



Fronds

Newsletter of the Friends of the Australian National Botanic Gardens
Number 65 August 2010

**Bumper birthday edition
40 years of history
Celebrations ahead!**



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The Friends newsletter, *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 the first of June for the August issue; first of October for the December issue; and first of February for the April 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 9.00am and 4.30pm, Monday to Sunday. Editorial messages: telephone (02) 6250 9548.

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Cover: Icicles on rainforest leaves after the misting sprays were left on all night. Photo by K.Thaler. August 1974

How well do you know the Friends' gifts to the Gardens?



QUESTIONS

1. How do you tell the time on this sundial? 2. When did this bottle tree arrive and where did it come from? 3. What is this? 4. What is this? 5. Where is this mural and who was the artist? **ANSWERS** on page 12.

Photos this page by 1.H.M. Rawson, 2.Barry Brown, 3.Heino Lepp, 4&5.Anne Rawson.
 Photos page 3 by Barry Brown.

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Friends supporting the Gardens

Celebrating 20 years of giving to the Gardens

Margaret Clarke and Anne Rawson



The primary aim of the Friends is to support the Gardens. Over the past 20 years that support has amounted to a cool half a million dollars. But, of course, this money is only part of the story. The Friends are also part of the public face of the Gardens through the Guides conducting walks twice a day throughout the year; Facilitators staffing the Botanical Resource Centre; the concert bucket-brigades collecting money; Growing Friends selling plants; and Botanical Artists producing paintings for exhibition and sale. Friends' volunteers also work behind the scenes, cleaning seeds in the Seed Bank, mounting dried specimens in the Herbarium, and preparing 'In Flower this Week'. New opportunities to volunteer include collecting seeds in the Snowy Mountains and monitoring acacia seed-setting in the Gardens.

But what has all the money been spent on? Over time the emphasis has changed from ad hoc requests to coordinated, project-based expenditure. The big ticket items have been 'hard' landscaping with close to \$100,000 spent on seating, shelters, fogging systems and water features. The plants are always the stars and the Friends have given over \$50,000 for some special palms and ferns for the rainforest gully, the bottle tree near the entrance and a spring flower display.

We've looked after our visitors too with electric scooters (close to \$10,000), fitted out the Botanical Resource Centre and, most recently, published a beautiful souvenir book, *Australia's Garden*.

Over the last ten years there has been a growing interest in science-based projects. More than \$30,000 has been spent adding fungi, bryophytes and lichens to the ANBG website. Now the Friends have embarked on their most ambitious project ever; \$66,000 over three years for

a collaborative Alpine Seed Research project with the Gardens and the Australian National University, looking at threats and adaptations in a changing climate. Hence the opportunity to collect seeds in the mountains. (See page 8 for details.)

For 20 years it has been a beautiful and fruitful friendship

Back in the 1990s we spent and raised money through the Spring Fling. In 1992 the Newsletter reported that nearly 10,000 people came to the Gardens over two days but after six Flings, costing about \$60,000, the summer program changed to weekend twilight concerts. With some audiences tipping 4,000 it's a great way to raise funds and public awareness of the Gardens, as well as giving everyone a chance to have a great time.

Over the years ongoing commitments have been: book vouchers for interns (\$12,000); photo competition prizes (\$38,000); rare books for the library (\$5,000); and staff bursaries (\$14,000). And there have been odd one-offs: we fed and watered staff and visitors between tenants at the café; we bought umbrellas for visitors; we paid for paint for a Friend to paint murals in the Child Care Room; we brought the SBS orchestra from Sydney to play 'Peter and the Wolf'; and after a talk on the virtues and beauties of sundials we commissioned one.

Your Membership and support of the Friends and its Public Fund have helped make all this happen. Donations to the Fund are always welcome and are tax deductible.

Thanks to Bev Fisher for sharing her memories from 16 years as Treasurer.



Charles Coulter's Europeanised vision of the Australian national capital at Lake George, near Canberra, 1901. This image was used on the front cover of the proceedings of the *Congress of Engineers, Architects, Surveyors and Others Interested in the Building of the Federal Capital of Australia*, 1901. Photo courtesy of National Library of Australia.

In Search of a 'True' National Botanic Gardens

Dr David Headon

The accepted ANBG narrative commences with the international competition to design Canberra in 1911-12. Walter Burley Griffin, whose majestic entry #29 was the winner of a competition boasting an international field of 137, was appointed Federal Capital Director of Design and Construction in late 1913. He soon made strategic use of the position to promote ideas for his 'ideal city' of the future, among them a 'Continental Arboretum' and a 'Botanical Reserve'.

Next comes the *Dickson Report*, submitted to the Commonwealth Government in September 1934 by Dr B T Dickson, Chief of the Division of Plant Industry of the (then) CS&IR, a report which included a set of robust recommendations—in particular, that a 'Botanical Gardens' be established as a matter of national priority, geographically close to the proposed national university in Canberra, with a strong 'scientific basis' rather than being for 'ornamental purposes only'.

While the cases made by Griffin and Dickson, two decades apart, are generally acknowledged as the two symbolically significant, foundation pillars in the early history of a national botanic gardens, there is a third, hitherto unknown, chapter in the story predating both Griffin and

Dickson, that richly deserves recognition, especially as we close in on the Gardens' 40th anniversary.

In May 1901, more than a decade before the Canberra design competition, Australia's first federal politicians met in the Victorian Parliament to commence the pressing business of nation creation. Historians have illuminated the action of the inaugural sessions a number of times in print. We are familiar with the quality of those maiden speeches and motions by the likes of first Prime Minister Edmund Barton, the Victorian Alfred Deakin, Forrest, Kingston, Reid, Hughes, O'Malley and many others.

But what few know is that no more than a hundred metres away, at 178 Collins Street, at precisely the same time, the design professionals of Australia were meeting at the *Congress of Engineers, Architects and Surveyors and Others Interested in the Building of the Federal Capital of Australia*. The Commonwealth parliamentarians first met on 9 May; the Congress carried out its deliberations from 6 to 17 May. The timing was intentional. There was no way that the design professionals of the new nation, mobilised by recent rapid developments in what was called throughout the *fin de siècle* era (and for the first time) the 'science' of town planning, were going to let the

politicians have an unhindered run at the nation's new capital. The politicians, they felt, needed some educating. Hence the Congress, and the swift dissemination of its *Proceedings*, published soon after.

