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Cover: *Blandfordia nobilis*, Little Forest Plateau, Morton National Park;

Photo: Catriona Bate

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.

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A Walk on the Yerrabi Track, Namadgi National Park



The sun came out after lunch revealing the view from near the Boboyan Trig

Text: Jo Walker; Photos: Jean Geue

25 January 2017

By the time we reached the Boboyan Trig carpark to start our walk, we were enveloped in a white mist which kept us unexpectedly cool all morning until we got to the highest part of the track.

The beginning of the track descends gently through a forest of mainly Broad-leaved Peppermint trees (*Eucalyptus dives*) towards a swampy grassland. The low understorey on the slope consisted mainly of *Podolobium alpestre* and *Persoonia chamaepeuce* with a few *Exocarpos strictus*. An interesting find at the



Persoonia chamaepeuce

edge of the track was an Anchor Plant (*Discaria pubescens*) covered in an unusually large number of small green seed capsules. As we strolled down the lower and much moister end of the slope, *Bulbine*



Discaria pubescens

bulbosa and *Podolepis hieracioides* brightened up the scene with their yellow flowers.

The track traverses one edge of the swamp, with a wide vista of Snowgrass (*Poa sieberiana*) to the left and a crescent of Black Sallee (*Eucalyptus stellulata*) sheltering the far side. Amongst the grass tussocks were more *Bulbine bulbosa*, and near the path in the more open areas *Hypoxis hygrometrica* and a few *Geranium antrorsum* nestled close to the ground.

But the most noticeable plant, adorning the edge of the path for some distance, was *Trachymene humilis*. These are in the carrot family (Apiaceae) and bear multiple-flowered flat white flowerheads on short stems. Some shrubby vegetation included *Leptospermum myrtifolium*, white-flowering *Baeckea utilis* and a few *Hakea microcarpa* in seed.

After the flat stroll, we came to an upward path through Snow Gums (*Eucalyptus pauciflora*) and Mountain Gums (*E. dalrympleana*).



Podolepis hieracioides



Leptospermum myrtifolium, still in flower

The under-storey there is mostly the mountain form of *Acacia dealbata* and the silvery blue-green foliage against a backdrop of dark misty forest brought to mind intricate embroidery. Amongst the wattles, a few *Olearia megalophylla* were growing — and a large *Clematis aristata*, heavily laden with almost-ripe seed-heads, covered a fallen log.



Fog at the beginning of the walk in dry forest where *Eucalyptus dives* (Broad-leaved Peppermint) dominates

As we approached the Boboyan Trig at the top of the track the mist cleared. Burgan (*Kunzea ericoides*) was growing thickly in places, still bearing its white flowers. The mountain form is a bit different to those growing locally at lower altitudes — they are lower-growing and have brighter green leaves. Scattered amongst the rocks around the trig were lots of pink-flowering *Pelargonium australe* and a few *Veronica perfoliata*.

In the vicinity of the Trig, the geology changes markedly from the dark and flaky 410 million-year-old metamorphosed sedimentary rocks we'd been walking on to dark-flecked pale grey granite. The latter

is Shannon's Flat adamellite and is even older than the shale, some 475 million years old. As well as giving an incredible insight into the Earth's history, the smooth granite proved to be an ideal lunch spot.

The track continues down some steep and elderly concrete steps through a narrow cleft in the rocks, eventually ending on a wide expanse of granite from where you can see most of the mountain peaks in the National Park — on a good day, that is! By then, we had come out of the cloud, but it extended mistily right along the valley below. So we had to assume the vista displayed on an information board was there in the mist somewhere.



Exocarpos strictus



Some other plants were found there, anyway — a few *Pomaderris phyllicifolia* and some *Phebalium squamulosum* ssp *ozothamnoides*. And several clumps of *Dianella tasmanica*, heavily laden with still-green fruit, were growing in the shelter of the rocks. Some little native animal obviously found them tasty, as there were several piles of fresh skins with the fleshy parts entirely eaten out.

There were other signs of wildlife along the way. The birds stayed mostly amongst the trees, but we heard Gang-gangs, Yellow-tailed Black Cockatoos and Leaden Flycatchers plus other unidentified calls. We saw a beautiful gold and

brown mottled lizard, probably a species of *Ctenotus*.

And twice we saw furry caterpillars hosting multiple bright red mites (as pictured in Roger Farrow's book *Insects of Southeastern Australia* p.159). But the insect highlight was a female Mountain Cricket in warning display mode, exhibiting the bright red and blue colours below her raised dark wings.

We even found some food as the *Exocarpos strictus* plants were bearing their pale pink fruit (or, more correctly, the edible swollen pedicels — the fruit is the tiny hard seed at the tip).

Altogether it was a lovely walk, without experiences ranging from standing on massive rocks old enough to defy imagination to watching tiny insects carry out the intricacies of their short lives amongst the vegetation.



Exocarpos strictus and friend



Morning tea in the mist, Yerrabi Track, Namadgi National Park

Acacia paradoxa flower galls

Mystery partly solved

Text and photos by Roger Farrow

In an article entitled *A Galling Paradox*, in the 2014 September edition of our journal, I described some unusual flower galls found on *Acacia paradoxa* in the Burra section of the Tinderry Nature Reserve in May during a Wednesday Walk. At this time, the galls were empty and grey in colour and each had a small hole indicating that the causal agent, probably a gall-wasp, had emerged and left.

During the following spring, I found immature galls replacing the axillary flowers of *A. paradoxa* nearer at hand along Urila Road. When I returned in January 2015 to collect mature galls I found them empty as the causal agent had again emerged previously. This happened again in January 2016 so in December 2016 I collected some twigs of *A. paradoxa* (Fig 1) with clusters of mature galls that had few emergence holes (Fig. 2).



Figure 1: *Acacia paradoxa* flower gall



Figure 2: *Acacia paradoxa* flower gall

On December 25, we were away for the festivities and when we returned on the 26th the container of gall-bearing branches was full of hundreds of tiny wasps (Fig 3).



Figure 3: Chalcid gall-wasps



Figure 4: Chalcid gall-wasps

An inspection under the microscope (Fig 4) showed them to be gall wasps probably in the family Pteromalidae and possibly a species of *Trichilogaster* that is known to produce flower galls on Acacias, such as *A. longifolia* and *A. dealbata*.

I preserved a sample in alcohol and sent it to Dr John Lasalle, an honorary researcher at the Australian National Insect Collection (ANIC) at CSIRO and specialist on parasitic Hymenoptera. He was able to confirm that it was not a species of *Trichilogaster*, as previously conjectured, and despite going through the generic key for Pteromalidae and checking the wasps associated with Acacias has been unable to come up with a name.

Each flower bud is replaced by 10–15 tapered hairy galls each containing a single wasp larva. No hyperparasites were detected among the

emerging wasps so each infested host bush, containing several hundred of these compound galls, can produce upwards of a thousand wasps. However, another question is: what these fragile wasps do after emergence until the new flower buds form in autumn. Is there an alternative host plant or do the wasps aestivate till autumn? Adult survival of the wasp could be the crucial factor in the level of gall infestation in *A. paradoxa*.

