

AUSTRALIAN NATIVE PLANTS SOCIETY

CANBERRA REGION (INC)



Journal Vol. 18 No. 10

ISSN 1447-1507

December 2016

Print Post Approved PP100000849

## Contents

President's Report	Lucinda Royston	3
Sleeper Weeds in the ACT region	Rosemary Blemings	5
Winter Wednesday Walks	Brigitta Wimmer	10
Groundcovers	Masumi Robertson	20
The Beacon Botanical Park & Herbarium	Dave Herald	23
Our Environment — Temperature	Masumi Robertson	31
Spring Field Trip September 2016	Roger Farrow	33
Flowering of <i>Cyanicula caerulea</i> and <i>Glossodia major</i>	Martin Butterfield	38
Spring Field Trip October 2016	Roger Farrow	42
Study Group Notes	Brigitta Wimmer	47
Letters to the Editor		49
ANPSA/Coates Wildlife Tours to the Kimberley		50
ANPS Canberra contacts and membership details		inside back cover

Cover: *Acianthus collinus*, Black Mountain Wednesday Walk; Photo: Brigitta Wimmer

## Journal articles

The Journal is a forum for the exchange of members' and others' views and experiences of gardening with, propagating and conserving Australian plants.

All contributions, however short, are welcome and may be accompanied by photographs or drawings. The editor reserves the right without exception to edit all articles and include or omit images as appropriate.

Submit photographs as either electronic files, such as JPEGs, or prints. Set your digital camera to take high resolution photos. Please send JPEGs separately and not embedded in a document. If photos are too large to email, copy onto a CD or USB drive and send it by post. Please enclose a stamped, self-addressed envelope if you would like your prints returned. If you have any queries please contact the editor.

Original text may be reprinted, unless otherwise indicated, provided an acknowledgement for the source is given. Permission to reprint non-original material and all drawings must be obtained from the copyright holder. The views and opinions expressed in articles are those of the authors and are not necessarily the views and opinions of the Society.

The deadline dates for submissions are 1 February (for March edition), 1 May (June), 1 August (September) and 1 November (December).

Send articles or photos to:

### Journal Editor

Gail Ritchie Knight  
1612 Sutton Road  
Sutton NSW 2620  
e-mail: [whirlwind1@argonite.com.au](mailto:whirlwind1@argonite.com.au)  
tel: 0416 097 500

Paid advertising is available in this Journal. Contact the Editor for details.

Society website: <http://nativeplants-canberra.asn.au>

Printed by Elect Printing, Fyshwick, ACT  
<http://www.electprinting.com.au/>

## President's Report to the AGM



The Australian Native Plants Society Canberra Region (ANPS) has 284 memberships so we have over 300 actual members. We lose and gain a few each year so this number stays about the same. This society is what it is and has succeeded for more than 50 years because of us, its members. The things we do — we choose to do, we volunteer to do — are amazing.

Following is a list for this last year:

We hosted the biennial Australian Native Plants Society (Australia) conference, a major activity for us over a week in November 2015. With Ben, as convenor, the organisers, the volunteers and the 200+ participants made it a success. And we came in on budget. A great achievement.

Roger organised another great program of nine monthly weekend field trips for a group of happy members to the alpine areas in NSW and Victoria, the coast and the Sydney region including access to special areas.

Rosemary and her team of volunteers ran two Weed Swap weekends on the north and south sides of Canberra handing out native plants in exchange for environmental weeds. Rosemary and her volunteer team of explainers also manned the Floriade Bush Friendly Garden for a month.

Bill organised the monthly Tuesday Daytime Activity Group and Garden Design Study Group activities. We viewed the Australian National Botanic Gardens and National Library of Australia art collections featuring native plants and visited private gardens. We especially enjoyed our recent extended trip to the coast to see gardens there.

The Wednesday Walkers organisers, Roger, Julie and Jo and the enthusiastic walkers continued to expand our knowledge and record the flora of our local area. Although this year a number of walks were cancelled due to rain.

Nola and the 25 members of the Propagation Group grew plants for our two sales and maintained all our propagation facilities. This year the team pulled down the Weetangera shadehouse, re-established the garden site and then put up a new shadehouse in Cook. They also installed a new hot bed.

Murray, our monthly meetings book sales coordinator, as always, has been here providing us with a wide selection of books at good prices and who we let have one meeting off this year — for a holiday.

An and the team reviewed and had printed 2000 more copies of our book *Australian Plants for Canberra region gardens and other cool climate areas*.

We sold 99 copies at the recent spring plant sale.

The IT team of Greg and Rod continued to develop and maintain our IT facilities including our website, email addresses etc and with help from others, the *Bulletin's* email list, the Wednesday Walks reports and plant lists on the website. This year we put the *Bulletin*, the *Journal*, the Plant Label database and ANPS Policy documents on the website as a way of promoting ourselves and our values to the world.

Merren and our Plant Label Database team continued to research, describe and add plants to this very valuable asset. This list is also the basis for our *Book*.

Our other valuable asset is our membership database and this year it was looked after by Colin and Ben.

Our *Journal* editor, Gail and her backup Alison, produced four quarterly editions for you to enjoy. The *Bulletin* editor, me and my backup, Anthony, put out 11 monthly editions to keep you informed. Winifred and the Collation group packed up and posted out mailed *Bulletins*, our *Journal* and the *Australian Plants* magazine.

Our Plant Sales Coordinator, Phil, the Sales organising team and the many volunteers made our two sales happen and so successfully. The team do everything from produce plant labels, set out plants, provide advice and take money, to clean up at the sale end.

The autumn sale had 9,000 plants, with 7,500 sold and 46 members volunteered over two days. The spring sale had 10,700 plants, all sold and 70 members helped over two days.

Thanks to Alison, our Facebook site worked brilliantly to promote our spring sale as many new buyers said that was how they found out about the sale.

And our sales would have been very much smaller without our member growers — Annabelle and Anthony, Ben, Bill, Damian, John, John and Masumi, Linda, the two Pauls and the two Phils.

Our 11 monthly members' meetings were enjoyable because of our speaker organiser, Alison, those of you who brought along Show and Tell, our raffle plant organiser Jenny and our propagation group and the member growers who provided the plant prizes and all of you who bought tickets. Special thanks to Peter, our before and after the meetings gate minder.

We had presentations on conservation and environmental issues and programs, on garden design, on location specific flora and on plant groups.

Our Conservation Officer, Geoff wrote a number of submissions on our behalf, Pamela represented us at the biannual ANPSA teleconferences, Brigitta has kept us informed on Study Group news and Tony represented us at Conservation Council ACT.

And there's our 11 person Council: Alison, Ben, Geoff, Greg, Jeanette, John, Murray, Peter, Phil, Phil, and me. We had 10 monthly meetings and did our best to keep the Society working and on track. Council has been undertaking a Future Planning exercise for the Society and a review of the Plant Label Database and Standards Committee, that we hope to complete next year.

Council revised our Donations Policy and we supported:

- Parliament of Youth on sustainability
- Book launch of *Insects of South-eastern Australia* by Roger Farrow
- Australian Flora Foundation
- Wildlife and Botanical Artists Exhibition in November 2016
- The future publishing of *Orchids of the Southern Tablelands* by Tony Woods and Jean Egan

We also thanked Betty and Don Woods for hosting the shadehouse in their garden for 30 years with a donation to the Conservation Council ACT on their behalf.

We recognised 50 years and 25 years ANPS membership — two members with 50 years received gold name badges and 62 people with 25 years received silver name badges.

There are other things I could mention and sorry to those I have missed out.

Thank you to all of you who volunteer, participate and support the Society by being members. We've had another successful year.

Lucinda Royston  
President  
10 November 2016

## Sleeper Weeds in the ACT region

### *Rosemary Blemings*

Sleeper weeds are plants where their weed status develops slowly or cryptically.

For many species that are now grown in places distant from their original habitats, success and infamy comes when they are free from natural controls such as:

- Restrictions caused by climate, temperature and rainfall
- Soil chemistry, quality and vacant areas
- Grazing by herbivores
- Insect attack
- Diseases

They may have been 'benign' species in gardens for years or decades before evolving to invade areas beyond their intended location.

Moving Australian species from different regions of the continent has caused some Australian plants to become weedy. Some Australian species that have been used overseas have also developed major-weed status.

Without natural controls weed species are able to be more fecund and to disperse their seeds more successfully than native species. It may take decades for birds to find new species' berries palatable or for the plants to produce



them in sufficient numbers for seedlings to become invasive.

Land-caring volunteers and professionals in the Canberra region find new weed species in the course of their work in Canberra Nature Park reserves, other reserves, urban open space areas and parks.

These species are not illustrated in the 2014 edition of the *Are Your Garden Plants Going Bush* brochure though some are mentioned as 'sleeper weeds'. (Access online via the title)

Environmental weeds species illustrated in earlier brochures, were removed from sale by local nurseries after extensive negotiations by ACT Weed officers about 20 years ago.

In the 2015 Floriade's Bush Friendly Garden the most obvious Sleeper weed example was ***Viburnum tinus*** or Laurustinus. It is an attractive, long-flowering, tall shrub that has been used in landscaping, hedges and gardens for decades. Plants are again flowering prolifically in spring 2016.

It has metallic-blue-black berries that are taken into the bush in birds' droppings. Obviously this *Viburnum* now produces enough berries to have begun the invasion process 5–7 years ago. *Viburnum tinus* 'native to southern Europe'.

In earlier Bush Friendly Gardens we had ***Photinia robusta*** on the recommended plants list as an in-garden alternative to Privet. It was a suggested screen plant. *Photinia* species now produce enough berries for new plants to be appearing in the bush. ***Photinia serratifolia*** 'native to China'.



Photinia

Both these species are examples of **SLEEPER WEEDS** as they are:

'plants that appear benign for many years, but which may suddenly spread rapidly following certain natural events such as flood, fire, drought, climate change or change in land or water management'.

