



Getting out and active with FOG and friends before Christmas

Volunteers needed to help monitoring on Wednesday 13 November

For the past 10 years FOG has assisted Bush Heritage in monitoring grass growth at 'Scottsdale', a property near Bredbo, NSW. There have been some changes in focus over the years, and we are currently monitoring the effect of low-dose Flupropanate on the growth of African Lovegrass. This is our third year of this particular program. We have a core group of 4 volunteers, but we need another 4 people to assist with such tasks as holding the end of the tape-measure. No experience necessary. Lunch is provided. We car-pool at 8.30 am, and return by about 4 pm. If you would like to join us, please email Linda Spinaze, either linda.spinaze@fog.org.au or at linda@xamax.com.au.



Wildflowers in early October in the scrape at Kama NR, where ACT Government ecologists are testing the Scrape & Sow method for regenerating native grassland. There are similar patches at 'Scottsdale'. Photo: John Fitz Gerald.

Hunt for Mountain Picris, Royalla NSW, 2 pm Sunday 10 November

You are invited to meet at Whisperer Place, Royalla, on 10 November to hunt for the native Mountain Picris *Picris angustifolia* which Rainer Rehwinkel spotted here a couple of years ago. This *Picris* is not very widespread and we rarely see it except when in Kosciuszko National Park. Mountain Picris is a yellow daisy that looks like Flat Weed *Hypochaeris radicata*, so in this spring afternoon activity we can familiarise ourselves with the features that distinguish these two species, and enjoy a woodland riparian ramble as well. For details, register with Margaret.Ning@fog.org.au.

Frogmore Cemetery, Saturday 9 November

As noted in the last *News of FOG*, a group will visit Frogmore Cemetery, NE of Boorowa NSW, on 9 November. The area had quite good rain some months ago, so it should be an interesting spot (see Alan Ford's photo, right). Starting from Murrumbateman at 9 am, the ~100 km drive will take about 1.5 hours including a brief stop in Boorowa. If there is time after Frogmore, the group may visit Red Hill Reserve and Tarengo TSR, both near Boorowa. For directions, species lists and all other details, register with Margaret.Ning@fog.org.au



Nerriga NSW, weekend 16–17 November

The wonderful visit to this member's property at Nerriga in February 2018 made FOG and ANPS resolve to return one spring. The property has Black Gum (*Eucalyptus aggregata*; Vulnerable), Nerriga Grevillea (*Grevillea renwickiana*; Endangered), Dwarf Kerrawang (*Commersonia prostrata*, previously *Rulingia prostrata*; Endangered) and Michelago Parrot-pea (*Dillwynia glauca*; Endangered), and at least 150 other species. We envisage walks to the Proteaceae section – a sandstone area bordering Morton National Park – and other

areas. We can arrive on the Friday evening to settle in and share happy hour at around 6 pm, or arrive on Saturday morning. The first walk will start around 10 am. For details on this visit, register with Margaret.Ning@fog.org.au. Articles about the property and our 2018 visit are in *News of FOG* January–February 2018 and March – April 2018 at <http://www.fog.org.au/Newsletters/>.

Another weekend in the Deua NP area, 23–24 November

FOG has visited the Deua National Park/Shoalhaven River area near Berlang camping ground twice in the past 12 months (on 1–2 December 2018 and 12–14 April 2019). We plan to go there for a third time on the weekend of 23–24 November. The flora is suitably different to that in our own region, and we have access to places that haven't had many visitors in the past. This visit will include a return to the grassy area near the Wyanbene Caves carpark, and to the magic Shoalhaven River property we have visited twice before. Accommodation will be in the Deua Tin Huts or camping on the grassy area nearby; costs should be similar to last time. For more information, register with Margaret.Ning@fog.org.au.

Opportunity to raise weeds awareness

Weed swap is on Saturday 2 November and Sunday 3 November at two green waste sites: Canberra Sand & Gravel in West Belconnen and Corkhill Bros off Mugga Lane, Symonston. Contact Rosemary Blemings rosemary@blemings.org if you are willing to spend a couple of hours handing out free native plants to those whose loads include environmental weeds. The Weed Swap operates from 08.30 to 16.30 daily with mid-morning to 16.30 time slots each day as opportunities!

Twilight walk at Stirling Park, Saturday 16 November

Join the November twilight walk in Stirling Park, Yarralumla ACT, starting at 8.00 pm. Like the two previous walks this year, this walk is for observation only: no fauna will be trapped or handled. Register with Jamie.Pittock@fog.org.au to find out where to meet.

FOG: Celebrating 25 years

FOG members, former members and friends are invited to celebrate the 25th year since FOG's launch (12 Nov 1994). Details will be sent out by email.

The celebration will **likely be at 1.30 pm on Sunday 1 December** at Mugga Mugga. There will be plenty of opportunity to catch up with old friends and make new ones and to share and learn from one another. This will also take the place of our Christmas Party. If you would like to attend and do not receive FOG emails, please contact Geoff Robertson on phone 02 6241 4065.

FOG workparties

Your help is needed and always welcome.

Tools are provided. You need to wear gardening clothes (including hat) and solid footwear appropriate for the work and the weather, and bring your own drinking water. *The workparty convenor provides morning tea, making these into pleasant social occasions.*

Please register by two days before the workparty so there are enough tools and tea for everyone, and so you can be told if the weather forecast has led to a cancellation. Workparties are cancelled if there is lightning; or heavy rain; or the forecast is for 35°C or more; or there is a total fire ban.

STIRLING PARK – GURUBUNG DHAURA, 9–12.30

Sunday 27 October, based at the eastern side of the Park in Yarralumla. Watering recent plantings; cutting and daubing regrowth Privet; hand weeding Ivy, Purple Top and Umbrella Sedge; and rubbish collection. Meet at the dirt car park opposite Lotus Bay off Alexandrina Drive between Mariner Place and Flynn Drive.

Sunday 24 November: details will be sent to people who register. To register: Jamie.Pittock@fog.org.au, ph. 0407 265 131.

HALL CEMETERY WOODLAND, 9–11.00, WALLAROO ROAD, nr HALL, ACT

Saturday 2 November. Details will be sent to people who register. To register: John.Fitzgerald@fog.org.au



Planting forbs. Tristan, Paul & Adelaide. Stirling Park, 29 September. Photo Jamie Pittock.

FOG Advocacy Naarilla Hirsch

August

Following on from its visits to some of the TSRs near Bungendore, FOG commented on the Draft Bungendore Structure Plan 2018 – 2048. We welcomed the greater recognition of the environmental values in the Bungendore area in this updated draft of the Bungendore Structure Plan but did have a couple of concerns about the document. One was that one of the proposed bypass routes goes through Gidleigh Lane TSR, which will impact negatively on the threatened grassland community in the TSR, by destroying vegetation along the proposed corridor and interrupting its connectivity with Turallo Nature Reserve. Another concern was the need for adequate buffers around the Nature Reserve and TSR to minimise impacts from any future adjacent potential adjoining industrial and residential developments.

The full text of FOG submissions appears on our website.

WILD POLLINATOR COUNT: November 10 – 17. <https://wildpollinatorcount.com/>

The Wild Pollinator Count is on as usual, this spring, in November as above. This time we can share insect sightings on iNaturalist as well as on Canberra Nature Map.



President's report

Geoff Robertson

FOG continues to work very well across a large number of fronts. Our recent events, including those where we assisted others, were numerous and hit their mark. Special thanks to Sarah Sharp who appeared on behalf of FOG before the Senate Committee on Threatened Species.

This will be Ann Milligan's last issue of our newsletter and she is also stepping down from her role as events co-organiser. Her first newsletter was March–April 2014 and counting that one she has produced 35 very high quality issues, a remarkable achievement. Many people comment to me that ours is the best Canberra-based publication of its kind. She has also been jointly organising our amazing activities program for much the same time, and during the absence of a FOG president in 2016–17 she was occasionally acting president. (See item 'Seeking a new newsletter editor'.)

Some upcoming major events at which we definitely want you participating are: our 'Friends of Grasslands in the 2020s' open committee meeting on 26 November, and 'FOG: Celebrating 25 years' (see separate items).