The 51-page *Proceedings* has not yet had the scholarly analysis it warrants, but a few points should be made to give context to my remarks about one of the papers. All those who attended the Congress were familiar with the World's Columbian Exposition held in Chicago eight years earlier. This was evident in the three resolutions adopted by the Congress, the second of which stated:

That in the opinion of this Congress it is important that the Federal Capital should be laid out in the most perfect manner possible, and that, to avoid the mistakes made in many cities of spoiling the plan by utilizing existing buildings, it is desirable that in any site obtained, all obstructions be removed that would in any way prevent the adoption of the most perfect design.

Speaker after speaker was inspired by the challenge of implementing this imagined 'perfect design', but most concentrated on 'professional' issues such as building covenants, street lines, water supply, transport protocols and sewerage treatment. Two papers dared to be different, musing about philosophy of place and asking searching questions about national character, aspirations and ideals. Indeed, some of the most progressive design sentiments circulating in the (ultra-progressive) Australian colonies in the second fifty years of the nineteenth century are creatively aired in the papers presented by architect George Sydney Jones and the Director of the Royal Horticultural Gardens in Burnley (Melbourne), Charles Bogue Luffman. Jones demanded that the spirit characterising the architecture of the proposed city should be 'the common-sense 20th Century spirit of the Australian, that ... is free from any [overseas, outdated] style ... The Architecture of our city should ... be essentially Australian'. Bogue Luffman developed the same theme, but with a more liberated, even lyrical grasp of the key issues. He approached the issues of nation-building and national capital building as a professional horticulturalist, a landscape architect and a cultural historian.

In search of what he called, 'The Agricultural, Horticultural and Sylvan Features of a Federal Capital', Luffman proposed seven 'institutions and features' essential to a 'Federal City'. During the century that followed, all his ideas would be acted upon in some form or other, but it is the second recommendation that commands our attention here: 'a true botanic garden, representing Australian flora, and the most valuable economic plants of all lands, with a library, and museum for preserved specimens'. While his audience on the day would no doubt have been anticipating some elaboration on the stated list, Luffman chose instead to enlarge on the spirit of his capital. The

site of the new capital should 'create the feeling that something real and important lies beyond every horizon'; the landscape should be 'conducive to thought that will animate and inform'; the city should have a soul-friendly elevation of at least 1,200 feet (in line with the almost universally accepted 'cold-climate myth' of the time that the British Empire was strong because Anglo Saxons/Celts were brought up in bracing temperatures), a sufficient water supply, a good depth of soil, and woodlands where native timber and all naturally attractive features are preserved. Luffman challenged his audience of motivated professionals to consider at all times 'the setting of their work', to 'visualize and become "possessed" of the subject'. A 'true' botanic garden would be a catalyst to motivate, energise and inspire all Australians.

At a time when Great Britain was still routinely referred to as 'Home' by many locally born Australians as well as their migrant parents and grandparents, it is illuminating today to read Luffman's cogent and poetic summary of the natural environment in his future capital. Well ahead of his time, he understands the unlimited potential of a new nation determined to be culturally independent.

Let us beware of introducing an exotic plan or arrangement of scenes. To look out on bits of Italy, or Norway, or Japan, will be defects indeed. No imitations of Tivoli, Versailles, Aranguez, Interlaken, or Granada will be appropriate. Nor even a Derby dale, Devonshire lane, or English royal or family park should be figured here. If we must have symbols, let us typify our own ... our Gippsland stream and valley, our Blue Mountain escarpment, timbered crag, wind-swept cataract and highland plateau, for waratah, rock lily, callistemon, kurrajong, banksia, wattle and flannel flower, in their place and season. Let us have reminders of the Hawkesbury and the Macquarie, in richly wooded cone and clear silent lake, or jungle-crowned morass, and examples of our warm New England hills and more distant northern downs. Our South and West Australian billabong and pine ridge, with mulga, epacris and spinifex where each will thrive, must be represented, and our bracing Tasmanian range with its attendant reach of water and vegetation. There is no reason why all the most typical and worthy features of the federated States may not be embodied in the scenery ...

Charles Bogue Luffman, the Devon-born son of a game-keeper, had a consummate grasp of the possibilities of the Australian environment, and he wanted its stunning variety properly represented in the coming capital. Beware imitation of the Old World. Luffman deserves a noble place in the inclusive history of the Australian National Botanic Gardens.

Dr David Headon is Adviser to the Centenary of Canberra Unit (Chief Minister's Department, ACT Government) and Adviser to Sen Kate Lundy. More information on this subject available in *From Crystal Palace to Golden Trowels* by David Headon available for download at the Centenary website: www.canberra100.com.au



Broken Hearts and Tea

Ian Fraser

Broken hearts—especially those trodden into the ground by *her* father—have made quite a contribution to Australian botany. Paul Strzelecki for instance, having been thwarted in his attempt to elope with Ardyn Turno, came to Australia and made some significant scientific contributions. He even sent Ardyn a pressed flower from the summit of Mount Kosciuszko (which of course he named), but the two stayed single for their lives.

Another case in point was Carl Alexander Anselm, the Baron von Huegel, who contributed in a major way to the understanding of Australian plants in Europe. He did so by sending back vast collections of them—and of plants of many other parts of the new world—to the botanists of his adopted home in Vienna.

Carl's German father had the impressive title of Concommissarius of the Reichstag but fled with his family to Austria at the turn of the 19th century, when young Carl was only five. Carl remained there, though he did attend Heidelberg University. He fought in the Austrian cavalry against Napoleon and was demobbed in 1824. Back in Austria he pursued his natural history interests, and developed a magnificent garden at Hietzing in outer Vienna, featuring many of the then fashionable plants of New Holland.

It was a comfortable and satisfying world for him, but it collapsed in 1826. His beloved fiancée Melanie, apparently under extreme pressure from the Prince, broke off her engagement to Carl in favour of his patron, the chancellor Prince Metternich. Carl remained loyal to Metternich but he left Vienna and travelled, as he put it, as 'a man who sought healing and oblivion in every land on earth'.

Carl travelled and collected for five years in eastern Asia, in the course of which he spent 1834 in Australia. His meticulous diaries of his time in Australia have recently been published, beautifully translated in Canberra by Dymphna Clarke. Of his first landing at the Swan River, he wrote, 'I roamed around this world of colour as if intoxicated'. Later in his stay he was highly critical of what he saw as the crudity and crass commercialism of Australian society; he was also dismayed by the brutal

convict system and the treatment of Aboriginals. Later still in his life he relented and wrote with nostalgia of his time here.