About another gall

In 2012, I photographed an unusual line of spindle-shaped galls on a yellow box at Queanbeyan Nature Reserve. John Lasalle recently came across a single dried specimen of the gall in the ANIC collection, labelled *Tepperella eucalypti* now *Terobiella eucalypti* (Pteromalidae) from Lakemba, but no specimens of the wasp that induces the gall were present. I have been looking for this gall for several years so if anyone comes across one could they let me know so I can rear out the wasps and send to John.



Figure 5: *Terbiella eucalypti* on *Eucalyptus melliodora*, Queanbeyan Nature Reserve

Small Shrubs

Text and photos by Masumi Robertson unless otherwise stated

Small shrubs are woody plants up to 1.3 metres high and more tall than wide. We can plant more of these plants in our gardens, giving us a variety of flowers and leaf textures through the seasons. They are well suited to the foreground of a garden bed and/or along a path. They are also good in containers, courtyard gardens and in the newer, smaller blocks. Most of those on this list are hardy, some less so but definitely worth trying. Aiming for 10 plants, I ended up with 12. After all, the small shrub section contains the largest number of plants in our book.



Photo: Bywong Nursery

Correa 'Canberra Bells'

This is the Canberra centenary plant. This correa, along with many other correa hybrids, was bred locally by

Bywong Nursery. Many others also do well in Canberra gardens. This cultivar has lots of red bells, tipped white, and is a magnet for nectar feeding birds. Our plant took a few years to become bushy, but it is one of the most reliable (almost plant and forget) correas.



Crowea 'Festival'

This is the most reliable and attractive crowea for us. It has a dense growth habit covered with pink flowers in autumn, and some flowers most of the year. Full sun is best for lots of flowers and compact growth. We also find the bright green leaves attractive. Another favourite, 'Pink Blush' which has pale pink flowers is definitely worth a go.



Cryptandra spinescence

This is a cheerful plant flowering through winter into spring, very long flowering indeed. Lots of small white flowers cover the plant. It may need some care to establish, but once it settles into a well-drained, sunny spot, it is long lived; ours is 20 years old.



Derwentia arenaria

Yet another very long flowering plant (spring into early autumn) with bright blue flowers opening up along a long stem. It is a hardy plant that does well in full sun. Prune the old stems in spring to promote new growth.



Epacris longiflora

Epacris plants are not as hardy as others on this list, but this one in particular is worth trying. Ours flowers most of the year, producing cheerful long red trumpets topped white, if the Crimson Rosellas leave them alone. We find full sun in Canberra is too hot for this plant. Ours receives sun about half a day and it does better and flowers continuously when watered regularly over the warmer months.



Eremophila subfloccosa

The flowers may be green and hidden, but birds have no trouble finding them and it is a favourite for nectar feeders. We find the plant attractive for its green-grey leaves all year round. It is very hardy for both frosts and drought. It is best pruned often for a dense growth.



Goodenia ovata

This understory plant grows under various eucalyptus trees in our garden. The trees also give some frost protection. The frost-affected parts can be pruned and the plant grows back well. Pruning also helps to keep the plant bushy. In spring, the shrub is covered by yellow flowers with some flowers throughout the year. It does better with watering during hot months. Plants of its prostrate form provide good groundcover.



Leucophyta brownii

This compact plant will add a white contrast to your garden all year round. The woolly, silver leaves and stems are attractive among the other green plants. The plant is grown for the leaf colour, even though it flowers well with lots of small, yellow balls in summer. Our latest one is from the Australian National Botanic Gardens Friends' sale and appears to be the best form found so far. We gave it full sun and open air and this plant just took off!



Grevillea 'Amethyst'

There are many small Grevilleas and we find this plant is one of the best. It is more reliable and floriferous than one of its parents, *G. confertifolia*. Showy flowers cover the plant in spring. It is best in full sun and tolerant of some dryness once established.



Melaleuca thymifolia

We have several forms of this species; pale pink, white, purple and 'Candy Pink'. They are all hardy and long flowering and can fit into a small space for colour. Ours are in full sun.



Phebalium glandulosum

This is a pretty, small shrub which flowers well in some shade, even in a somewhat dry site. The shrub becomes covered with cheerful, yellow flowers in late winter into early spring. Not a commonly available plant, but it is worth looking for.



Thomasia purpurea var undulata

This very hardy, small shrub is a must for any garden. The compact plant is attractive all year round with felt-like leaves and open, pink bell flowers are a cheerful sight in spring. Most thomasia species grow well under trees, in dry shady spots and this one does too. Our latest addition is growing in full sun, tolerating hot Canberra summers and hard frosts.



Lambertia inermis;
Photo: Glenn Pure

Grafting Australian Native Plants

The cutting graft method

Text and photos by Phil Trickett

Any gardener who has tried to grow some of the spectacular Western Australian plants outside their natural environment knows all too well the difficulty in keeping these plants alive for more than a few months.

Grafting onto hardy eastern Australia rootstocks has long been touted as the answer to this problem. However, the cost and time involved in producing grafted plants commercially has been a huge brake on their development and availability. These plants are often priced at two to three times the price of non-grafted plants, resulting in both limited demand and consequential reduced supply.

Most commercial grafting to-date has concentrated on the grevillea genus, and many successful long-lived plants have been produced. Despite these successes, the supply of grafted native plants in NSW and Qld nurseries is currently negligible.

Grafted *Corymbia ficifolia* and related hybrids, *Eremophila nivea* and the odd grevillea if you are lucky, are pretty well the limit of expectation when visiting nurseries in these States. Expectations are slightly higher in Victoria and South Australia, but depend on a few specialist grafters.

So what can we do to encourage the availability of grafted native plants for our gardens? One option is to use a simpler, less resource intensive method of grafting with the potential to increase the supply, diversity and range of grafted plants, at a lower cost.

This method is where the scion is grafted onto a cutting of the rootstock and the resulting graft is processed as a cutting, called a cutting graft. Although not widely used, the cutting graft method has a number of advantages for professional grafters and is also suitable for the home gardener wanting to graft:

- the time and effort growing stock seedlings needed for the 'traditional' method is eliminated, which is likely to encourage more grafting;
- growers can choose a rootstock from their own garden, from a plant which is proven to be vigorous and hardy in their conditions;
- given practice, cutting grafts are easier and quicker to process than 'traditional' grafts.

The most common method of grafting in current use is to graft the scion (the plant being grafted onto the rootstock) onto a rooted seedling. This is the method most used by professional grafters of Australian native plants. A major cost of this method is the production of rootstock seedlings ready for grafting. The main advantage of this method is

that the grafted plant is ready to plant out slightly quicker than cutting grafts.

This article focuses on the alternative method of the cutting graft. Wider use of this technique would allow for greater experimentation and production among grafters of native plants.

