



September–October 2017

Upcoming FOG activities (*see also page 2*)

Showcasing weeding tools & methods and sharing ideas

Mt Oak, near Bredbo NSW, 23–24 September

We are fortunate to have a great opportunity to thoroughly investigate weed-control methods in grassland at a 1–2 day visit to Mt Oak, near Bredbo NSW, in mid–late September. Our hostess will be Gidja Walker (a member of FOG) who has huge experience in weed control.

This is a weed-focused activity: talking about, demonstrating and trialling implements and ideas for eradication (*see photo, right*). Gidja is full of ideas and methods.

Come along and see what she suggests for your problematic weed or weedy area. Bring your good-news weeds' stories too!! It is a weeds' swap of ideas. If you have any plants that you want identified, bring them along too (with any seeds well wrapped, of course).

FOG has visited Mt Oak a few times over the years. From the grassland perspective, it has extensive species lists, and its current owners (Gidja is one of them) are constantly experimenting and trialling new ideas to reduce and control the property's weeds. See <http://www.mtoak.net/>.

This FOG activity is limited to 15 people (members of FOG or Mt Oak have priority). We shall arrive around **10 am on Saturday 23 September**, stay overnight in a camping situation (some non-camping may be available locally), and leave on the **Sunday 24 September after lunch**. Water and toilets are available for campers. A 4WD vehicle would be helpful, as would carpooling.



Photo: Gidja Walker

More background information is at:

www.mtoak.net and www.gidjawalker.com.au.

Contact margaret.ning@fog.org.au for more details and to register.

Visit to northern grassy ecosystems, 21–23 October

After two reconnaissance trips over the last couple of months, an interest-filled route has been defined for a trip that takes in a number of **cemeteries, travelling stock routes and nature reserves between Bowning, Temora, Forbes and Young** over three days in October.

Ecosystems to be visited include Grassy Box–Gum Woodlands, Natural Grasslands, Black Ironbark Forests, Grey Box Woodlands and River Red Gum Communities. Highlights will include Gum Swamp (Forbes, a birdwatcher's delight), the famous Monteagle Cemetery, and Jindalee National Park (natural habitat of the Cootamundra Wattle).

Because there has been a dry autumn, followed by a slightly moist winter, there are few of the pesky annual grasses seen in wetter years, and our reccies have revealed the promise of wildflower displays at the sites we shall be visiting.

We'll be camping at Forbes and Young, or you could book yourself into a motel at each town if you prefer. For more information, contact Margaret.Ning@fog.org.au.

Rainer Rehwinkel



Gum Swamp Travelling Stock Reserve wetland, one of the stops on the October trip. *Photo: Andrew Zelnik. See also page 10.*

For this newsletter's contents, see p.14.

Activities continued: Workparties and monitoring

Stirling Park – August workparty Sunday 27 August, 9 am – 12.30 pm

In this our first burst of activity for spring, we shall continue cutting and daubing in the broad hillside area from Lotus Bay up to Forster Crescent. There will be a chain saw in operation and we also need to straighten up quite a few tree guards and there is always rubbish to collect.

Meet at the car parking area on the inland side of Alexandrina Drive opposite Lotus Bay (near the eastern intersection of Alexandrina Drive and Mariner Place). Look for the Friends of Grasslands sandwich board sign on the roadside. There is plenty of room to park.

Please wear really old gardening clothes, solid footwear, bring sun protection, eye protection, a hat and drinking water. Expect a high quality morning tea. And please advise pmcghie@optusnet.com.au (mobile: 0411 126 719) if you intend to come along so that he can plan catering and have the correct the number of tools.

Stirling Park – September workparty Sunday 24 September, 9 am – 12.30 pm

The September workparty will focus on planting and weed control. For details nearer the time, see the FOG September *ebulletin* and/or direct email. Please contact Peter McGhie or Jamie Pittock to tell them you will be there. jamie.pittock@fog.org.au; mobile: 0407 265 131 pmcghie@optusnet.com.au; mobile: 0411 126 719

Yarramundi Grassland Sunday 24 September – maybe!

Our expected workparty on 24 September at Yarramundi Grassland (behind the Aboriginal and Torres Strait Islander Cultural Centre, 245 Lady Denman Drive, ACT) may or may not go ahead, depending on the status of work the National Capital Authority has planned there around that time. If you would be available for a FOG workparty, please contact John Fitz Gerald near that time to find out if it will go ahead. john.fitzgerald@fog.org.au.

Call for helpers to promote care for biodiversity

You will be welcome to help promote the work that FOG and other landcare-focused groups do in reducing weeds and supporting biodiversity, by joining the rosters for these two upcoming activities.

Joint Parkcare Display @ Jamison Plaza, Macquarie, ACT, during **8–10 September**, and

Weed Swap @ Corkhill's yard, off Mugga Lane, Phillip, and @ Canberra Sand and Gravel's yard at Parkwood, on **Saturday 4 and Sunday 5 November**.

For details, contact ann.milligan@fog.org.au

Hall Cemetery woodland – October Saturday 7 October, 9 – 11 am

At this spring work morning we shall return to the control of emerging weeds, especially thistles, and of selected patches of exotic grass. The major action will be spot application of herbicide through the grassy woodland. Some physical removal can also be done, so please bring along your favourite digging tool. Morning tea is provided. Please dress for the weather, and waterproof footwear is recommended.

MOST IMPORTANT – so that enough morning tea and weeding gear are on hand to match the enthusiasm of volunteers, be sure to **REGISTER** with john.fitzgerald@fog.org.au before **Thursday 5 October**.



One of the Scottsdale sites to be monitored in November. For a short article about the 2016 monitoring, see *News of FOG* Jan–Feb 2017.