Plants are constantly adapting, with species that have been moved out of their original habitats changing in response to new locations and new conditions.

They often thrive away from the controlling factors of climate, grazing animals, insect predation and diseases that keep their numbers in check in their countries of origin. Animals including birds are constantly experimenting with what they eat and adapting to food plants' availability

### Other introduced species that are moving from useful and popular to pest status in the ACT region are:

#### Olives (*Olea europaea*)

Both European and African Olive species are invading the region's bush from gardens. The phenomenon was first noticed in South Australia where plantation olives were taken by birds into the Adelaide Hills. 'Native to the Mediterranean region and central and south-west Africa respectively'.

#### Chinese pistachio (*Pistacia chinensis*)

Popular for the leaves' autumn colour, female Pistachio plants' berries are dispersed by cockatoos and other birds. Native to central and southern China.

#### Cherry laurel (*Prunus laurocerasus*)

An evergreen shrub-tree producing purplish-black berries. 'native from Europe to Iran'.

#### Sacred bamboo (*Nandina domestica*)

Widely grown in gardens for low-maintenance colour over many decades. Taller varieties produce berries that birds now find palatable, spreading them as they over-fly natural areas. 'native to central to China and Japan'.



*Nandina domestica*

#### Mahonia (*Berberis aquifolium*)

Yellow-flowered shrub with holly-like leaves. Berries are purplish-blue and now appeal to birds. 'native to North America'.

#### Gazania (*Gazania linearis*, *G. rigens*)

Colourful, hardy, ground-covering plants having dandelion-like seeds that are easily blown by breezes, wind, cars' slip-streams. Often spread along nature strips or from Council-planted 'decorative' roundabout plantings. 'native of southern Africa'.



Gazania on a nature strip in the suburb of Holt

#### Seaside daisy (*Erigeron karvinskianus*)

A South American Daisy confused with native, white *Brachyscome* daisy species. Pinkish-white flowers whose seeds easily blow to lodge in cracks in paving and concrete. 'native to South America'.

#### South African daisy (*Osteospermum fruticosum*)

A hardy, sprawling perennial with white to pinkish daisy flowers with blue centres. Flowers all year with seeds blown by wind and car slipstreams. 'native to South Africa'.



South African Daisy in early spring and Viburnum

### **Butterfly bush Gaura or (*Oenothera lindheimeri*)**

Named for butterfly-like flowers from America. Related to Evening Primroses. Has been found along creeklines and possibly spreads from dumped flowerheads. 'native to America'.

### **Euphorbia (*Euphorbia lathyris*) Caper spurge**

We've recently found a colony of this garden escapee on Mt Rogers. A popular feature plant for its green-flowers novelty. 'native to Europe'.



Euphorbia species

### **Californian Poppy (*Eschscholzia californica*)**

Its brilliant orange flowers have been blooming along the Murrumbidgee

for decades. Popular in gardens for its colour. It's in the Papaveraceae family therefore related to other poppy species with small and readily dispersed seeds from sensor-like capsules. 'native to America'.



Californian Poppy in suburban Flynn

Two recent additions to the list based on observations in the Belconnen area are:

### **Chinese Elm (*Ulmus parvifolium*)**

A frequently-planted, semi-evergreen street tree whose seeds readily blow into nearby gardens. It is also found in landscaped treelines around sports grounds. (Species is popular with Superb Parrots at Hawker ovals) 'native to China and Japan'.

### **Chinese Rain Tree (*Koelreuteria elegans* subsp *formosana*)**

A decorative, deciduous garden species producing thousands of round, black seeds in lantern-like capsules. 'native to Taiwan and eastern China'.

There's probably a need for another nursery-awareness round where propagators, retail nurseries and landscapers are made aware of **sleeper weeds'** behavior and evolution in the

region. ACT Weeds Officers negotiated with ACT region nurseries for the removal-from-sale of the species listed in *Are your Garden Plants Going Bush?* two decades ago. More recently they contributed to the local edition of *Grow Me Instead*. (See: [www.growmeinstead.com.au/](http://www.growmeinstead.com.au/)).

It may only be a matter of time before the seeds of commonly used, hardy landscaping species 'escape' into nature reserves and other bush areas. Examples include:

- **Agapanthus (*Agapanthus praecox* subsp *orientalis*)** from southern Africa. Agapanthus is a declared environmental weed in Victoria and the Blue Mountains. More propagules of Agapanthus have recently been planted outside Westfield Shopping Centre. Such plantings give the public 'these plants are OK' messages. Agapanthus pieces are often given to time-poor householders and for new gardens.
- **African or Butterfly Iris (*Dietes iridioides*)** is defined as 'occasional garden escapees' in Richardson's 3rd Edition. 'native to South Africa'.

They are moved by opportunistic or hungry birds, water, wind or by dumping into reserves.

**As landcarers, gardeners and naturalists can we retain our alertness for invasive species when visiting nurseries and other outlets where plants are available?**

**Reports to the Territory's Weeds Officers can be made via Access Canberra/Canberra Connect 13 22 81.**

**Can we also be alert to the likelihood and report the occurrence of garden escapees and 'newcomers' in bushland? Photographs with GPS co-ordinates can be sent to Canberra Nature Map for identification, recording and for alerting Weeds Officers.**

**In gardens the persistence needed for managing weeds would include cutting the spent flowers off weed species\* so the seeds and berries are unable to form. (Collect into bags for taking to the green waste sites for mulching with other garden material that is composted at high temperatures.)**

Perhaps it's time to reinforce thoughtful-gardening messages from the Bush Friendly Garden, via Weed Swap and from those volunteers and professionals who eradicate weeds from the Bush Capital's reserves.

Should there be system of coded alerts on plants' labels in nurseries stating **plant-with-caution?** At the point of sale this code would generate a fact sheet about preventing seed formation\* and managing plants' seed dispersal for known invasive species and sleeper weeds.

### **Reference**

Richardson, FJ & RG and Shepherd RCH, *Weeds of the South-East An Identification Guide for Australia* Second edition 2011. Third edition now available.



# Winter Wednesday Walks

Brigitta Wimmer



Tryers Ridge, Morton National Park, Mt Ayre (right); Photo: Brigitta Wimmer, Bungonia Gorge walk

As usual our winter walks took place reasonably close to Canberra. Over these three months nearly half the walks had to be cancelled due to wet weather. Many of our group had escaped the cold and recording our walks developed into a shared effort by the remaining participants to identify (hopefully correctly) the vegetation seen on each walk and provide subsequent reports.

## **Mt Tennent Cypress Pine Lookout, Namadgi National Park, 1 June 2016**

This walk began and finished at the Namadgi Visitors Centre, following the Australian Alps Walking Track to Cypress Pine Lookout and taking some meandering side trails along the way. The woodland on the flats and gentle

slopes gives way to open forest with a dense shrubby understorey on steeper slopes with granite outcrops. It was encouraging to see how well the shrubs were responding after the 2003 fires, and we enjoyed the long views to Canberra's southern suburbs.

The main theme were variants of green and texture from *Eucalyptus nortonii* and *E. polyanthemos*, *Acacia penninervis* and *A. melanoxylon*, *Correa reflexa* var. *reflexa*, *Micromyrtus ciliata*, *Calytrix tetragona* and *Persoonia rigida*. Other tall vegetation included *Pomaderris angustifolia* and *Allocasuarina verticillata*. Occasional bright splashes of colour were provided by *Cryptandra amara* and *Leucopogon attenuatus*,

*Hakea decurrens*, *Melichrus urceolatus*, *Callistemon pallidus* as well as blue *Olearia tenuifolia*, *Isotoma fluviatilis* and *Wahlenbergia communis*.



*Correa reflexa* (left), *Melichrus urceolatus* (above), Mt Tennent, Cypress Pine Lookout; Photos: Brigitta Wimmer



*Olearia tenuifolia* (lt) and *Persoonia rigida* (rt), Mt Tennent, Cypress Pine Lookout; Photos: Brigitta Wimmer

### Black Mountain Nature Reserve, 8 June 2016

Only a few hardy members braved the very cold north westerly blowing that made the temperature appear well below 10 degrees. However, a little bit of sun helped to focus our attention on the ANBG's treasures before exiting onto Black Mountain Nature Reserve.

The flowering banksias and hakeas were outstanding, and we admired the Central Australian garden and its surrounding plantings. Red-tipped bushes — a form of *Leptospermum polygalifolium*, the red gold-tipped flowers of *Callistemon rugulosus*, various species of Lambertias, Adenanthos, Homoranthus, *Microcitrus austalasica* and a quick morning tea in the Zieria section made us reflect on how lucky we are to have this wonderful place in Canberra.

Heading uphill through *Eucalyptus rossii* and the occasional *E. macroryncha* we encountered *Acacia genistifolia* in flower, *A. buxifolia* in bud, *Exocarpos cupressiformis* and *Cassinia quinquefaria*. It was interesting to find *Dillwynia phyllicoides* rather than the more

common *D. siebieri*, and the many patches of orchid rosettes we couldn't identify.

After a hurried late lunch when the sun was fast disappearing we discovered a population of *Mirbelia oxylobioides* before returning through the ANBG.

### Bungonia Gorge — Look Down — Green Track — Jerrara Lookout, 15 June 2016

Our last visit to Bungonia Gorge was in late summer 2010 so we expected a rather different trip — and indeed, we could hardly see the Visitors Centre of Bungonia Gorge because of thick fog. But the weather cleared and like last time the understory initially comprised mainly *Olearia viscidula*. On the way to the Bungonia Lookdown people commented on the very dry look of the area. However, the views over the mountain ranges with the fog lifting and down the steep slopes to Bungonia Creek were rather spectacular and atmospheric.