I produce cutting grafts using the wedge technique for a large range of species within the genera grevillea, hakea, banksia, dryandra, eremophila, isopogon and pimelea. I graft all year round and I continue to experiment on 'new' species, depending on the availability of scion material. My techniques are the result of many years of experimentation and learning from other growers, and I continue to develop them. Here are the three most vital parts of my method for successfully producing cutting grafts.

Key steps for successful cutting grafts

- scion (plant being grafted): Choose firm, semi-hard scion material. New tip growth should be avoided as this will tend to wilt quickly resulting in the graft failing;
- stock: Take a cutting of your chosen stock plant from a plant growing in your garden. This cutting should be chosen to match the diameter of the scion material, and should be around 4-5 cm in length. Remove all leaves from the stock cutting, apart from one leaf at the very tip of the cutting. All other leaves can be removed — don't strip the bark when removing leaves. Keeping the top leaf is vital to prevent any 'dieback' around the graft union;

- soak stock and scion cuttings in a bleach solution (one part bleach to eight parts water) for a few seconds then rinse in water and pat dry with paper towel. This prevents any fungal issues developing while the graft takes.

Choosing your stock plant species

Which species should be used as stock plants for cutting grafts? There are four main criteria:

- the chosen species should be hardy to your conditions;
- the chosen species must be long-term compatible with the scion being grafted;
- the chosen species must strike roots readily, ideally in a period less than three months;
- non-lignotuberous species should be used to avoid the problem of the grafted plants resprouting below the graft.

Here are some examples of species which satisfy these criteria for the main genera currently grafted:

Grevillea — 'Carrington Cross', 'Burgundy Blaze', 'Bronze Rambler'

Hakea — *Hakea salicifolia*

Isopogon/petrophile — *Isopogon anethifolius*, *I. mnoraifolius*

Banksia — *Banksia integrifolia*, *B. cunninghamii*

Eremophila — *Myoporum acuminatum*, *M. insulare*, *M. montanum*

Pimelea — *Pimelea ligustrina*, *P. ferruginea*

Key requirements in successfully raising cutting grafts

The actual grafting is only one part of the process for successfully producing cutting grafts. The conditions provided to these grafts as they undergo the twin processes of the graft taking and the stock producing roots are equally critical to the success of the graft. Sub-standard conditions can very easily wipe out an entire production of grafts in one day! Key dangers are the death of the stock or scion, fungal disease, and incorrect levels of light, warmth and humidity. So what are the things to consider in providing optimal conditions for successful grafts?

- Recognise that each species being grafted requires different levels of humidity. For example *Isopogon cuneatus* only requires the protection offered by shadehouses, whereas *Grevillea leptobotrys* requires the very high humidity provided by a glasshouse under misting for at least the first month after grafting. Trial and error is the only real way to determine the level of humidity needed. However, a rough rule of thumb is that flat, more leathery leaves such as those on *Isopogon cuneatus* or *Banksia media* require less humidity than the fine, terete leaved species such as *Grevillea leptobotrys* or *Grevillea dielsiana*;
- The correct light and heat are vital, and the variation in temperature throughout the year needs to be tempered through shading/temperature reduction measures;
- Ensure that the cutting mix does not

become too wet or too dry. Both will result in the death of the stock plant before roots are formed;

- Once roots have formed, plants should be potted on using a potting mix with high air porosity. Perlite can be added to commercial potting mixes that may retain too much moisture and compromise plants successfully growing on after potting up. Protection from direct summer sunlight and strong winds is important at this stage.

Below are some young cutting grafts where the graft has successfully taken and roots have formed on the rootstock. Each clearly illustrates one leaf only at the top of the stock plant.



Banksia media, cutting graft



Eremophila cuneifolia, cutting graft



Isopogon cuneatus, cutting graft



Isopogon cuneatus, in flower

Finally a photo of a mature *Isopogon cuneatus*, grafted using the cutting graft technique. Why isn't this spectacular plant widely available as a grafted plant in nurseries? The cutting graft technique has the potential to produce these in large quantities at a far lower price than currently charged for grafted plants.

Let's hope we see commercial growers of Australian native plants experiment with this technique, so that in the near future more of our spectacular plants become available to our gardeners.

A form of this article was previously published in the July 2016 edition of Research Matters, Newsletter of the Australian Flora Foundation.



Bloomin' Outback

Bulbines on the black soil downs between Hughenden and Winton

Text and photos by Roger Farrow

When Christine and I returned from the Daintree in September we had planned to travel via the Red Centre to see the reported explosion of wild flowers following the June rains but as the time for our departure approached the rain continued and more and more roads were closed in the inland.

So we decided on a more modest trip on the edge of the Queensland outback, sticking to sealed roads and not to mud as far as possible. On our second day south we drove over the grassy downs from Hughenden to Winton where the flowers started with bulbine lilies, various daisies, swainsona peas and crotalarias. But the most spectacular



Daisies on the Downs

of all was the Flinders Poppy, *Pimelea decora*, which is restricted to this region.

At Winton we decided to visit the dinosaur stampede display at Lark Quarry on the Jundah Road 100km to the south. We were probably lulled into



Pimelea decora

a false sense of security by the well-maintained road to the quarry passing through breakaways of mulga scrub and flower-lined roadsides of swainsonas, paper daisies such as *Rhodanthe floribunda* and many others.



Rhodanthe floribunda

After leaving the quarry we continued south and drove into downland with panoramic views over grassland with more bulbines and pussy tails *Ptilotus* sp, while the road deteriorated into a black soil track with few signs, if any, of any vehicles passing this way. Then a light rain started and we could hear the pellets of mud being flicked by our car onto the camper trailer till the mud was about 25cm thick. Fortunately we found a wash-down in Jundah where



Ptilotus exaltatus



Rising waters

we spent some time removing the mud in pouring rain but at least we were now on a sealed road.

We spent a wet night in Windorah and the next day continued south to Quilpie under a threatening sky and rising waters in the creeks. The roadsides through the red sands of the mulga scrub were always full of flowers including the pale blues of *Scaevola barbata*, yellows of goodenia, whites of wild tobacco, *Nicotiana velutina* and pinks of the succulent calandrinias.

At Quilpie we found that all roads were closed by rising floodwaters except the one to the west so we detoured to Thargomindah via the loop road to



Scaevola barbata



Nicotiana velutina

Noccundra, an extra 500km. However it did give us the chance to see more wildflower displays along the roadside including Potato Bush, *Solanum ellipticum*, Yellowtop, *Senecio magnificus*, with its fleshy stem-clasping leaves and various sennas such as *Senna artemesioides* ssp *artemesioides*.



Senna artemesioides



Senecio magnificus

The next day we travelled east through mulga scrub to Cunnamulla, encountering a bright blue brachyscome yet to be identified as well as stands of Turpentine bush, *Eremophila sturtii*, in full flower.