He returned to Vienna a hero, having sent back 32,000 natural history specimens and numerous cultural items. In later years he was a diplomat, and received the Medal of the Royal Geographical Society of London. Before his return to Europe though, many of his specimens were received and preserved by his sister, Franziska von Hardenberg. She had married into one of Germany's leading families, so presumably had the time and resources to devote to caring for his collections. Among the specimens was a beautiful and profuse sprawling pea shrub with rich purple flowers, on which the Dutch botanist George Schneevoogt bestowed Franziska's married name, *Hardenbergia*. There are very few genus names honouring a woman.

There are three Australian species, including one (recently described) from the Blackdown Tableland in Queensland and one from south-western Australia. This western species, *Hardenbergia comptoniana*, may have the singular honour of being the only plant in the world named after two women! The species name is for Mary Compton, Marchioness of Northampton, who apparently first grew the plant in England.

The third species is widespread across south-eastern Australia, including the ACT. This one, *Hardenbergia violacea*, is familiar to all of us and is a source of wonder as well as joy as it blazes purple across the barest roadside or quarry. It can do this because of a wonderful partnership with colonies of bacteria which live in nodules on the roots of most pea plants. These bacteria can do what no plant can do alone, that is, take nitrogen directly from the air and convert it to plant-friendly ammonium salts for use in essential chemical processes. Other plants must rely on competing with their neighbours for these salts dissolved in the soil. In return for this invaluable service from the bacteria the pea plant provides not only the nodule for them to live in, but a pigment called leghaemoglobin to enable the reaction. The root recognises the chemical profile of the bacteria in the soil and lowers its defences to invite them in. Truly remarkable ...

Aboriginal people boiled the leaves to make a sweet infusion; unsurprisingly, as so often happened, European settlers learnt from their predecessors and adopted this practice to obtain a tea substitute. As a result a folk name often used for the plant is False Sarsparilla. I'd like to imagine Carl and Franziska, brother and sister, in later years sitting down to chat over a nice pot of *Hardenbergia* tea, but I can't quite manage it ...

But, as a postscript to the story, I actually can see them together much closer to home. Where the *Hardenbergia violacea* sprawls in purple splendour across the spring ground in the wilder upper sections of the Australian National Botanic Gardens, it is often offset by another pea, with big bright clear yellow flowers. This is *Gompholobium huegelii*; Carl Alexander Anselm, the Baron von Huegel, alongside sister Franziska.



Gompholobium huegelii and *Hardenbergia violacea*. Photos above by H.M.Rawson; title photo by Murray Fagg.

About the Bookshop



The Prince and Princess of Wales with Robert and Anne Boden at the opening of the new Visitor Centre on 1 November 1985.

The bookshop in the Gardens is a great success, but not in the way that was originally intended. It had been planned as a government bookshop to be run by Gardens' staff. But with the Department of Capital Territory (responsible for the Gardens) stalling on staffing approvals, and the imminent arrival of the Prince and Princess of Wales something had to be done. Murray Fagg recalls*:

In a final desperate move the Director said, 'Well you realise that when the Prince and Princess of Wales come to open this building and have a look around it there is going to be this vast empty room there that says "Bookshop" without anything in it'. The powers that be in the Department of Capital Territory had a fit at the thought of this. They still wouldn't give us the staff

to run the Bookshop but they told us we had to create the appearance of a bookshop, a pseudo bookshop, and our whole library budget for that year was to be spent stocking this bookshop by going out and buying books commercially so that it looked as if there was a bookshop there and operating for the Prince and Princess of Wales. We even had to go out and buy magazines like Your Garden from the local newsagents to put there as if there was a magazine rack selling current magazines.

Eventually, the Gardens' campaign for staff to run the bookshop was exhausted and the chosen alternative of a franchise has seen the Bookshop go from strength to strength.



The display and sale area in what is now the Ellis Rowan Building, before the advent of the Visitor Centre. Note the postcard slot machine.

*Extracts from: *An Oral History of the Australian National Botanic Gardens*, Friends of the ANBG, October 2000. Murray Fagg interviewed by Mathew Higgins.

The Alpine Seed Research Project...so far

Dr Gemma Hoyle* (Australian National University)



Photo by Margaret Clarke

The Australian Alps are critically vulnerable to climate change and are already experiencing reduced snow cover and depth, increased summer temperatures and elevated CO₂ levels. For alpine plants with no cooler, wetter refuges to move to, the risk of species extinction is high.

Little is known about Australian alpine seed germination strategies, their ability to remain viable post-dispersal, or the resilience of alpine seeds and seedlings to future climate scenarios. However alpine altitudinal gradients offer unique insight since lower altitudes mimic future growing conditions when compared to current higher altitudes.

Experiments are currently underway to investigate the following questions:

- Which alpine seeds germinate at dispersal and which postpone germination until the following growing season?
- Which alpine plants form persistent soil seed banks? How does temperature and dormancy affect germination from the soil seed bank?
- How do traits such as plant size, leaf area, seed production, seed viability and seedling establishment vary with altitude?

In our current 'move-along' germination experiment, seeds of 44 species collected from Kosciuszko National Park are being progressively moved through temperature conditions designed to mimic the sequence of seasons seeds experience post-dispersal. Preliminary data suggests that seeds of the majority of the daisies (Asteraceae), grasses (Poaceae) and cushion plants (Caryophyllaceae) appear likely to germinate immediately post-dispersal. In contrast members of the celery family (Apiaceae) and sedges (Cyperaceae), as well as Mueller's Snow-gentian (*Chionogentias muelleriana* subsp. *alpestris*) and Alpine Bootlace-bush (*Pimelea axiflora* subsp. *alpina*) did not germinate under 'summer' or 'autumn' conditions despite high viability. These species appear to have dormancy mechanisms that postpone germination until after the winter following dispersal. Such germination strategies

would enable species to maximise the relatively short alpine growing season, or become incorporated into the soil seed bank.

In order to assess the alpine persistent soil seed bank content, we collected soil samples to a depth of 10 cm from a range of heights above the tree line. Soil samples were then arranged randomly in temperature controlled glasshouses. Temperature regimes were designed to mimic today's early growing season (20/10°C) and a warmer future scenario (30/20°C). Preliminary results suggest greater stimulation of germination in the 'cool' glasshouse compared with the 'warm'. This would suggest fewer seedlings emerging from the soil seed bank reserve under future climate scenarios. In addition, if dormancy is chemically broken, there are significantly more germinations at each temperature, suggesting that dormancy assists in the formation of alpine seed banks.