Scottsdale monitoring Thursday 16 November, 9.30 am – 3.00pm

In November, for the 10th time, FOG will monitor the grasslands of 'Scottsdale', the Bush Heritage property near Bredbo. The purpose of our annual monitoring has been to track the effectiveness of various strategies for managing African Love Grass.

I am calling for volunteers for that day. No special knowledge is necessary, although it is useful to have some idea of grasses and forbs. Mostly the tasks involve finding the plots, running out the tape, and recording species.

If you would like to join us, please let me know at least a week before the event so that I can coordinate teams and vehicles. linda.spinaze@fog.org.au.

Snippet

Travelling Stock Routes in the ACT – 'Find of the month'

Records relating to the use of the travelling stock routes in the ACT are ArchivesACT's August 'Find of the Month'.

https://www.archives.act.gov.au/find_of_the_month

The 2017 mid-winter FOG afternoon of talks and tea

Paul Archer and Andrew Zelnik

Twenty six FOG members and guests came together at the Mugga Mugga Environmental Education Centre on 15 July to settle in front of the log fire for a very pleasant, informative and entertaining afternoon of ‘talks and tea’.

Our first speaker was **Karen Retra** (*photo at right*), an enthusiastic ‘neighbourhood naturalist’ and self-confessed native bee tragic who travelled from her home in Albury for the occasion. Her passion about Australia’s 1600–2000 species of native bee and their important role in pollinating our native plants, including those in grasslands, was both palpable and infectious.

She explained that these insects and plants have co-evolved in a complex relationship involving colour, scent and food (nectar and pollen). You can’t protect just the plant, she said, you have to consider the ecosystem as a whole, including the pollinators. Some interesting facts about native bees: they are mostly solitary, vary in size from small to ridiculously small (e.g. the smallest is about 1 mm), usually produce no (or very little) honey, have a 60-day lifespan, 80% of them nest in the ground (some dig to 1.6 m) or in timber, and some have evolved unique evolutionary relationships: e.g. an *Amegilla* bee species vibrates (bangs its head) at a resonant frequency of 350 times a second to release *Dianella* pollen (the *Amegilla* genus includes blue-banded bees). Native bees lay their eggs in the nest with a ‘patty’ of pollen and nectar to sustain the larvae until they emerge in spring and summer.

More information on pollinator insects and how to support them in your garden and elsewhere is available on Karen’s website: karenretra.com. FOG members are welcome to join Karen’s citizen science project (with Dr Manu Saunders of University of New England) observing a single flower in spring or autumn for 10 minutes at a time, to count and report its insect visitors: see wildpollinatorcount.com.

Dr Lydia Guja (*photo at right*) is Seed Conservation Biologist at the Australian National Seed Bank at the Australian National Botanic Gardens (ANBG). In her presentation she eloquently and seamlessly spoke about plant conservation, seed banking and the science behind it, the National Seed Bank, and some grassy ecosystem conservation and research projects she is involved with.

Some interesting facts from Lydia’s extensive talk: Seed banking involves storing seed under conditions of low moisture and low temperature. Seed storage life doubles for every 5°C reduction in temperature and is further increased by reducing moisture content. For example, wheat seed stored at 10% relative humidity and –20°C can last for up to 1539 years, compared to a few months in the moist tropics at 76–90% RH and around 30°C. The ANBG’s National Seed Bank holds approximately 3700 species and 6750 accessions/collections that range from Christmas Island off north-west WA to Norfolk Island in the east. They partner with 11 other organisations in Australia. The Seed Bank’s goal is to collect the seeds of 653 species from Australia’s Commonwealth Terrestrial Reserves by 2020 (currently around 23% collected) and the seeds of 1070 flora species of the ACT (currently nearly 80% collected). There are 285 target species for Natural Temperate Grasslands and 350 for Box–Gum Woodlands and other native grasslands.

Lydia stirred the audience with a challenge to identify six grassy ecosystem plants from micro-photographs of their seeds. Members rose to the occasion with little prompting and the plants were quickly identified. Further information on the National Seed Bank is available at: <http://www.anbg.gov.au/gardens/living/seedbank/>.

Honorary Life Memberships awarded after Special General Meeting

Between the presentations, Honorary Life Membership was awarded to **Edwina Barton**, FOG’s first convenor* and the driving force behind its foundation in 1994, and to **Naarilla Hirsch** who joined FOG in 1995 and has been a stalwart contributor and Committee member over much of the time since then, most recently in the pivotal role of FOG Advocacy group coordinator.

*In 1994 it was the fashion to have a convenor rather than a president.



Grass seeds can contaminate meat carcasses

The *Land* online recently had an image, now unavailable, of a carcass (on the hook) riddled with spear grass seed – a problem for abattoirs, as well as farmers and sheep. Other grass species’ seed also can damage sheep and their skins and carcasses. Relevant information online includes <https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/livestock/animal-welfare/sheep-health/prevention/grass-seeds>; <https://www.mla.com.au/research-and-development/Grazing-pasture-management/weed-control/seed-contamination-of-carcasses>; http://centralwest.ils.nsw.gov.au/_data/assets/pdf_file/0007/567628/native-grasses-guide.pdf

FOG mid-winter talks & tea, continued

President Geoff Robertson informed members of the extraordinary contributions that Edwina and Naarilla have made to Friends of Grasslands, to the support of grassy ecosystems, and to biodiversity and conservation more broadly. Both Edwina and Naarilla were present to receive their awards and gave excellent acceptance speeches, a few snippets of which are provided below.

Edwina told us there are three key challenges for any community group which she indicated FOG has managed to achieve so far: longevity; relevance; influence. She also gave her perspective as a lobbyist regarding the challenges for biodiversity conservation, again summarising with three take home points:

- Understand the underlying drivers of biodiversity decline, to ensure that effort is directed to where it is needed and will provide the most benefits;
- Identify who the winners and losers are, i.e. the most affected stakeholders;
- If you can't find win-wins then find the weaknesses of your opponents. For example, is their science good enough?