Eremophila sturtii

Although no longer in the 'outback' the sand hills and grassy flood plains between Cunnamulla and Bourke proved to be the most floriferous yet, with carpets of daisies and peas



Brachyscome sp



Calotis erinaceae



Stemodia florulenta



Olearia subspicata



? *Coronidium* sp

including Tangled Burr Daisy, *Calotis erinaceae*, spiky daisy bush, *Olearia subspicata*, and blue rod, *Stemodia florulenta*, on the dunes and *Swainsona* sp and an unidentified billy button on the floodplains.

Our final overnight stop was Nyngan where the Bogan River lapped the infrastructure in the caravan park and so ended our eventful trip and an opportunistic look at the 'bloomin' outback'.

Rivers of Carbon — Rivers of Life

Presentation to ANPS 8th December 2016

by Siwan Lovett

By Rosemary Blemings

Rivers of Carbon — Rivers of Life is a most poignant, appropriate and inspiring story for our time. Their website explains the Rivers of Carbon approach thus:

About Rivers of Carbon

'The care of rivers is not a question of rivers, but of the human heart' — Tanako Shozo

Rivers of carbon are rivers of life! We work with landholders to protect and restore their rivers so that the fish, birds, platypus and other animals that call the river 'home', can thrive. Looking after our rivers makes sense, as trees, shrubs and reeds along our riverbanks stop erosion, filter and trap sediment, provide habitat for native animals, and make our rivers great places to swim, paddle and picnic. Our work is extending riparian corridors into the wider landscape to facilitate species movement in the face of climate change.

We are also encouraging landholders to make use of the current incentives for riparian rehabilitation because in the future they may be able to claim carbon credits for the work they do. Carbon farming is in its early stages, but landholders can undertake revegetation now, for multiple

purposes, with the added incentive of potentially being able to claim carbon credits in the future. The Rivers of Carbon (RoC) project supports such works, enabling farmers to achieve production and biodiversity goals now, while also getting carbon into the landscape at subsidised rates.

Perhaps it was that Siwan and the Rivers of Carbon (RoC) team often work with Greening Australia people I know — local environmental heroes — that the story meant so much. Many of the landscapes were familiar, at least as examples of what we've come to call 'our country' in the National Capital's region: the Yass, Breadalbane, Booroowa, Goulburn and Upper Murrumbidgee Rivers, Jeir and Bumbalong Creeks.

The tenet 'make it messy, slow it down' is underlying principles about RoC's work and the land we love. The bush is 'messy' as evidence of its complexity, functionality and natural balance as species live out their lives in symbiosis, natural predation and harmony.

Slowing it down refers to deflecting water flow across the land to reduce the erosion caused by rushing water. Vegetation in, beside and around creeks filters sediments and nutrients from water and soil chemistry is restored. Astute are the observers, the

stewards and the managers who can see why 'messiness' is so and be part of that timeless intricacy without any compulsion to alter and control.

Siwan's slides illustrated how planting native vegetation and reincorporating all layers of understorey along the region's creeks and rivers has helped individual land-managers return biodiversity to their land, property by property. They've reduced the need for artificial fertilisers and chemical pest control by allowing native species to perform these services. This has saved money and prevented the inexorable toxicity of long-cultivated, industrially-farmed soil.

RoC's teams reach out to people-on-the-land, engage and partner with them by providing stock watering points away from fragile riverine and creek corridors. Siwan applies for grants to fund this as well as the planting and restoration that landholders wouldn't have the resources to pay for.

Knowledge is shared and mutually valued with adaptations for each site-specific situation.

Methodologies are shared, not imposed by the bureaucracy (or worse, from political expediencies).

Rivers of Carbon shows, in microcosm, how humans need to re-think and restore landscape and the land's functionality across the planet.

It is often the arrogance of white fellas that Rivers of Carbon seeks to remedy. We've refused to accept aeons of natural processes, seeking control and dominance that were the result of centuries of Euro-centric practices

based on vastly different soil structures and habitats. A recent example was that the name had to change to Rivers of Life for the concept to be acceptable in Australian corridors of power where the notion of reducing atmospheric carbon was not palatable.

Programs like RoC can help heal the wounds arrogance has caused. Australia's recent ecological and agricultural history stands out as a litany of persecution, extraction, mining the soil and removing the native vegetation. Dominating other species through moral rectitude, insensitive land management and exploitation of people has a centuries-long history.

It continues today as resources that are deemed essential for first-world lives are extracted from the planet's timeless landscapes. Animals and plants have become commodities, a source of profit.

At least two Australian states have recently weakened laws that regulate the clearing of native vegetation in favour of landholders who demand the right to farm using massive machinery that is incompatible with the presence of paddock trees and islands of native grasses, shrubs and trees essential to RoC practitioners.

Rivers of Carbon is literally a breath of life, a treasury of renewal projects, restoration plans and restitution events; a return of common sense and ecological logic based on on-ground realities. Importantly the program is also a statement of intent:

- Respecting the land — Country
- Reversing the situations caused in the last 229 years

- Repairing the consequences of damage
- Reversing dated opinions and the misunderstood practices espoused by some landholders

RoC processes and projects are especially important:

- to the 33% of us who are genuinely trying to live simply
- to those who live with minimal impact and at one with nature
- to those who are stewards rather than 'owners' of land; nurturers rather than controllers
- to those who treat agricultural land with respect through empathetic land management practices
- to those who retain and respect native vegetation and understand 'messy' bushland and 'messy' waterways!
- to students of native plants, artists, photographers and propagators
- to those who continue to use water wisely and slow water flow on their properties
- to those who restore degraded and eroded land
- to those who realise we can no longer afford to water stock, free, from the land's — everyone's water resources.

RoC is a beacon of hope that shines for us and shines throughout the world when people are at one with the land, the places and the species that sustain them. Much more respect-based agriculture and land-restoration is happening than the skewed media wants us to know about.

Through story and quotes from the literature and language of life Siwan showed what is happening and what is being achieved when the land is allowed to be itself.

Rivers of Carbon changes are achieved through the power of story as the world's indigenous peoples have known and promoted for millennia together with modern anecdotes and examples.

Additionally, the situations Rivers of Carbon — Rivers of Life is so successfully and inspiringly ameliorating are the threatening dilemmas being experienced everywhere, worldwide and on a frightening scale.

RoC teams reach out to those on the land partnering with them to fund and carry out planting and restoration that their own resources couldn't achieve.

