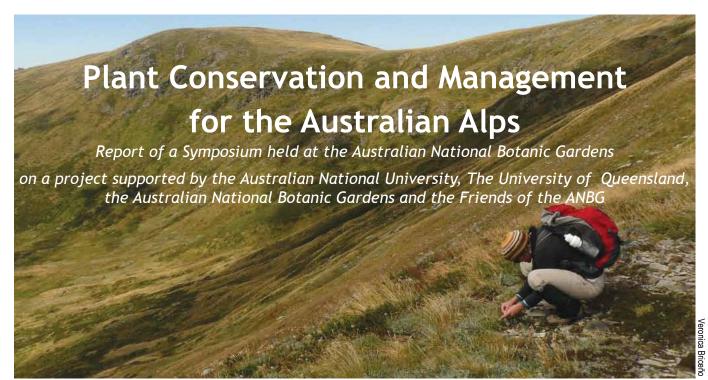
Barbara began her volunteer service at the Gardens by working with John Pike helping to supervise his intellectually disabled group who were planting Section 29. She went on to help produce IFTW with local landscaper Leon Horsnell and a year later became its driving force. Barbara made IFTW a reliable and consistent publication (now on the web) which has helped many researchers, both in and out of the Gardens for over a quarter of a century.

Ben Walcott and I, and an enthusiastic backup group, are continuing to publish IFTW, although its frequency has been reduced to once a fortnight. The format has been changed a little too with only 15 plants featured, but it still continues Barbara's plan of walking the Main Path once a month, with other areas such as the Rock Garden and Red Centre Garden included less frequently.

Congratulations to Barbara and a fervent thank you from all the Friends of ANBG.



During WW2 Barbara (centre) volunteered as a member of the Women's Auxiliary Air Force, maintaining radios on incoming RAAF planes and later undertook secret training on radar. From 1950 to 1990 she nursed in London, Belfast, and Detroit before settling in Canberra at the Canberra Community Hospital as Ward Sister, Supervisor and Nurse Educator.



Adrienne Nicotra checking seed ripeness at 2140 metres

From Judy West Executive Director, Australian National Botanic Gardens

In June 2014 I welcomed participants to the above symposium at the ANBG, arranged by Adrienne Nicotra of the Australian National University. She had the vision to bring together researchers, industry representatives, and conservation, restoration and management practitioners to consider ecological research activities of the past and current approaches to understanding the complexities of our alpine ecosystems and to look to the future and scan the research and land management horizons, particularly given changing environmental conditions.

The symposium was particularly useful for the ANBG given the Gardens involvement over the past five years in a collaborative alpine seed and seedling ecology research project, contributing to the diversity and quantity of seed of alpine species in the National Seed Bank. These new collections will form the basis of ongoing collaborative research into seed biology and ecology of species of our alpine and sub-alpine vegetation communities. ANBG staff with expertise in alpine flora were able to familiarise others in species identification; horticultural staff were exposed to more ecologically oriented field studies.

This project was a collaboration of the ANU, University of Queensland, ANBG and Friends of the ANBG, involving researchers and students, Gardens staff and Friends working together in the field, in the labs and in the National Seed Bank.

This summary article is an introduction to the significant outcomes of what was a productive and stimulating day. A full report will be issued later in the year.

From David Coutts, President, Friends of the ANBG

In recent years the Friends of the ANBG have prioritised supporting research projects in and involving the Gardens. When the opportunity arose to support the alpine seed and seedling ecology project, we immediately saw it as an exciting opportunity and understood that our involvement was crucial in securing funding from the Australian Research Council. The project harmonised with our long-term priorities, including establishing the ANBG as a major centre for alpine plant research, an enhanced role for the National Seed Bank and a focus on educating the community about the importance of alpine flora, especially in the context of climate change.

The Friends contributed \$66,000 over three years to this cause which was, by far, the largest financial commitment made by the Friends to a single project. A number of Friends have assisted with seed collecting in the alps, working in the seed bank and liaising with researchers on the overall objectives and progress of the project.

We remain committed to the establishment of a permanent display for alpine flora at the ANBG and to raising awareness of the dangers facing our alpine flora. We will also consider participating in any alpine research that is proposed, particularly that which supports the ANBG.

A separate report will be published covering this Symposium, including papers given and details on alpine work from elsewhere in the country. This report will also be available on the Gardens website at: www.anbg.gov.au/ and on the Friends website at: http://friendsanbg.org.au/newsletter and see also: http://friendsanbg.org.au/node/487.

Alpine Seed and Seedling Ecology Project

Adrienne Nicotra, Associate Professor and Future Fellow

The Australian National University

Thanks to funding from the Australian Research Council (ARC) and the Friends of the ANBG, October 2009 saw the start of a project borne of growing concern regarding climate predictions for alpine regions of Australia and the potentially catastrophic consequences for our unique alpine flora.

Warming is occurring more rapidly in high, alpine areas than at lower elevations, putting pressure on alpine plants to shift distributions to cooler, wetter niches. Alpine plants have little opportunity to move to higher elevations, however, the alpine environment is a mosaic of microclimates, leading to opportunities for differentiation in space and among populations.

The project focused on alpine seeds and seedlings for two reasons:

- 1. seeds play a crucial role in alpine plant migration and response to disturbance
- 2. while most alpine species rely on seeds for dispersal and recruitment, there is strikingly little research on the ecology of alpine seeds and seedlings.

The project aimed to assess alpine germination strategies, variation in seed and seedling traits within species and the role of maternal environment in seed traits. In addition, we wanted to examine the potential impacts of climate change on the ability of alpine plants to reproduce via seed.