The second part of the trip on the Green Track and out to the Jerrara Lookout proved botanically more interesting. In bud were *Lissanthe strugosa*, velvety



*Persoonia linearis* (left), *Acacia binervia* (right) and *Beyeria viscosa* (below), Green Track/Jerrara Lookout; Photos: Brigitta Wimmer



grey *Acacia binervia* which we do not see very often, *Zieria cytisoides*, *Beyeria viscosa* and some *Lasiopetalum*, possibly *L. macrophyllum*. Some flowering *Persoonia linearis* provided vibrant colour. Looking across the deep gorge we could see some *Xanthorrhoeas* clinging to the vertical rock face opposite.

Returning via the Adams Lookout Road to join part of the group who had turned back earlier we were told of the wonderful lyrebird, yellow robins and sitellas that we had missed. Re-reading the report of our last visit when we also walked along the White Track our resolve to return seems to be well justified.

### Googong Foreshores — Dhurrawarri Buranya Walk — London Bridge, 29 June 2016

For a change we had glorious sunshine on our walk at the southern end of Googong Foreshores. From a weedy start to the top of London Bridge we could see that we would be going across a small floodplain and continue along the fire trail to Washpan Crossing on the Queanbeyan River.

The understorey vegetation varied between dense thickets of *Kunzea ericoides* and less dense thickets where *Lomandra longifolia* was dominant, interspersed with smaller shrubs most commonly *Pultenaea microphylla* and *P. procumbens*. There were interesting patches of *Acacia paradoxa*, *Astrotricha ledifolia* and *Pomaderris betulina*, with



*Acacia paradoxa*, Dhurrawarri Buranya Walk; Photo: Gail Ritchie Knight





*Eucalyptus bridgesiana* dwarfing the Wednesday Walkers, Dhurrawarri Buranya, Googong;  
Photo: Gail Ritchie Knight

a large patch of *Dillwynia phyllicoides*. *Persoonia rigida*, *Einadia hastata* and *Schoenoplectus validus* also deserve a mention. Above us were a variety of eucalypts including bright white *E. mannifera*, yellow trunked *E. rossii*, broad old *E. bridgesiana*, *E. melliodora* and *E. dives*. Down towards the river we encountered more *Cassinia longifolia*, *C. quinquefaria* and *Acacia mearnsii*.

Back along the trail, following an old boundary fence we searched in vain for *Boronia nana* var. *hyssopifolia*, finding instead *Dillwynia glauca*. Finally we descended to the weedy banks of Burra Creek and back to London Bridge.

### Wanniassa Hills, 27 July 2016

After having had to cancel this walk three times because of bad weather a small group of us finally struck it lucky

that Wednesday. Repeating a very similar walk in 2013 we started from the water tanks at Long Gully Road, quickly crossing the open slopes, driven uphill by the last rain drops and winds. To return to our cars in the afternoon we looped back downhill and followed the contours parallel to Yamba Drive.

We enjoyed dry morning tea and then lunch, overlooking the massed display of white-flowering vegetation. There was *Cryptandra* sp *Floriferous* (formerly called *C. amara* var *floribunda*) in all its glory and *Leucopogon attenuatus*, punctuated by *Cryptandra amara* (formerly *C amara* var. *longiflora*) in bud as well as some *Leucopogon fletcheri*. The open slopes were bordered by many large and spreading *Eucalyptus nortonii*. Other patches included *E. rossii*, *E. polyanthemos*, *E. melliodora* and *E. bridgesiana*.



*Cryptandra* sp *Floriferous* (left), *Leucopogon attenuatus* (right), *Cryptandra amara* (below left) and *Acacia ulicifolia* bud (below right), Wanniassa Hills; Photos: Brigitta Wimmer



*Cryptandra* sp *Floriferous* pink (left), *Xerochrysum viscosum* (right), Wanniassa Hills;  
Photos: Brigitta Wimmer

We saw quite a few other understorey plants in bud eg *Acacia ulicifolia*, *Melichrus urceolatus*, *Brachyloma daphnoides*, a low *Leucopogon virgatus* and *Dodonaea viscosa* ssp *angustissima*.

*Persoonia rigida* carried a very healthy crop of blueish fruit, and we commented on the many yellow-greenish *Amyema miquelii* that didn't mimic the bluey-grey foliage of their host trees at all.





*Amyema miquelii* growing on *Eucalyptus polyanthemus*, Wanniasa Hills; Photo: Brigitta Wimmer

### Uriarra Road Reserve, 3 August 2016

We commenced our walk from Uriarra Road and followed a track that appears on the Territory Plan as the very edge of proposed urban development for Prospect/Denman. This raised the question of how long this area would remain intact in a future urban area. Today's route was undulating, rising to the top of a hill with stunning views before descending to and crossing a watercourse. A flat section through woodland took us back to the start.

At the beginning the regenerating forest was dominated by *Eucalyptus macrorhyncha*, *E. goniocalyx* and *E. rossii*, with a shrubby understorey of *Kunzea ericoides*, *Dillwinia sericea*, *D. phyllicoides* (in bud), a small leaved-version of

*Pultenaea procumbens*, and grasses such as *Rhytidosperma pallidum*, *Aristida ramosa* and *Poa sieberiana* (*meionectes*?). We admired some bright splashes of purple *Hovea heterophylla* and yellow *Acacia gunnii*.



*Hovea heterophylla*, Uriarra Road Reserve; Photo: Brigitta Wimmer



*Leptospermum obovatum* capsule, Uriarra Road Reserve; Photo: Brigitta Wimmer



*Acacia gunnii*, Uriarra Road Reserve; Photo: Kris Nash

We had morning tea on a sun-drenched rocky outcrop with masses of *Lomandra longiflora* before we were greeted by stunning massed displays of cream and pink tinged *Cryptandra* sp. *Floriferous*, alternating with shaggy white *Leucopogon attenuates* along a side trail. These two species covered a substantial area and were encountered in patches during the rest of the walk.

Descending into a young forest of *Callitris endlicheri* — a new addition to the plant list — the previously mentioned shrubs were complemented by *Acacia buxifolia*, *Leucopogon fletcheri*, *Brachyloma daphnoides* and very tall *Rhytidosperma pallidum*.

We also encountered *Leptospermum multicaule* and discussed the problems of positive identification, particularly of eucalypt features and eucalypts outside their range. As usual there was an amazing variety of other vegetation such as fungi and lots of orchid leaves and rosettes that escaped identification completely.



Coral fungus, Uriarra Road Reserve; Photo: Kris Nash

### Woodstock Reserve 10 August 2016

The track head is located just after Uriarra Crossing and descends via a series of undulations towards the Murrumbidgee River with views of the cliff below Shepherds Lookout. We returned via the same track.

Unfortunately, the area beside the track and along the edge of the river contains a diverse array of weeds, particularly African Lovegrass. Signs of wild boar and rabbits were also obvious. *Eucalyptus bridgesiana* and *E. macrorhyncha* alternated as the dominant overstorey, with either *Pomaderris* spp. or *Kunzea ericoides* as the main understorey shrubs.

The less common species were *Gynatrix pulchella*, *Bossiaea grayi* (a threatened species) and *Cryptandra amara* in bud,





*Gynatrix pulchella* in bud, Woodstock Reserve;  
Photo: Brigitta Wimmer



*Grevillea juniperina*, Woodstock Reserve;  
Photo: Brigitta Wimmer



*Bossiaea grayi* in bud, Woodstock Reserve;  
Photo: Brigitta Wimmer



*Correa reflexa* red, Woodstock Reserve;  
Photo: Brigitta Wimmer

*Grevillea juniperina* in flower as well as *Callistemon sieberi* near the river. We also found both red and green forms of *Correa reflexa* in flower. A slippery rocky face revealed ferns including *Cheilanthes austrotenuifolia* and possibly *Pellaea ?calidirupium*.

Another focus of the walk were the five pomaderris species in close proximity allowing a quick tutorial on

their features. *Pomaderris eriocephala* (brownish upright hairs amongst the white furry underside, hairs extending past leaf margin), *P. subcapitata* (velvety sheen upper side), *P. angustifolia* (one we all do know), *P. betulina* ssp. *betulina* (stellate hairs, recurved margin) and *P. betulina* ssp. *actensis* (the shiny one).

## Black Mountain from Caswell Drive, 17 August 2016

It was partly cloudy weather with a cool breeze but the large attendance showed how popular an orchid discovery tour guided by our local orchid expert Tony Wood was. Indeed, it turned out to be a brisk walk uphill, past other vegetation and flowers where our group would have usually stopped but the definite aim was to get to the patches of flowering orchids. Some of us later continued the walk to a track junction for lunch, but then headed home as rain threatened (yet again!).

We were amazed to find so many orchids flowering: *Pterostylis nutans* in large drifts, *Bunochilus umbrinus*, *Acianthus collinus*, *Corysanthes incurva* and *Cyrtostylis reniformis* in bud. There were also many rosettes and leaves evident of *Diplodidium*, *Eriochilus*, *Glossodia* and other *Caladenias* species that were quickly identified by our leader.

*Leucopogon attenuatus*, *Hovea heterophylla*, *Acacia gunii*, *Acacia buxifolia*, and *Hardenbergia violacea* were also in flower on the slope, leaving an impression of white, yellow and purple among the different hues of green.



*Bunochilus umbrinus*, Black Mountain;  
Photo: Brigitta Wimmer



*Corysanthes incurva* (syn *Corysanthes incurva*),  
Black Mountain; Photo: Brigitta Wimmer



*Pterostylis nutans*, Black Mountain;  
Photo: Brigitta Wimmer



*Cyrtostylis reniformis* in bud, Black Mountain;  
Photo: Colin Jeffery



# Groundcovers

Text and photos by Masumi Robertson

This is the first of a series on 10 plants from each category in the 5<sup>th</sup> edition of our book, *Australian native plants for Canberra gardens*. While there are many plants rated 'Hardy', I chose these 10 plants because they have done well for us. The first group is groundcovers: plants which grow more wide than tall, often flat, with growth dense enough to cover the ground below.