To assess patterns of variation with altitude, data and seeds from more than 30 individual plants spanning eight species have been collected along their maximum altitudinal gradient. Vegetative parameters such as specific leaf area, vegetative mass and leaf mass area, and seed parameters such as size, viability and germination, are currently being analysed to see how these may vary with altitude.

A highlight of the project so far has been the opening of the new ANBG Seed Bank Drying Facility, made possible by the Friends' contributions to the project. This is a vital facility for the storing of seeds prior to experimentation, as well as preparing the seeds for banking at -20°C for long-term conservation.

The Alpine Seed Research Project is a collaboration between the Australian National University (the administering organisation), the ANBG and the Friends. The Friends are contributing \$22,000 a year for three years as well as providing in-kind support including volunteer assistance with seed collecting. The project has received an Australian Research Council Linkage Grant of \$253,000.

*This research project is being undertaken in collaboration with Adrienne Nicotra (ANU), Kathryn Steadman (University of Queensland) and Roger Good (ANBG).



Carpha nivicola (Broad-leaf Flower-rush); *Caltha introloba* (Alpine Marsh-marigold); *Colobanthus affinis* (Alpine Calabanthus). Photos by Gemma Hoyle

'Expect soaking rain, lightning, hail and gale force winds when we are seven kilometres or more from the vehicle'. With this advice from the Gardens weighing on my mind I joined ANU researcher Dr Gemma Hoyle and honours student Deborah Segal for our three-day field trip in March. Happily the days ahead were balmy, even hot at times, absolutely perfect alpine seed collecting weather.

I quickly learned that finding plants with seed ready for dispersal is not as easy as it sounds. The first problem is 'no flowers!' Obvious really, but it makes spotting patches of tiny plants and their identification that much harder. There are 212 native species, subspecies and varieties of ferns and flowering plants in the alpine area. Many are tiny and the differences between some species in a genus are not obvious. Without a plant-ID expert from the Gardens on this trip, our plant guide book *Kosciuszko Alpine Flora** was in constant use.

I also quickly came to appreciate there is a lot of scientific method involved. Each collection from a population of plants takes around two hours so it's important to assess that the seed is of good quality and as close as possible to the point of natural seed dispersal, to ensure the seeds are mature and can stand up to the drying and freezing needed for seed banking. To ensure good genetic diversity within each collection we had to find populations of at least 20 individual plants and be sure that a minimum of 500 seeds could be collected (although we could happily collect up to 10,000) without taking more than 20 per cent of available seed.

Once the decision is made to collect from a population we are in for a great workout with countless bends and squats to reach those ground-hugging plants. Some-

times the seed is in huge heads, as on Mountain Celery (*Aciphylla glacialis*) so can be easily shaken off into the collecting bag, which is just as well as its prickly leaves are definitely to be avoided. At the other extreme, the tiny Fan Tuft-rush (*Oreobolus distichus*), which grows in dense tufts in wet areas, has seeds about the size of a small pin head held singly on stalks. These seeds have to be pinched off one-by-one.

Trekking off-trail all day on uneven ground, including a climb up Mt Kosciuszko, was exhausting. But the rewards were many with spectacular scenery and the enjoyment of working alongside dedicated and enthusiastic scientists happy to share their knowledge. We were lucky enough to be able to stay in a comfortable stone cottage owned by the ANPWS at Waste Point from where we could stroll down to the shores of Lake Jindabyne in the evening with wallabies grazing nearby.

I made only a tiny contribution to the enormous task of the project and the current achievement of 94 collections across 70 different species (around one third of the species present) but did enjoy the experience. I know the seeds I collected are now being given much TLC at the ANBG seed bank where other Friends' volunteers are helping clean them ready for drying down to 15 percent relative humidity and freezing at -20°C. They will then be safely stored for long term conservation and some will be used in experiments.

There will be more opportunities for Friends to join the collecting teams next summer (see Friends Briefs). If you go, you will learn to love seeds!

* Costin, A., Gray, M., Totterdell, C. and Wimbush, D. (2000). *Kosciuszko Alpine Flora* (CSIRO Publishing)



October 2009



October 2002



October 1980



M



1969

Building Australia



All photos (except 2009) from ANBG historic collection. From bottom left, in chronological order: 1969: Aerial photo; September 1970: Putting river gravel near middle pond (photographer unknown); October 1970: Official opening. Note front gates and mature gum planted in 1949 (photographer unknown); July 1978: Section 15 taken from 60' tower in ANU (Murray



October 2001



August 1996



October 1990



May 1981



December 1984

Lia's Garden



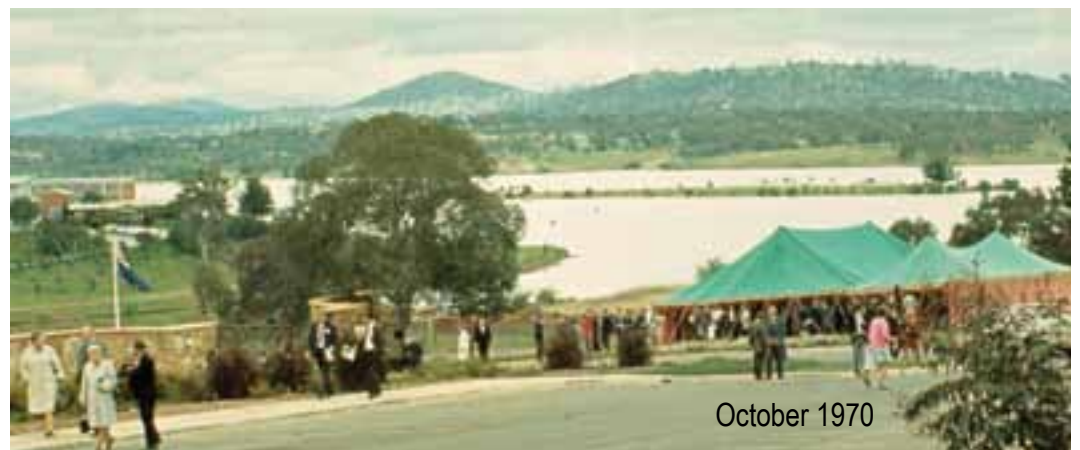
February 1980



July 1978



September 1970



October 1970

Fagg); February 1980: Rockery construction section 15 (R. Hotchkiss); October 1980: Nature trail repairs sections 156, 167 (Murray Fagg); May 1981: 'For Sale' sign on Botanic Gardens the morning following Lynch committee report to sell government instrumentalities, etc. (Murray Fagg); December 1984: Adding 'Australian' to front entrance sign (Murray Fagg);

October 1990: Friends launch at 'Biotta 90', Professor Lindsay Pryor with friends (R. Hotchkiss); August 1996: First half of walkway in place (Murray Fagg); October 2001: Palm being craned into Rainforest Gully (A. Lyne); October 2002: Rockery lawn redevelopment (Murray Fagg); October 2009: New directional signs (Anne Rawson).