FOG has now adopted a new project, establishing Franklin Grassland as a conservation and recreation reserve (again see separate item).

On another matter, changes have been made to the *Associations Incorporations Act 1991* which came into effect on 1 July 2019. A special FOG committee is being established to look at their implications, including changes to our rules and procedures and to make recommendations to our next AGM in March 2020.

Margaret and I had a fabulous time observing many natural phenomena beyond our usual focus on grassy ecosystems during our trip to the tip (of Queensland) and the Torres Strait. However, all around us we observed the impact of our climate-change-exacerbated drought, including burn-ready vegetation, overgrazed land and bare fields of sown crops. But we were also reminded that well managed native vegetation survives the worst drought. More recently, this point was brought home when FOG visited Umbagog and St Marks grasslands: remarkably flowering and resilient despite 'the drought'.

Franklin Grassland

At its last committee meeting, FOG adopted 'Establishing Franklin Grassland as a conservation and recreation reserve' as a FOG project. We have participated at two public events organised at the Grassland. There is tremendous enthusiasm for this in both the ACT Government and the broader community. A working group, within the ACT Government, is meeting regularly and major plans are being rapidly developed. I will provide updates in upcoming eBulletins. I am also providing a short presentation on Franklin Grassland to the Gungahlin Community Council (**6.30 pm, Wednesday 13 November**, Eastlake Club in Hinder street, Gungahlin). Happy to discuss further.

'Friends of rasslands in the 2020s'

Come, enjoy some nibbles and a glass of wine and help us plot FOG's future at our **Open Committee Meeting**, 5 pm for 5.30–7.30 pm, **Tuesday 26 Nov 2019**

Conservation Council Offices
(Lena Karmel Building), Ground Floor,
Unit 14/26 Barry Drive, Acton

Without Friends of Grasslands our grassy ecosystems would be in a very parlous state.

The amazing range of services that FOG provides in supporting grassy ecosystems and building networks and friendships relies on numerous volunteers.

The current organisation 'model' was developed in late 1997–early 1998 and was designed to meet the circumstances at that time, although it has adapted since. However, looking forward to the 2020s the committee wishes to review what we do and its strengths and weaknesses, and explore possibly alternative or more effective ways to approach what we do.

As a first step the committee decided that its next meeting should be an open forum.

Members' participation will be most helpful and greatly appreciated.

For catering purposes, please register with Geoff ph. 6241 4065; geoffrobertson@iprimus.com.au

If you cannot come, please let Geoff or another member of the committee know of your assessment and your thoughts on ways we might do things more effectively.

Seeking a new newsletter editor etc

This is Ann's last newsletter (see President's report) and so we are seeking a new newsletter editor. Also, she will be stepping down from our activities group and from producing our eBulletin. Hence we are looking for replacements.

In the interim, I will produce the next newsletter, eBulletin and assist Margaret Ning with coordinating our activities program. There are several tasks involved here and we are looking for several people to take on these tasks. We may be able to design to work around each person's particular skills. Also, the standard can be allowed to slip a little if necessary. Happy to discuss. Please contact me (Geoff) by phone (6241 4065) or email: geoffrobertson@iprimus.com.au.

New Grasslands website: YOU can contribute to it

Grasslands: Biodiversity of South-Eastern Australia, <https://grasslands.ecolinc.vic.edu.au/>, aims to introduce and build an appreciation of the unique biodiversity of south-eastern Australia's endangered temperate native grasslands.

Geoff Robertson, Sarah Sharp and Rainer Rehwinkel contributed to it in various ways.

The team behind this app want to expand its coverage of specific grassland area across SE Australia, including Natural Temperate Grasslands. They ask you to contact them if you have good knowledge of a native grassland site and are interested in contributing.

Grasslands is a companion resource to the book *Land of Sweeping Plains: Managing and Restoring the native grasslands of south-eastern Australia*.

Articles

National Biodiversity Offsets Conference

Naarilla Hirsch & Sarah Sharp

Thanks to the generous support of ACT Parks and Conservation Service, we were delegates at the Environment Institute of Australia and New Zealand (EIANZ) National Biodiversity Offsets Conference, 26–28 August 2019. The conference was attended by a wide spectrum of people from all around Australia, including government regulators, offset trust managers, those delivering offsets on-the-ground, consultants, researchers and scientists, and representatives of community groups.

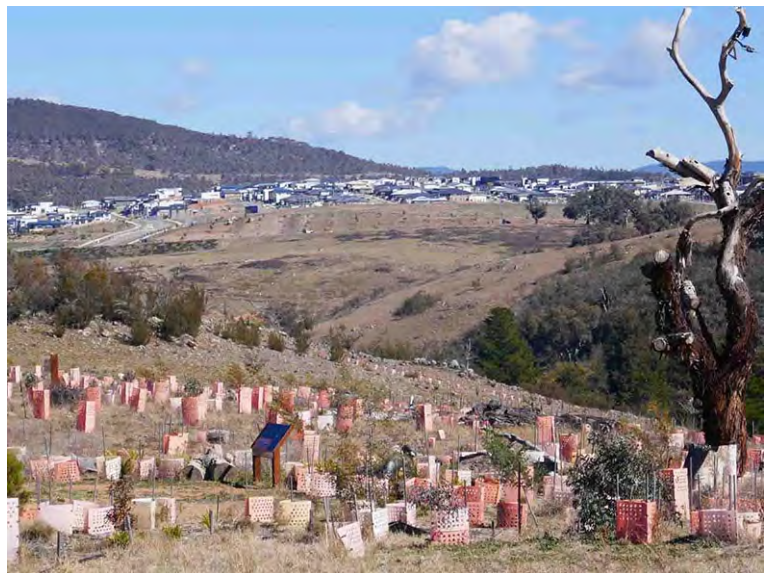
As might be expected from such a controversial subject, the views expressed were very different, if not in conflict, at times. Conference attendees were given plenty of opportunities to ask questions, raise issues and express alternative opinions. The conference was very interesting, with a lot to digest and consider in relation to the local region and to FOG's advocacy role. There was too much material to summarise in an article of this nature, so the following are some snippets and views that particularly caught our attention.

While the conference focused on offsets, there was some discussion of the mitigation hierarchy: avoid; minimise; mitigate/restore; offset. A point made was that the effectiveness of this depends on your definition of 'avoidance'. One question raised was why is a project that is entirely for profit not rejected because it could be avoided? One view was that if something is irreplaceable, the only action is avoidance.

An irony of the conference was that part of the break-out area overlooked the York Park Grassland. At the end of the conference, we, plus several other locals, took interested attendees over for a closer look and discussion of the history and fate of the grassland.

The keynote speakers, David Takacs from California and Kerry ten Kate (UK), the latter via video link, gave extremely stimulating talks that provided an international perspective of offsets, talking about their use around the world. We found it somewhat disconcerting to be told that Australia and New Zealand are in fact doing it better than most countries, in part because of our national legislation. Offset policies have failed in other countries for a range of reasons, including under-estimation of the indirect, cumulative and social impacts, unclear or unrealistic baseline and scope, inadequate standards and lack of monitoring and enforcement.

Ascelin Gordon from the School of Global, Urban and Social Studies, RMIT, presented results of a study on simulations using three scales of evaluation of offsets: site, program and landscape. His results suggest that, even if there is no net loss over 30 years at a site, once you expand your view to the program or landscape scale, you don't achieve no net loss over time unless development stops. A disturbing factor in his modelling was that it relies on the assumption that the biodiversity value of any site is declining over time, so that part of the accounted offset gain is the avoidance of that decline in the offset site. Our experience is that this is a generalised statement that cannot be supported as a base-level assumption. Another view expressed was that, while offsets might achieve no net loss from a relative perspective, in fact



The Molonglo offset area at Barrer Hill, with the Molonglo urban development very evident in the background. *Photo: Naarilla Hirsch.*

Farewell Picnic for Golden Sun Moths of York Park **Saturday 2 November, 10 – 11.30 am**

York Park, 23 National Circuit, Barton

Bring a rug and morning tea

York Park is an iconic grassland patch, one of the first to be recognised in Canberra, and is the site where the original research work was done on Golden Sun Moth. It has been under threat of development for a long time and FOG has taken every opportunity to oppose this development – this is purely a case of blind commercial profit at the expense of critically endangered Natural Temperate Grassland. This patch is one of only two, both important grassland remnants, in the Barton area and is a reminder that Canberra is built on the Limestone Plains.