## *Calytrix tetragona* (prostrate white)

This is the prostrate form of the species. It can grow up to 30 cm high after many years, with layers of branches overlapping to produce a dense cover. In spring the plant is covered in fluffy white star flowers, followed by reddish calyces. Our plant is over 20 years old, spilling over a retaining wall. There is a large specimen at the Australian National Botanic Gardens near the Banks building.



*Calytrix tetragona* (prostrate)

## *Chrysocephalum apiculatum*

This groundcover provides us with cheerful yellow flowers from spring to autumn, and even into winter where it is protected from frosts. Although all forms are groundcovers, suckering and prostrate forms cover the ground best. Hard frosts will not kill the plant, but the leaves and stems die down and are best pruned in early spring.



*Chrysocephalum apiculatum*

## *Correa alba* (low)

This is the prostrate form of hardy *C. alba*, such as the variety *C. alba* var. *pannosa*, all with the same starry flowers, often in shades of pink. *C. alba* 'Western Pink Star' is a slightly taller cultivar, to 0.6 m high, producing starry flowers with a darker pink centre. They are long flowering; some flowers are seen most of the year. These are grown best in full sun to keep them flat and dense.



*Correa alba* var. *pannosa* (low)

## *Correa* 'Dusky Bells'

One of the most reliable Australian native plants. Lots of dusky pink bells cover the plant in autumn, which will last well into winter. It is a tallish groundcover or small shrub. We prune ours lightly every few years to rejuvenate it. It is an excellent plant for nectar feeding birds, along with Grevilleas.



*Correa* 'Dusky Bells'

## *Grevillea* 'Bedspread'

'Bedspread' is one of Bywong Nursery's selections. It is similar to *G. 'Poorinda Royal Mantle'* but its flowers are pinky red and we think it grew relatively quickly, spreading to over four metres wide in six years. You can see an extensive planting of this cultivar in front of Parliament House. I also like *G. 'Bronze Rambler'* with



*Grevillea* 'Bedspread'

attractive, but sometimes prickly, leaves. All these Grevilleas flower best in full sun.

## *Hardenbergia violacea*

This vine will trail along the ground, dense enough to be an excellent ground cover. It starts to flower in July, and its flowers are a beautiful colour contrast to the yellows of our spring wattles. Local forms do best in our garden and they self-seed producing variable forms, some flowering into November. When plants become untidy with age, we have pruned them hard and most grow back very well.



*Hardenbergia violacea* (local)

## *Leptospermum rotundifolium* 'Julie Ann'

A flat growing tea tree with cheerful mauve-pink flowers covering this plant in late spring. Plant it in full sun, but it also

flowers reasonably well in part sun. The plant can survive periods of dryness, but flowers best with supplementary watering when very dry. The shiny round leaves are also attractive.



*Leptospermum rotundifolium* 'Julie Ann'

### ***Micromyrtus ciliata* (prostrate)**

Pink buds open into masses of white flowers, fading to red in spring, a very long 'flowering' plant. Our prostrate plant is from Gurawin (the Clarkes) and she used to say that her plant walked around her garden. Ours is staying put, beside a garden path for the last 18 years. It is a very hardy ground cover; some plants have been in the median strip along Belconnen Way for almost 30 years. A must for any garden.



*Micromyrtus* (prostrate)

### ***Myoporum parvifolium***

This plant can cover a large area with fleshy green leaves. While each flower is small, many white flowers cover the plant in summer. Our plants are no longer watered, but they become especially dense over winter with winter rain, covering a large area of difficult sloping ground. The normal form has green leaves and white flowers. We found other forms (pink flowers, purple leaf and fine green leaf) were not as hardy.



*Myoporum parvifolium*

### ***Viola hederacea***

Barbara Daly gave us ours over 20 years ago and it is still going. It is not 'hardy' like these other plants, in terms of sun exposure and dryness. But it is great in shade to part shade, and copes with poor drainage. White and purple flowers appear most of the year, even over winter, if under shrubs with some frost protection. When the ground is hot and dry, it can die back, but ours always come back with autumn rain and/or hand watering.



*Viola hederacea*

## **The Beacon Botanical Park and Beacon Native Plant Herbarium**

*Text and photos by Dave Herald*

I recently visited the Beacon Native Plant Herbarium and the Beacon Botanical Park. As I'm sure that 99.999% of readers will have never heard of these before, I thought I should write an article about these interesting facilities in a remote rural community located on the north-eastern fringe of the Western Australian wheat belt.

### **Beacon — an overview**

You are probably wondering where is this place called Beacon? A place I have never heard of yet is sufficiently significant to have a Herbarium and a Botanical Park?

Beacon is a small farming community in the Shire of Mt Marshall. It is located about 300 km north-east of Perth, 30 km in from the north-eastern edge of the wheat belt. In Google Earth you will find it at 117° 52'E, 30° 27'S. It is a three-hour drive from Perth airport via Toodyay, Goomalling and Dowerin (the half-way point).

Google Earth shows a small town with about 30 houses, a club and a primary school. The population of the town and the surrounding areas is about 100.

Four of those are my elder daughter and her family, which is why I go to Beacon!

As a remote small rural community, the life style is hugely different from Canberra. The nearest towns (ie villages with more than a dozen houses) are at least an 80 km drive away. If you need to go to hospital, it is a three-hour drive to Perth (the Flying Doctor Service is only available for *really serious* emergencies). They have a local ambulance and fire engine which are run by the residents as volunteers. (My son-in-law is an ambulance volunteer; I get the sense that the ambulance is used on a regular basis to deal with farming accidents, which can be quite nasty.)

Facilities in the town are limited: a community general store and a licensed club. However they have *excellent* sports facilities and each weekend there are inter-town competitions in AFL, cricket, netball, hockey, bowls and tennis. For those who have a hankering for drive-in movie theatres, the neighbouring town of Koorda (a mere 80 km/50-minute drive) boasts one of the three remaining operational drive-in theatres in the whole of Western Australia, holding



screenings every month (usually showing two feature movies).

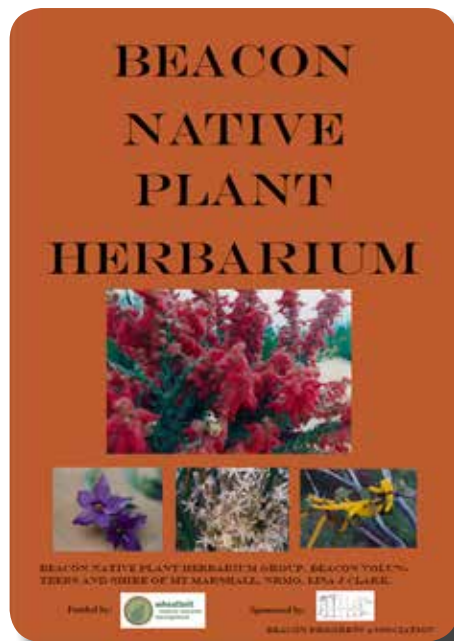
Compared to small rural towns around Canberra, the people in Beacon are relatively young. Interestingly for a town with a population of about 100, the primary school has about 30 students. However one quickly notices the complete absence of teenagers around town; secondary schooling is generally undertaken at boarding school — most typically in Perth. Consequently most children effectively ‘leave home’ at about the age of 12 — although they come home every few weeks on weekends.

The main activity in the Beacon area is wheat farming. Properties are large. My daughter is farming 1500 acres at the moment, and that is relatively small for the area. Stock grazing is not common in the area; however my daughter has a flock of about 800 sheep which they farm for meat as a back-up for the bad years with wheat farming. The farms are so large that it typically takes 10 to 15 minutes driving around the paddocks to find the sheep.

The farms have been established over the last 80 years or so, by largely clearing the land of the native vegetation. Against this background of extensive land clearing to establish broad-acre farms, the existence of a local herbarium and botanical park is a welcome surprise.

## Beacon Native Plant Herbarium

The Beacon Native Plant Herbarium is housed at the Beacon Community Centre. It is a set of about 46 A4 lever-arch files, organised by families.



Beacon Native Plant Herbarium, showing the full set of lever-arch files



A typical entry

Superficially the Herbarium looks like a set of lever-arch files of no great significance. You don't get to appreciate the value of this work until you open a file to see what it holds. The herbarium covers 58 families and over 600 species — all local to the region. Each entry has samples (typically flowers, foliage and seeds), pictures and text. It is immediately apparent that it has been put together with a high level of skill and dedication.

While the herbarium is in book form, several years ago it was scanned

and made available on CD. By way of illustration, the CD displays the entry for *Acacia Murrayana* (one of the 31 different species of *Acacia* in the Herbarium) as in the image below.

Botanical gardens and Herbariums are usually associated with major population centres. Why would a small wheat belt farming community have a herbarium? The introduction on the CD provides an interesting history about its origins and creation, from which the following are extracts.

'Marilyn Dunne developed an interest in identifying plants on her home property south-west of Beacon when she assisted her niece who was studying botany in 1983, with a project photographing and collecting plant specimens. She began a collection of her own and in 1985 was asked to enter an

### Acacia murrayana



Common Name	Description
Specimen Location	Specimen Collection
Billyburning	Date
Soil Type	October 1992
Red loam	Collected By
Habit & Height	Hazel King
2-3m	
Flowering Time	
Late spring	

108

album of her photos and specimens in a Western Australian state wide Country Women's Association Competition and subsequently won with her entry.

Several people became interested in seed collection of native plants with a view to revegetating areas of their farming properties. Amongst those were Helen Shemeld and Anne Shipway. Anne and her husband Ed Shipway planned to start a native plant nursery to supply native seedlings and so it was necessary for them to correctly identify all plants of the district including trees, shrubs, grasses and herbs. It is thought that it was Anne who made the first approach to start a herbarium.

Marian Kirby, Hazel King and Rita James all had a natural inclination to observe the plants of the area and so it was decided to form a group and start the herbarium collection as mentioned earlier. Following the first meeting in 1992 there were meetings held at the homes of Hazel King and Marian Kirby. At these meetings a process of collection and recording and storage had to be devised.