Naarilla noted that over her many years of FOG advocacy the arguments have changed. Developers now recognise that grassy ecosystem conservation is a factor to be considered, and include mitigation strategies in proposals. The debate has moved on to determining whether or not offsets are working. Naarilla also expressed the view that anyone can contribute to grassland conservation: her knowledge of grasslands has grown over the years from absolutely nothing to sufficient to undertake the advocacy coordinator's role.

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As Geoff Robertson said, FOG has been extremely fortunate that these two people have been able to give so much to our group. Without them, FOG would not exist today or would be a very different organisation.



Naarilla (top photo) and Edwina (below) receiving their awards of Honorary Life Membership of FOG from our current president, Geoff Robertson.

Photos: Paul Archer



Welcome to

Karen Retra, of Albury NSW, who has recently joined FOG; and to **Charles Sturt University Green Office, Division of Facilities Management**, which has recently joined as a Corporate Member. And FOG is pleased to welcome **Naarilla Hirsch** and **Edwina Barton** as Honorary members in recognition of their contributions to FOG.

Learning about grassy ecosystems at ANU and Yarramundi Grassland

On Monday 7 August, Assoc. Professor Cris Brack of the ANU took a group of 25 senior undergraduate students to Yarramundi Grassland and invited FOG to join them. These folks are taking Cris's course in Ecosystem Assessment and Management at the Fenner School of Environment and Society.

The group walked the site and discussed a wide range of conservation grassland issues including ecology, threats from development and weeds, and management challenges. Unfortunately, on this early-August day, the only flowers to see were images in the Ginninderra Catchment Group's colourful brochure from 2013, *Species of the Natural Temperate Grassland in the ACT and Region*, for which FOG helped to source photos.

FOG's effort at weed control and grassland-species replanting at Yarramundi were inspected and explained. In the large management unit that was recently burned for biomass control by the National Capital Authority, the students had an excellent chance to understand both the native-grass tussock distribution and the regenerating forb richness in between. They also experienced the highly patchy quality of this part of the Grassland and the consequent management challenge.

Unfortunately the group arrived at Yarramundi about the time that snow started to fall on the Tidbinbilla Ranges so the trip was shortened due to wet and cold, and no photos were taken.

John Fitz Gerald

FOG advocacy in July

Naarilla Hirsch & Sarah Sharp

1. The proposed development of diplomatic missions in Yarralumla will impact on some Golden Sun Moth habitat. In its submission on this EPBC referral, FOG supported the use of Guilfoyle St Grassland as an offset site. FOG also asked for retention of the remaining native trees of Blakely's Red Gum as they offer opportunistic habitat for native birds and have the potential to develop hollows in the future.

2. With substantial help from FOG member Rainer Rehwinkel, the advocacy group made a submission to the NSW Government on its review of travelling stock reserves (TSRs). FOG has always been concerned that frequently the most biodiverse and, in some areas the only, remnants of native vegetation are within TSRs and their associated stock routes, as they have not been fertilised, ploughed and only infrequently grazed. Selling or leasing these remnants for farming or other purposes is likely to result in a reduction of their biodiversity values. A number of major concerns were expressed in the submission. One was the need to identify, map and describe all sites that are of high conservation value and to ensure these data are publicly available. Another was the impact of changing grazing and other management regimes on TSRs with high conservation values. TSRs should not be used for grazing leases without appropriate assessment and application of criteria. Management of TSRs with high conservation values should include management that maintains the conservation values of the TSR, and if possible, they should be incorporated into adjoining nature reserves or national parks to facilitate conservation management and protection. In the discussion paper there was insufficient recognition of the non-utilitarian uses of

TSRs (e.g. biodiversity, aesthetics) versus the utilitarian uses (mainly farming), and of the importance of their values to the wider community, including nationally. There also needs to be sufficient funding available to manage high conservation TSRs in such a way that their values are retained. As well as a response to the discussion paper, FOG also provided a response to the questions about the State-wide assessment by putting together details regarding some key TSRs in south-eastern NSW.

3. The NSW government released, for public comment, four draft Save our Species (SoS) strategies, plus a number of strategies relating to particular species or ecological communities. FOG generally supported these and made some comments about the associated Monitoring, Evaluation and Reporting report. One was that there is a lack of statistics that summarise key indicators for each threatened species and ecosystem, and likewise of suitable statistics on threatening processes. FOG provided some measures that might be useful, particularly in the context of grassy ecosystems. FOG also drew attention to a number of problems with current report forms for most projects. With regard to the strategy for *Themeda* grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions, FOG was concerned that the statement emphasises monitoring rather than actions to arrest the decline that is ongoing in those headlands.

The full text of FOG submissions appears on our website.

Snippets

Punk at Stirling Park

Paul Ratcliffe and I noticed this fungus (see photo) on a tree at a FOG–Fenner working bee at Stirling Park on Saturday 18 March 2017. Paul had it identified (via Canberra Nature Map) as *Laetiporus portentosus*. I did a Google search on it. It has a great common name, 'White Punk'. Below is a bit of information about the species, from the Australian National Botanic Gardens website.

***Laetiporus portentosus* (formerly called *Piptoporus portentosus*)**

What is probably this species of polypore, was eaten by Aborigines in Tasmania, possibly as an emergency food. In Tasmania, South Australia and Western Australia a fungus, sounding like this one, was used as tinder and to carry fire as it would smoulder all day. In the northern hemisphere also, several polypores have been used as tinder or for carrying fire.