We have lost the battle. Hence it is time to hold a wake, to remember what we have lost, but to be of good cheer and to resolve to not let other important sites suffer the same fate. We may even see a moth, a spectacular animal.

Please let me know if you are coming
(geoffrobertson@iprimus.com.au)

Geoff Robertson

they do not achieve no net loss from an absolute perspective, so result in a long-term decline. In other words, offsets are only part of the picture when considering mitigation of biodiversity decline.

A couple of positives around offsetting were seen to be advanced offsets and incentives to farmers for additionality. There was a lot of support by the conference participants in this, recognising the importance of off-reserve conservation.

Advanced offsets provide the opportunity to achieve target-based conservation, i.e. a strategic approach to conservation across the landscape.

On the other hand, a number of significant issues around implementing and managing offsets were acknowledged. These included the cost of offsets, indirect offsets only being effective if the research is applied to a direct offset in the future, and landholder disengagement for offsets on private land. Offset markets were discussed, designed to pair developers with suitable offsets and manage offsets funding, but of concern is that developers could pay into a trust when there is no suitable offset available. However, it does enable smaller pools of offset resources to be combined to gain more optimal on-ground conservation outcomes, particularly in the larger states where finding suitable offsets is more difficult and many potential offset sites are on private land. A significant advantage is that this can provide funding to support farmers to maintain and enhance conservation values, rather than result in inadvertent or deliberate degradation if the farmer changes management in order to make a living.

A big issue with offsetting is compliance. Australian audits to date have found that most projects are not compliant with the original conditions – while sometimes this is not meeting timelines, at other times it is not meeting revegetation requirements. The ACT's Commissioner for Sustainability and Environment, Dr Kate Auty, presented some local examples of non-compliance based on her audit of the Molonglo development.

Another big issue is metrics. Developers need certainty, but there are many questions to be addressed around offset metrics, such as what is the baseline? The background rate of change? Who pays? What value have connectivity corridors? How long is the offset to be maintained? How much benefit does a site gain from being protected?

There were a number of thorny questions raised over the two days of presentations, some of which follow. What could we do instead of offsets – target-based ecological compensation perhaps? Are we supporting development and capitalism through allowing offsetting, or making the best use of capitalism? Should we depart from like for like – and if so, how do you compare relative threats? Is trading up a good way to go, or will it result in some species/ecosystems being devalued? Who should bear the ongoing costs of offsets – the developer? government?

Two recently published articles somewhat related to offsets

'Offsetting impacts of development on biodiversity and ecosystem services.' L.J. Sonter, A. Gordon, C. Archibald, J.S. Simmonds, M. Ward, J-P. Metzger, J.R. Rhodes, M. Maron. *Ambio*. <https://doi.org/10.1007/s13280-019-01245-3> .

'Does biodiversity [offsetting] work or is it simply creating a form of state sponsored land degradation?', by Louise Nichols. *The Singleton Argus*. <http://www.singletonargus.com.au/story/6396780/biodiversity-offsets-are-they-an-eco-scam/?cs=1534>

Murrumbidgee–Ginninderra Gorges National Park: Public Meeting (7.30 – 8.30 pm) & AGM (7 – 7.30 pm)

Thursday 31 October 2019, [Cook Community Hub](#), old Cook school, Templeton Street, Cook. The public meeting will discuss the topic '*Protecting the urban edge, protecting nature reserves and protecting our waterways*'. Please note that Ginninderra Falls Association is looking for members (\$35 p.a.) and for volunteers for the Committee. For details or to nominate, attend the meeting on 31 October or email public-officer@ginninderra.org.au.



Clare McInnes speaking at Franklin grassland (north Mitchell) during our final day field trip, watched by Sarah Sharp. Photo: Naarilla Hirsch.

At the final workshop the attendees summarised priority matters that will be developed into an EIANZ statement aiming at utilising offsets for what they are supposed to be: improving the conservation estate. These will include, as the primary statement, the need for appropriate use of the mitigation hierarchy to ensure offsetting is a last resort option, not the first and only consideration.

The last day of the conference consisted of field trips to three development sites and their offset areas. One visit was to the Molonglo offset area at Barrer Hill, with the Molonglo urban development very evident in the background. The second was to the Throsby neck area where the urban development bounds the offset site, albeit on the other side of the Mulligan's Flat predator-proof fence. The last pair was the widening of Dudley St and its offset at Franklin grassland. Sarah presented FOG's project at Franklin grassland as an example of community involvement in an offset area.

The conference was thought-provoking and raised many issues. The advocacy group's next step will be to update FOG's existing offset policy in light of this and other information, for input into future FOG submissions, and to continue to argue that, for our critically endangered grassy ecosystems, we should in fact be avoiding impacts rather than needing to use offsets.



Orange Assassin Bug & Ground Assassin Bug, from a family with a reputation

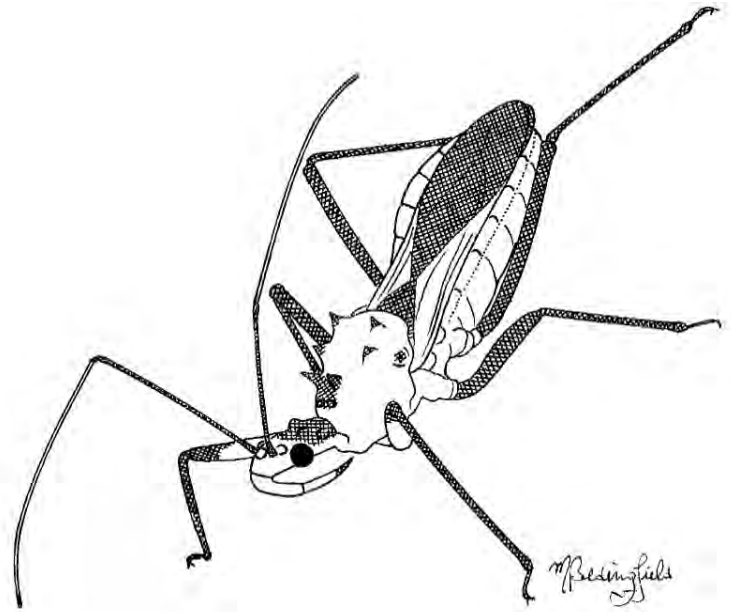
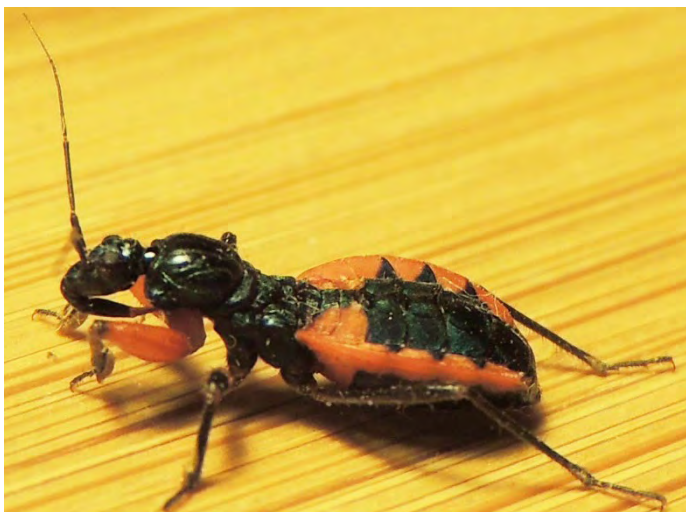
Michael Bedingfield

The name assassin bug is well deserved since most of these insects are accomplished predators. Almost all assassin bugs are carnivorous and are known for the ability to capture and subdue their prey very quickly. They belong to the cosmopolitan family Reduviidae of which about 7000 species have been described.