Selfie by Veronica Briceño, holding *Aciphylla glacialis* (Mountain Celery); Magnified seeds of (above) *Ranunculus lappaceus* (Common Buttercup). *and (below) Olearia algida* (Alpine Daisy-bush). Lydia Guja © ANBG; *Wahlenbergia ceracea* (Waxy Bluebell) taken at Dry Dam, between Kiandra and Cabramurra.

This symposium presented the outcomes of the ANU/ANBG Alpine Seed and Seedling Ecology project, as well as work arising from other alpine research labs around the country. The symposium was attended by more than 40 people including researchers, ANBG staff, Friends of the ANBG, alpine land managers and representatives of industry with an interest in the Alpine regions. The critical role of partnerships among the community in maintaining a resilient alpine plant community was a key focus of the day.

The symposium concluded with a panel discussion moderated by Dr Rosemary Purdie. The panellists were asked to reflect on the content of the symposium over the course of the afternoon and to describe what they saw as the priorities for restoration and management in the Alps. A summary of the themes emerging from that discussion follows on page 14.

Results

Roughly half of the 54 species studied dispersed dormant seeds, while seeds of the other half appeared ready to germinate immediately after dispersal. There were also a range of 'staggered' germination strategies i.e. seedlots in which some seeds germinated immediately while others postponed germination until the following growing season.

Warming climates will be associated with earlier/longer growing seasons, therefore the project examined how reduced duration of cold conditions will affect germination of a species that relies on winter temperatures for dormancy alleviation. Results suggest that, provided winter conditions continue to persist for five weeks or longer, germination of *Aciphylla glacialis* (Mountain Celery), will not be compromised. Shorter durations of snow cover during winter mean that vegetation is exposed to freezing



Seed Bank Manager Tom North making use of the drying facility funded by the Friends; Seed bank volunteers Dianne Deans (front) and Annette Harry (back) processing a collection of Carpha seed from Kosciuszko NP; Seed Conservation Biologist Lydia Guja inspects germination tests.

conditions where once they were insulated by the snow. A. glacialis seeds from populations exposed to severe early frosts showed greater seedling resistance to freezing than those from populations where snow insulated the plants during seed production. The early snow melt seedlings also demonstrated a greater ability to acclimatise to cold.

Our research also examined responses to warming, as predicted by climate models. We found that soil warming reduced germination from the alpine soil seed bank, but increased the diversity of species that did germinate. Warming may therefore impact on community composition.

Finally, we asked, is there variation within species in their responsiveness to warming? We grew Wahlenbergia ceracea (Waxy Bluebell) plants from seed collected at low, mid, and high elevations under cool and warm glasshouse conditions. Low elevation plants had the greatest ability to increase growth when warmed, while among the low elevation plants, those that demonstrated the greatest plasticity (i.e. ability to adapt to warming), performed the best. In contrast, among the high elevation plants, the most plastic plants performed worst. This indicates differentiation in evolutionary trajectories over very small geographical scales, meaning that efforts to use some of these species in conservation and restoration should take into account diversity of response within the species.

The focus on seeds and seedlings has yielded much needed basic biological information that reveals not only species differences, but significant variation between populations from differing microclimates and among individuals within populations. It has not been difficult to find audiences for such interesting and timely research as this, through national and international conference presentations, ABC Radio interviews and peer-reviewed scientific journal publications. In the future we aim to extend this important work to better understanding mechanisms underlying variation within species so that we may improve predictions about plant responses to climatic change.

Alpine seed conservation and use

Lydia Guja, Seed Conservation Biologist, National Seed Bank ANBG

Alpine seed collections and research are national priorities for the Australian Seed Bank Partnership. Conservation seed banks that currently hold Australian alpine seed collections are held at the ANBG, in NSW, in Victoria and Tasmania. Collectively, these institutions hold 2,218 collections of 618 alpine taxa, sourced from wild populations across the Australian Alps.

Of the 1,409 collections held by the National Seed Bank at the ANBG, 56 per cent have been collected since 2007 and the majority by the Alpine Seed and Seedling Ecology Project. This significant contribution is a testament to the collaboration, and the many staff and volunteer Friends who made the collections. These collections are not easily acquired. Apart from the many vagaries of the alpine flora, collection trips involve covering many kilometres of uneven and steep ground while exposed to the ever-changing alpine climate. It is not easy to collect tiny seeds with frozen fingers, but the incredible scenery reminded collectors of their passion to conserve the plants that characterise the unique Australian alpine landscape.

A current research project at ANBG is continuing the commitment to alpine seed research by aiming to resolve the germination ecology of species that occur in endangered 'Alpine Sphagnum Bogs and Associated Fens'. There will be more about this project and the alpine work undertaken by other botanic gardens in a forthcoming Fronds supplement. A greater knowledge of the seed ecology of Australian alpine species will build on existing conservation and research outcomes by allowing more effective use of seed collections and more effective restoration of the Australian Alps.



All stakeholders involved in discussions on priorities for restoration and management

Stakeholders include industry (primarily power and tourism), regulators, land managers, researchers and community groups. Land managers deal with diverse demands and priorities from different stakeholders making prioritisation difficult. As traditional modes of science communication are not an effective means of translating science to practice and policy, face to face discussions and targeted presentations can aid that transfer of information. In many cases the policy challenges are greater than the scientific, and there may be direct trade-offs between the two. Progress will require regulatory drive, leadership and incentives for industry to get involved.