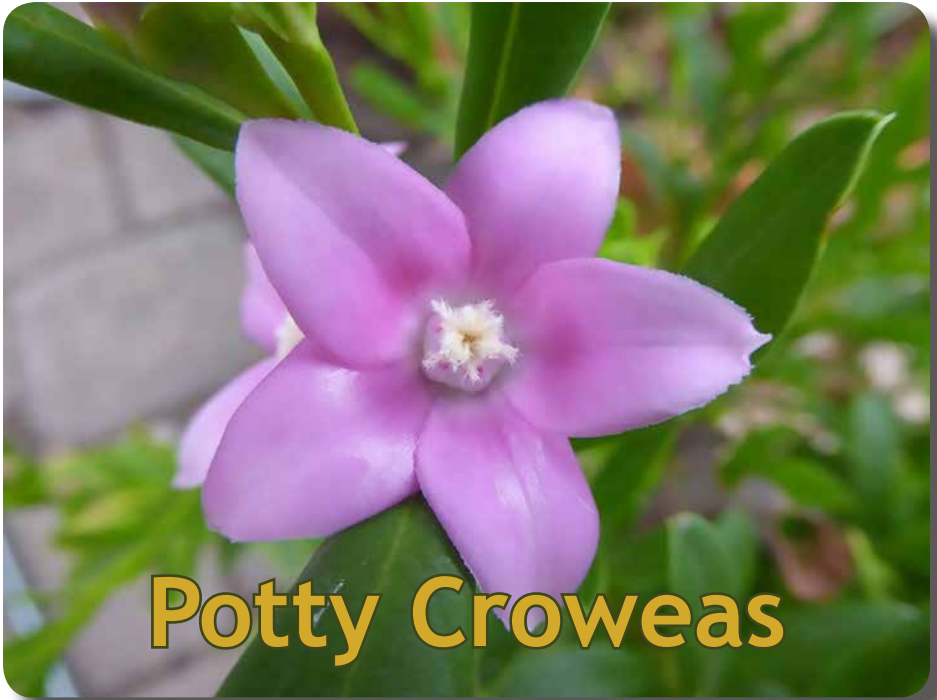
Knowledge is shared and mutually valued with adaptations for each site-specific situation.

Methodologies are shared, not imposed by the bureaucracy (or worse, from political expediencies).

Siwan is a born communicator. She brought her passion for the RoC concept and for the land to us in an engaging way based on thorough practical and theoretical knowledge. I do hope Siwan is able to (and perhaps already does) bring her messages of rural perseverance and hope to a wider series of audiences.

It was reaffirming that functioning habitats that support balanced arrays of other species are possible and within kilometres of our suburban properties.

Rivers of Carbon's website is well worth visiting www.riversofcarbon.org.au



Potty Croweas

Crowea saligna 'Large Flower'

Bill Willis

If you live in a unit, flat, apartment or if contemplating moving from the big house to the flat or unit, etc, native nuts should ponder: “what can I grow in pots on my balcony?”.

Crowea spp (RUTACEAE) are ideal for pots of moderate size; they are, in general small to medium shrubs with pretty, star-shape five-petal flowers that flower for long periods — from six to nine months and more. *Crowea* spp often shed readily viable seed and hence be prepared to see *Crowea* spp growing delightfully, but unexpectedly, over time, throughout your garden.



Crowea exalata 'Festival' and 'Autumn Lights'

The all Australian genus is named after **James Crowe** (c. 1750–1807) a British surgeon and botanist with a botanical interest in willows (*Salix*). In 1798 founding Linnaean



Crowea saligna pots

Society President and botanical power broker, **James Edward Smith**, named the crowea genus in Linnaean Society fellow James Crowe's honour. *Saligna* is crudely Latin for 'willow-like', hence *Crowea saligna*.

The two east-coast species are ***Crowea saligna*** and ***Crowea exalata*** and there are a number of hybrids and cultivars of these two genera with a range of star-shaped flowers from white to deep pink in colour.

The third known genera, ***Crowea angustifolia***, from the south-west corner of Western Australia, is a pink-bud, white/pink flowered species that tolerates light frost, but is considered to be drought tolerant. ***Crowea saligna*** is endemic to sclerophyll forest in sheltered situations on sandstone, from Woy Woy to Yerrinbol.

The south-east region has its own crowea, ***Crowea exalata*** '**Ginninderra Falls**'. Morphologically similar to ***Crowea exalata***

'**Ginninderra Falls**' is ***Crowea*** '**Southern Stars**'.

A reliable favourite is ***Crowea*** '**Festival**' a long flowering, long living (20 years) selected form that arose from seed in a suburban Sydney garden. Even in Canberra / Queanbeyan *Crowea* ssp are almost in continuous flower throughout the year.

Other reliable cultivars: ***Crowea*** '**Poorinda Ecstasy**' *saligna* x *exalata* hybrid form of ***C. saligna*** with pale pink flowers; ***Crowea exalata*** '**Bindalong Compact**' a tough dwarf compact form with pink flowers and from the Victorian Alps that grows 0.5 metres high and 0.75 metres wide.

Hailing from the same area, but from Merrick's Nursery Garden, is the long flowering ***Correa*** '**Autumn Lights**' — a potty favourite of mine.

In recent times, a number of non-PBR, non-TM labelled ***Crowea exalata*** forms have appeared in nurseries; they may be from cuttings of 'wild' hybrids. Perhaps the most attractive is the peach-coloured ***Crowea ?exalata*** '**Twice As Nice**'. Other strong ***Crowea exalata*** forms are: ***Crowea*** '**Darkside**' and ***Crowea*** '**Ryan's Star**' with attractive copper coloured apical buds in spring

Crowea exalata '**White Stars**' has been, from my experience, the least successful form often failing to thrive in my garden or in pots and failing to survive during extended dry periods.

A pot favourite is *Crowea saligna* 'Big Flowered Form' with relatively large flowers (20–25mm) and although not touted to be so, is surprisingly frost hardy. It is also a very prolific flowering form. However, a high UV index can weaken the intensity of flower petal colour.

During winter, the tip flowers of *Crowea* spp may close or fail to open and the petals will take on a very rich red colour, resembling small red rose buds.



Crowea 'Festival' double potted

Pot up *Crowea* spp with a free draining potting medium of three quarters Australian Standard potting mix to one quarter coarse washed river sand when potting in autumn to winter and Australian Premium Standard potting mix and coarse washed river sand to the same ratio when potting in spring to early summer.

Like boronias, the roots of *Crowea* spp appreciate a cool root run and double potting (plastic pot inside a ceramic pot etc) will assist in managing hot spots, hot weather and watering.

A pot ratio of 1–1.5H:1W should provide good drainage and maintain the necessary moist, cool root run (*Boronia* spp). A layer of plastic flyscreen gauze across the pot weep holes and raising the pot and watering tray 1cm approx. above ground will mitigate against the balcony being stained by potting-mix nutrient run-off.

A 10–20mm layer of finely crushed brick, 3mm grade, pea-gravel or bush gravel will provide a cooling mulch and a clean but water/air permeable surface.



Flyscreen gauze across the pot weep holes



Bush gravel will provide a cooling mulch

Go potty over Croweas! I dare you!

References: <https://www.anbg.gov.au/photo/apii/genus/Crowea>



Calotis pubescens, Gungarlin

Text and photos by Roger Farrow

Gungarlin sub-alpine grasslands

19-20 November

We were first introduced to these grasslands by Jean Smith and Bob Small on a day trip in December 2015 and were amazed by the diversity of flowering plant species found here.