It was agreed that each plant should have two cut specimens taken for pressing including leaves, flowers and fruit and a photograph taken of the plant in its surroundings as well as a close-up photo to show as much detail as possible. Other details to be noted were height of plant, location, soil type, date of collection and flowering period. In some cases it was possible to give a common name but usually the scientific name

needed more research to be done at a later date. Each specimen was given a number and entered in the records. The reason for collecting two specimens was that one should be kept in the herbarium files while the other one would be sent to the State Herbarium for identification. Most plant collecting was done individually at a time to suit each person. This may have been on the way to town to shop or it may have been taking lunch to the paddock or shifting sheep or it may have been out on a Sunday picnic that many specimens were collected.'

'Marian and Hazel obtained grants from various organizations and with these funds were able to purchase a microscope, storage cupboards and books to aid in the identification of plants. Grants were received from The Gordon Reid Foundation, Greening Western Australia, Western Australian Regional Natural Resources and Alcoa Australia. The name of the herbarium was changed to The Mt Marshall Herbarium to increase the possibility of obtaining grants (Mt Marshall is the name of the Shire). In 1994 the Mt Marshall Herbarium was awarded 'Best Trade Stand — Inside' at the Mt Marshall Show at Bencubbin.'

'In 2011 the Natural Resource Management Officer for the Shire of Mt Marshall was allocated funding from Wheatbelt NRM through sponsorship by Beacon Progress Association to create a book containing all of the information held at the herbarium. At this stage there were a total of 605 species to be included.

During a discussion at the start of this new project Marilyn Dunne asked if we could return the name to the Beacon Native Plant Herbarium as this was the original name and the entire collection has been collected from around the Beacon, South Beacon, North Beacon, Tampu, Cleary, North Cleary and Wialki areas.'

'It was an enjoyable and interesting pastime. It is still fascinating to leaf through the pages and admire the beautiful specimens collected and preserved for future generations to behold.'

By any measure, it is a dedicated effort by a small number of people in a remote community to catalogue their local native vegetation.

The list of the 58 families included in the Herbarium is:

Aizoaceae	Amaranthaceae	Apiaceae
Apocynaceae	Araliaceae	Asparagaceae
Aspleniaceae	Asteraceae	Boraginaceae
Boryaceae	Campanulaceae	Casuarinaceae
Celastraceae	Chenopodiaceae	Colchicaceae
Convolvulaceae	Crassulaceae	Cupressaceae
Cyperaceae	Dilleniaceaea	Droseraceae
Elaeocarpaceae	Ericaceae	Euphorbiaceae
Fabaceae	Frankeniaceae	Goodeniaceae
Gyrostemonaceae	Haloragaceae	Hemerocallidaceae
Hydrocharitaceae	Iridaceae	Juncaceae
Lamiaceae	Loganiaceae	Loranthaceae
Malvaceae	Marsileaceae	Myrtaceae
Orchidaceae	Orobanchaceae	Pittosporaceae
Plantaginaceae	Poaceae	Polygalaceae
Portulacaceae	Ranunculaceae	Rhamnaceae
Rubiaceae	Rutaceae	Santalaceae
Sapindaceae	Solanaceae	Stylidiaceae
Thymelaeaceae	Violaceae	Xanthorrhoeaceae
Zygophyllaceae		



## Beacon Botanical Park

The Beacon Botanical Park is not large, occupying a single acre located just behind the Beacon Primary School. It was established in 1993, presumably

following the formation of the Herbarium. The following shows the location of the Botanic Park at the eastern end of the town, behind the primary school.



Beacon gardens 2003 Google Earth image of the Park, located at the eastern end of the town.

The main access to the Park is at the end of a street within the town. Anyone driving through the town would not be aware of its existence as there is no signage to the Botanical Park on the main street. At the entrance there is a sign that well sets out the purpose of the Botanical Park.

The land of the Botanical Park is typical of the area: the natural scrubby vegetation has been cleared, exposing the semi-arid sandy soil that is characteristic of the



region. Gravel paths take the visitor around the Park, with plants being labelled with metal signs.



General appearance, looking eastwards through the centre of the park.

My visit to the Park was at the start of June, when there were not many flowers present. The following are a small selection of the many plants in the Park.



*Callitris preissii* ssp *verrucosa*, Mallee Cyprus pine



*Eucalyptus erythronema*, commonly known as the white mallee, Lindsay Gum, white-barked mallee or red-flowered mallee



*Eucalyptus orbifolia*, commonly known as the round-leaved mallee



*Verticordia mitchelliana*, Feather flower





*Acacia microbotrya*, Manna gum



*Dodonaea microzyga*, Native Hop



*Eucalyptus salmonophloia*, obviously a young example, as the tree can grow to 30m

## Want to travel to Beacon?

Visit the town's web page at <http://www.beaconwa.com.au/> to learn more about the area.

The local caravan park includes three air-conditioned self-contained cabins, and from there it is a mere five minutes walk to the Botanic Park.



*Thelymitra ixioides* (left) and *Bossiaea obcordata* (right), Boxvale Track, Southern Highlands Field Trip; Photos: Roger Farrow



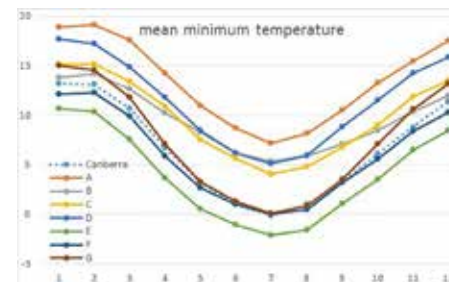
# Our Environment — Temperature

Masumi Robertson

We know that we have a challenging environment for growing Australian native plants in Canberra. The most significant challenge is our temperature. These temperature graphs show how our temperatures differ from Sydney, Melbourne or the South coast. Canberra is the dotted line.

## Mean minimum temperature

The long-term average daily minimum air temperature observed during a calendar month and over the year.

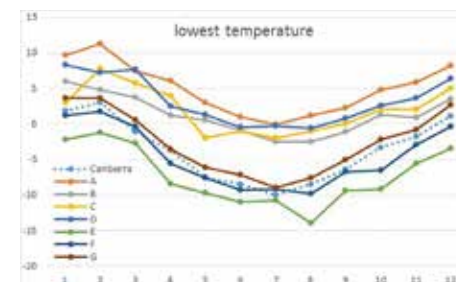


## Lowest temperature

The lowest recorded temperature observed at the site, calculated over all years of record.

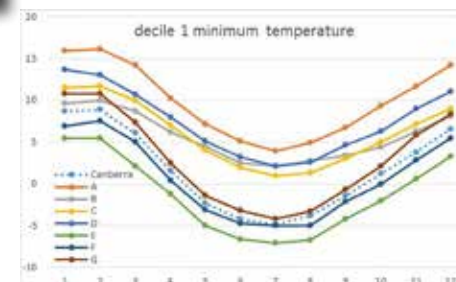
## Decile 1 minimum temperature

Monthly decile 1 (10th percentile) of minimum air temperature. The annual decile value must be calculated from yearly data, and cannot be obtained by adding together the monthly deciles. Decile values are used to give an indication



of the spread of the observations over the period of record; in this case, daily observations within a month.

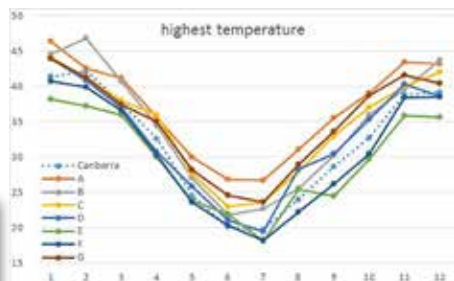
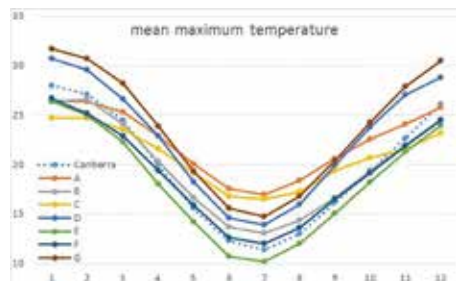
To determine decile 1 of a series of observations, they are first arranged in order from lowest to highest, and then divided into 10 equal groups. Decile 1 is the value at the top of the 1st grouping. Over the long term about one day in ten can be expected to have a (maximum or minimum) temperature below the decile 1 value.





### Mean maximum temperature

The average daily maximum air temperature, for each month and as an annual statistic, calculated over all years of record.



The vertical axis is the temperature in °C, the horizontal axis the month of the year, Canberra temperatures in dotted blue line and A to F for six locations around Australia.

Further discussions to follow.

### Highest temperature

The highest (by month and overall) maximum air temperature observed at the site.



*Grevillea speciosa*, Kuring-gai Chase National Park



## Spring Field Trip September 2016

At Muogamarra National Park overlooking the Hawkesbury

### The Hawkesbury: Muogamarra, Murramarra & Kuring-gai Chase National Parks

Text and photos by Roger Farrow

At the end of the post-conference tour after the Australian Native Plants Society (Australia) meeting in Canberra, Wendy and Philip Grimm from the North Shore District, Australian Plant Society NSW kindly offered to show Canberra members the spring flowers of the Hawkesbury sandstone including a special visit to Muogamarra National Park that has restricted openings to protect its special flora.

Not only were we shown a remarkable array of local plants all named by our hosts but our social activities continued with get togethers every evening. Most of us stayed at Lane Cove Tourist Park which

had its own attractive bush setting that lack of time prevented us from exploring

Our first day was spent at Muogamarra where National Parks and Wildlife Service guide Helen took us on a grand tour of the park to three spectacular lookouts over the Hawkesbury.

It was an exceptional day for flowers and we were amazed at the great displays of pinks from the *Eriostemon australasius*, *Boronia pinnata*, *Tetradlea glandulosa*, the mauves of *Philotheca salsolifolia* subsp. *salsolifolia*, the yellows of *Dillwynia floribunda* *Gompholobium grandiflorum* and *Hibbertia bracteata*, and the whites of *Conospermum longifolium*, and *Epacris* and *Leucopogon* spp.