Management focused on immediate concerns. Restoration driven by regulatory requirements

For the most part, restoration and management decisions are made in response to immediate requirements and regulations. Seldom are there additional resources to be spent on longer-term planning or preparation for climatic changes. Getting ahead of these immediate demands will take leadership and support at regulatory levels.

When is local not best?

When collecting seed for conservation and restoration the source, or provenence, of the seed matters. For many years restoration and revegetation projects have been conducted under the mantra of 'local is best'. But with climatic conditions changing and restoration being conducted in a complex matrix of land uses, it is rapidly becoming clear that this simple maxim is not foolproof. Rather, now we want people to think about what 'local' will be in the future. Broadly collected provenances and conservation seed banks can make an important contribution to this change in perspective. In addition, new technological developments mean that genetic tests, once restricted to well-funded research laboratories, can now be used much more broadly to describe the evolutionary history of plants and animals.

Restoration and management should be based on future, not previous, conditions

If we want to manage for alpine ecosystems that continue to deliver the services that both industry and the environment

require, we will have to be ready for change. In a sense there is no original, natural or pristine state remaining in the alpine ecosystems. Rather than focus on individual species, a broader perspective encompassing longer-term goals and emergent properties of the system is needed. In addition, care must be taken not to exacerbate problems associated with invasive pests and pathogens.

Practical initiatives to advance the state of alpine research in the context of restoration and management.

- 1 Keep lines of communication open and develop new ones. Conversations and symposia like this one provide an excellent opportunity to communicate science and discuss priorities for conservation, restoration and management.
- 2 Effectively communicating research. Researchers, members of community groups and institutions like the Botanic Gardens can be instrumental in getting the message out about what is happening, and what is likely to happen, in the alps. Social media also has great potential to assist.
- 3 Synthesising the historical data. There are a lot of historical data about alpine community composition (especially for plants) across the States and ACT, spanning several decades. Through syntheses of historical patterns we may be able to determine which species are already responding to environmental changes, including warming, fire, grazing and other disturbances.
- 4. Building a better understanding of the population structure and characteristics of key species. By drawing on seed collections combined with expert opinion, we could identify and start exploring the population structure of those species most likely to be needed for restoration and management in the future.
- 5. Establishing alpine seed collections for the purposes of restoration. Dedicated alpine seed collections and seed production areas should be established now, running parallel to ongoing seed research. Agreed guidelines about what species to collect, where from and for what purpose must be developed.

From the Bookshop

with Bookshop staff



Australian Carnivorous Plants Greg Bourke and Richard Nunn Hardcover, 197 pages, full colour photographs Signed by the authors, RRP: \$95

Carnivorous plants are often considered among the most extraordinary members of the plant kingdom given their ability to lure, capture and digest animal prey. While they occur on all continents including Antarctica, nowhere are these remarkable plants as diverse as they are in Australia.

This book is magnificently presented and represents the first complete listing of all currently known Australian carnivorous plants. It features over 220 colour photographs and provides descriptions of almost all of the 187 species included within the six carnivorous plant genera of Australia. As well as describing the botanical history, plant structure, trapping mechanisms, distribution and habitat of each species, the authors also outline the photographic challenges they encountered while capturing the images for this book.

Greg Bourke and Richard Nunn have both studied and photographed the carnivorous plants of Australia for over 20 years and have captured many amazing images.



Field Guide to the Pitcher Plants of Australia and New Guinea Stewart McPherson and Alastair Robinson Paperback, 61 pages, full colour photographs Signed by the authors, RRP: \$42

This concise, visually striking book describes the remarkable array of pitcher plants found in Australia and New Guinea. These carnivorous plants produce cup-shaped leaves that capture, kill and digest insects and other small animals.

This field guide examines all known pitcher plant species of New Guinea and Australia, describing them in a detailed yet easy to understand manner. A complete overview of each species is offered including a physical description of the plant's structure, a short history of the species' discovery and name, as well as the locations in which each can be found.

This is a beautiful book providing insight into one of the most spectacular groups of plants in our part of the world.

Artists-in-Residence



Twisting loops and lines of thick, green-tinged rope outside the Crosbie Morrison building marked the presence of artists in the Gardens in May. Melbourne sculptor Annee Miron and Canberra textile artist Sally Blake spent two weeks in the Gardens for the research phase of Craft ACT's Artist-in-Residence program. The twisting rope symbolically mapped Annee's tracks to find the elusive Corroboree frog during her four week stay in Tidbinbilla Nature Reserve as part of the program's focus on connecting the artists to the environment.

Working with National Seed Bank staff, Annee and Sally explored the world of some of Namadgi's bogs and fens, in keeping with the theme of this year's program. They quickly discovered it to be a very wet world and one best discovered on hands and knees. Both artists were impressed by the complexity of the ecosystem and the overwhelming amount of life it supports.

Sally sampled close to 50 plant species for dyes and was impressed by the array of colours. Most surprisingly, the spiky Richea continentis produced a soft pink; an unusual colour from Australian native plants. Sculptor Annee was fascinated by the form of the sphagnum hummocks and the quickly changing substrate form, from firm underfoot one minute to loose the next. The edge effects, where eucalypts and woodland plants struggled to make inroads into the acidic bog and fen environment, gave the artists an appreciation of the dynamic interaction of ecosystems.

Annee and Sally will spend the next months developing their craft works for display at CraftACT Gallery in April and May 2015. An exhibition showing the processes used to develop their final craft works will also be on display at the Gardens. Sally and Annee will be back at the Gardens on Thursday 25 September to host their public art workshop and also for the Artists-in-Residence public forum on Friday 26 September. See What's on Page 22 for details.