Andrew Zelnik



Swainsona recta video

FOG committee members recommend you view the delightful and whimsical 6-minute video about the Small Purple Pea *Swainsona recta*, produced for NSW Office of Environment & Heritage (OEH). See: <http://www.environment.nsw.gov.au/news/saving-the-small-purple-pea-swainsona-recta>

Cultural burn for Tarengo Leek Orchid

An article on the OEH website reports on a cultural burn to protect the Tarengo Leek Orchid *Prasophyllum petilum* south of Queanbyan, NSW. See: <http://www.environment.nsw.gov.au/news/cultural-burn-to-help-spark-new-life-for-rare-orchid>

Close-up: to a Scrape

John Fitz Gerald

For this issue, let's ride on the back of a grassland restoration technique discussed during two FOG trips in recent times: to the 'Scottsdale' property on 22 October last year, and to Kama Nature Reserve on 11 April this year. Please consult back-copies of FOG newsletters (page 13 in the November–December edition 2016, and pages 10–11 in the May–June 2017 edition) for detail.

In brief, the scalping treatment to which Richard Milner introduced us, on the top of the hill at Kama in April, has now been applied. Five separate undulating sites have been scraped to a depth of around 15 cm over a total area of 1.3 ha. The soil removed from three large sites was rich in exotic seeds and nutrients and has been spread thinly alongside (and immediately downhill from) them. Soil was also removed from two small sites and added to the spread at the large sites. These three spoil sites will be planted densely with trees and shrubs over the coming months to suppress weed regrowth.

Greening Australia, as at Scottsdale, was contracted to supply native seed and to spread and compact it on the five Kama scrapes. No cover (such as straw mulch) was applied, so the sites at present are bare earth pending germination. The largest site has been enclosed by a high temporary fence to exclude cattle that will be used to control the expected dense wild oats around that site during spring.

The seed sown is locally sourced seed from native grasses (18 spp) and forbs (32 spp). The photos here are of three of the forb species, imaged using the microscope at the National Seed Bank facility in the Australian Botanic Gardens.

First, the attractive daisy *Rhodanthe anthemoides* (Chamomile Sunray) with its fruit capped by hairy pappus structures (image 1) and dense covering of hairs on the achene (image 2, pappus removed).

Next is the graceful *Linum marginale* (Wild Flax) with its beautiful shiny and patterned seeds (image 3) flattened like those of Linseed. The resemblance is hardly surprising since Linseed is processed from the European Flax plant *Linum usitatissimum*.

The fourth photo (4) is of the small forb *Plantago varia* (Variable Plantain). It has plump seeds domed on one side and flat on the reverse side once attached to the capsule stem (left and right half of image respectively).



Scale bars in the images represent 2 mm in (1) and 0.5 mm in (2, 3 and 4).

The National Seed Bank is warmly thanked for access to its imaging facility. Richard Milner and Nicki Taws reviewed a draft of this article, and are thanked for providing its facts and figures.

A year and a half in the life of a Local Land Services (LLS) grant

Margaret Ning

In *News of FOG* of March–April 2016 I reported on the LLS grant FOG had successfully applied for at the end of 2015. The grant was for a project to enhance the habitat of the Monaro Golden Daisy (MGD), a threatened species, at three sites at Cooma NSW.

By January 2016 work had begun on the grant tasks: a handful of FOG members had set up monitoring areas on the grant sites, and conducted the first year's baseline monitoring of target weeds there and of the MGD population. By February 2016 the spray contractor had commenced work on the target weeds (African Love Grass (ALG) and St John's Wort (SJW)) on Old Cooma Common Grassland Reserve (OCCGR) and Cooma Rifle Range (CRR).

Some progress

At the end of August 2016 we had spent \$11,500 of the planned first year spraying budget of \$12,000. Our original aim was to hit the weeds hard in the first year in order to reduce their numbers in subsequent years, but conditions were not optimal for spraying SJW in the first season, and only 39 hours of SJW spraying was done compared to 59 hours of ALG. The summer of 2016–17 was another bad one, lacking rain when subsequent growth of the SJW would make spraying effective, so between February and April 2017 only \$4300 of a budgeted \$8000 was spent on SJW (21 hours) and ALG (16 hours) on both sites.

We originally envisaged there would be equal amounts of spraying of the SJW and ALG over the course of the grant, but now (July 2017) there is an imbalance with 60 hours on SJW compared with 75 hours on ALG, as well as a shortfall of \$4200 in budgeted expenditure.

Everyone, please 'pray to the rain gods' for a good SJW season later this year! We have \$5000 budgeted for this summer, as well as the unspent \$4200, so some serious catch-up is needed.

In December 2016, for the second year's monitoring, the same handful of FOG volunteers spent a day at OCCGR and CRR repeating the first year's monitoring process. The next monitoring will be in December 2017.



Andrew Zelnik marks a peg during monitoring, December 2016.



Monaro Golden Daisies just after flowering, December 2016.



Monaro Golden Daisies close up, just finishing flowering, December 2016.

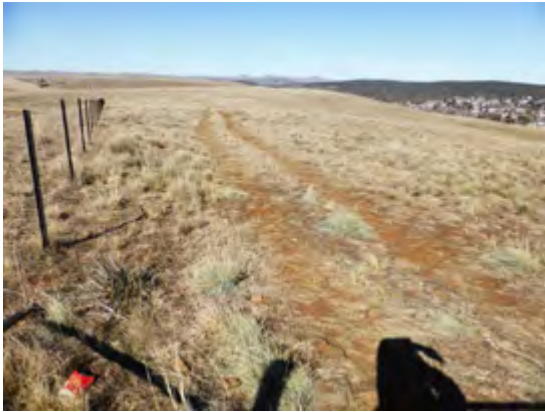
Telling people

Another of our grant commitments was to hold three field days over the three years of the grant, at which we would share the results of our project. We soon realised that the idea of having any results in the first year was totally ambitious, and had not been well thought through. So in the absence of any results Geoff, Ann and I have sought opportunities to at least speak to varied (and relevant!) audiences about the project, sharing what we are trying to achieve, and how.