We also saw local endemics like *Micromyrtus blakelyi* on the rock platforms and *Astrotricha floccosa* and



*Leucopogon amplexicaulis*. We were also introduced to the remarkable and aptly named woody pear, *Xylomelum pyriforme*, with its reverse pear-shaped fruits and not forgetting another Proteaceae, the occasional waratah, *Telopea speciosissima*. We should also mention the two grevilleas *G. sericea*

and *G. buxifolia*. Many more species too numerous to mention were also seen on the walks. We were also shown aboriginal petroglyphs and we must not forget the busy carpenter bees working the *Philotheca*. There are just too many flowers to picture and I have selected some of the best.



*Eriostemon australasius*



*Leucopogon amplexicaulis*



*Epacris obtusifolia*



*Conospermum longifolium*



*Boronia pinnata*



*Dillwynia floribunda*



*Micromyrtus blakelyi*



*Pultenaea flexilis*



*Xylomelum pyriforme*



*Philotheca salsolifolia*



*Grevillea buxifolia*



*Hibbertia bracteata*

On the second day we visited the nearby Marramarra National Park (NP). An early morning shower nearly derailed the walk but the weather soon cleared and after a short delay we followed the main track through the park to the lookout.

This park is noted for its large population of *Grevillea speciosa* with its scarlet blooms and we were not disappointed but the track was lined with a whole range of different flowering species including *Philotheca hispidula*, *Bossiaea obcordata*, *Tetratheca glandulosa* and some of the same

species seen at Muogamarra like the *Eriostemon* and *Persoonia pinifolia* with its fruits hanging like bunches of grapes.

There were diminutive trackside species like the white flowered *Boronia rigens*, *Euryomyrtus ramosissima*, *Gompholobium glabratum*, *Hybanthus vernonii*, *Micrantheum ericoides* and *Sphaerolobium minus*. Shrubs new to us included *Boronia serrulata* with its appressed leaves, the twin-flowered *Darwinia peduncularis*, *Daviesia corymbosa*, and *Ziera laevigata*.



*Grevillea speciosa*



*Philotheca hispidula*



*Tetratheca glandulosa*



*Persoonia pinifolia*



*Boronia rigens*



*Hybanthus vernonii*





*Micranthemum ericoides*



*Euryomyrtus ramosissima*



*Gompholobium glabratum*



*Darwinia peduncularis*



*Daviesia corymbosa*



*Ziera laevigata*

On our final day we walked the Centre Track of Kuring-gai Chase NP. Despite having seen so many flowers over the past two days this was the most colourful of the walks, possibly because of the more open canopy which allowed more flowering shrubs to proliferate as well as being a wetter environment from impeded drainage.

The dominant colour was yellow from the prolific peas, *Dillwynia floribunda* and *Phyllota phycoides*. Several new species were encountered including another species of smoke bush, *Conospermum ericifolium*, another *Philotheca* with pale blue flowers, *P. reichenbachii*, the common *Darwinia*,

*D. fascicularis*, another *Leucopogon*, *L. esquamatus*, and *Mirbelia rubiifolia*, with its yellow-veined leaves, among others.

We saw the local endemic *Angophora*, *A. crassifolia*, a straggly small tree as well as extensive patches of the mallee, *Eucalyptus leuhmanniana*, with its yellow shoots. We also found *Thelionema umbellatum* growing in peat on a rock platform that appears to be a new record for the area. The wet areas along the track were good spots for the diminutive *Drosera*, *D. pygmaea*. There were good displays from *Boronia serrulata*, *Grevillea sericea* and *G. buxifolia*, seen on previous days.



*Dillwynia floribunda*;  
Photo: Christine Kendrick



*Phyllota phycoides*



*Conospermum ericifolium*



*Philotheca reichenbachii*



*Darwinia fascicularis*



*Leucopogon esquamatus*



*Mirbelia rubiifolia*



*Thelionema umbellatum*



*Drosera pygmaea*



*Boronia serrulata*;  
Photo: Christine Kendrick



*Eucalyptus leuhmanniana*



*Grevillea sericea*;  
Photo: Christine Kendrick

The day was completed with a visit to West Head overlooking Broken Bay and Barrenjoey Head followed by a walk to a

nearby petroglyph site where we saw a fine display of *Patersonias* among other plants.



*Hardenbergia violacea* (left) and *Hovea heterophylla* (right), Black Mountain Wednesday walk; Photos: Brigitta Wimmer





# Reflections on flowering of *Cyanicula caerulea* and *Glossodia major* at Carwoola 2016

Text and photos by Martin Butterfield

For the last three years I have monitored the flowering of colonies of *Cyanicula caerulea* and *Glossodia major* on our property at Carwoola NSW. The sites are all close to 800m above sea level (which approaches the known altitude limit for *Cyanicula*).



*Cyanicula caerulea*

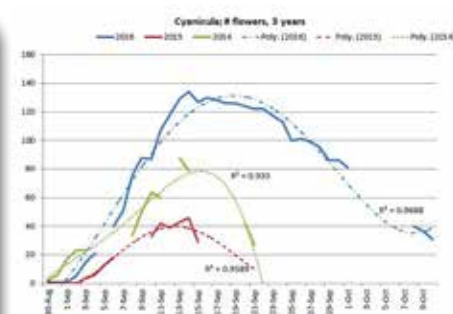


*Glossodia major*

## Summary of observations

The flowering season in 2016 was notable for both the number of flowers recorded and their duration. Chart 1 summarises these attributes for *Cyanicula caerulea*.

Chart 1: Number of *Cyanicula caerulea* flowers 2014–16



Note that the trend lines in this chart are there as a means of smoothing out the statistical noise in the series and not implying any other meaning.

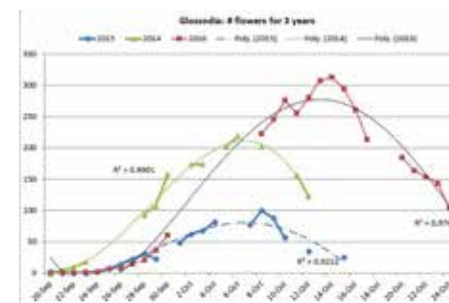
The maximum number of flowers seen in 2016 was 134, compared to 88 in 2014 and 46 in 2015. I have started to monitor the sites from about 25 August and the dates of first sighting a flower are quite consistent, varying from 30 August to 2 September.

I will confess that in previous years I have ceased counting when it is

clear that most of the flowers have disappeared. However it is clear that the 'season' in 2016 was far longer than the two earlier years. It also seemed clear that individual flowers were lasting much longer: some flowers in distinctive positions relative to the total site lasted for at least 14 days, and perhaps longer.

Some other research has shown that October 2016 had relatively low maximum temperatures compared to monthly averages for the area. As I have not been rigorous in monitoring the life of individual flowers it is risky to pronounce but I wonder if one contribution to flowers disappearing is wilt due to high temperatures? In several cases I noticed potentially pollinating insects on flowers, but the possibly pollinated blooms did not disappear for many days.

Chart 2: Number of *Glossodia major* flowers 2014–16



The comments for this species are similar to those for *Cyanicula caerulea*. The maximum number of flowers counted by year are 313 (2016); 100 (2015); and 219 (2014). Part of the growth — up to about 40 flowers — for this species was the colony expanding into a grassy area contiguous to the *Kunzea ericoides* scrub which was the base of the colony in previous years.

## Impact of weather

There have been many reports in the media about the amount of rain in winter 2016. Having records of weather for our property I thought it worthwhile examining whether there were any correlations between the orchid observations and the weather.

There are several possible ways of assessing both the number of flowers and the attributes of the weather. I decided to look at rainfall and temperature as the weather attributes. After discussing the various factors in isolation, a conclusion attempts to bring the various issues together. Cutting to the chase I found the pattern of rainfall to give a much less better match to the pattern of number of flowers than patterns for temperature (both maximum and minimum, albeit in different directions).

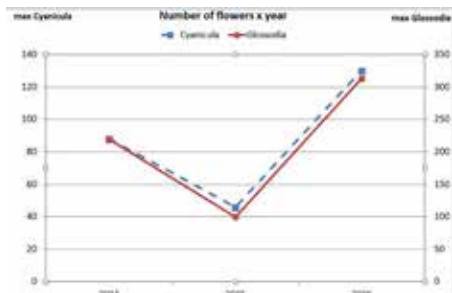
## Number of flowers

There are several possible ways of measuring this. As there are breaks in the series for various reasons each year, I decided that taking the maximum number counted in a year was the most useful.

It is interesting that the pattern is almost identical for the two species. Most notably the ratio of the maximum in 2014: maximum in 2016 is almost identical at just below 1: 1.5. The pattern is illustrated in the graphic on the next page.

It is thus not surprising the relationship to weather variables is almost identical for the two species. In the discussion which follows I have only shown a chart for one species: the same graphic for the other species is almost identical.

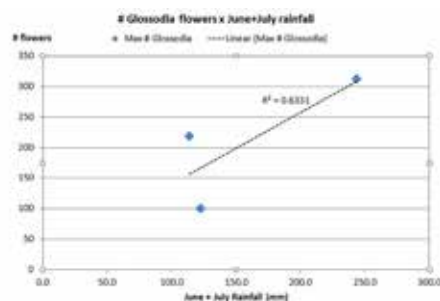




## Rainfall

Again there are several possibilities to be examined. The most dramatic rainfall was in June and July, both of which recorded the highest rainfall for the month in the last 10 years. A second variable was to include August rainfall. I decided to also look at a longer period so included total rainfall for 2016 to the end of August.

Looking first at the comparison of maximum number of *Glossodia* flowers per year against rainfall in June and July shows a reasonably good similarity of pattern (as indicated by the correlation coefficient value of the trend line).