Of the predator species most are ambush predators. They wait patiently for another insect to come within striking distance and then pounce. They grab the animal and stab it with their curved rostrum or proboscis, injecting saliva that is toxic as well as being a digestive fluid. This fluid contains enzymes and breaks down the body tissues of the prey and the resulting soup is then sucked back by the bug. This method of eating is called external digestion and is used by many insects with tubular mouthparts. Other insects usually have two channels in the rostrum, one for injecting the digestive liquid and another for absorbing the liquefied food. But a feature of assassin bugs is that the rostrum is larger and has only one channel for both purposes. This enables the speedy injection of the substance and the toxic effect is almost immediate. Many species also have sticky pads on their forelegs to assist with gripping their victims.

The most distinctive feature of assassin bugs is that when the proboscis is not in use the tip rests on a ridged groove in the front of the body under the head. These bugs are able to make a noise by stridulation of the proboscis against the ridges. This is may be done as a warning to predators. Larger species, such as our two subjects, should generally be handled carefully because many can stab you with their proboscis and inflict intense pain by injecting the venom or digestive juice.

Most assassin bugs are easy to recognise by the head shape and curved rostrum, and the two species in this essay are fairly typical. They come in all sizes from 4 mm to 4 cm, and with some variety in shapes. Instead of waiting in ambush, some species approach their prey in a series of jerky dashes before grasping their objective. Others have elaborate ways of enticing their prey to come close enough to strike. A small number belong to a group that is bloodsucking.



Orange Assassin Bugs *Gminatulus australis* are aggressive ambush predators. They are common in the Canberra region and are found on shrubs and trees in a variety of habitats. They are fond of Blackthorn or Sweet Bursaria *Bursaria spinosa*, and other flowering plants, where they prey on other insects that come to feed on the flower nectar. I have provided an ink drawing of this species, which is coloured orange or red with patches of black. They have the typical prominent, strong, curved, segmented proboscis. They have a small, elongated head with large compound eyes, a narrow neck and long antennae. The body size is about 15 mm. They are winged and the upper part of the thorax has a number of pointed bumps or tubercles.

Ground Assassin Bugs *Ectomocoris patricius* are coloured black with red or orange, and are about 20 mm in body size. As the name suggests they prefer hunting on the ground and occur in a variety of ecosystems. The specimen in my photograph is of a wingless female. I found it while walking along a track through an area dominated by African Lovegrass *Eragrostis curvula*. Since the female is flightless and not very mobile I assume they are happy with grassy habitats. I took the creature home to photo, and released it into the garden. The male has wings and can fly. They have strong front legs for grasping and they hunt for prey under fallen leaves or bark, logs and other natural debris. The warning colouration of these two species is common in the family.

An insect doesn't get a name like assassin bug by being gentle and harmless or by having a pretty face, but they are a fascinating part of the complex fabric of nature. I found drawing the Orange Assassin Bug to be quite interesting and it was appealing in its own way. I hope you enjoy reading about these small critters.

References: *Encyclopedia of Insects and Arachnids*, Maurice and Robert Burton (1984), Finsbury Books.
<https://en.wikipedia.org/wiki/Reduviidae>. <https://collections.museumvictoria.com.au/species/8555>.
https://www.brisbaneinsects.com/brisbane_assinsinbugs/GroundAssassinBug.htm



Close up on *Bothriochloa macra*, Red-leg Grass

John Fitz Gerald

The native grass *Bothriochloa macra* is common in NSW, ACT and Victoria. It is present but rare in the south-east corners of South Australia and Queensland. The genus name is derived from Greek words for trench and for grass.

Inflorescences are narrow and hairy, and details are hard to recognise at first look, with spikelets held tightly, though the twisted awns, around 1.5 cm long, spread when dry (photo 1, right).

Spikelets occur in pairs (photo 2, below) along the inflorescence: the larger of each pair is awned, fertile and joined to the stem axis; the smaller is held on a pedicel a little shorter than the larger spikelet.



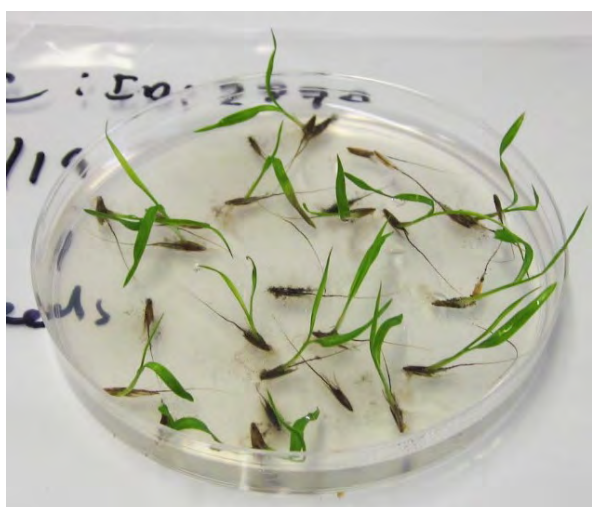
2. Three pairs of spikelets cut from the inflorescence. In each pair, the larger and lower spikelet is fertile and awned, the smaller and upper is on a thin pedicel. In the two spikelet pairs at the top of the image, the upper spikelet has been bent away from its companion. The bottom pair (unbent) is basically the structure repeated on the inflorescence shown in my first image.

Scale bar is 2 mm long.

Looking a bit more closely at the shiny glumes of fertile spikelets reveals one deep pit on each (photo 3, right). This is why the name has its prefix 'bothri'.

In my final micrograph (photo 4, below right), one pitted and hairy glume is shown along with seven seeds prised from other fertile florets.

I was given access to photograph the outcome of a germination trial on a set of spikelets from this species (photo 5, below). About half the seeds in this collection germinated quickly on agar gel in an incubator, cycled with both temperature and light.



5. A germination test on Red-leg Grass, with permission from Stephen Bruce, Greening Australia, Aranda ACT. Petrie dish is around 8 cm diameter.



1. Low magnification view of one inflorescence of Red-leg Grass with long awns spreading from the array of hairy spikelets. Scale bar is 2 mm long.



3. Three fertile florets showing the pit (brown mark, 100 to 200 microns) present on the upper half of each shiny glume. Scale bar is 1 mm long.

Micrographs were taken at the National Seed Bank of the Australian National Botanic Gardens. They can be reproduced freely if attributed and linked to the Creative Commons licence CC BY, see <http://creativecommons.org.au/learn/licences/>.

Sources of information include: *Grasses of New South Wales*, Fourth Edition, by S.W.L. Jacobs, R.D.B. Whalley & D.J.B. Wheeler. University of New England; and *Atlas of Living Australia*, www.ala.org.au.



4. One pitted floret plus seven seeds prised out of other florets. Scale bar is 1 mm long.



FOG's Supported Projects: update

Andrew Zelnik

This year the FOG Supported Projects (FSP) Sub-committee received 11 applications for FOG Small Projects Grants, about double the numbers received in each of the scheme's previous two years ... maybe because of our expanded advertising this year. The applications are for research (3), on-ground works (4), land management planning (1), education (2), and community/Indigenous partnerships (1). Several also asked FOG for other assistance and recommendations.

The successful projects will be announced in a future newsletter, once the funding decisions are finalised.

Projects – in brief

The research projects were all plant-based. Two were from PhD students needing funds for DNA sampling – one working on *Melichrus* species diversity and the other examining soil microbe and plant interactions in weed invasion of intact native grassy ecosystems. The third application asked for part-funding to attend a conference and present honours-level research on control of Tiger Pear invading NSW coastal grassy woodlands and resulting effects on soil biodiversity and nutrient levels.

For the on-ground works and management projects, funding was sought to assist in: fencing and management of scattered forb-dominated patches on remnant Victorian Volcanic Plains grassland; weed control and replanting on ACT public land, aiming to reduce wombat mange; purchase of a spare brushcutter battery for an ACT ParkCare group; planting for grassy woodland restoration and riverbank-erosion control on several private properties in south-east NSW; and expert preparation of a management plan for remnants of threatened Lowland *Themeda* grasslands and other native grassy woodland and forest communities on a property in southern Tasmania. This project also had an education component with University of Tasmania.