Geoff and I created a small A2-size poster about the project which enables us to tell the story with illustrations but without a 'slide show' as such. Our audiences have included attendees at workshops (Ian Chivers' Native Grass Workshop in September 2016), field days (LLS Orange Hawkweed field day, February 2017), Cooma Show (March 2017), and Ann briefly outlining the project to a general meeting of the Upper Murrumbidgee Catchment Network (spring 2016). We also tell the story in a few words to the teams from Conservation

... continued on next page

A year and a half in the life of an LLS grant – continued from page 7



One photo-monitoring point, in August (above) and October (below) 2016.



Unexpected visitor near one photo-monitoring point mid-slope after several days of rain, August 2016.

Volunteers Australia (CVA) who have been helping, once a month, with hands-on weed control at the OCCGR since August 2016 (*see adjacent article*).

Another way of communicating information about what we are trying to achieve with our grant is to have articles published in relevant newsletters/newspapers: viz. *News of FOG* (March–April 2016); *Cooma's Monaro Post* (May 2016); *Greening Australia's Grassy Groundcover Gazette* (December 2016); the *Upper Bidgee Bulletin* (Autumn 2017); and of course this item in the September–October 2017 *News of FOG*.

Our final responsibility regarding the grant is the completion of a progress report twice a year, outlining progress vis a vis the project's milestones. Our 'local' LLS team members have been very helpful with this and have made the process as simple and straightforward as possible.

Non-grant activities on OCCGR

Photo monitoring: Ann and I have set up five photo-monitoring sites on OCCGR, each with three to six 'points' at which we take at least one picture each month when we are there for a CVA visit. Occasionally the weather is very unfriendly, and although it is tempting to simply pop back into the car and hightail it back home we still take as many photos as we can manage (e.g. one per site in thick fog!). It is fascinating to watch the vegetation changes in the course of a year.

Additional spraying: Snowy Monaro Regional Council has contributed some additional funding for weed spraying during the last 12 months.

Illegal dumping: the Council arranged immediate removal of an illegally dumped (trailer?) load of wooden palings which was within 5 m of one of the small MGD populations (*arrowed, near phone as marker, in photo below left*). Council has mentioned a security camera and padlocks, but nothing has happened yet.

Bent gate: Sometime between December 2016 and June 2017 someone has rammed and bent one of the gates on top of Radio Hill, which has been captured by the photo monitoring. (The bent gate, that is, not the ramming!)

Kangaroo grazing: the population has grown from zero around 15 years ago, to around 60 currently. We are estimating their numbers whenever possible.

(Photos by Margaret Ning or Liz Milligan)

Snippet

Understanding and managing Victorian Volcanic Plains

24–26 October 2017

Geology, grassland ecology & management, and Indigenous heritage, at Cororooke and surrounding areas,

Day 1: Terrestrial grasslands – identification & management

Day 2: Grassy wetlands – identification & management (including field trip)

Day 3: Aboriginal Cultural Heritage; Legislation & management; Geology & Soils (including field trip)

Costs: \$150 (1 day) – \$400 (3 days).

More information: <https://www.greeningaustralia.org.au/events/understanding-and-managing-the-victorian-volcanic-plains>

To express interest or find out more, please email Rod White at Greening Australia
rwhite@greeningaustralia.org.au

Friends of Grasslands and Conservation Volunteers Australia – a match made in ‘grassland heaven’

Margaret Ning



A CVA team preparing to work in the fog on a very cold day, July 2017.



One of the CVA teams at work, October 2016.



Briefing the CVA team when they first arrive, December 2016.

Photos by Margaret Ning or Liz Milligan.

Once a month, for nine months of the last 12, a team of Conservation Volunteers Australia (CVA) volunteers has visited Old Cooma Common Grassland Reserve (OCCGR). Normally a CVA team charges \$825 per day to work on a site and that covers their transportation and all their equipment. However, some time ago, having some gaps in their schedule, CVA Regional Manager Brian Butler offered FOG some visits by his teams to OCCGR. Because FOG no longer has its own working bees to the Common and because some of us are still involved with the site (managing grant activity and contract spraying there), we thought it was a great idea.

An hour before each CVA visit, Ann Milligan and I drive up to the Common, and survey the site to determine the day's prominent weeds. On the CVA team's arrival at the site, Ann and I welcome them (an average of eight volunteers each visit), thank them in advance for the time they are going to spend on the site, and explain what a grassland is and why OCCGR is so special (see *sample briefing below*). We then show the team the weeds that are obvious that day, such as *Verbascum thapsus*, Vipers Bugloss, Wild Sage, Tragopogon, ..., and limit the team's activity to those specific species. These invaders are unsightly and are the sorts of grassland weeds that in time become just as much a danger as the noxious weeds. Targets for the future could include Cinquefoil, *Crepis capillaris*, Onion Weed ... it's a game of prioritisation.

The CVA volunteers then spend the day at their own pace either chipping out or cutting and daubing or cutting and bagging these weeds. Keeping the targets simple and easy to identify helps this remain a very productive relationship.

CVA engages a wide variety of volunteers to make up their teams, and a variety of demographics participates; we hope these volunteers go away with raised awareness of the value of weed control in grasslands as a whole, and of FOG's mission at OCCGR. For our part, we see the CVA visits as being as crucial to the cleaning up of the high conservation areas as any other contributions are.

A very exciting development out of this relationship between FOG and CVA so far has been having the CVA team on the spot to remove the seed heads of sprayed St John's Wort (SJW) plants about a month after the spraying has occurred. This reinforces the impacts the spraying has achieved, truly 'value-adding' to its effectiveness. Spraying generally occurs when SJW is flowering and it is therefore inevitable that some seeds will still be viable after spraying (see *John Fitz Gerald's article in News of FOG July–August 2017, page 6*). In my opinion, the CVA team's timely cutting and bagging of SJW seed heads at OCCGR has been crucial to reducing the SJW infestation.