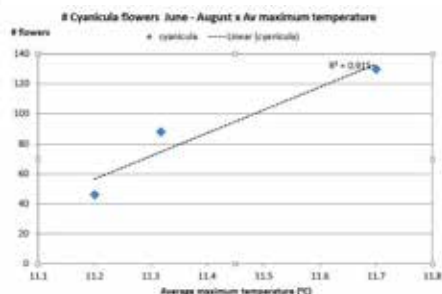


Neither of the other two measures shows a high level of correlation, with the year-to-August statistic in particular giving very low values.

## Temperature

I looked at three measures of temperature over the three months.

The first was average maximum temperature. The chart shows the situation for *Cyanicula*.

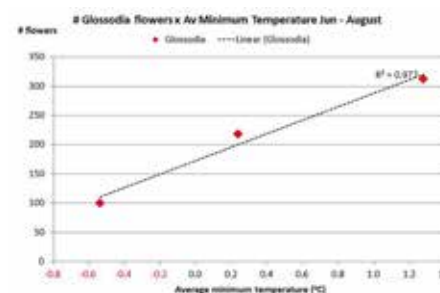


This shows quite a robust relationship. If a two-month period (ie only June and July) is used the relationship is far less strong ( $r^2$  of 0.65) since the average maximum temperatures for 2014 and 2015 are the same, but the number of flowers is much lower in 2015. A conclusion could thus be drawn that the temperature in August is an important factor in encouraging the emergence of flowers.

As an aside it is interesting that the difference in averages which seems to drive the difference is 'only' 0.5°C. Perhaps this emphasises the importance of the debate about climate change considering temperature changes of 2°C!

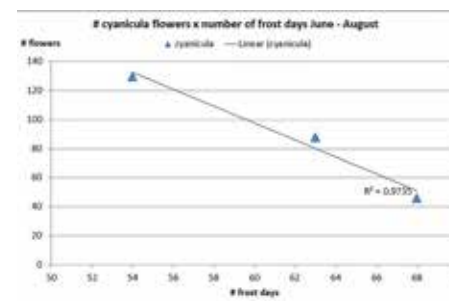
A second measure was the average minimum temperature. In this case I have illustrated with the relationship for *Glossodia* over the three months.

This shows a very strong relationship between the two measures. As expected the result for *Cyanicula* was similar.



Interestingly the relationship is very similar, in pattern and strength, for the series using only temperatures for two months (June and July).

The final measure is the number of frost days, which I have counted as the number of days in which the minimum is below 2°C. It should be noted that my weather station records on a day beginning at midnight, while official Bureau of Meteorology starts a day at 9am. I don't think this makes a significant difference for the purposes of this analysis.



As might be expected a higher number of frost days reduces the number of flowers counted!

## Conclusion

When I first reported on my counting activity a response was received to the effect that the one year of data provided a good benchmark. Having now got a three-year series it is possible to begin to explore simple relationships, but not more complex factors. Perhaps next year!

The analysis reported in this note suggests that high rainfall in June and July is an important factor for both of the study species. It is slightly surprising the relationship is as strong for *Glossodia*, which starts flowering almost a month later than the *Cyanicula*. Even more surprising is that the strength of the correlation drops off if the third month is added in.

With regard to temperatures a warm August (in terms of maximum temperatures) appears to encourage a lot of flowering. As shown by the analysis of minimum temperatures, lower temperatures appear to inhibit flowering — particularly if there are many temperatures below 2°C.

It should be noted that I make no claims to expertise in botany or meteorology. However the patterns shown here seem to be fairly clear. I would of course welcome any comments reinforcing or discounting my conclusions.



*Callistemon citrinus*, Tahmoor Canyon

## Sandstones of the Southern Highlands: Tahmoor Canyon, Dharawal National Park and Boxvale Track

*Text and photos by Roger Farrow unless otherwise stated*

The Southern Highland region to the north of our local tablelands contains extensive areas of Sydney sandstone dissected into gorges carved by the Nepean, Nattai Bargo Rivers and many smaller creeks and it supports an outstanding sandstone flora. Despite its proximity we have never held any field trip into this area apart from some visits to the Boxvale Track in Mittagong. This changed in October with a three-day excursion to Tahmoor Canyon, Dharawal National Park and the Boxvale Track. The

choice of walks was made much easier using a recent guide *Best walks of the Southern Highlands* by Gillian & John Souter who have an eye for wildlife as well as for scenery.

Our first walk was along the Tahmoor Canyon cut by the Bargo River and leading to Mermaid Pool and Sugarloaf lookout. The trail starts along the river bank that became an obstacle course of fallen trees caused by the earlier floods, but this did not affect the recovery and flowering of the shrubs that included *Callistemon citrinus*, *Callicoma serratifolia*, *Epacris oblongifolia*, *Philotheca myoporoides*, *Pseudanthus pimeloides* and *Westringia longifolia* among others.



*Philotheca myoporoides*



*Callicoma serratifolia*



*Westringia linifolia*

We then climbed to canyon rim to a viewpoint overlooking Mermaid Pool where we were entertained by a group of boys jumping 20m from an overhang into the pool. This part of the walk passed through woodland with an understory containing a wide range of plants in flower including *Astrotricha longifolia*, *Boronia ledifolia*, *Darwinia biflora* with its

twin flowers, *Dillwynia retorta*, *Eriostemon australasius*, the local endemic *Grevillea*, *G. sphacelata*, *Lasiopetalum parviflorum*, the pink-flowered *Mirbelia rubiifolia*, a small-flowered Lamiaceae, *Hemigenia cuneifolia*, the white corymbs of *Poranthera corymbosa*, a pink *Scaevola aemula*, *Tricoryne simplex* and spectacular



*Darwinia biflora*



*Eriostemon australasius*



*Grevillea sphacelata*



*Lasiopetalum parviflorum*



*Mirbelia rubiifolia*



*Hemigenia cuneifolia*



*Scaevola aemula* pink



*Tricoryne simplex*



*Pseudanthus pimeloides*



clumps of the *Pseudanthus pimeloides* growing among sandstone boulders.

At the lookout we saw an unusual rainforest tree growing on the cliff face with numerous white flower buds yet to be identified. Past Mermaid Pool we crossed an area of woodland with an understorey dominated by several species of *Lasiopetalum*, to another cliff top lookout over the canyon where we found a stand of the monoecious

shrubs of *Beyeria viscosa*. Beyond us the Cumberland plain opened out to the east and it was time to return.

The next day we visited Dharawal National Park south of Campbelltown, only created in 2012, although I must say that the northern and western entrances are not signposted and difficult to find without a map/guide and navigation system. We started at the northern entrance with a walk to Minerva Pool along a fire trail

and then a narrow track. A feature of this walk was a number of endemic grevilleas including *G. capitellata*, *G. parviflora* and *G. longifolia* plus *G. bauerifolia* and *G. oleiodes*.

The latter was found on the rock platforms along Stokes Creek above the pool where we also found *Melaleuca ericifolia*, *Epacris obtusifolia* and *Utricularia uniflora* as well as a submerged *Triglochin* sp. with emergent flower spikes. Other interesting plants seen on this walk were *Goodenia paniculata* with its toothed leaves and

*Hibbertia monogyna* with mucronate leaves. It is quite a long drive via Appin to the eastern entrance to the park off the Princess highway near Bulli Pass.

There is a short boardwalk to Maddens Falls lined with species including *Darwinia fascicularis*, *Leptospermum squarrosum* (pink flowers), *Sprengelia incarnata* and *Woolisia pungens*. The peat patches on the rock platforms above the falls contained some interesting bog plants growing in peat on the rock platforms above the falls including the



*Poranthera corymbosa*



*Grevillea capitellata*



*Grevillea oleiodes*



*Sprengelia incarnata*



Unidentified tree



*Grevillea parviflora*



*Goodenia paniculata*



*Beyeria viscosa* Male



*Grevillea longifolia*



*Hibbertia monogyna*



*Conospermum tenuifolium*



*Grevillea* sp

twining *Conospermum tenuifolium*, *Epacris microphylla*, an unidentified species of *Grevillea* with red flowers and lanceolate leaves and a white-flowered *Bauera rubioides*.

Our final day was the Boxvale Track. It was disappointing to see that vandals had recently driven a 4WD through the Bush near the car park trashing a large area of vegetation.

There was a great display of orchids including *Diuris sulphurea*, *Caladenia* (*Stegostyla*) *moschata*, *Caladenia* (*Petalochilus*) *carnea*, *Caladenia* ?*testacea*, *Thelymitra rubra*, *T. ixioides* and *T. media*.

Along the track we saw a variety of shrubs in flower including *Boronia anethifolia* and *B. ledifolia*, the large *Astrotricha latifolia*, *Dillwynia retorta*, both upright and prostrate forms, the sticky shrubby daisy, *Olearia viscidula*, *Bossiaea obcordata*, *Conospermum taxifolium*, *Grevillea sericea*, *Pultenaea blakelyi*, *Grevillea arenaria*, the paper daisies, *Coronidium elatum* and *C. calvertianum*,

a local endemic growing in peat on rock platforms, *Prostanthera rugosa* and a single waratah.

At the lookout over the Nattai gorge we found at least three *Pomaderris* species, well past flowering, as well as some large wedding bush shrubs, *Ricinocarpus pinifolius* and *Leucopogon setiger* with its twin flowers.