A special seat

Geoffrey Dabb

Photo by Anne Rawson



As the designers no doubt intended, there are many spots in the Gardens with their own distinctive ambience. One of these lies within the old melaleucas and callistemons of sections 11 and 12. Here a natural intermittent trickle of water is channelled under the paths, and is allowed to form small dark pools here and there under the trees.

Various kinds of birds like to bathe and drink in the pools, particularly Crimson Rosellas. A vantage point to watch this activity is the seat placed on the path by the Canberra Ornithologists Group in memory of nature-lover Tom Green. It was one of his favourite places.

For some years, Tom contributed a column on the birds of the Gardens for the Friends' Newsletter. In this he covered most of the common species.

Tom's seat is close to the current location of the display bower maintained by a resident male Satin Bowerbird, another species that likes the shaded pools. The bower is

attended by the male year-round, and occasional 'green birds' can also be seen there throughout the year. Nesting is limited to spring/summer, the well-hidden nest being built by the female.

The melaleucas of section 12 were the site of one of the most famous bird events in the Gardens. In May 2007 a group of birdwatchers was amazed to find a spectacular Powerful Owl perched just a few metres above one of the main paths. Even more surprising was that the owl stayed around for some weeks, sometimes using a higher perch when it was clutching prey from its hunting the night before, either a possum or a sugar glider.

Sadly for the many owl watchers drawn to the site, the Powerful Owl is no longer a regular in the paperbarks, although one, possibly the same bird, is reported occasionally, including back in section 12 in October 2009.

Photos by Geoffrey Dabb



ANSWERS TO QUIZ ON PAGE 2 1. The rod-like gnomon, which forms the axis of the sphere, casts the time-telling shadow on the equatorial ring. An adjacent plaque gives the time correction needed and instructions for reading the sundial. 2. This Queensland Bottle Tree (*Brachychiton rupestris*) arrived in November 2004. While Gardens' staff were searching for a supplier of *Macrozamia moorei* in Queensland, they came across an international supplier of bottle trees. There are six other bottle trees in the Gardens. 3. Colony of the moss *Bryum* sp. photo from the page 'What is a Bryophyte?' on the Bryophyte website at <<http://www.anbg.gov.au/bryophyte/what-is-bryophyte.html>> 4. The Friends' Cascade is a Flowform that emulates the swirls and vortices of mountain streams, enabling water to re-oxygenate, revitalise and rejuvenate itself. 5. A Friend, Agnes McHugh, painted two murals in the Child Care Room, a little room opposite the Theatrette.

Garden Shorts

From the Executive Director

I'm excited to be part of all the activity at the Gardens at the moment. Our 40th anniversary is the perfect time to celebrate so many stimulating plans and achievements.

Many of you will have seen the transformation of the old nursery site—from a rather depressing site it now looks much better and opens up potential. Over the next 12 months we will construct a viewing platform in the area, as well as commence planning the next stage of development for the site. I'm also looking forward to seeing the development of the grassy woodlands section adjacent to the main car park. The rock edges installed in the past couple of weeks have already provided much improvement to the concept of the section.

I look forward to sharing the fruits of this year with the Friends in spring as we celebrate the 40th anniversary of the Gardens and the Friends 20th anniversary. There is much to celebrate.

Judy West



Photos by Anne Rawson



Photo by Barry Brown

Water, water, everywhere!

In June the water project entered the Gardens, and who better to turn the first sod than Senator Kate Lundy. The Senator has been a long-time supporter of the project to bring non-potable water to the Gardens. She celebrated the milestone by donning a hard hat and safety vest and turning the sod with the Gardens' famous silver shovel. Work is now underway to develop the internal reticulation system, to separate potable (drinking) and non-potable water within the Gardens. Work is on schedule to provide non-potable water for irrigation of the living collection this summer.

Picturing biodiversity in the Gardens

Executive Director, Judy West, launched a competition close to her heart in June, a photography competition on the theme of biodiversity. The competition is a collaboration between the Gardens, the United Nations Information Centre and Canberra Institute of Technology and provides a perfect platform for promoting the Gardens' role in plant conservation.

Students from CIT will photograph endangered species for an exhibition at the Gardens from 6 December to 4 January 2011.

Set in sandstone

It may be cold but horticulture staff are keeping warm redesigning the entrance to the Sydney Region flora section of the Gardens with recycled sandstone. The area will be re-worked to mimic a more natural environment for growing plants from the Sydney region. It's also perfect timing to celebrate the Gardens' 40th anniversary in October.

Horticulture manager, David Taylor, and his team have excavated the area and are using recycled sandstone from Bundanoon Sandstone Quarry to recreate the environment.

By mimicking the natural environment of the Sydney region it is hoped the entrance will become an inviting gateway of flannel flowers and waratahs.



Photo by Barry Brown

40th Anniversary

Our 40th Anniversary celebrations will involve the community in many exciting ways! See What's on, page 18 for details.

Floriade

The Gardens are delighted to be invited to present a garden at Floriade 2010. Designed by the Gardens' Kaiya Browning and produced in partnership with Gundaroo Landscaping and Civil we will host a beautiful Five Senses Garden.

Friends are invited to help us tell Floriade visitors about our wonderful Australian garden. Contact Visitor Centre to register your interest. Phone 6250 9540 or email vc@anbg.gov.au.

Anne Rawson



vc@anbg.gov.au.

Growing old gracefully

As part of risk assessment of trees in the Gardens the Pryor Tree was assessed by external arboriculturalists as unsafe and a potential risk to visitors. Significant tree surgery was undertaken to reduce the risk of limbs falling on visitors; this is what we now see. The tree will continue to be monitored

Barbara Podger



Anne Rawson



New signage

Spectacular new information signs have been installed at the café bridge and along the main path, drawing lots of attention from visitors. Information signs were found to be lacking in a 2007 survey so we are looking forward to visitors' responses as part of the 2010 visitor survey later in the year.