Growing Friends

Yvonne Robinson

Despite the weather the autumn plant sale was successful with over 90 customers who bought nearly everything so we made \$3,716. And the Spring sale is already planned.

SPRING SALE SATURDAY 8 NOVEMBER See What's on for details

We are pleased to report more success with our trials of 'hard to propagate' species, using different hormones and taking cuttings at different times of the year. Besides the *Melaleuca fulgens* (see *Fronds* 75 December 2013) we can claim success with the following species propagated recently using different hormone strengths, all of which proved satisfactory. We have also been considering the senescence (aging) of the plants and the sourcing of younger specimens as more viable cutting material.



Callistemon subulatus is a compact shrub, 1 to 3 m tall, that tolerates quite wet conditions. It is a freely flowering plant, producing red flower spikes over summer. Light pruning after flowering will keep the shrub compact.



Spyridium scortechinii grows from 50 cm to 1 m tall, is a compact shrub that attracts butterflies, tolerates light frost and flowers late winter to spring. A light prune after flowering helps keep the shrub in good shape.



Elaeocarpus reticulatus 'Prima Donna' is a small tree, 4 to 15 m, noted for its red new growth and dense blue green foliage, it bears masses of pale pink ballerina skirt-like flowers in spring and summer, followed by shiny blue fruit. It needs little maintenance, surviving well in low nutrient and dry soils, but performs best when well watered. It grows from shade through to full sun and may need some protection from frost.

Photographic Group

Ann Eldridge

The Photographic Group has seen an increase in membership with six new members joining us over the last three months and great numbers attending the meetings each month.

Recently, 10 members went on an excursion to the Australian National Gallery where Robert Deane conducted a viewing of photographs from the 1850s by eminent American photographers of the time, such as Ansell Adams. It was fascinating hearing the history of early photography and the hardships endured by the photographers. A popular story tells about a photographer travelling in a canoe that capsized, losing two years worth of photographs recorded on glass plates! The works are so valuable and precious that all visitors are required to stand with their hands behind their backs in case the temptation to touch proves too much to bear.

This week two of our members attended a Thursday Talk to photograph the handing over of two paintings purchased by the Friends, as a donation to the Gardens. This provided a valuable opportunity to practise photographing in artificial light which can be very tricky. See p 18 for a report on this event



David Coutts, President of the Friends, presenting the paintings; Margaret Steele, artist; and Dr Judy West, Executive Director ANBG, receiving the artworks

Other activities undertaken by the Group recently have included a discussion on exposing photos correctly, and a walk through the greenhouse to take photos of the plants housed there.

We have a number of interesting guest speakers and activities planned for the next few months including a presentation by Roger Williams, member of Canberra Ornithologists Group and wonderful bird photographer.

In the Night Garden with the Guides

Christianna Cobbold

In preparation for the 101 Humans Discovery event in the Gardens 13 guides were led on a walk through the Rainforest past the Rock Garden to the Red Centre Garden in the early evening on 12 May. Ranger Sally led the walk after an introductory overview of the 101 Humans Project.

It was a truly memorable experience with the sounds and smells of the Gardens very different to the daytime. Learning to use the torches both to show the way in the dark - and it was very dark in the Rainforest - and to spotlight the plants and areas we wanted to tell our visitors about was both challenging and fun. Emerging from the Rainforest to a nearly full moon with a clear night full of stars was quite magical and we could hear the Rock Garden waterfall long before we reached it. The various vegetation types/ecosystems in the Red Centre Garden appeared only gradually as we walked through using the torches to highlight each area in turn.

Following a second practice session and with the help of some excellent notes provided by ANBG staff, we met up with our Humans on Friday 30 May. Each group of eight Humans was led by a guide with another guide acting as shepherd to ensure we did not lose any of our guests and also to assist with the spotlighting of the views and plants we wanted to highlight. It was a very different guiding experience and one that I would be delighted to repeat. The response from the Humans was very positive. See story on page 20: 'Sharing is human nature'.

Guides conference. Every two years, a botanic gardens guides' conference is held in a different botanic garden in Australia or New Zealand. The last time the ANBG hosted a conference was 2001; but now we have been selected to host the 2017 Australasian Botanic Gardens Guides Conference and this will be a fantastic opportunity to show off Canberra and the Gardens. A preliminary meeting to begin planning for the conference was held on 20 May with an enthusiastic group of 17 guides in attendance.



Guides getting ready in the cold and the dark

Art Exhibition report

Helen Jesma

The Botanical Art Groups held another successful exhibition, in March and April. A Special Friends Preview was held on the Friday before the opening and we were pleased to see so many people take advantage of this event.

The exhibition was opened by Sharon Field, a local artist who spoke about her passion for botanical art and her delight in detail. She encouraged us all to do what we are passionate about too. We also welcomed other local dignitaries including Senator Kate Lundy and her daughter and Gardens staff, including Dr Judy West and Peter Byron. We would like to thank all the Gardens staff and the Friends, in particular David Coutts and Marion Jones, for their help with our exhibition. We were entertained by The Shenanigans, a female quartet who perform in close four-part harmonies.



Thirty four of the 66 paintings exhibited were sold and at Easter another 50 paintings were hung and 13 sold. It was a pleasing result for BAG artists and Friends. Our raffle provided more funds for the Friends, the prizes being an original watercolour by Cornelia Buchan-Osmond, a \$50 gift voucher from the ANBG Bookshop, and a pack of botanic art cards by Cheryl Hodges.

This year we exhibited works in a variety of alternative media for depicting our native flora. While we had works in graphite, coloured pencil, acrylic and oils, plus three dimensional works in ceramics. Thank you to everyone who contributed to this very successful exhibition.