*Caladenia* ?*testacea*



*Dillwynia retorta* prostrate



*Coronidium elatum*

## Study Group Notes

By Brigitta Wimmer, Study Group Liaison Officer, ANPS Canberra Region

### Acacia Study Group

Newsletter No 134, September 2016

- From the Leader
- Welcome
- From Members and Readers
- Study Group Field Trip — Girraween
- *Acacia dietrichiana*
- *Acacia pycnostachya*
- Low growing WA wattles for the home garden
- Celebrating Wattle Day 2016
- Helena & Aurora Range
- Seed Bank
- Study Group Membership
- Financial Report 2015–16

### Correa Study Group

Newsletter No 54, mid 2016

- Flinders Island Correas
- Correa Varieties
- Correa Photos
- *Correa aemula*

### Eremophila Study Group

Newsletter No 114 November 2016

- Letter from the Editor
- What's New in the Study Group
  - Study Group website
  - New members
  - New Victorian Group
  - Study Group Archives

Keeping Cuttings while Travelling

Post-Pinery Recovery

Research news

Species new and missing

Antibacterial properties of *E. alternifolia*

Seed germination

Bees and Eremophila

- Feature species — *Eremophila viscida*

Aspect and soils

Pests and Propagation

Hybrids

- Pruning Experience
- A bit more on *Eremophila christophorii* hybrids
- From your letters
- Events

Queensland group regional meeting

Sydney group regional meeting

Victorian group regional meeting

Presentations

- ESG Gathering Early September 2017
- Future Newsletter Themes
- Financial Report 2015–16
- About the Study Group

### Fern Study Group

Newsletter No 137 November 2016

- Program for South-east Queensland Region
- Program for the Sydney Region
- Excursion Reports



Sydney Area Fern Study Meeting,  
17 September, 2016

Excursion report for 'Sagrado', Mt  
Mellum, 3 July 2016

Ferns at 'Wynne', Tomewin, New  
South Wales, 7th Aug. 2016

- Other Articles

The Australian Fern Weevil

Australian Climbing Ferns

*Dictymia brownii* 'Glenrock'

- Financial Statement

## Garden Design Study Group

Newsletter No 96 November 2016

- Leaders Comments
- Correspondence
- King's Park floral clock restored
- Australian native plants for pots
- Alison and Daryl's garden
- Garden Visit on August 28
- Next meeting (Melbourne)
- Visit to Shirley Carn's Garden
- Visit to NSW South Coast
- Noake's Garden
- Treasurer's Report Ben Walcott, Canberra
- Index

## Hakea Study Group

Newsletter No 62 October 2016

- From the Leader
- Hakea expedition in Western Australia
- News from members
- Hakeas in my garden
- Financial report
- *Hakea chromatropa*
- Hakea newsletters on the internet

- Hakea newsletters on the internet
- Hakeas flowering at Elliminyt

## Isopogon & Petrophile Study Group

Newsletter No 19 October 2016

- From the editors
- From our members
- Exchanging cuttings and seed
- Encouraging *Isopogon latifolius* to flower
- Plant Profile — *Isopogon divergens*
- Plant Profile — *Petrophile drummondii*
- Grafting update
- WA Spring 2016: Southern Trip
- Pangarinda Botanic Garden
- Isopogons and Petrophiles in Western Australia 2016
- Financial Report

## Waratah & Flannel Flower Study Group

For members who are interested in the Waratah and Flannel Flower Study Group, Maria Hitchcock as Leader of this Study Group has sent the following request:

*It would be appreciated if donations could be made by EFT rather than by cheque.  
BSB 932 000, A/c 720737 59, Name: ANPSA Waratah & Flannel Flower SG.*

## Letters to the Editor

Thank you for producing such an interesting journal ! Many hours go into that, I know.

I thought I should comment particularly on Rosemary Bleming's article [*Confessions from a Landcarer*; September 2016 Journal Vol. 18 No. 9]: so very well written, as usual I may add, and she poses a couple of questions regarding the eradication of feral plant species.

### *Pittosporum undulatum*

Yes the pittosporum is very invasive and I agree it is out of character and should be removed. But should it?, she asked. I think she hits the nail on the head by asking: does it have any environmental use in Mt Rogers? I am not aware of any, but if we do leave it, it will develop one in the form of bird habitat (shelter and food).

Hence, from my point of view, because I don't think a habitat has developed yet, removal sooner than later is required. If however it is important to keep it then the only way to do so is to manage it. Then it becomes a matter of deciding what proportion of this plant species is necessary to maintain the perceived environmental benefit.

With regard to allelopathic influences, we do not know and since it will require an intensive and expensive study to find out, I suggest that this may not be a necessary question.

### *Acacia boormannii* & *A. baileyana*

The same argument for pittosporum applies to these species, I feel. However, as Rosemary suggests *Acacia baileyana* is visually accepted by the public and they attract the superb parrot. To me therefore *A. baileyana* should remain on Mt Rogers, but should be managed. That means, a management plan needs to be prepared, which highlights what proportion of the area of Mt Rogers can be taken over by *A. baileyana* for either habitat or visual reasons.

*A. boormannii* is indeed very invasive and whereas *A. baileyana*'s seedlings can be easily removed and hence manageable, *A. boormannii* spreads by suckering, which often remains viable after fire. Hence even though it has a perceived visual appeal, but appears not to have any other environmental use, I suggest it should be removed as soon as possible.

Rosemary however does not mention the ever present 'tree of heaven', growing densely on the south/western slopes. It suckers badly and as result grows every year outwards. It does not have any environmental or visual appeal, I suggest, and hence should be removed as soon as possible. It is not even an Australian species. Why, I ask, has this large clump been allowed to exist? It seems to have a much higher reason for removal than any of the others mentioned.

In general, Rosemary should be congratulated on her management of Mt Rogers; she has that wonderful ability of balance in deciding what should happen on Mt Rogers. She is right, I feel, that it will never be possible to stop the import of foreign species; hence a management plan should be formulated to assist her in the management of Mt Rogers.

Such management plan should of course include people and animal (feral or native) movements and recreation as well as plant management.

I hope my comments have been useful. Mt Rogers is a great natural resource for all kinds of reasons.

Chris Slotemaker de Bruine

[Note: *Ailanthus* sp (tree of heaven) is to be removed by Icon Water contractors in return for Icon's removal of native vegetation around the reservoirs in the reserve.]

### Reply

It would be helpful if someone from *Pittosporum undulatum* natural habitats could tell us whether they are used as nest sites by species requiring such dense cover.

Rosemary Blemings

## Australian Native Plants Society, Canberra Region Inc.

The aims of the Society are to foster the recognition, conservation and cultivation of Australian native plants.

Meetings are held at 8 pm on the second Thursday of each month, February to December, in Canberra. Visitors are always welcome.

Day and weekend field trips to locations of outstanding botanical interest are organised on a regular basis.

The Society publishes a Bulletin in all months except January, and this quarterly Journal in March, June, September and December.

Website: [nativeplants-canberra.asn.au](http://nativeplants-canberra.asn.au)

### Membership Fees

Single or family memberships are the same price.

Basic membership including Bulletin and Journal — \$35 (\$18\*)

Full membership including Bulletin, Journal and Australian Plants — \$50 (\$33\*)

Life member subscribing to Australian Plants — \$15

\* Concession rates apply to pensioners (Centrelink), full-time students and unemployed.

Membership Secretary: Ben Walcott 02 6161 2742  
[membership@nativeplants-canberra.asn.au](mailto:membership@nativeplants-canberra.asn.au)

### Council

#### President

Lucinda Royston  
02 6231 6067  
[president@nativeplants-canberra.asn.au](mailto:president@nativeplants-canberra.asn.au)

#### Vice President

Alison Roach  
0401 669 878  
[v.president@nativeplants-canberra.asn.au](mailto:v.president@nativeplants-canberra.asn.au)

#### Secretary

Neville Page  
02 6238 1770  
[nevpbpage@gmail.com](mailto:nevpbpage@gmail.com)

#### Treasurer

Ben Walcott  
02 6161 2742  
[treasurer@nativeplants-canberra.asn.au](mailto:treasurer@nativeplants-canberra.asn.au)

#### Assistant Secretary/Treasurer

John Carter  
02 6231 7055  
[carterjg@inet.net.au](mailto:carterjg@inet.net.au)

#### Other Council Members

Geoff Butler  
Philip Fradd  
Greg Quinn  
Ros Walcott  
Bill Willis  
Peter Woodbury

### Other useful contacts

#### Bulletin Editor

Lucinda Royston  
41 Jamieson Crescent, Kambah ACT 2902  
[bulletin@nativeplants-canberra.asn.au](mailto:bulletin@nativeplants-canberra.asn.au)

#### Study Group Liaison Officer

Brigitta Wimmer  
[studygroups@nativeplants-canberra.asn.au](mailto:studygroups@nativeplants-canberra.asn.au)

#### Propagation aid sales

Glenn Pure  
66 Crozier Circuit, Kambah ACT 2902  
02 6231 6457

#### Booksales

Murray Dadds  
43 MacLaurin Cres, Chifley ACT 2606  
0404 870 447  
[daddsm@bigpond.com](mailto:daddsm@bigpond.com)

#### Public Officer

(for Associations Incorporation Act purposes)  
Paul Meier  
7 Robert Lewis Crescent, Gordon ACT 2906  
02 6294 6601 (h)

#### All Society correspondence to

The Secretary  
ANPS Canberra Region (Inc), PO Box 217  
Civic Square ACT 2608

**Back cover:** *Callistemon pallidus*, Mt Tennent, Cypress Pine Lookout walk; Photo: Brigitta Wimmer

## ANPSA

In conjunction with  
**Coates Wildlife Tours**  
*Specialists in Nature Tours since 1986*

are offering Members and Friends an exciting Kimberley experience

**12 Day Natural History Kimberley Camping Tour**  
Kununurra to Broome  
11–22 June 2017

### Highlights

Purnululu National Park, Gibb River Road including Mornington & Home Valley Stations, Manning, Galvins, Bell and Windjana Gorges

Join your fellow members and enjoy a wonderful outback experience as we discover the Kimberley's unique geology; ancient limestone reef and the rich Aboriginal culture that has fascinated visitors for many years. It is home to some of Australia's most beautiful and rare bird life, diverse flora and exciting fauna.

### For full tour details contact:

Nicky Zanen, Publicity Officer, ANPSA  
Email [nicky.zanen@hotmail.co.uk](mailto:nicky.zanen@hotmail.co.uk)  
Phone: 0401975191