Anne Rawson



Tree of trees

During the first week of September there will be a display of over 50 young wattle species on the old nursery site. They will be arranged to demonstrate the evolutionary (phylogenetic) relationships between the 1,000+ species of wattle. Information will be available on research being undertaken by the Centre for Plant Biodiversity Research, a joint venture between CSIRO Plant Industry and the ANBG.



Dr Gemma Hoyle at the opening of the Seed Bank Drying Facility in May 2010, made possible by the Friends' contribution to the Alpine Seed Research Project (see page 8). Photo by Barbara Podger.

Growing Friends

Yvonne Robinson

Growing Friends had a very successful autumn plant sale in April that raised \$4,450 and we could have sold more plants had they been available. Our thanks to all those who helped on the day, and to ANBG staff who helped us prepare for the event. We are now turning our attention to the Spring sale on Saturday 20 November from 8.30 til 11 am behind the Crosbie Morrison Building. A list of the plants on offer will be on the Friends website in early spring (www.friendsanbg.org.au). There will be lots of small plants suitable for most local gardens, including:

Hybanthus floribundus is a small rounded shrub to 1.5 m high. Flowers are very profuse and appear in winter and spring with variations from almost white to mauve with darker centres. It requires excellent drainage and a position in almost full sun in well-mulched soil.

Libertia paniculata is a small tufted grass with strappy leaves and delicate white flowers in spring. An excellent plant for dappled shaded areas in a protected site, it is adaptable to most soil types but prefers moist organically enriched soil.

Patersonia sericea is a small strap-leaf plant resembling the exotic iris and members of the genus *Patersonia* are frequently referred to as native iris or flag. A reliable species with attractive silky leaves dark to greyish green, it has deep violet-blue flowers and thrives in hot, dry situations.

If you've always wanted to learn more about Australian native plants and gain experience in propagating, join our enthusiastic volunteers in the Joseph Banks Building on the first Saturday of every month from 9.30 am until 12 noon during the winter months (9.00 am start during summer).



Libertia paniculata
Photo by Murray Fagg

Hybanthus floribundus
Photo by Murray Fagg



Patersonia sericea
Photo by A. McWhirter

Friends Briefs

Book launch

We were delighted to welcome journalist Sally Pryor, granddaughter of Lindsay Pryor (and daughter of Geoff Pryor), as guest speaker to launch the Friends' publication *Australia's Garden* on 25 May in the Visitor Centre.

Lindsay Pryor is generally credited with being the founder of the ANBG. It was he who, just after the end of World War II, began planting a range of eucalypts on the ANBG site. Indeed, he also officiated at the founding of the Friends in October 1990. It was therefore very special to be able to welcome Sally to do the honours. Copies of the book are now for sale in the Botanical Book Shop.



Sally Pryor launches *Australia's Garden*.
Photo by Barbara Podger

Acacia project

In June Dr Joe Miller announced a new research project on pollination of acacias to be undertaken within the Gardens in 2010 and 2011. Volunteers from the Friends will assist with bagging blossom on selected branches on selected trees, carrying out periodic reviews from June to about September and taking readings once the fruit has set and matured.

This project is a further step by the Friends to facilitate and encourage important research in the Gardens. Volunteers will play a vital and rewarding part in the project.



Footprint Envirofest

Thanks to funding from the ACT Festival Fund, the Friends were able to support the Gardens' staff in organising a day of activities in the Gardens on Sunday 14 March. Featuring a number of hands-on activities and displays, as well as fun entertainment, delicious sausage and steak sandwiches and coffee, the Envirofest was very popular with families of all ages. The Friends' information stall welcomed many people and sold out of fund-raising cup cakes! Thank you to all those who helped make this day such a success.



Children's entertainment and the Friends' stall at the Footprint Festival. Photos by Barbara Podger.

Visit Parliament House gardens

Last year the Friends visited the hidden courtyards inside Parliament House; this year we are visiting the external public native gardens. Both visits have been made possible by Paul Janssens, currently Assistant Director Landscape Services at Parliament House, previously Curator at ANBG. Paul has very kindly agreed to lead tours on Wednesday 22 September and Tuesday 12 October, both at 11.00 am and lasting about two hours. These tours will go ahead even if it is freezing or raining, so come prepared. The tours are for Friends only and reservations are essential. See 'What's on at the Gardens' for details.

Blooming art



Friends' Patron, Marlena Jeffery, at the launch of the Botanic Art Groups' Exhibition. Photo by Barry Brown.

The Friends Botanic Art Groups once again produced beautiful paintings of native flora at their third exhibition in April. Senator Kate Lundy opened the exhibition, praising the artists and sharing her own love of botanical art. The artists donated a percentage of sales to the Friends.

What will we do in the coming years?

Council has drafted a Strategic Plan for the Friends which is intended to guide Council's work agenda for the next three to five years. A copy of the draft Plan is included with this issue of *Fronds*. We invite you, as members of the Friends, to provide Council with any comments on the Plan, or any suggestions for additional issues you would like to see covered in it. Comments should be sent to Council through the President, via email to: info@friendsanbg.org.au or by mail to The President, Friends of the ANBG, GPO Box 1777, Canberra ACT 2601. Mail can also be left in the Friends' mail box in the ANBG Visitor Centre. Comments should be received by Tuesday 31 August 2010.

Alpine volunteers needed

Friends volunteers are again invited to participate in fortnightly (3 day duration) field trips to Kosciuszko National Park to collect seeds over the 2010 -11 summer months. Volunteers will need to be fit, as expeditions involve cross country bush walking with a pack in exposed weather and over potentially steep terrain. If you are interested in participating in this important project phone Craig Cosgrove on 6250 9522 or email Craig.Cosgrove@environment.gov.au for further information and to register your interest and availability. Spaces are limited. Collecting teams for the season will be settled during December. Articles on the alpine project and volunteering for seed collecting are on pages 8 and 9 and on the Friends website: www.friendsanbg.org.au.

First Friends

The Friends of the ANBG was launched in October 1990. From an inaugural membership of 250 in 1990, there are now over 1,500 Friends. Congratulations and thanks to 59 very loyal members who have been Friends for every one of our twenty years.