This time we spent two days in the area for a more detailed survey, staying at the National Parks and Wildlife Service (NPWS) campground on the banks of the Gungarlin River from where we had a view of a carpet of buttercups (*Ranunculus graniticola*), geraniums (*Geranium antrorsum*) and highland golden moth orchids (*Diuris monticola*)

stretching across the grassy plain to the wooded hills beyond.

The camping area is situated at the divide between the Snowy Plain to the northwest and the Botherum Plain to the south and these are dissected by the Gungarlin River, which creates a distinct riverine habitat, different from other frost hollow grassland in the area such as Nungar, Boggy and Kelly's plains.

The river bank is occupied by shrubs including *Acrothamnus hookeri*, *Epacris paludosa* in full flower, *Cassinia secundiflora*, the vulnerable *Discaria nitida*, *Leonema phyllicifolia*, *Olearia floribunda* and *Pimelea pauciflora* (in fact a misnomer as the bushes were full of flowers).



Asterolasia trymaloides

On our first day, we started with an investigation of an area of eroded granite above the riverbank over the bridge containing mainly prostrate plants such as *Cryptandra amara*, *Goodenia hederacea alpina*, *Pultenaea subspicata*, *Muehlenbeckia axillaris*, and *Hovea aff heterophylla*; plus herbs such as *Drabastrum alpestre* and *Leptorhynchus squamatus*; and shrubs including *Acacia siculiformis*, *Asterolasia trymaloides*, *Daviesia ulicifolia*, *Grevillea lanigera* and *Hakea microcarpa*.



Leionema phyllicifolium



Diuris monticola

We then followed the Botherum track to the north across several boggy drainage lines containing *Ranunculus pimpinellifolius* and *Limosella australis* and a low shrubbery of *Epacris glacialis* starting to flower and past several ponds containing the floating leaves of *Nymphoides montana*. The grasslands comprise low growing snow grasses (*Poa* spp) and have large populations of different daisy species



Leptorhynchus elongatus



Swainsona monticola

notably *Brachyscome* spp, *Craspedia* spp, and *Leptorhynchus* spp and a few *Swainsona monticola* and *Ajuga australis*. After a wet crossing of the river, we encountered a large population of a burr daisy, which I identified as *Calotis pubescens*, an endangered species known only from as few places on

Calotis pubescens (below)



Nungar and Boggy Plains to the north. This was a great find as this population appears to be the largest in existence and I reported it to the Threatened Species Unit of NPWS at Queanbeyan and to their office at Jindabyne.

On the next day, we followed the trail to the north to Snowy Plain passing Davies Hut. We saw much the same array of species with the addition of large stands of *Euphrasia collina diversicolor*, and *Podolepis jaceoides* in bud, while the pools contained *Ranunculus inundatus*. Crossing through a shrubby watercourse we found in addition to the shrubs seen before *Grevillea australis* and a hidden *Barbarea grayi*, listed as vulnerable. Another shrub seen more in the surrounding woodland understory was *Acrothamnus hookeri* while on our return I found the other *Discaria*, *D. pubescens*, the threatened anchor plant



Barbarea grayi (above); *Discaria pubescens* (below)



On the negative side we saw a large amount of pig damage on the open plain, in the river flats and in the surrounding woodland, which are changing the structure of the vegetation, plus the horse trails, damaging the wetter areas. Three illegal vehicles were also seen driving along

the trails causing a lot of damage to the boggy crossings.

We drove out of Gungarlin via Nimmo Hill where we had a brief stop to look at the plants growing on the rock outcrops under the power lines, including *Podolobium alpestre*, *Daviesia ulicifolia* and *Tetrateca ciliata*.



View over Boggy Plain to the Chimneys from Cascades Trail

Cascades Trail and Tom Groggin

9-12 December

The original plan for this field trip was to camp at Tom Groggin rest area (or stay at Thredbo/Jindabyne for non-campers) and drive into the Alpine National Park of Victoria each day to explore Davies Plain and Mt Gibbo. Unfortunately, the mighty Murray thwarted this plan after a very wet winter and high water levels at the ford crossing into Victoria. So we

devised an alternative plan to stay in Kosciuszko National Park and walk part of the Cascades Trail from Dead Horse Gap and the short trail from Tom Groggin camping area to the Murray Ford, both new to us.

The Tom Groggin rest area is in picturesque, natural frost-hollow grassland on the banks of the Murray. It is surrounded by scattered Mountain Swamp Gums (*Eucalyptus camphora*), with an understory of tea trees and heaths and a range of other native

plants and populated by a large mob of inquisitive grey kangaroos.

Our first walk on the Saturday was from Dead Horse Gap south along the Cascades fire trail to Bobs Ridge and return. The walk started through snow gum woodland above the Thredbo River but at the very start there was a large patch of *Tasmannia xerophila* in full flower, all male plants as far as I could ascertain.



Tasmannia xerophila male

Further on, the understory was dominated by the whites of *Olearia phlogopappa* subsp. *flavescens* and *Grevillea australis* and the orange of *Podolobium alpestre*, cream of *Leionema phyllicifolia*, pink cushions of *Pimelea alpina*, and purple of *Hovea montana*. There were occasional *Acrothamnus* in flower although we still have difficulty in deciding between *A. hookeri* and *A. montanus*. A single



Podolobium alpestre



Olearia phlogopappa flavescens



Olearia phlogopappa serrata

Olearia phlogopappa subsp. *serrata* with its serrated, shiny green leaves was also seen.

The wet gullies were packed with *Epacris paludosa* in full flower with *Montia (Neopaxia) australasica* in the more open swamps. The small white flowers of *Cardamine astoniae* in the wetter areas were also seen as well as two species of *Asperula*, namely, *A. conferta* and *A. gunnii*, the latter with more fleshy leaves, plus the mountain caps *Caladenia (Stegostyla) alpina*.

We descended below the lower tree line into the frost hollow shrublands and grasslands of the valley floor with the flower colour coming from the numerous buttercups (*Ranunculus*



Epacris microphylla



Pimelea axiflora subsp. *alpina*



Epacris paludosa



Pimelea ligustrina

graniticola), eyebright (*Euphrasia collina diversicolor*), Billy buttons (*Craspedia ?jamesii*), daisies (*Erigeron bellidioides* and *Brachyscome scapigera*) and heaths (*Epacris microphylla* and *E. paludosa*) and occasional trackside cushions of *Pimelea biflora*.

Crossing the river, the winding trail ascended southwards back above the tree line into snow gum woodland with an understory of *Bossiaea foliosa* complex, *Pimelea axiflora* subsp. *alpina*, characterised by a variable flower arrangement from clusters to axillary, *Ozothamnus secundiflorus* and other species seen previously. Bob's Ridge affords a spectacular view to the south to the remnant snow patches of the

Victorian Alps. Among the granite obelisks there, we recorded *Pimelea ligustrina* and *Aciphylla simplicifolia*.