Plant Science Group

Anne Campbell

The Technical Talks held on the first Monday of each month have covered: 'Digitising botanical resources', 'Cryptic plants: the secrets of the early land plants', 'Vegetation of the ACT' and 'Christmas Island plant survey'. We have also visited the Seed Bank and the National Herbarium. If you are a Friend of the ANBG and would like to join the Group, please email: info@friendsanbg.org. au. Further information is at: www.friendsanbg.org.au/ activities_plantscience

Friends Briefs

Growing the Art Collection!

On Thursday 19 June the Friends donated another two paintings to the Gardens, to join the pictures, donated in 2012 and 2013, now hanging in the Dickson Room. See page 16 for a picture, taken by Ann Eldridge of the Photographic Group, of the handover from David Coutts to Judy West.

The two pictures, which were part of the BAG Exhibition, are by Margaret Steele. They depict the fruits of Hakea macreana and Eucalyptus sp. Margaret began painting in the 1980s and says of her first attempts at botanical painting: 'I couldn't believe that it took three days to paint a tulip.' She joined the Friends Botanic Art Group, 'a very happy and encouraging group' and she is thrilled that her works have been purchased by the Friends.

David Coutts

Glasshouse signage



The Friends have contributed \$2,800 to new signage in the Tropical Glasshouse. The new signs provide information on the plants and themes in the Glasshouse. As part of this project clear glass has been installed on the entrance doors so anyone passing by can get a glimpse of what's inside. The Friends are pleased to see this new signage, which should add significantly to the experience of visitors to the Tropical Glasshouse.

Parking Permits

The Friends Council has been advised by Gardens Management that some people are using Friends Parking Permits to park all day on a regular basis in the ANBG car park. Parking Permits state that they are for use when members are visiting the Gardens, but it appears that some drivers are leaving their cars and walking to nearby establishments where parking is limited or more expensive. We have therefore been asked to remind members that Friends Parking Permits are for use only when the member is at the Gardens, or doing volunteer work for the Gardens.

As from 1 January 2015, Parking Permits will allow up to three hours free parking, when members are at the Gardens. Volunteers who need to park longer than three hours will be provided with a special parking pass by Gardens Management.

Flora Explorer

A major contribution by the Friends was the purchase of the electric vehicle, Flora Explorer, in 2012. This has been a great success, used for the summer concerts and other events and for an increasingly popular program of guided tours. We have recently added a public address system. The Flora Explorer was reviewed and a report finalised in May 2014. This recommended improvements to the current regular tours, booked tours, operational requirements and marketing. We still need some drivers for events like summer concerts. Contact: Jennifer Salkeld on 62509559 or email: Jennifer.Salkeld @environment.gov.au.

Banks' Florilegium

Friends were privileged to attend a viewing of selected prints from the Australian component of *Banks' Florilegium* at the National Library on 19 March. *Banks' Florilegium* is a collection of colour prints based on the 955 field drawings made by the remarkable



artist Sydney Parkinson to accompany the botanical specimens, collected by Joseph Banks and Daniel Solander on Cook's 1768-1772 Endeavour voyage. Banks did not publish the Florilegium during his lifetime, although he had intended to do so. This particular version is the first colour edition which was published between 1980 and 1990 by a private company, Alecto Historical Editions, in conjunction with the British Museum (Natural History). Friends that attended the viewing were impressed with this superb 'treasure' which is housed at the NLA. The Social Events and Activities Committee proposes to organise further visits to the NLA.

Jan Finley

More reasons to visit the Library

If it's too cold, wet or windy for a walk in the Gardens, there's plenty to interest Friends in a new collection of books in the ANBG library. The Friends have donated \$2,500 for the purchase of books of special interest to members. Over half the allocation has now been spent on 31 titles covering interests including botanical art and illustration; photography; biographical and historical; plant propagation; and plant science, biology and natural history. From the visual feast of John Wrigley's Eucalypt Flowers to the memory challenging Latin for Gardeners by L Harrison, there is something for everyone interested in Australian native plants.

If there are any special books you would like to see purchased with the remaining funds, the Gardens' awardwinning librarian would love to hear from you. (email:Catherine.Jordan@environment.gov.au)

Asteraceae Garden



The proposed wedding site

Construction of the new Asteraceae Garden is proceeding as planned. A tractor is shallow-ripping to remove as many roots as possible. This is particularly important in those parts of the site affected by Armillaria. A circle of level, dedicated ground below the Friends Shelter, that may be used for weddings and similar occasions, is being developed. It will be close to a magnificent Acacia melanoxylon and have fine views to the city.

Purchase of an appropriate topsoil to cover the whole site will use up most of the Friends' monetary contribution. Further work will include the use of a porous fabric to help counteract Armillaria re-contamination, testing of the soil, and installing irrigation.

An important point is that this project is innovative in a design sense. The ANBG began as a scientific institution featuring taxonomic sections. The Asteracea project is a return to this tradition but as a taxonomic section it is radically different in being very consciously a garden, a place of guiet enjoyment, of public engagement and education, of immersion of visitors in the sights, aromas and textures of the genus. For this reason the word 'garden' will feature prominently in the title given to the area.

Don Beer

Visitor Centre Volunteers

In the middle of 2013 the Friends began providing volunteers for the Visitor Centre. This change was to free up staff and to increase their efficient use in the Gardens. While we were initially

a bit hesitant we now accept this is a necessary development and it provides an interesting and useful opportunity for volunteers.