Visit of Ennio Marchetto



Twenty Friends volunteers attended the performance of international artist Ennio Marchetto at the Canberra Theatre on 17 June. The tickets were made available by the Canberra Theatre for volunteers under its Social Capital Program. ANBG was chosen on this occasion because Mr Marchetto is a garden lover and had asked to visit ANBG while in Canberra. He was taken on a guided tour by Warwick and Pat Wright on 16 June.

Schools Photo Retrospective, 1997 – 2009



Anne Rawson

The recent retrospective of the Schools Photo Competition again delighted with the often quirky images captured by the students. The prize winning photos from the 11 years of the Competition were on display during April and May, and showed the talent and keen eye for a good shot these young but keen photographers demonstrate.

Free movie pass

Hopscotch Films has once again provided a '2 for the price of 1' movie offer for our members. Please find your voucher to see *The Kids Are All Right* inside. In cinemas 2 September 2010. Let us know if you enjoy this movie, and whether you would like to receive more such movie offers – *editors*.

Breakfast with the Birds



Geoffrey Dabb

An excellent opportunity to observe birds in beautiful surrounds followed by a sumptuous breakfast. The early morning is a great time to enjoy the gardens, viewing bird activity, and a peak time for observing spring nesting activity.

If you have a personal group of 10 or more, and the above times or dates do not suit, please contact Louise Muir (6281 6295) as it may be

September:

Sunday 12, Saturday 18

Saturday 25, Sunday 26

October:

Saturday 2, Sunday 3

Saturday 9, Sunday 10

Meet at Visitor Centre at 8.00 am

possible to negotiate an alternative time/date.

Book early as numbers are limited, and spaces fill quickly. Bird walk and breakfast is \$30.00 per person, \$27.00 for Friends. Bookings may be made by phoning the Visitor Centre on 6250 9540. Pre-payment is ESSENTIAL by credit card, cash, cheque to the 'Friends of the ANBG' Enquiries: Louise Muir 6281 6295.

What's on at the Gardens

August - December 2010



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, and all those who will.

Please note: unless otherwise indicated, talks are in the ANBG Theatrette.

When bookings are required, phone the Visitor Centre on 02 6250 9540. Members who make bookings for events are requested, as a courtesy to their fellows, to notify the Visitor Centre if they are unable to attend.

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.

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 on the Gardens' site at: www.anbg.gov.au or in the local press.

AUGUST

Until 29 August

Working on Country Photo exhibit Visitor Centre Gallery

Photos by departmental and other employees involved in the Working on Country program or in Indigenous Protected Areas

Thursday 5 August at 12:30 pm 'Lake George – the Ancient History' Liz Truswell

The origins of Lake George or Weereewa, one of the oldest lakes in the world, and its record of past climates and vegetation is of great interest to geographers and people of the region.

Thursday 12 August at 12:30 pm 'The Bernard Fennessy Memorial Lecture'

Tony Peacock

Renowned scientist and lecturer Tony Peacock, the CEO of the Invasive Animals Cooperative Research Centre, presents the Bernard Fennessy Memorial Lecture for 2010 and brings his fresh and forthright message on feral animals. Following the lecture there will be a short ceremony to award the Bernard Fennessy memorial prize to the winner of the 2010 'What's In a Name' competition

Bush Magic



Story time in
the Gardens
From
10 to 11 am
Education
Building

Cost: \$1 per
child

Friday 6 August

Best of Book Week—dress up as a favourite character from a book and enjoy some of Australia's best loved stories.

Friday 3 September

Flower Fairies—wear your best elfin or fairy costumes and join in the fun

Friday 1 October

Happy Birthday stories—join a storytelling party to celebrate the 40th birthday of the Australian National Botanic Gardens.

Friday 5 November

Summery Stories—do you love the beach, barbeques or playing cricket?

Friday 3 December

Celebrate Christmas in the Bush

TWILIGHT



An Adventure for National Science Week

Monday 16, Thursday 19
and Friday 20 August
7.00 pm – 9.00 pm

This adventure shines a spotlight on the after dark happenings in the Gardens.

Glimpse a sugar glider in search of food in the tree tops and discover other mysteries of the rainforest at night.

Two hour session with a Twilight Guide, includes a hot Milo.

Cost: \$5 per person or \$15 for a family of four

Bookings essential
Form and instructions at
www.anbg.gov.au/anbg/activities.html
or call 6250 9540
limited numbers per night,
cancellation fees apply.

Thursday 19 August at 12:30 pm
'Drought Tolerant Plants and Effective Watering'
Cedric Bryant

Renowned Canberra garden designer, Cedric Bryant, presents his passion – saving water by using drought tolerant plants and employing more effective watering techniques.

Thursday 26 August at 12:30 pm
'The ANBG Collections Review'
Paul Carmen

What it means, how it is being conducted and why it is necessary.

SEPTEMBER

Wednesday 1 to Tuesday 7
September at 11am daily
Wattle Walks

Free one hour walks with our friendly volunteer Guides during the first week of Spring. No bookings required, just come along and discover the delights of our beautiful and fascinating wattles. Meet at the Visitor Centre.

Thursday 2 September at 12:30 pm
'Hawthorn Eradication – An Aranda Bushland Story'
Jean Geue

Hawthorn thicket to diverse bushland in 20 years using follow-up weeding, bird habitat management but no planting.

Thursday 9 September at 12:30 pm
'Place Names – How do we get them?'
Brian Fox

With an encyclopaedic knowledge of places in the Blue Mountains and other areas of NSW, geographer and cartographer Brian Fox presents a glimpse of a rich part of our heritage.

Saturday 11 September to
Sunday 10 October
11 am and 2 pm daily
Spring Flower Walks

Join a free walk to take in the delights of the spring blooms in the Gardens. A colourful display to rival any Floriade! Meet at the Visitor Centre.



1970 to 2010
40 years
at the ANBG

3 September – 1 November

ANBG 40th Birthday exhibition for the Gardens
Visitor Centre Gallery

Wednesday 20 October

Gardens' Cake Cutting Ceremony at the Visitor Centre

Thursday 21 October at 12:30 pm

'Forty Years Recollections of The Gardens'
Murray Fagg

Murray recounts some of his memories over the last 40 years as the ANBG celebrates its 40th anniversary.