Education-focused projects asked for assistance with funding Council replacement of grassy Box–Gum Woodland flora and fauna signage at a small cemetery in NSW to the west of the ACT; updating and expanding information on native grassy ecosystems in a self-guided tour brochure for a waterway in the ACT; funding a community/Indigenous partnership-focused knowledge sharing day at a Local Aboriginal Land Council on a grassy woodland reserve in northern NSW. The aim with the last of these projects was to share traditional Indigenous knowledge and conventional scientific and industry expertise in regenerative agriculture, to support native grass-seed production for use in human food.

Assessment process

In total the applications (ranging from \$250 to the \$1500 upper limit) asked for \$12,950, well in excess of our annual grants budget of \$3000–5000 which largely depends on the tax-deductible donations received by the FOG Public Fund (see May–June 2019 *News of FOG*). Most projects appeared to have merit for a FOG grant, and so the four-member FSP Sub-committee adopted a new approach for deciding where to award our funding. To ensure all applications were equitably assessed and ranked against the assessment criteria, we requested relevant supporting information from applicants as required and used quantitative criterion-scoring to guide our assessments, as is commonly used for commercial tenders for goods or services.

We combined and weighted each sub-committee member's scores (as some criteria are inherently more important than others) and summed them to give a total score and ranking for each application. We then met as a group, twice, to review the results and make a final decision on which applications to recommend for grants, and the amounts to be offered.

Outcomes

We recommended to the FOG Committee that grants be awarded for seven applications: the full amounts for two projects; and partial funding for five projects, to stretch the available funds to support as many projects as is feasible. Since then, two applicants have advised of changed circumstances and we have dropped those projects (earmarked for partial funding). We are still negotiating a couple of the remaining grant offers.

For the four unsuccessful applications, some having limitations for practical delivery, we have attempted to provide constructive advice and feedback, and to direct them to other potential sources of funding, technical information, and contacts in other organisations and agencies.

One continuing 2018 Small Project Grant

May–June *News of FOG* (p. 9) mentions funding for Kyle Hemming's project at University of Canberra (UC). Kyle has had to revise his original design, from a 20 m x 40 m area to now a glasshouse pot trial. He is aiming for the same outcomes as before but over a shorter timescale. In early September, FSP Sub-committee members inspected progress on Kyle's new experimental setup (see photo). He is using three native grass species and three non-native grass species, chosen to represent a range of responses to species competition and moisture stress. Kyle's experiment effectively began in mid-August when he potted up germinated seedling grass plants and started an automatic watering regime. His pots contain different mixes of the six plant species, from pure native to pure exotic, and there are three water treatments: 'Low', 'Medium' and 'High'. We were impressed by the set up and how Kyle was able deal with the questions we threw at him. We now look forward to hearing about the results and analysis in the mid-half of next year.



L–R: Maree Gilbert (FOG), Kyle, Janet Russell (FOG), and volunteer helper Tasha James also studying ecology at UC. Photo: Andrew Zelnik.

And Congratulations!

Kyle Hemming received the award for the best 'Flashtalk' at the recent international Ecology and Management of Alien Plant Invasions (EMapi15) conference which took place in Prague. Flashtalks have to fit a 5-minute time-slot. There's a photo at <https://emapi2019.org/>.



New version of ACT flora Census now online, Brendan Lepschi (Curator, Australian National Herbarium, CSIRO)

Version 4.1 of the Census of the flora of the Australian Capital Territory has been loaded onto the website of the Centre for Australian National Biodiversity Research (CANBR; <http://www.anbg.gov.au/cpbr/ACT-census/index.html>).

Please feel free to alert your colleagues and any other interested individuals to this new version. Data in this version of the Census are current to the end of 2017. Layout of the Census is as per Version 4.0, with the exception that Appendix 1, 'Vascular plants no longer considered part of the ACT flora' (i.e. introduced taxa for which no collections have been made for 50+ years) is now a separate page (see link on main page). We have also included an additional set of data

as Appendix 2, 'Vascular Plants excluded from the ACT flora', also with a link from the main page, and with explanatory text at the head of the Appendix document. Links are also provided to earlier versions of the Census (currently versions 2.0 – 4.0; still looking for version 1.0 in hyperspace!), again on the main page. A summary of the changes between versions 4.0 and 4.1 is available and can be distributed as appropriate. We'll start work on version 4.2 in early 2020, which will cover data for 2018 and 2019, as well as any other changes and amendments as usual. In the meantime, please feel free to contact me with any queries, corrections, etc., at Brendan.Lepschi@csiro.au, phone (02) 6246 5167.



A busy weekend, 19–20 October Geoff Robertson

While a large contingent of FOG members was exploring the Victorian Volcanic Plains during the weekend of 19 and 20 October, I attended FOG's & others' activities around the ACT.



On Friday 18 October, I caught up with six walkers, including two other FOG members (photo left), along the railway line south of Williamsdale Road. It was part of this year's 20-day and 306 km 'Walk the Border', led by Conservation Council president Rod Griffiths. He is being joined by an assortment of fellow travellers each day. (If you haven't contributed to this fund-raising event, I hope you will loosen your purse strings.) We passed through some wonderful grassland and woodlands, flowering at their best, and were especially delighted to see over thirty plants of Small Purple-Pea *Swainsona recta* (photo right) spread over a kilometre alongside the railway.



On the evening of Saturday 19 October, FOG's twilight walk and spotlight survey at Stirling Park – Gurubung Dhaura was a coolish but pleasant experience, attended by 15 people. After an introduction we broke into two groups, led by Jamie and Sarah. Apart from finding night-time creatures, we examined trees for tell-tale animal signs. Woodland at night with spotlights offers a different experience, and slowly we are building up our records of night-time creatures. The brush tail possum in the photo (right) was one of many seen during the evening.



An almost perfect day greeted the young rangers Bioblitz-ering at Mulanggari Grassland Reserve, 10 am to noon on Sunday 20 October. Twenty-seven people – sub-adults, parents and presenters – were there to learn and record. The photo here shows several young rangers and parents spread around a 1-metre square plot, learning about plant identification and recording, assisted by *Grassland Flora*. This was the first time FOG has run this type of activity. The next newsletter will include a longer report.

Despite the drought and the relatively cool early spring weather, our grasslands and woodlands have put on wonderful seasonal flower display, showing the resilience of our grasslands. I hope sightings have been added to Canberra Nature Map.

(Photos: Geoff Robertson)



Update on Yarramundi Grassland Demonstration Revegetation

John Fitz Gerald

Readers won't be surprised to hear that the dry winter has held back the growth of plants from seed that volunteers sowed at the end of April. Just as a recap, this is a project funded by the ACT Environment Grant program and has been reported in *News of FOG* November–December 2018 and January–February and March–April 2019.

Five FOG volunteers met at Yarramundi on 29 September, principally to monitor the plant growth, as part of documenting the revegetation. Both scrapes were surveyed and all species present recorded.

Of the native seeds sown, the most common species growing were *Leucochrysum albicans* and *Linum marginale*. A few *Leucochrysum* were beginning to flower, complementing the flowers of *Convolvulus angustissima* on plants that grew from roots and new germinations, even though none was sown.

Less encouraging was the abundance of unwanted plants: *Hypericum perforatum* and exotic grasses *Vulpia* sp. and *Aira* sp.

Another monitoring, the final for the project, will be made in November. An **inspection morning is scheduled for Monday 2 December**, open to all. Details will appear in the November e-bulletin. Contact john.fitzgerald@fog.org.au for more detail on any of the above.



Sarah, Barbara, Margaret and John at the eastern scrape.
Photo: Ann Milligan.

Hall Cemetery Workparty, Saturday 5 October

John Fitz Gerald

Nine volunteers met on this cool morning and enjoyed unusual damp conditions after 1 mm or so of overnight rain. Even though the dry winter has produced light plant growth, we found plenty to keep us going for the work session. Unfortunately, Plantain is quite bad in large patches, so it was a key target. Other weeds dealt a blow included Cleavers, Capeweed, Spear Thistle and Vetch. Minor work on Blackberry and Brome grasses rounded out the event. Thanks to all for their efforts.