In May the program was reviewed, experiences were assessed and improvements identified. These included: a structured and comprehensive training program with stronger links to the guides; changes to the set up in the visitor centre; and fine tuning management as a joint program of the Gardens and the Friends. These and other improvements are being implemented.

A new intake of volunteers had their first training session in July. If you are interested in this role contact Jennifer Salkeld on 62509559 or email: Jennifer.Salkeld@environment.gov.au

David Coutts

Woody weeding



On 25 May the Friends of ANBG and Friends of Black Mountain removed woody weeds from the upper sections of the Gardens and within the Northern Annex. From January to late May approximately 1,800 woody weeds were removed or cut and poisoned by the working parties. They comprised about 70 species, of which 13 were exotic and the rest native Australian species not occurring naturally on Black Mountain. Forty six species are considered to have naturalised from plantings within ANBG, including 16-20 species of Acacia.

Since March 2013, we have done the equivalent of 58 full-days' work and removed almost 4,500 woody weeds. This highlights the importance of minimising the spread of ANBG plantings into the reserve.

Linda Beveridge

Vale John Wrigley AM (1934-2014)

Curator of the ANBG from 1967 to 1981

John Wrigley started his professional career as an industrial chemist, but it was his interest in the propagation and cultivation of Australian native plants that brought him to the, as yet unopened, Canberra Botanic Gardens in 1961 to attend the first federal conference of the Society for Growing Australian Plants. He had no idea that he would later apply for and be appointed to the job of Curator of the Gardens in 1967.

As Curator, John combined his management experience with his passion for native plants to develop the Gardens to the point that within three years, it could be opened to the public by the Prime Minister. Rock walls were put in along the terraced beds, the Rainforest was developed, misting was installed and plant labelling was upgraded. A watering system was also a high priority. As John modestly observed in 1995, funding in those days was a little easier than it is now.

After the opening, the Gardens continued to develop under John's oversight, including the Sydney Basin, the Rock Garden, and the whole top part of the Gardens. He was inspired by seeing the Brooklyn Botanic Gardens, to initiate a children's education program. There were also many collecting trips to collect new plants for the Gardens. John published a series of books on Australian flora, collaborating with photographer and illustrator Murray Fagg. Their best-known book, Australian Native Plants: propagation, cultivation and use in landscaping, is the bible of its genre. First published in 1978, it has sold more than 250,000 copies over 35 years, with the sixth edition reaching bookshop shelves last year.

Garden Shorts

From the Executive Director

In the year of Australia hosting the International Union for the Conservation of Nature (IUCN) World Parks Congress, a range of exciting new milestones and developments are underway in the Gardens.

New interpretive signage has been installed in the Tropical Glasshouse and I would like to thank the Friends for their support in co-funding this project. Construction of the new Asteraceae Garden, funded by the Friends, is progressing well and is due for completion in spring with an official opening in late November. Living Collections staff will be organising a spring plant out of the Asteraceae garden and will be inviting ANBG staff and Friends to participate.

It's almost one year on since the opening of the Red Centre Garden and I am delighted to see the arid garden thrive in Canberra's temperamental climate. It's wonderful to see our visitors enjoy this new space and hearing the positive feedback, not only from our visitors but our industry partners too. ANBG staff have been busy planning for the winter-spring planting of the Red Centre Garden. This planting includes re-propagation of species that have not done so well to date and the possible introduction of new species including Quandong, *Santalum acuminatum*.

It's been another successful year for the National Seed Bank. The ANBG's conservation program continued its focus on plants from Commonwealth reserves, grassy woodland communities and sub-alpine flora. The ANBG completed 26 collections of 15 species from Commonwealth reserves, made 75 collections of 38 grassland species, 113 seed collections from the endangered community Alpine Sphagnum bogs and associated fens, and the ANBG contributed to the 1000 species project via the collection of eight EPBC listed *Zieria* species.

Whilst we have been busy in the Gardens, our colleagues in the Department have been busy planning for the IUCN World Parks Congress to be held in Sydney this November with Parks Australia co-hosting this global environmental event. The prestigious Congress is a once in a decade event dedicated to the conservation of some of the world's most valuable places including urban and national parks, reserves and marine parks.

More information on the IUCN World Parks Congress can be found at: www.worldparkscongress.org

Judy West

Sharing is human nature



What do you get when Canberra loving, experience seeking and social media savvy locals visit the Gardens at night? The answer is two dozen impressed people who share their experiences with thousands of others, creating part two of the award winning Human Brochure campaign.

Comments like 'so very lucky to have both a rainforest and a desert in our city' or 'had a blooming good night being tree-ted to the Australian National Botanic Gardens afterDARK tour,' were blogged, tweeted and posted following the Gardens' Human Brochure Discovery event, an event that gave selected individuals a taste of what's



on offer to locals and visitors in the nation's capital.

With the Friends' volunteer guides leading the way, the Gardens' Human Brochure Discovery event took the humans on an afterDARK postcard tour of the Gardens, starting with the Rainforest Gully, then along the lantern lit pathways of the Rock Garden and concluding with a special bush food platter service in the Red Centre Garden.

A VisitCanberra tourism initiative, the Human Brochure is the world's first living, breathing travel brochure created by real humans.

Rangers enjoy their new Electric Vehicle



The Rangers new electric vehicle has arrived! This 90 per cent recyclable electric vehicle has got the Rangers all excited. Ranger Bronwyn says that the new vehicle is a ranger's dream. 'It's got everything you can think of, tool boxes, roof racks, microphone, two way radio and it even has detachable seats! This new vehicle is already helping us with our day to day job and we are simply loving it!'

What's on at the Gardens August – November

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 or in the local press.

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 Theatrette.

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.