Friday 22 October

ANBG 40th anniversary black tie dinner
Rock Garden Lawn

Bookings and enquiries: (02) 6250 9540

Sunday 24 October 11 am to 3 pm

Garden Party and Open Day
Eucalypt Lawn and other venues in the Gardens

Bring your family and friends

Help cut the Friends' birthday cake at 11am

Stay on to enjoy music, food and performances

Bring your own picnic lunch or buy food and drinks on site
It's a Garden Party so there will be High Tea and champagne

Wear your glad rags and garden party hat

This day will showcase all facets of the Gardens with opportunities to peek behind the scenes
Friends' volunteer guides will lead special walks focussing on the history of the Gardens and showing-off some of the gifts donated to the Gardens by the Friends over the last 20 years.

More details will be advertised closer to the day.



1990 to 2010
Friends supporting
the ANBG
for 20 years

OCTOBER

Thursday 16 September at 12:30 pm
'This Generous Earth'
Jackie French

Jackie French teaches how to speak wombat; turn invisible; light your house with mushrooms; find your lunch and other adventures from a lifetime of bush lore.

**Wednesday 22 September and
Tuesday 12 October, 11am**
Parliament House Native Gardens

Tour of native gardens surrounding Parliament House with Paul Janssens. Book early for one of these two special tours, open to Friends only. Bookings essential (phone Visitors Centre on 62509540 or email vc@anbg.gov.au) by 15/9/2010 for September tour and 1/10/2010 for October tour. Provide your name, phone number and email address (if available) and the date you wish to book for. Arrive at Parliament House by 10.50 am and meet on the forecourt at the front of the building, near the pond and island.

Thursday 23 September at 12:30 pm
**'Increasing Frost Damage in a
Warming Climate'**
Marilyn Ball

Paradoxically, changes in the timing and duration of growing seasons due to climate warming increase plant vulnerability to frost, and the effects are amplified by elevated atmospheric CO₂ concentrations.

Thursday 30 September at 12:30 pm
'Epiphytes'
Ben Wallace

The rainforest gully of the ANBG has many epiphytes, the botany of which has some truly amazing features. Ben Wallace will help us to better understand these intriguing plants and their importance.

Message from Activities Cttee

The Friends 2010 lecture series ends in November. The Committee thanks our excellent speakers, volunteer helpers, and loyal supporters.

Thursday 7 October at 12:30 pm
'Alpine Plants of New Zealand'
Roger Farrow

New Zealand split from Antarctica 85 million years ago with a raft of Podocarps and Angiosperms which have diversified till today. Our trip through the alpine and sub-alpine areas of the South Island uncovered a different kind of species richness comparable to what is seen in upland Tasmania.

Saturday 9 October 9.30 am-12 noon
**39th annual Burbidge/Chippendale
Black Mountain ramble**

From Belconnen Way entry, just before Caswell Drive turnoff (look for the balloons). Led by Laurie Adams, Isobel Crawford and Jean Geue (contact 6251 1601). Bring morning tea, hat, sunblock, water, stout shoes and your friends to celebrate spring.

Sunday 10 October 10 am & 1 pm
Orchids walks on Black Mountain
Tony Wood

Meet at car park on Caswell Drive (head south towards Glenloch interchange) to discover and learn about spring flowering native terrestrial orchids. Wear sturdy shoes, bring a hand lens if you have one. Numbers limited to 15 for each walk so booking is essential. Phone 6250 9540 and indicate which walk you prefer (afternoon walk is a repeat of morning).

Tuesday 12 October 11 am
Parliament House Native Gardens
See Wed. 22 Sept for details

Thursday 14 October at 12:30 pm
'The Boxvale Track'
John Carter

The Boxvale Track, at Mittagong, is a little known part of the history of the region. John Carter of the Native Plant Society looks at the area, the track and its links with the past.

Thursday 21 October at 12:30 pm
**'Forty Years Recollections of The
Gardens'**
Murray Fagg

Well known to the Friends of ANBG, Murray Fagg recounts some of his memories over the last 40 years as the ANBG celebrates its 40th anniversary and the 20th anniversary of the Friends.

Thursday 28 October at 12:30 pm
**'Pier Antonio Micheli – the First
Cryptogamist'**
Heino Lepp

Pier Antonio Micheli (1679–1737) was an astute observer of fungi, lichens and bryophytes. However, it was only in the 1800s that his achievements gained wide recognition. In this talk, Heino Lepp presents examples of those achievements.

NOVEMBER

Thursday 4 November at 12:30 pm
Launch of the Lichen Website
Heino Lepp and Christine Cargill

The ANBG has a new lichen website, funded by a grant from the Friends. Lichens, often seen but largely ignored, are symbioses between fungi and algae or cyanobacteria. The website assumes no previous knowledge and presents information on many topics.

Thursday 11 November at 12:30 pm
Peter Byron

The ANBG General Manager presents the Management Plan for the ANBG.

Thursday 18 November at 12:30 pm
'Ethnobotany'
Glen Whiteman

Saturday 20 November 8.30-11 am
Crosbie Morrison car park
Growing Friends Spring plant sale

Saturday 4 December, 5 – 6.30 pm
SCUNA Christmas Carols
Eucalypt Lawn

The ANU choral society Christmas concert and carols.

Support the Friends

Buy a DVD, a card, or a book from the Botanical Bookshop



Impressions of a year in the Gardens

A series of photos of flowers as they bloom, season by season, throughout the Gardens.

A slide show to be played on a TV or home computer. Price \$10.



A beautiful *Patersonia occidentalis*, painted by Nilavan Adams and donated to the Friends, graces a card for birthdays and other special occasions.

Price \$3.50

Australia's Garden



A new souvenir book for the Gardens, to celebrate the Gardens' 40th birthday and the Friends 20th. Price \$17.95.

The Bookshop gives 10% discount to Friends

The Botanical Bookshop

www.botanicalbookshop.com.au

always welcomes Friends of the ANBG to the store.

A 10% discount is offered:

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

No discount given for 'Red Spot Specials'.

Friends' Benefits

Your Membership Card entitles you to the following benefits:

Free Parking Pass

Botanical Bookshop—A discount on most items.

Hudsons Café—Loyalty cards, one for meals, one for tea/coffee.

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.

Botanical Resource Centre—Public access herbarium, next to Friends' Lounge, with text books, access to online resources and trained facilitators to help you.

ANBG Library Membership—Borrow books, serials, videos, DVDs plus use of computers and interactive CD ROMs.

Function Facilities—Special rates on bookings for functions at ANBG.

ANBG Opening hours

8.30 am to 5.00 pm daily, except Christmas Day. Visitor Centre 9.00 am to 4.30 pm. 62509540.