I view the CVA input as a very exciting adjunct to what was originally envisaged as weed control through the LLS grant activities and processes. To thank CVA for these visits, the FOG small projects team has recently made a grant payment of \$825 to them as a contribution. In addition, CVA is applying for environmental grants to conduct the sort of 'value adding' with SJW that they have been doing at OCCGR.

I would like to add a **special thank you to the CVA teams** that have visited OCCGR in the last year, often in very challenging weather conditions.

Sample briefing to CVA teams

Thank you for coming here today. Welcome to our grassland site.

Grasslands are threatened ecosystems all around the world (e.g. Asian steppes, North American prairies, African savanna, Argentine pampas) as well as in Australia. The grassland here is Natural Temperate Grassland, and like others around the world it is naturally free of trees. Having no trees makes it look accessible and easy to farm – which is why there are few natural grasslands left now.

This site and two others nearby (WAVE IN DIRECTION of CRR and Crown Lands site) have been reserved from urban development or farming. These sites have two threatened plant species: the (pretty yellow) Monaro Golden Daisy (SHOW POSTER) and the Hoary Sunray.

Today this grassland is also being invaded by many weed species, some of which we get sprayed. Today we are asking you to look for and remove these (SHOW target weeds for the day, and possibly also point out litter).

Here is an MGD plant, so this is what your work is protecting (SHOW NEAREST MGD PLANT). And here is an important native grass that you will also see elsewhere in your work with CVA protecting our native ecosystems from invasive species like this (SHOW KANGAROO GRASS FLOWER HEAD, AND CONTRAST IT TO ALG FLOWER HEAD).

[End of talk. We then go and do our photo monitoring at five sites around the Common, and also attempt to evaluate the CVA team's efforts of the previous month or so.]

More snippets

Importance of small urban grassland reserves

John Morgan and coauthors have published a new paper on small urban grassland reserves for conserving plants. He says the project, funded by the Myer Foundation, asked whether 'big' reserves are inherently better than 'small' reserves, using Melbourne's urban native grasslands as a case study. They found:

- (1) 87% of all native plant species were found in small reserves smaller than 10 ha in size,
- (2) more small reserves contained a greater number of species than few large reserves of comparable area, but
- (3) large reserves harboured more uncommon species than smaller reserves.

The findings have several important implications for conservation planning and design, highlighting that both small and large reserves can help to conserve native plant species in urban areas.

Kendal D., Zeeman B.J., Ikin K., Lunt I.D., McDonnell M.J., Farrar A., Pearce L.M., Morgan J.W. (2017) The importance of small urban reserves for plant conservation. *Biological Conservation* **213**(A), 146–153.

<https://doi.org/10.1016/j.biocon.2017.07.007>

Walk the Border, ACT – a watershed walk Saturday 7 – Saturday 28 October

The ACT border is 306 km long and passes through several ACT ecosystems – some that are nationally threatened and some that have been severely modified since European settlement. A walk along the entire border is planned as a fund-raising event to support the Conservation Council ACT Region, led by the council's president Rod Griffiths. It will start at Hall at 12 noon 7 October, and proceed clockwise.

FOG members may like to be among those who walk with Rod along some sections of the border. The stretch from the Murrumbidgee River heading north-east to Hall should be particularly interesting. It crosses grassy ecosystems including Ginninderry, Dunlop, areas near Hall Cemetery, Hall Travelling Stock Reserve and Hall Common.

The route will include some of the ACT's roughest and most beautiful country, the source of the ACT's water supply. Other stages are easy and accessible, so people with a range of abilities can take part.

Find out more via <https://conservationcouncil.org.au/civicrm/?page=CiviCRM&q=civicrm/event/register&id=85&reset=1>.

Of interest at the Australian National Botanic Gardens and Black Mountain

'Exposed': 2017 Annual Photographic exhibition, Visitors Centre gallery.
Thursday 5 October – Sunday 22 October.

Wattle Walk on Black Mountain, ACT,
Friday 15 September 9.30–11.30 am

Plant ecologist Michael Doherty will show how to identify common Acacias including *A. dealbata* and *A. buxifolia*, and explain how Acacias cope with fire and drought. Mostly gentle slopes with some steeper sections. Bring your own water and snacks, and a gold coin donation. Meet at the gate on Belconnen Way near the GDE. To register, email friendsofblackmountain@gmail.com or phone Linda (0437 298 711) or Joy (0427 542 298).

Botanical Bookshop sale
Friday 1 September 9.30 – 4.30.



Carpet of Fuzzy New Holland Daisy *Vittadinia cuneata*, with Nardoo *Marsilea* sp. patch, south of Bewleys Road, relevant to this October's visit to northern grassy ecosystems (see p. 1). *Photo*: Andrew Zelnik.

EIANZ Threatened Species Recovery forum, 4 October 9 am – 4 pm

A one-day forum in collaboration with the National Environmental Science Programme Threatened Species Recovery Hub. Presentations will discuss the latest information, data, techniques and analysis helping species recovery. Among the 16 species to be discussed are frogs and reptiles including Grassland Earless Dragon, Striped Legless Lizard and Pink-tailed Worm-lizard, birds including White-winged Triller and Brown Tree-creeper, three fish, two mammals, and the Tumut Grevillea *Grevillea wilkinsonii*.