First Friday of every month

Enjoy stories and craft activities in the Gardens 10.00 - 11.00 am \$5 per child. Suitable for pre-schoolers 5 Sept - Flower Fairies & Magical Folk 3 Oct - Birthday Stories 7 Nov - Summer Stories Follow the signs from the Cafe bridge



First Saturday of every month afterDARK tours

Experience the sights, sounds and smells of the ANBG's native flora by night. These tours reveal various biodiversity and habitat regions including the Rainforest Gully with its striking thematic lighting. Bookings are essential as numbers are strictly limited. Prices and full details at: www.anbg.gov.au/gardens/whatson

Exhibitions

daily at Visitor Centre Gallery 9.30-4.30

Friday 15 August to Sunday 7 September Weaving Circles—Honouring

Cultures & Living Traditions

Presented by the students of CIT Yurauna Centre, an exhibition of circle weavings created by bicycle wheel rims, cotton twine and jute string, wool, fibres and fabrics, crystals, beads, shells, stones and feathers.

Saturday 13 September to Sunday 12 October **Tucker, Tonics and Tools - Native Plants and Their Uses**



An exhibition of paintings, drawings and prints by Illawarra and Southern Highlands nature artists. Content focuses on native plants that are edible, have medicinal properties or have been used to make tools and implements.

Wednesday 15 October to **Sunday 9 November** Friends 2014 School Photo Competition



Annual exhibition of student photographs taken in the Gardens.

Wednesday 12 November to Wednesday 3 December **Working on Country Photographic Competition**

An exhibition of images by Aboriginal and Torres Strait Islander people participating in Indigenous projects supported by the Australian Government's Caring for our Country initiative.

AUGUST

21 to 27 August COG Gang-gang Muster Week

See page 9 and contact Linda on 6262 5551

Thursday 21 August 12.30 pm Professor Elizabeth Minchin 'Exploring Ancient Roman Townhouse Gardens'

Elizabeth will consider the garden area of the freestanding, atrium houses of Pompeii to reconstruct their appearance and try to assess the importance of gardens in the Roman world.

Thursday 28 August 12.30 pm Lesley Pattinson 'Fetherston Gardens – a project in restoration, regeneration and renewal'

Lesley will discuss Fetherston Gardens, a unique garden space at the old Weston CIT School of Horticulture.

SEPTEMBER



Thursday 4 September 12.30 pm Terry Fewtrell and Suzette Searle 'National Wattle Day: Its Relevance as a Day of Australian Celebration'

Terry and Suzette will discuss the history of wattle days in Australia and National Wattle Day's importance to us all.

Thursday 11 September 12.30 pm Sally Barnes, Director of National Parks 'Parks Australia – Strategic Visions'

Sally will discuss the Vision and Strategic Direction of Parks Australia, with particularl attention to the ANBG's programs and partnerships.

Thursday 18 September 12.30 pm lan Fraser 'Plants and Animals: the Eternal partnership. Alison McKenzie Memorial Lecture'

Naturalist Ian Fraser will explore some of the numerous and wonderful ways in which plants and animals are inextricably intertwined, without, in deference to Alison, mentioning snakes or leeches.

Saturday 6 September 9 to 12 Weeding for Black Mountain Meet Barry Drive gate to Black Mt

Friends ANBG and Black Mountain removing woody weeds from areas close to ANBG. See page 19. Please email your name and number to Linda 0437 298 711 or Carol 0439 031 162 or email: friendsofblackmountain@gmail. com so there is enough morning tea

Saturday 4 October Saturday 1 November Saturday 6 December

Meeting place, check Friends ANBG website: www.friendsanbg.org.au



September: Weekends 20, 21 and 27,28 October:

Weekends 4, 5 and 11,12 See page 10 for details

Thurs 25 Sept 10.00 am – 4.00 pm A Day with Artists-in-Residence Crosbie Morrison Building \$50 pp

Join artists Annee Miron and Sally Blake and learn the art of weaving, plaiting and dyeing fabrics with natural plant dyes.

Thursday 25 September 12.30 pm Dr Patrick Schultheiss 'How Do Ants Navigate the World?'

Patrick will discuss the different adaptations of two desert ants to their respective environments and lifestyles.

Fri 26 Sept 9.30 am – 1.00 pm Bogs and Fens: Artist-in-Residence Forum Crosbie Morrison Building

A forum connecting art, environment and science. Join members of the community, artists and leaders in the fields of craft, design, environment and conservation as they share ideas and information on the unique communities of bogs and fens in the ACT and current environmental protection initiatives.

OCTOBER



Thursday 2 October 12.30 pm Dan Carmody 'Being on Christmas Island: Ranger, Reforestation and Other Experiences This Year'

Ranger Dan will talk about working with ANBG and Parks Australia colleagues on Christmas Island's more than 200 native plant species; about half are not known elsewhere in Australia.

What's on

Thursday 9 October 12.30 pm David Taylor 'Talk and Walk about the New Asteraceae Garden of Daisies'

David and colleagues will discuss the design, planning and interpretation of the Asteraceae story in the ANBG Theatrette and at the site.