On the Sunday morning, we walked the short trail from the camping area to the Murray Ford. This passes through rather open peppermint forest (*Eucalyptus robertsonii*) with a dense understory of a range of shrubs including *Mirbelia oxylobioides* (flowering finishing), *Acrothamnus hookeri* tall form, *Lomatia myricoides*, *Leptospermum brevipes* and *Podolobium procumbens* among others. I want to start with an unusual shrub on the riverbank at our camping site, which I identified as *Bertya findlayi*, a rare waterside plant of the upper Murray. It has separate male and female plants.



Arthropodium milleflorum



Epilobium sp



Thysanotus tuberosus

The forest floor was covered with a colourful range of different plants in flower including *Arthropodium milleflorum*, *Burchardia umbellata*, *Coronidium montanum*, *Gompholobium huegelii*, *Pimelea linifolia*, *Ranunculus* sp, *Rhytidosporum procumbens*, *Stylidium armeria*, *Thysanotus tuberosus* and *Wahlenbergia ceracea*.

Although the frost-hollow grassland is largely grass covered, there are some boggy seepages with forbs like *Epilobium* sp *Hypoxis hygrometrica*, *Ranunculus* sp, and *Veronica gracilis*, and various unidentified sedges and rushes and patches of shrubs including *Epacris gunnii* (formerly *E. microphylla* subsp *gunnii* and distinguished from



Epacris gunnii

E. microphylla by its long spiny mucro) and *Hakea microcarpa*.

Altogether two very rewarding trips for scenery and new plants species seen.

Our Environment — Temperature

Text and photos by Masumi Robertson

We have a challenging environment in Canberra, but we can still grow a wide range of Australian native plants in our gardens. Understanding our environment helps to create wonderful gardens. Temperature is a given environmental factor we cannot do much about. We can water plants when the rainfall is not enough, and improve our soil by bringing in sand, compost and even rocks. We can create shade with a shade cloth and/or taller trees, but there is not much we can do about the temperature, or is there?

But first, let's see what sort of temperature we have in Canberra and how it differs from south-eastern coastal locations such as Sydney, Melbourne and the South Coast. For this, we can look up the weather observation records at the Bureau of Meteorology (BoM) website. Long term records for various locations were used to create the graphs which were published in the December 2016 Journal. Canberra is the dotted line, and Sydney: A, Melbourne: B and the South Coast: C.

Key observations

- Minimum temperatures define two groups; the coastal locations (A, B and C) are warmer than Southern Tableland locations (Canberra, E and F)

- Maximum temperatures cross over with our summers hotter and winters lower maximum than Melbourne and Sydney
- So as we all know, it is the winter temperatures which make gardening in Canberra more challenging



Frost on *Grevillea* 'Poorinda Royal Mantle'

The two groups clearly separate out for the winter months. But even then, the differences are 4 to 7°C for the mean minimum temperature and that doesn't sound like much. But stress comes from the cumulative effect on plants which are exposed to a consistently lower temperature every day for many months, from May to September.

This difference is greater for the record lowest temperature, Canberra, experiencing 6 to 10°C lower temperatures than the coast, so our cold-stressed plants are exposed to

extra cold temperatures. None of the warmer three locations ever recorded temperatures lower than -3°C . For Sydney metro, the record lowest temperature is only 0.1°C which is the same as the Canberra mean minimum. In contrast, Canberra's coldest ever temperature is -10°C .



Thick frost on *Dichondra repens*

But this is not the minimum plants are experiencing, since the lowest temperature at the ground level is -15.1°C , or 5.1°C lower than the air temperature measured in a screened box at 1.2m high.

So we can expect plants at ground level are experiencing temperatures a lot colder than the reported air temperatures every day and we can expect frosts even when the air

temperature is 2°C . This is why small plants can die from cold, while the same plant can survive once grown up with more of the plant, including new growth, above the ground level cold.

Knowing this, how do we go about growing a plant which is marginal in Canberra because of its poor cold tolerance?

Topography and aspect of your block:

Cold air flows downwards along the ground, just like water. So having a sloping block helps to drain away the cold air. To some degree, the colder ground surface temperature can be avoided on a sloped block.

Cold air on a flat block, on the other hand, does not have anywhere to go, so it tends to be colder. Colder still is a valley where the drained cold air accumulates, creating a frost hollow. Even the lowest area within a sloping block is colder or anywhere there is a



Actinotus helianthi in ground on a terraced bed

solid fence or a building blocking the cold air from flowing away.

The aspect of the slope also affects the temperature. A north facing block is warmer than a south facing block because it is exposed to the sun. The growing conditions at the ANBG are quite special, largely because it is located on the east facing slope of Black Mountain.

If your block is flat, a raised bed can create an area which is slightly warmer than the rest of the block. The larger and higher the mound, the warmer (less cold) the temperature. And we have noticed that even a raised bed of less than 30cm has helped some plants grow better.

Overhead cover: Trees and some larger shrubs provide overhead cover to protect plants underneath them as frosts do not occur, or are less severe, in such areas. So when starting a garden in an exposed, completely bare block, it may be best to start with more frost hardy trees and large shrubs. And if a plant needing special care in Canberra died a few years ago, it may be worthwhile to try it again after other plants have grown up to provide more protection underneath them.

Eaves also provide overhead cover. They are more solid and the area under them is often frost free (unless cold air drains into it). Our frost-sensitive *Thelychiton* orchids grow and flower under the eave because of this protection. Plants



Thelychiton kingianus & its hybrids grown outdoors under an eave

with a label description 'overhead cover' need some frost protection, but not necessarily some shade.

Heat sink: Brick and stone walls absorb and store heat during the day and release it at night. The nearby area is kept slightly warmer from this radiant heat. A north facing wall is especially good at absorbing heat from the winter sun. Placing stones and rocks, large and small, beside a plant you want to protect also acts as a heat sink.



Corymbia ficifolia 'Lollipop' against a north-facing wall and vigorous growth of *Anigozanthos flavidus* colour forms

Microclimates

There are microclimates in every garden. It is essential to know your own block. In winter, frosts occur in some parts of the garden, while in other parts, the ground remains frost free or frosts are less severe. Early morning observations for frosts during the winter months will show you the 'warm spots' in a garden. The ground and the air temperatures can be measured, using a maximum/minimum thermometer (or a digital version), to find areas more suitable for plants which are less frost and cold tolerant.

The three main points discussed earlier can be applied to gardens large and small to create, or discover, more areas with warmer microclimates:

- Sloping block or raised beds
- Overhead cover using plants and structures
- Heat sink: brick and stone walls and stones in a garden

With these points in mind, try some plants and observe your winter garden for frosts. A real challenge for Canberra gardeners is balancing the winter temperature situations with those of summer, not to mention soil and water needs.



A terraced sloping block

Banksia Study Group reactivated

This is an invitation from Kevin and Kathy Collins, Banksia Study Group, www.banksiafarm.com.au for you to join the **Banksia Study Group** which is being reactivated after being in recess since 2013.