University House, The Australian National University, 1 Balmain Cres, Acton ACT 2601. Contact: 03 8593 4140 or office@eianz.org

The Purple-winged Mantis – *Tenodera australasiae* – a false prophet

by Michael Beddingfield

The word mantis comes from the Greek and the literal meaning is ‘prophet’. The names mantis, mantid and praying mantis are used interchangeably. If you see a mantis perched somewhere with forelegs folded in salutation, it is not praying for divine inspiration nor for world peace. It is praying for its next meal. And if some hapless insect comes close enough, the mantis will strike quickly and grasp the visitor in its strong forelegs. A mantis has sharp spines along the gripping sides of its front legs, which are a major weapon. The spines pierce the body of the victim, making escape very difficult and causing serious injury. The mantis then begins to eat its capture while it is still alive.

The Purple-winged Mantis feeds mostly on insects, but it is a large creature itself, with the female being up to 10 cm long, and will also eat small frogs and reptiles. The male is smaller but is also a talented predator. When hunting, these animals will perch on shrubs or other vegetation, standing erect with forelegs raised in

anticipation. They will wait motionless for a victim to come close enough to strike or may move slowly and delicately in its direction. They may also hang from the foliage by their back legs, waiting for an insect to come within striking range.

Our subjects are known as *Tenodera australasiae*. They are slow moving and although capable flyers they are reluctant to do so and fly short distances. Their colours are variable, being mostly green or brown. These colours help with camouflage among the vegetation they inhabit. The wings are shades of purple to brown with pale green edges but are normally folded and tucked away. The upper part of the abdomen under the wings is purple. They have a triangular shaped head and a long and narrow body. They have two large compound eyes and three small simple eyes, called ocelli, on the top of the head. This gives them good vision and an almost 360° range which is valuable for a hunter.



The drawing I have provided is a simplistic one of no particular species but shows a mantis in a typical ambush posture. The photo is of a mating couple of the Purple-winged Mantis. It requires careful examination because the two insects are well camouflaged among the grasses and other plants. The smaller male is harder to recognise because his upper body is missing. The female has eaten his head and front legs. For the amorous male mantis this is a common event. The male doesn't die immediately and the copulation process continues. When it is finished the female will eat the rest of the male and thus provide valuable nourishment for the fertilised eggs. The males are aware of the risk and approach a female with great caution. Fortunately, not all of them become a meal for their spouse and the more careful ones are able to live another day.

When the eggs are mature the female lays them on the branch of a plant. While doing so she exudes a liquid that she stirs into foam with her body movements. This creates a protective covering for her eggs that sets hard into a bag-shaped pouch about 25 mm long and 15 mm in diameter (see photo insert). The egg case is called an ootheca and remains attached to the plant for the cold months while the eggs are dormant. These egg cases are a common sight locally, attached to a plant stem, 30 cm to a metre or so above ground level. The young hatch in spring and the life cycle begins again. The young are able to hunt even when very small and grow by a succession of moults.

The Purple-winged Mantis is endemic to Australia and occurs in all states in a variety of ecosystems. It can be found in local grassy habitats. While it is not a true prophet, its lifecycle and survival strategy are extraordinary. It may not be able to see into the future, but with its large prominent eyes and excellent vision, if you see one when exploring, it has most likely seen you first!

References

- Zborowski, Paul (2002) *Green Guide to Insects of Australia*. New Holland.
<http://www.ozanimals.com/Insect/Purple-winged-Mantis/Tenodera/australasiae.html>
<http://www.ento.csiro.au/education/insects/mantodea.html>
<https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd:taxon:9b39e4cd-8018-49c5-b278-4f31814dab3b>
<https://www.youtube.com/watch?v=SNsH-GrOf5c>

Something about *Mary Themedra!*

by Paul Gibson-Roy

Reprinted from Greening Australia's *Grassy Groundcover Gazette*, December 2016, with permission*

Many of the readers of the *Grassy Gazette* will have used, or thought about using Kangaroo Grass (*Themeda triandra*) for propagation or in restoration. It's seen by most people in the sector as the fundamental ingredient in grassland and grassy woodland restoration. *Not* using it is viewed as almost a punishable offence. Yet those who have dealt with this iconic species will most likely be aware that it has its frustrating quirks which often result in varied outcomes – whether that be in a germination cabinet, a nursery tray, or as seedlings emerging in the field. There is 'something about *Themeda*' that makes using it less straight forward than initially thought.

Over the years I've done many germination tests of *Themeda* seed lots. Rarely have I got very high germination rates (i.e. >80% over 28 days), even under what I considered to be optimal conditions. I remember testing back in 2003 showing a germination percentage of 25% which seemed a relatively modest figure. However, further viability testing (using tetrazolium) showed that same batch was 69% viable. So only 1/3 of the viable seed was germinable under those test conditions, while 2/3 remained dormant. This sort of result was typical for many of the subsequent tests I've done on *Themeda* batches over the years. I've spoken to many others who have had similar outcomes. Recently Professor Wal Whaley (from the University of New England) reminded me of work done by Richard Groves and Brian Sindel of CSIRO. They found that seed from different populations of Kangaroo Grass displayed different degrees of dormancy. In fact these two then selected seed from plants that displayed low dormancy (high germination) to develop a strain that produced readily germinable seed. This is not something that I look to do in our restoration work, but it highlights one of the reasons why we might see variation in dormancy across different *Themeda* batches.

I was considering another angle recently: the harvested product. Most would know that the quality of harvested seed can be influenced by many factors including the maternal conditions under which the seed was produced, the timing of harvest, the method of harvest, and handling and storage of seed. Despite these many factors, people often (me among them) are tempted to think that when lined up side to side, one wool pack of *Themeda* is of equal 'quality' to the next. This is especially so when it may have been harvested from the same or nearby paddocks. However, closer examination through purity testing can show that the seed, chaff and weed characteristics from one bale to another can (and do) alter – sometimes dramatically.

