



# News of Friends of Grasslands

Supporting native grassy ecosystems

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January – February 2021

## Events

Garden visit & morning tea;  
Ngunnawal ACT

Fri 15 Jan, 9am – 11 am

[margaret.ning@fog.org.au](mailto:margaret.ning@fog.org.au)

Wandiyali Restoration Trust, on-line forum

Thurs 21 Jan, 6.30-8pm

[geoff.robertson@fog.org.au](mailto:geoff.robertson@fog.org.au)

“The future of grassy ecosystems with John Morgan and Paul Gibson Roy” online forum

Thurs 18 Feb, 6.30-8pm

[geoff.robertson@fog.org.au](mailto:geoff.robertson@fog.org.au)

## Work parties

Top Hut, near Cooma, NSW

Sat 9 Jan, 9am start,

[margaret.ning@fog.org.au](mailto:margaret.ning@fog.org.au)

Franklin Grassland

27 Jan & 3 & 24 Feb, 9-11am

[margaret.ning@fog.org.au](mailto:margaret.ning@fog.org.au)

Stirling Park Group, State Circle

Canberra ACT ; Jan & Feb

[jamie.pittock@fog.org.au](mailto:jamie.pittock@fog.org.au)

The latest updates are found on our website at [Calendar](http://fog.org.au)

<http://fog.org.au/>



Spectacular Crab Spider (*Thomisus spectabilis*), a hunting spider, on a Blue Devil. Photo by Leon Pietsch

## From the President

Wow! 2020 has been an amazing year. On 10 December, we celebrated a successful year on the edge of Franklin Grassland, despite starting the year on a commitment to transit FOG to a “new FOG normal”, drought and approaching fire. Through the year we faced fire, smoke, overabundant rain, hail storms, COVID 19 and an explosion of weeds, all of which impacted on FOG and on each of us individually, forcing us to revise plans and adapt. Meanwhile, the Commonwealth government continued its attack on biodiversity - ignoring Samuel’s EPBC interim report and threatening to destroy grasslands at Lawson.

FOG has been adaptive and innovative, changing our procedures, adopting new approaches, increasing our efforts and even taking on new projects. Some key features have been:

Communications: News about FOG and grassy ecosystems, etc., is rapidly increasing - if you fancy yourself as an amateur journalist or writer, we can use your help. Our Facebook page is gathering readership - please send short reports on FOG events and grassy news (with images) to [sarah.hnatiuk@fog.org.au](mailto:sarah.hnatiuk@fog.org.au). We have produced the 3rd edition of *Grassland Flora*. A gap in our communications strategy is short videos on grassy ecosystems - can anyone help?

Events: We have done much to rationalise our organisation of events and work parties, which are advertised in our *Events and Notices* and on our website. A 2020 initiative is on-line sessions on grassy ecosystems - Carolyn Larcombe *Vision for Wandiyali~Environs Wildlife Sanctuary* (Jan) and John Morgan and Paul Gibson Roy *Grassland challenges* (Feb).

Administration: We are attempting to integrate and coordinate our administrative work and to streamline our record keeping practices. Can you help?

Advocacy: While this has become a specialised area, we are happy to train people to improve their research and advocacy skills.

Renewal: FOG continues to make a unique and powerful contribution to supporting biodiversity. Numerous volunteers participate in our self-managed teams (advocacy, newsletter, events, Facebook, grassy grants, fund raising, Stirling Park group, Hall Cemetery, Franklin Grasslands, Scottsdale, Top Hut TSR, Ginninderry Trust scrape), hold offices (president, vice presidents, treasurer, secretary, membership, website, sales, public officer and committee) and work with agencies and groups to further mutual objectives. In 2020, new volunteers have become involved - if you think you have a few or more hours to assist, please contact me.

At our AGM in March, Sarah Sharp and I will step down as Secretary and President, respectively. It will be important to fill these positions and those of vice presidents. New people will bring new ideas and play different roles and negotiate what those roles are. The corollary, is that others may need to do more. Please consider if you can contribute. Participation in FOG provides great opportunities to learn, to develop skills and to influence the future course of biodiversity. If interested, please do not have preconceived ideas about your suitability. Your thoughts and suggestions are welcome.

Finally, I am very much aware of the great contribution that each of our members and supporters make to grassy ecosystems. On behalf of us all, I thank you.

Geoff Robertson

# Advocacy Report

- Naarilla Hirsch -

## October

In response to an EPBC referral concerning a commercial development at the Poplars, Jerrabomberra, adjoining the current BioBanking Sites, FOG noted that some of the moderate to high diversity Natural Temperate Grassland and a small amount of Box-Gum Woodland remains outside these sites and is included in this referral as potentially impacted by future development at the Poplars. Since these ecological communities are now considered critically endangered at the national level, FOG was of the view that both should be excluded from future development and should be managed for their conservation values, and that their loss cannot be adequately offset in any way, particularly as they also provide habitat for threatened grassland species nearby (Golden Sun Moth, Grassland Earless Dragon and the Pink-tailed Worm-lizard). FOG also drew attention to potential edge effect impacts to the BioBanking Sites since the urban development will be adjacent – something that needs to be managed in the long term as well as during construction.