After a chat and a reviver with a cuppa and cake, we went on the customary wildflower walk in the central cemetery area. We were asked not to go into Tarengo Leek Orchid areas, but we could access a reasonable range of other flowering natives, even if the roos and cockies had trimmed or dug some. Andrew Zelnik was on the job with camera and some images are shown below. A few more have been loaded onto the Hall Cemetery section in Canberra Nature Map.



Graeme (centre) and Jenny (with blue tub) at work on Cleavers at Hall woodland. Chicken farm beyond.
Photo: Ann Milligan.



At Hall Cemetery workparty, L–R, Variable Billy-buttons *Craspedia variabilis* aplenty standing tall, and some flowering Scaly Buttons *Leptorhynchos squamatus* hidden in the background; Most of the crew at morning tea (Ken, Leon, John, John, Jenny and Graeme); Flowering Pale Sundew *Drosera peltata* (about 50 mm tall) within the cemetery grassland. Photos: Andrew Zelnik.



Narrandera Weekend, 20–22 September 2019

By Margaret Ning

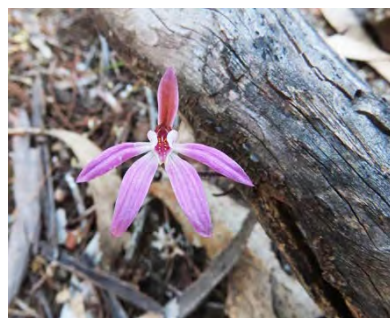
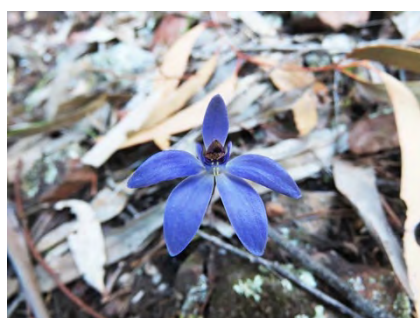
In the mid-afternoon on **Friday 20 September**, four FOG members spent a short time at **The Rock**, south of Wagga Wagga NSW. As in our stimulating visit there in May 2019 we did not advance very far along the track, as the distractions abounded!

Plants were at various stages of their life cycle, reflecting the occasional falls of rain in the previous few months. There were spent Rock Fern *Cheilanthes* sp., Native Carrot *Daucus glochidiatus*, Small Purslane *Calandrinia eremaea* and Pale Sundew *Drosera peltata* from the earlier rains. Lily species included Chocolate Lily *Dichopogon* sp. rosettes, Twining Fringe Lily *Thysanotus patersonia* vegetative bits and budding Leek Lily *Bulbine semibarbata*.

There were numerous orchids at various stages of development. Already spent was a *Diuris* species, possibly Leopard Orchid *D. pardina*, while Dusky Fingers *Caladenia fuscata* (they were all single pink flowers), Blue Caladenia *Cyanicula caerulea*, Waxlip Orchid *Glossodia major* and Midget Greenhood *Pterostylis mutica* were flowering. A Sun Orchid *Thelymitra* sp. was at the bud stage; and an Onion Orchid *Microtis* sp. was only at the leaf stage.



Can you spot (left – right) Margaret, Rainer and Andrew? They're photographing orchids, not hiding. Photo: Ann Milligan



L–R: *Cyanicula caerulea*,
Caladenia fuscata,
Pterostylis mutica.
Photos: Andrew Zelnik.

There was a steep learning curve with the *Crassula* genus. Apparently Australian Stonecrop *C. sieberiana* has fruit and petals in fours, while Dense Stonecrop *C. colorata* has them in fives, and they are very difficult to tell apart, **and** they are both in the area. Rufous Stonecrop *C. decumbens* was also apparent, but it is refreshingly easy to distinguish from the other two species.

In a handful of drainage lines, we found 'ephemerals' like Flannel Cudweed *Actinobole uliginosum*, Woolly-heads *Myriocephalus rhizocephalus*, Small Wrinklewort *Siloxerus multiflorus* (previously known to us as *Rutidosis multiflora*), Grass Cushions *Isoetopsis graminifolia*, Small-flowered Buttercup *Ranunculus sessiliflorus*, Common Sunray *Triptilodiscus pygmaeus* and Purple Parsnip *Trachymene cyanopetala*. The larger flowering plants around us included Common Fringe-myrtle *Calytrix tetragona* and Nodding Blue Lily *Stypandra glauca*. A photogenic swamp wallaby lurked in the background, refusing to be spooked by the group of people wandering off the beaten track. Sadly, the ubiquitous Onion Grass *Romulea rosea* was far too visible.



On **Saturday morning** at Narrandera the locals outnumbered the visitors as we welcomed Eric and Rowena, along with two other local people, Nella and Glenn. (Andrew's photo of the group is at left.)

First stop was **Gillenbah Travelling Stock Reserve**, and at first sight there was ryegrass everywhere, with a smattering of natives, including Curly Windmill Grass *Enteropogon acicularis* and Black Roly-poly *Sclerolaena muricata* as we walked deeper into the reserve. Then small patches of Small White Sunray *Rhodanthe corymbiflora* started to appear. And then Corkscrew Grass *Austrostipa scabra*, a Wallaby Grass *Rytidosperma* sp., with Slender Goodenia *Goodenia gracilis*, Wood Sorrel *Oxalis* sp. and a white flowering Minuria-like daisy for a bit of colour. There was a Grey Box *Eucalyptus microcarpa* canopy in many parts of the TSR.

Many different conversations were going on. There was discussion over a couple of the Climbing Saltbush *Einadia nutans* forms, prostrate vs more

'elevated'. Others were discussing the most notable bird species, which were Black Falcon (a vulnerable species), Superb Parrot, Grey-crowned Babbler, and Cockatiel.

Some areas were obviously lower in the landscape and thus more inundated from time to time. As evidence of this we saw an area containing a *Pratia* sp., Nardoo *Marsilea drummondii*, Small-flowered Buttercup, and Garland Lily *Calostemma purpurea*.

The further we walked the bigger the Small White Sunray clumps, and large patches of another tiny daisy, Orange Sunray *Hyalosperma semisterile* (photo right), were also apparent. More grassland species were sighted: Early Nancy *Wurmbea dioica* albeit spent, and a couple of Fuzzweed species including a *Vittadinia cuneata* with a beautifully deep purple flower.

The relative dryness of the season had stunted many things, including the exotic annual *Phalaris minor* that was a shadow of its normal self. Other weeds present were Capeweed *Arctotheca calendula* and some Paterson's Curse *Echium plantagineum*, although there wasn't much of the latter due to the dryness and the bio controls doing a good job.

Essentially the Gillenbah grassland was a mix of the yellow and white small paper daisies, previously *Helipterums*. Other small daisy species included Bogan Flea, Grass Cushions, Common Sunray, Flannel Cudweed. Less ephemeral species included Small-flowered Goodenia *Goodenia pusilliflora*, Bindweed *Convolvulus graminetinus*, Lamb Tails *Ptilotus semilanatus*, Bulbine Lily *Bulbine bulbosa*, Common Everlasting *Chrysocephalum apiculatum*, Chocolate Lily *Dichopogon* sp. (rosettes), a flowering *Wahlenbergia*, and a flowering *Sida*.

Species we saw in smaller numbers at Gillenbah included Plover Daisy, probably *Leiocarpa panaetioides*, Broughton Pea *Swainsona procumbens*, a white Rough Burr-daisy *Calotis scabiosifolia* var. *scabiosifolia* (we had only ever seen the purple *C. scabi* var. *integrifolia* in our own Southern Tablelands), Quena *Solanum esuriale* with its solanum fruits, Blue Storksbill *Erodium crinitum*, a Small Vanilla Lily *Arthropodium minus*, a third Goodenia species, and Cotton Fireweed *Senecio quadridentatus*. Finally, we concluded that a very large grass tussock was Cane Grass *Eragrostis australasica*.