These thoughts converged in my head recently as I looked over a restoration we'd sown the year earlier. Across much was a relatively even cover of *Themeda*. However, there were also bare or less evenly covered areas. I mused, was this due to some variation in dormancy of the seed used or was it a result of variation in the amount of seed contained in the sowing mix (i.e. one *Themeda* bale was not equal in seed content to the next), or perhaps a bit of both? I should note that across the whole site, *Themeda* had established at an average of 8 plants per square metre, which I thought a passable score after a relatively short period.



Restored *Themeda* at Dave Franklin's property, Chatsworth Vic.
This took two years to develop to this stage.



Is one bale of *Themeda* equal to the next?
How much does the seed and chaff content vary?



While plant emergence across the site was generally consistent, there were some barer patches.

Something about Mary Themeda! continued from page 12

The ‘harvest/seeding-quality angle’ prompted me to spend much more time and effort early this year processing each *Themeda* bale in preparation for seeding this past spring. We have built a ‘seed tumbler’ which I’ve spoken about in an earlier *Grassy Gazette* edition. The tumbler has proved very effective at separating seed from the other stem and chaff (and also much weed seed) that is harvested by mechanical brush harvesters. This means for each bale, whatever the amount of seed that is present, this is separated from the rest of the material. The net result is that across 50 bales of harvested material you get a consistent amount of seed, say 300–400 kg with some of the associated fruit structures, but little to no chaff. This is a much more consistent product to use in a seed mix (and a known amount per unit area seeded).

What do I now hope to gain from all this extra time and effort? This year when we did our seeding I was much more confident of the actual amount of *Themeda* that was being used and that this seed was being delivered more consistently across each restoration. There may still be variation in the emergence of plants due to dormancy, lack of moisture, seed predation, compaction, etc. However, I think by processing the large batches of *Themeda* to a much purer product, we have helped to lessen these many ‘factors’ by one. Will they be ‘less patchy’? Will we get more plants on average per unit area? I guess I’ll see this time next year.

There is something about *Themeda*, be that a dense stand of remnant, or restored vegetation. It’s an appealing species yes – but one that has its frustrating quirks. We seem to be constantly trying to refine the way we harvest, process, store and sow this species, all to achieve more predictable outcomes. Maybe that’s a folly. Perhaps it’s a species that wants to remain unpredictable: frustrating yes, but perhaps also part of its charm.

*This article has also been reprinted in *eGrass Notes* no.44, Autumn 2017, newsletter of the Native Grass Resources Group (NGRG).



The seed tumbler used to more effectively separate seed and chaff



Processed *Themeda* minus most of the chaff bulk.

Grassland blooms in the Upper Torrens

by Ellen Bennett, NGRG member (reprinted with permission)

Picture a grassland in early autumn – a sea of *Vittadinia* and wallaby grass fuzz. Standing taller than the fuzz are fresh grass heads – the silvery spikes of blue grass and cotton grass and the burgundy spokes of windmill grass. Shorter than the fuzz are eye-catching tufts of silvery blue-green set against darker greens. And when you look closer again, there are scattered lemon-yellow beauty heads, pink convolvulus and the occasional glowing heads of clustered everlastings. This was a vista to move Andrew Fairney to tears.

As Project Officer for the Grassy Groundcover Restoration Project in the Upper Torrens Catchment (South Australia), Andrew had sown the site 7 months earlier with a mix of 31 species of grasses and forbs. The day after, 75 mm of rain had fallen. The owners of the property had confidently predicted that, as Andrew himself thought, all the seed would be washed down to Adelaide!

This stunning result is the outcome of 5 years’ experience in developing practices to increase the species richness of the groundcover layer in revegetation works in the catchment. Andrew has been able to identify 20 species out of the 31 sown and expects to find more as the plants mature to flowering next spring. Certainly, it would be interesting to see it next spring, as well as in autumn, when the C4 grasses have put on some bulk. On-going management for this site is still under discussion with the owners, but will involve crash grazing with sheep in a year or two.

The NGRG has been a partner with a number of other groups in this Australian Government’s Caring for Country, Biodiversity Fund project. As well as financial, NGRG’s support has been through untold hours of in-kind contributions on the part of a number of people. Although this project draws to a close at the end of June this year, the work will continue as Seeding Natives Incorporated, a not-for-profit organisation focused on working with land owners and managers to continue native grassland restoration. For Bob Myers, the local mover and shaker, it is a dream coming true.

Andrew can be contacted at andrew@seedingnatives.org.au or on mobile 0477 307 577.

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Refer to the website www.fog.org.au for more information

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Promoting wider knowledge of grassy landscapes

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FOG dates ahead

Sunday 27 August, morning: Stirling Park workparty.

Friday–Sunday 8–10 September: Jamison display on landcare work

Saturday–Sunday 23–24 September: Mt Oak lessons in weed management

Sunday 24 September, morning: Stirling Park workparty

Sunday 24 September possibly: Yarramundi Grassland workparty

Saturday 7 October, morning: Hall Cemetery woodland workparty

Saturday–Monday 21–23 October: Visit to northern grassy ecosystems

Sunday 29 October, morning: Stirling Park workparty

Saturday & Sunday 4 & 5 November: Weed swap

Saturday 11 November, morning: Hall Cemetery woodland workparty

Sunday 12 November, afternoon: Annual wildflower walk, Stirling Park

Thursday 16 November, all day: Monitoring at ‘Scottsdale’

Sunday 26 November, morning: Stirling Park workparty

Sunday 26 November, morning: Yarramundi Grassland workparty

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The 2017 FOG afternoon of talks and tea (*Paul Archer*
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(*John Fitz Gerald*)

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A year and a half in the life of an LLS grant
(*Margaret Ning*)

Friends of Grasslands and Conservation Volunteers
Australia ... (*Margaret Ning*)

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– a false prophet (*Michael Bedingfield*)

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Grassland Blooms in the Upper Torrens (*Ellen Bennett*)

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