Friday 10 Oct 6.30 – 8.00 pm A Life behind the Lens – Choice, Challenge and Change ANBG Theatrette \$15 pp, children under 12 yrs and concession holders \$10

Presentation by Award-winning Australian Photographer Steve Parish OAM. Suitable for the whole family. Bookings essential, see

www.steveparish-natureconnect.com. au/events

Sat 11 Oct & Sun 12 Oct 8.30am – 5.00 pm both days Enhance your Life through Photography – two day nature photography workshop with Steve Parish OAM Crosbie Morrison Room

\$795 pp

Fifty years of experience behind a camera, shooting in many genres and formats and marketing to millions via an array of media and products have given Steve Parish a unique background in photography. This workshop will broaden and enhance 'capture' skills as they apply to landscape, plant and animal photography. The content will challenge 'imaginative' and 'traditional' photographers to use alternative styles. Whether your skills are basic or advanced you will come away excited by the mind-boggling opportunities for self expression within nature photography, thereby finding the 'creative you'. For information:

www.steveparish-natureconnect.com.au

Sunday 12 October 10am & 1pm Orchid walks on Black Mountain



Corysanthes incurva on Black Mountain

Meet at the car park on Caswell Drive (head south towards Glenloch interchange). Join Tony Wood to discover some of the native terrestrial orchids, and to learn something of these fascinating plants. Some off-track walking involved so wear sturdy shoes. Bring a hand lens if you have one. Numbers limited to 15 each walk so booking is essential. For more information and to book ring Tony on 6254 1795. The afternoon walk repeats the morning walk.

Thursday 16 October 12.30 pm Dr Dianne Firth 'Images of Lake Burley Griffin over 50 Years'

To mark the 50th anniversary of the inauguration of Lake Burley Griffin on 17 October Dianne will present images of its construction and landscaping.

Tuesday 21 October from 5 pm

Friends' AGM

Dickson Room and then the Theatrette

See Back of address sheet for full details

Thursday 23 October 12.30 pm Laura Johnson 'Koel, Calm and Collected: Responses of Native Canberra Wattlebirds to an Unfamiliar Enemy'

Laura will assess whether Canberra wattlebirds possess one of the most foundational anti-parasite defences - the ability to recognise the Koel, a brood parasite, as an enemy.

Friday 24 October, 9.30 am STEP Garden, National Arboretum, Canberra

Join us for a guided tour of the Southern Tablelands Ecosystems Park: a regional botanic garden of species typical of the Southern Tablelands flora. Admire native plantings organised on a landscape master plan and planted and tended by STEP volunteers. Meet at the main door to the Visitor Centre at the Arboretum at 9.30 am. This is a free Friends-only event. Bookings are essential: events@friendsanbg.org.au



Wednesday 29 October at 10 am National Gallery of Australia Sculpture Garden Tour

Join us in a wander through the Sculpture Garden at the National Gallery with a Gallery guide, to learn about the sculptures and to see how Australian plants enhance the design of the separate external rooms. Explore the Turrell Skyspace and associated water features. Meet at 10 am at the main Gallery entrance. This is a free Friends-only event, but bookings are essential at: bookings@friendsanbg. org.au – places limited. Enquiries: Jonette McDonnell 6288 7829

Thursday 30 October 12.30 pm Dr Rod King 'Could Plants Adapt to Increased Temperature by Normal Evolutionary Pressures Quickly Enough?'

Rod will consider whether Australian and exotic plants can adapt to increased temperature by normal evolutionary processes quickly enough.

NOVEMBER

Thursday 6 November 12.30 pm David Young 'Some Plants of the sub-Arctic Viking Islands'

David will describe some interesting plants in the Faeroe Islands, Iceland and Greenland.

PLANT SALE



Saturday 8 November 8.30-11 am **Growing Friends plant sale** In the small carpark behind the **Crosbie Morrison Centre**

Plants \$3 and \$5

Plants are propagated and tended by the Growing Friends from material sourced from the Gardens, All proceeds go to support the Gardens.

Be early for the best selection

Enquiries: Visitor Information Centre 6250 9540

Friends' Office 6250 9548

Plant list available a week before the sale at: http://anbg.gov.au/friends

Thursday 13 November 12.30 pm Dr Roger Farrow 'Plants of the Peruvian Andes and their **Australian Connections'**

Roger will share botanical highlights of his recent trip to the Andes.

Wed, Thurs, Fri and Sat evenings 14 November to 20 December from 7.00 pm Sunset Cinema, Eucalypt Lawn

Various ticket and seating price options Enjoy latest releases, children's and classic films in the beautiful garden surrounds. Bring a picnic or purchase

your dinner at the event. Contact: www.sunsetcinema.com.au/canberra

20 to 26 November **COG Gang-gang Muster Week**

See page 9 and contact Linda on 6262 5551

Thursday 20 November 12.30 pm Assoc. Professor Don Beer 'The ANBG under its First Director. 1979-89

Don will discuss the efforts of Dr Robert Boden to bring harmony to the ANBG's workforce, develop its educational and conservation roles, and build up its public support.

Thursday 27 November 12.30 pm Karl van Dyke 'The Perfumery in the Ancient World'

Karl will consider how the perfume industry, associated then as now with luxury, exploited the plants available to ancient people.



where friends meet to eat

Open every day (except Christmas) 8.30 am-4.30 pm

Friends receive a 10% discount (on production of membership card or name tag)

Floresco Bookings – (02) 6248 9680 www.floresco.inthegardens.com.au

Also catering for Weddings, Conferences and Special Events in the Gardens (Call 02 6162 6707) www.hellenicpremiumcatering

enquiries@hellenicpremiumcatering.com.au

Friends' Benefits

As a Friend vou are entitled to:

Three issues of Fronds a year

Free parking pass

Botanical Bookshop - a discount on most items

Discount at Floresco cafe

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.



www.botanicalbookshop.com.au

always welcomes Friends! with a 10% discount:

- on purchases over \$10
- on purchase of gift vouchers
- on production of your membership card
- to the person whose name is on this card

(no discount on redemption of gift voucher)