We had lunch at Narrandera park with civilised shade, table, chairs and water where we continued a debriefing over what we had just been marvelling at. Thanks Rowena, Nella and Rainer for the lovely cakes and biscuits thrown into the mix for all of us, and for the thermoses that enabled us all to have tea and coffee.

Then we moved on to the **Billenbah** (former State Forest) section of Murrumbidgee Valley National Park, where we saw a subset of the species we had seen at Gillenbah TSR. We were in a Sandhill Pines endangered ecological community (EEC) with White Cyprus Pine *Callitris glaucophylla* galore. Rainer commented that recent vehicular burnouts had compromised the site as the crusts were badly damaged in places. A small compensation was the widespread Leek Lily, accompanied by Australian Stonecrop, Rufous Stonecrop, Cut-leaved Burr-daisy *Calotis anthemoides*, spent Early Nancy, Woolly-heads *Myriocephalus rhizocephalus*, Small Purslane, Garland Lily, Blue Storksbill, and Flannel Cudweed. Additionally, we sighted a Common Bronzewing there, saw quite a lot of Patersons Curse, and decided the large tussock grass at this site was Jericho Wiregrass *Aristida jerichoensis*.

We then moved a short distance along the road to **Buchanans TSR** adjacent to the previous section of Murrumbidgee Valley NP and sighted a Joyweed species *Alternanthera* sp., more Small White Sunray, a magnificent old Grey Box with many hollows of various diameters, and nesting Apostle Birds.

To our horror, however, adjacent to this site were tens of thousands of newly planted almond trees (photo right), in pure sand, all set up with their irrigation systems to take advantage of high security irrigation flows, and with some of their sand blowing away every time there was a gust of wind. The almond trees actually continued around the corner and must have totalled hundreds of thousands of plants. This site would have originally been Sandhill Pine EEC. We understand that it was cleared about 30 years ago and until the last several years had been a potato farm.



We then drove to the **Gap Road** site where, on our 2018 visit to that area, we had discovered a population of the threatened species Round-leafed *Wilsonia rotundifolia* and quite large numbers of the intriguing Long Eryngium *Eryngium paludosum*, which we had never seen before. These exist in a small area which also included a largish patch of Leek Lily, the Broughton Pea, a pretty *Minuria*-like daisy, and another white daisy that all made it well worth showing to a new audience. This was further enhanced by the surrounding sea of Small White Sunray on both sides of the road.

Wire Yards TSR was our first stop on **Sunday morning**, with the same seven of us in the group. Here we saw lots of White Cypress Pine seedlings, the Small White Sunray from the previous day, and we added a new ephemeral daisy, Pigmy Sunray *Rhodanthe pygmaea* (photo left), to the suite we had seen over the weekend. Another section of

this TSR contained Nodding Saltbush, a *Sida* species and a new *Goodenia* species, Smooth Goodenia *G. glabra*, which is easy to ID if its typical prominent lobe is evident but more challenging if it is not.

The site was quite mucky but with occasional gems. Sightings extra to those seen at earlier sites were Wattle Mat-rush *Lomandra filiformis* var. *coriacea* and *Wahlenbergia luteola*. We found the leaves of a lily-looking plant which stumped us: possibly Common Fringe Lily *Thysanotus tuberosus*, but Nella kindly agreed to monitor it over the next weeks/months in order to satisfy our curiosity. Marked with a skull and a goat horn, what could go wrong? There was a disappointing amount of Patersons Curse and Capeweed at the site. Rainer searched for a large white *Ptilotus* he had previously seen there. Instead, Andrew found a prostrate brownish-green one, Pussytails *P. spathulatus* (photo right). The standout bird species included Little Eagle, Rufous Songlark, Superb Parrot, Grey-crowned Babbler, Spiny-cheeked Honeyeater and a Singing Honeyeater.



We next visited a couple of **woodland sites** along the road adjacent to the Lake Coolah 'shore'. We sighted a delicate *Vittadinia*, probably *V. gracilis*, more Bindweed and Pussytails and Blue Storkbill, and then we discovered a *Convolvulus* species (photo left) that was a first for every one of us. Once Rainer was back in Canberra he narrowed it down to Desert Bindweed, *C. clementii*.

Other new sights worth commenting on were a cluster of Yarran *Acacia homalophylla* on the eastern edge of its usual range, and Bimble Box *Eucalyptus populnea*. Slightly further along the road was Buloke *Allocasuarina luehmannii*, Needlewood *Hakea leucoptera* and Umbrella Wattle *Acacia oswaldii* with its very curly seed pods and a

muco [online definition: an abrupt sharp terminal point or tip or process (as of a leaf)]. Smaller findings at the last minute included Caustic Weed *Euphorbia drummondii* and a nice cluster of Desert Bindweed, all with flowers.

We spent 45 mins at the last site, where our best bird highlights were Grey Crowned Babblers with their communal nests, Superb Parrots and Apostle Birds. Other distractions included a jumping spider, a huge discarded TV set, and a rather large puff ball. We also saw our first reptile for the weekend, a very small skink without its tail. The ubiquitous Onion Grass, coupled with an infestation of Wild Sage *Salvia verbenaca*, was disappointing as usual. Dried pugging and cattle poo were signs that the travelling stock route has been well used in the last year.

Over the Saturday and Sunday we sighted myriad Chenopodiaceae family members wherever we went. However, we could not look these all up, so most remained a mystery to us for this trip. I certainly saw Frosted Goosefruit *Chenopodium desertorum* and an orangey-red fruited *Maireana* species, and we once identified Galvanized Burr *Sclerolaena birchii*, but there were many others!

It was fabulous to have Eric's expertise as well as Rainer's. They consulted and conferred their way through numerous challenging IDs, as the rest of us eagerly tried to take it all in. Then we settled down at Nella's for some sandwiches and a cuppa, and the conversation and clarification continued until we finally began the trip home.

Photos: Andrew Zelnik.



A tale of two grasslands!

By Margaret Ning

In order to show FOG members from the deep south (i.e. Victoria) around some Canberra grasslands, FOG put together an activity to visit a couple of local sites. Sarah suggested the Blue Devil Grassland at Umbagog and the grassland at St Mark's in Barton, and we settled on 12 October as the date. The FOG members, Gidja and Philip, were only travelling from their holiday base of Mt Oak near Bredbo, so an afternoon's activity was the go.

Fourteen of us met at the Blue Devil grassland at Latham (photo left, by Geoff Robertson) and wandered slowly over towards the 20 m square monitoring plot where we had collected data on three occasions in 2015. The site had been burned just over twelve months ago and the resultant inter-tussock spaces were still very visible. Apparently it had been a pretty hot burn, and not very patchy. Slashing successfully prevented the fire reaching the drainage line to the west. We saw a total of around 30 native

species, of which just under half were flowering, and that included grasses and sedges. Overall there was not a lot of evidence of flowering for this season, with only some Bulbine Lily *Bulbine bulbosa* providing a little colour. We spent over an hour at the site, moving around a bit to look at further-flung perimeters. There was an impressive number of Blue Devil rosettes, and the site generally reflected the significant amount of care given to it by local landcarers.



Craspedia variabilis, *Bulbine lily* and *Scaly Buttons* at St Marks grassland. Photo: Andrew Zelnik.



Goodenia pinnatifida. Photo: Andrew Zelnik.

And then on to St Marks where we were joined by one more member. We already knew, from an earlier reccy, that there was more of a floristic show at St Marks, and it was looking quite outstanding. We counted 23 flowering native species, once again including grasses and sedges, but the overall scene was of flowering vegetation. This included masses of Creamy Candles *Stackhousia monogyna*, and respectable displays of Scaly Buttons *Leptorhynchos squamatus*, Cut-leaved Goodenia *Goodenia pinnatifida*, Common Billy Buttons *Craspedia variabilis*, and Common Everlasting *Chrysocephalum apiculatum*. Signs of earlier flowering included Early Nancy *Wurmbea dioica* and Bears Ear *Cymbonotus* sp., and obviously soon to flower were Button Wrinklewort *Rutidosia leptorhynchoides* and Lemon Beauty Heads *Calocephalus citreus*. A lot further down the track, assuming rain between now and then, Chocolate Lily *Arthropodium* sp. should look glorious at the site. St Marks also had a burn approximately a couple of years ago, which was more of a patchwork effort, and the resulting inter-tussock spaces were still evident. The only negative was some large patches of St Johns Wort *Hypericum perforatum*, and quite a proliferation of 'woody weeds' which require some serious cutting and daubing efforts. These included garden escapees and some *Pinus radiata*.