Many interesting developments with grafting, new species with DNA taxonomy, many new colour and dwarfing forms of a number of species, PhD projects utilising banksia and new gardens/ collections have afforded copious material for many interesting newsletters. Input is encouraged with pictures, successes and failures to add to the wonderful databank of material already recorded.

To join the Australian Native Plants Society Australia (ANPSA) Banksia Study Group simply visit <http://anpsa.org.au>

Click on **Study Groups**

Scroll down to **Joining a Study Group**

Click on **Banksia** under **Currently Operating Study Groups**

Follow **Join** instructions

Your ANPSA generated request will be acknowledged. The \$7 membership entitles you to emailed

copies of newsletters which will be produced at least twice a year.

Membership also entitles you to four small packets of banksia seed per annum and an emailed basic home growing instruction sheet on request. The seeds can be selected from the Banksia Farm seed catalogue attached and doesn't include rare, unusual or restricted species. Supply is subject to availability. Seeds of rarer species may be purchased from Banksia Farm as required and subject to availability.

Membership payment options

- Preferred method is to direct credit ANPSA Banksia Study Group account. BSB 633 000. Account No. 158397885. **Please reference with your Initial and Surname**
- Alternatively forward a cheque made out to ANPSA Banksia Study Group and post to K&K Collins, Banksia Farm, PO Box 132, Mount Barker, WA 6324

Selections of articles for the first newsletter (to whet your appetite) will be made from the following:

- Banksia taxonomy — 10 years on since DNA revision — does the status quo remain?
- Australia's largest banksia artwork

- A new fossil banksia in WA
- Growing banksias in Lyon, France
- Cheynes Beach headland — a Proteaceae hotspot with many evolved prostrate and dwarfing forms
- Are banksias resilient to climate change? Masters project — Sarah Randell
- Perth banksia woodlands — CCWA (Conservation Council of WA) findings and new legislation
- Thanks — Cas Liber former leader
- Vale journalist and banksia enthusiast Graeme O'Neill
- Serotiny of WA species — comparing widely distributed species, German PHD project
- New garden collection — Paul Kennedy
- A new banksia species *B. vincentia* and its preservation program
- Banksia Lovers Facebook site
- uCT scanning of 50 Australian banksia cones examining wood fibre structure — Michaela Eder, German professor, Botany
- Current status of Banksia Farm arboretum, now 26 years since being acknowledged as the only complete collection of species and infra-generic taxa
- DNA findings of the *B. spinulosa* complex and possible implications
- Grafting updates — new successes and methodology
- Some beautiful colour forms of *B. ornata*
- Revisiting DRF (declared rare flora) banksia species sites assessing regeneration. Commencing with *B. oligantha*
- Banksia growing in California and Florida, USA
- Europe's largest banksia collection — botanist Liesbeth Uijtewaal, Netherlands



Banksia menziesii,
Cervantes, WA; Photo:
Gail Ritchie Knight

Christmas Party 2016

Photos: Lucinda Royston

In December 2016, members enjoyed an end-of-year morning tea and stroll through Roger Farrow and Christine Kendrick's rural garden at Urila. We then travelled to Peter

and Lyn Woodbury's property at Googong for lunch and yet another rural stroll, this time through Peter and Lyn's garden. The whole day was a lovely social occasion to cap off yet another year in the history of our society.



A feast to share



Brigitta, Christine and Linda



Dave, Robyn and Mike



Gail, Robyn and Margaret



Merelyn and Kris



A stroll through Peter and Lyn's garden



Trigger Plants *Stylidium montanum*, Mt Stillwell; Photo by Roger Farrow

Study Group Notes

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

Acacia Study Group Newsletter

Newsletter No 135, December 2016

- From the Leader
- Welcome
- From Members and Readers
- Moving to Canberra?
- Cheap Wattles For Sale
- *Acacia siculiformis*
- Lace Bugs and Acacias
- *Acacia craspedocarpa*
- Seed Bank
- Study Group Membership
- Seed Bank List of Species

Dryandra Study Group

Newsletter No 72, February 2017

- A Wonderful Wildflower Year
- Margaret, Lynn and Tim's Northern Circuit, August 2016
- The New Garden at Millstone Manor, Kalamunda, Perth
- More on *D. nobilis*
- Updating the Dryandra Digital Archive

I hope you have taken note of the separate article in this journal that the Banksia Study Group is being reactivated and is looking for new members. Please do join if you are interested!

Eremophila Study Group

Newsletter No 116, February 2017

- Letter from the Editor
- Vale Keith Pitman
- ...and Tim Kolaczyk
- What's New in the Study Group
- Website Challenge
- New members
- Research news
- More new species
- Antibacterial properties of *E. alternifolia* (continued)
- *Eremophila woodiae*
- Forms of *E. glandulifera*
- ...and three (?) of *E. ericalyx*
- *Eremophila macdonnellii*
- Forms
- Cultivation
- Propagation
- Hybrids
- Mystery no more
- From your letters
- Events
- ESG Gathering 8–10 September 2017
- Sydney meeting
- Victorian meeting
- Queensland meeting
- Buying Eremophila
- Future Newsletter Themes
- About the Study Group

Garden Design Study Group

Newsletter No 97, February 2017

- Leader's Comments
- Anniversary Year 2017
- Creating and Australian Plants Garden
- A '5 Star' native bee hotel
- National Botanic Gardens new conservatory
- Taking a chance on Eremophilas
- Japanese Garden in Gladstone
- Queensland Chapter Germinates
- Eucalypts at Monash University
- Treasurer's report
- Index

Grevillea Study Group

Newsletter No 105, November 2016

- Editorial
- Victorian Chapter news
- Vale Ann Radke (1953–2015)
- More on *Grevillea montana*
- Grevilleas cultivated by Baron Charles von Hügel in 1831 in his garden at Hietzing, Austria
- The Introduction of Grevilleas to England & Europe

- *Grevillea aspleniifolia*
- *Grevillea wilkinsonii*
- Grevillea Spider Mist — ACRA 1539
- Some notes from the gardener: Design and landscaping
- Seedbank News

Waratah and Flannel Flower Study Group

Newsletter No 12, December 2016

- Maria writes
- From the members
- Tranter method trials
- Telopea 'Corroborree'
- Waratah Festival
- Asparagoid waratah
- Checklist of Telopea species and varieties
- Checklist of Actinotus species and varieties

Please note this Study Group has a new website waratahflannelflowersg.weebly.com

Maria Hitchcock also asks to have any future mail directed to PO Box 4214, Armidale West NSW 2350.

Treading Lightly

Rosemary Blemings

In early December I came across *The Art of Frugal Hedonism: A Guide to spending less whilst enjoying everything more*, Melliodora Press, 2016.

It offers 51 short readable chapters on treading lightly on a fragile planet and with minimal expense.

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

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.

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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

Public Officer

(for Associations Incorporation Act purposes)

Paul Meier

7 Robert Lewis Crescent, Gordon ACT 2906

02 6294 6601 (h)

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