Masses of Creamy Candles. Photo: Geoff Robertson.

Debates over many things ensued throughout the afternoon. More questions were asked than answered, and after many a conversation we called it a day. Thanks, Gidja and Phil, and Bronnie, for coming to visit our local sites.



FOG's winter talks and tea

Andrew Zelnik

On Saturday afternoon 31 August, 27 FOG members and friends gathered for FOG's annual 'talks and tea'. For various reasons we were in the theatre and adjoining Dickson Room at the Australian National Botanic Gardens, where we heard three diverse and very engaging talks: Dr Sue McIntyre, on 'Putting climate-adjusted provenancing into practice', followed by Dr Juliey Beckman, on 'Assessing grassland use by small native marsupials', and then Bill Willis describing and demonstrating 'Small-scale propagation techniques for some grassland species'.

Putting climate-adjusted provenancing into practice

Sue is an Honorary Professor at the ANU Fenner School of Environment and Society and an Honorary Fellow at CSIRO Land and Water. She is restoring former grazing land near Gundaroo (NSW), combining that with her research on the ecology of landscape, grasslands, grazing, weeds and plant conservation. In other words, returning forb diversity to grasslands that are in transition from livestock grazing to conservation purposes.

Sue outlined an 8-year assisted-colonisation experiment, using Yam Daisy *Microseris walteri*, Bulbine Lily *Bulbine bulbosa*, and Creamy Candles *Stackhousia monogyna* sourced from four populations along a +2°C-warmer average temperature gradient extending 117 km to the north-west of her Gundaroo property. The property and the nearest source population both are on sedimentary substrate, and the other three sources are granitic areas. The outcomes? Populations of these forbs have established from all sources across the temperature range, and they show no effects of the different geologies; there is no strong home-site advantage; low levels of soil fertility can eliminate weed competition but the forbs may be small and slow growing; and excluding roo-grazing allowed 2 or 3 times as many forbs to establish as in grazed areas.



Experiment planting site with perennial grass removed, seed sown and covered with coarse sand. At the back end are grazing protection cages.

Photo: Sue McIntyre.

Sue also briefly described a project involving climate modelling related to plant samples from three local community Landcare nurseries. Issues Sue identified related to the long-term outcomes of climate-adjusted provenancing. Tubestock may not be the best material for assessing successes of assisted-colonisation and released genetic material may not result in regeneration if the receiving site is too fertile. Take-home messages? In climate-adjusted provenancing, the 'how' of doing it is critical; and the best places to plant new material are grasslands and woodlands long-unfertilised and dominated by native plants, or eroded areas.

Assessing grassland use by small native marsupials

Juliey joined FOG about 3 years ago in order to learn more about the region's grasslands and to tap into FOG's expertise about the local grasslands. She is First Year Coordinator, Lecturer and Deputy Head in the Biology Teaching and Learning Centre at ANU. Her research centres on the ecology and evolution of small carnivorous Australian marsupials, and she is starting to combine her teaching with her research into how grasslands affect the distribution and connectivity of small mammal populations in this region.

Juliey gave us an overview of the Dasyuridae family of carnivorous native Australian marsupials which include Tasmanian devils, quolls, the now extinct thylacine, numbats and small mouse-size species such as phascogale, antechinus, planigale, and sminthopsis (dunnart) species. Nearly all are nocturnal and so mostly go unseen in their

grassland, woodland, mallee, heathland and forest habitats. We learnt the differences between (introduced) rats and Dasyurids (the teeth and gape differ substantially, and also the genitals, and smell of their scats). After touching on her earlier research on the Julia Creek Dunnart in the Mitchell Grass Downs of central Queensland, Juliey outlined her recent research on genetic variation in agile antechinus in the eastern half of Victoria and the south-east corner of NSW, and on populations of dunnarts around Tumut (NSW) and near the south-east end of the ACT, to determine if local populations are fragmented by a lack of suitable intact native vegetation and habitat corridors.

Small-scale propagation techniques for some grassland species

Bill originally trained in horticulture and landscaping and garden design and has long had a passion for propagating native plants. He has a small native plant nursery in the Queanbeyan area. He helped establish the Ngambri Local Aboriginal Nursery for native plants, and has trained local Indigenous people in a range of horticultural skills. Bill is closely involved in Queanbeyan Landcare, the Australian Native Plant Society, and the Molonglo Conservation Group. While he loves trees, particularly Red Box *Eucalyptus polyanthemos*, he is concerned that local native grasses and forbs need to be better represented in our parks and gardens and to be better cultivated.

Bill gave us his heart, sharing his passions and concerns about native plants, and showing us neat ways to propagate them. He confessed to possibly having helped spread a non-endemic *Acacia* species (that shall remain nameless) in the past before he learned the error of his ways. His love for trees is restricted to local species and he is concerned that trees in general can be overused in restoration and other planting projects. He is concerned that endemism and the diversity of hundreds of possible grassland forbs and other understorey species local to areas are not valued in replanting projects. Another key issue Bill addressed was the generally poor level of monitoring and measurement of success (or otherwise) of plantings. Consequently, he is doing his bit to champion these issues. Bill then gave us an extensive demonstration of various native plant propagation techniques, and finished by letting us take home some of the wonderful selection of plants he had brought to show us.



Juliey at the beginning of her talk. On the screen, left, Julia Creek Dunnart 'taking a stand' in the Mitchell Grass Downs in central Queensland, and, right, an antechinus in hand. Photo: Andrew Zelnik.



Bill giving his 'smoke and water' demonstration of how relatively simple it can be to propagate native plants using a plastic storage container, severely pruned cuttings, a propagating medium, and of course smoke water! Photo: Andrew Zelnik.

FOG people in the media

Did you see Maree Gilbert with African Lovegrass in the *Canberra Times*, Sunday 20 October, page 3?

<https://www.canberratimes.com.au/story/6443614/rangers-hope-to-trial-kryptonite-in-fight-against-african-lovegrass/>

And Brett Howland appeared briefly in relation to a Grassland Earless Dragon breeding program in Melbourne at the end of the *ABC news*, 20 October. (Wouldn't it be great if we could train these little dragons to do patch-burning in grassland! *Editor's comment.*)

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You can donate (tax-deductible) to support our FOG grants!

Direct debit: BSB 633 000, A/c 15349360 (Bendigo Bank), with your name in the reference box, & tell the treasurer by email to treasurer@fog.org.au.

Cheque: payable to 'Friends of Grasslands', mailed to Treasurer, Friends of Grasslands Inc., PO Box 440, Jamison Centre, ACT 2614. THANKS!

Dates to note, October – December

Sun 27 Oct	Workparty Stirling Park, ACT
Thur 31 Oct	Ginninderra Falls Assoc. public meeting & AGM
Sat 2 Nov	Workparty Hall Cemetery woodland, ACT
Sat 2 Nov	Golden Sun Moth picnic wake at York Park, ACT
2–3 Nov	Weed Swap @ green waste tips north & south ACT
Sat 9 Nov	Visit to Frogmore Cemetery, near Boorowa NSW
Sun 10 Nov	Hunt for Mountain Picris, Royalla NSW
10–17 Nov	Wild Pollinator Count
Wed 13 Nov	Monitoring at 'Scottsdale', Bredbo NSW
Sat 16 Nov	Twilight walk in Stirling Park, ACT
16–17 Nov	Visit to Nerriga NSW
23–24 Nov	Visit to Deua National Park and Shoalhaven
Sun 24 Nov	Workparty Stirling Park, ACT
Tue 26 Nov	FOG in the 2020s: Open committee meeting
Sun 1 Dec maybe	FOG: Celebrating 25 years!
Mon 2 Dec	Inspect Yarramundi Grassland scrapes progress

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