## November

The Commonwealth released a discussion paper on Developing a new Threatened Species Strategy. Of the priority species targeted under the *Threatened Species Strategy 2015 – 2020*, those of interest to FOG are the Button Wrinklewort and the Small Purple Pea. As improving the conservation status of these two species also improves the critically endangered grassy ecosystems in which they occur, FOG supported the proposal that the new Strategy should include a second objective to ‘*improve habitat condition of priority places by 2031*’. As the Commonwealth was seeking information on work that organisations are undertaking that aligns with the Threatened Species Strategy, we provided information about FOG’s activities on one of the priority species under the Strategy, the Button Wrinklewort, at Stirling Park.

There was an EPBC referral on an extension to Morisset Road, the referral being prior to finalisation of a detailed ecological impact assessment of the proposal. FOG’s submission raised concerns about the fragmentation of the Striped Legless Lizard (SLL) population, particularly in light of an earlier development impacting on the SLL population. These concerns related to cumulative impacts over time of these different developments, and whether or not the previous referral’s offset has resulted in no net loss of the SLL since prior to the approval being granted. FOG requested that the proposal be considered a ‘controlled action’ and not receive an exemption from needing an EIS, so that the public has the opportunity to view the ecological assessment,

together with proposed mitigation and offset actions, and to comment on these.

The Senate inquiry on the Environment Protection and Biodiversity Conservation Amendment (Streamlining Environmental Approvals) Bill 2020 invited comments from the public. FOG’s view was that the government should withdraw this Bill and prepare a complete reform package that addresses the decline of our biodiversity and protects our natural heritage, including our critically endangered natural temperate grassy ecosystems and species. Our submission drew attention to several matters, including the need to implement other recommendations of the interim report of the independent review of the EPBC Act such as implementing national environmental standards. FOG also expressed concern about the exceptionally short time frame for the inquiry, and that the government proposes to move legislation prior to the public release of the final recommendation of the Samuel review.

Another EPBC referral was about the proposed Adaminaby sewage treatment plant upgrade, with impacts of concern to FOG being due to the associated upgrade of the access road. FOG found time to visit the site as part of the Monaro grassland tour, and found the Monaro Golden Daisy (*Rutidosia leiolepis*) present and likely to be impacted, as well as the Hoary Sunray (*Leucochrysum albicans* var. *tricolor*) discussed in the environmental assessment. FOG’s view was that the site needs to be resurveyed to ensure that all of the threatened species that will be impacted by the project have been identified. Mitigation of the impacts on the Hoary Sunray included translocation of plants. FOG did not consider this likely to succeed and thought that the Ecological Mitigation Management Plan needed to be updated to include impacts on the threatened MGD and, if impacts are unavoidable, a viable and effective offset strategy that results in no net loss to both Hoary Sunray and Monaro Golden Daisy across the landscape.

The full text of these submissions appears on our website ([FOG advocacy](#)).



Eucalyptus beetle taken at Wandiyali – Andrew Zelnik



# Closeup: Overwhelming Competition

- John Fitz Gerald -

One of the ways that introduced plants outcompete the field is to produce loads of seed. In this issue I'll zoom into three species troublesome to landowners and landcarers.

Capeweed (*Arctotheca calendula*). I'm sure we all know this cheerful flat yellow daisy with a black central disc. We had a note about its threat (or otherwise!) in the previous newsletter. That central disc turns into a fluffy brown seed head (Pic 1) when the flower matures. If you've left it late to dig out the flowering plant you'll know the irritation of watching all those little brown balls separate into smaller balls and fall back onto the hole. Many of these will hold a small hairy seed - see pic2 after I pulled off the fluff. Margaret Ning pointed out an article in *The Land* online by Bob Freebairn ([click here](#)) where he notes that one Capeweed plant can produce over 4000 seeds - sadly I can only agree.

French Catchfly (*Silene gallica* var. *gallica*). This sprawling fleshy weed has had a bumper season with all the rain and grown in many places that seem to be new but presumably had seed waiting in seedbanks for good conditions. Each flower has an attractive swollen calyx that is both stripy and hairy (pic 3). When the seeds set, the dried calyx opens a little at the apex and releases a parcel of tiny black seeds that are intricately decorated (pic 4). I examined the contents of a few capsules:- each contains 50-80 seeds and, if a big plant has 100 flowers, that amounts to at least 6000 seeds per plant!

Great Mullein (*Verbascum thapsus*). This erect tall herb has woolly green leaves and racemes of flowers (pic 5) up to 1 m long. The raceme dries and I expect we've all seen that it often remains erect with hundreds of seed capsules that split apart but keep holding the seed mass (pic 6). Inverting a long raceme in this state produces a veritable waterfall of seed. These seeds are also tiny (pic 7) and must once again total many, many thousands per plant.

Bottom line: it is impossible to beat such huge seed production so, even though these examples are only 'minor' environmental weeds, reversing their invasion requires seed production to be blocked entirely, and repeated for years, exhausting the seedbank.

Pics 2, 4 and 7 are micrographs 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/>. The small scale bars in the bottom right of each micrograph respectively represent: Pic 2 and 7 = 0.5 mm, Pic 4 = 0.1 mm



Pic 1. Capeweed seed head



Pic 2. Capeweed seed



Pic 5. Great Mullein



Pic 3. French Catchfly



Pic 4. French Catchfly seed



Pic 6. Great Mullein raceme



Pic 7. Great Mullein seed

# Vegwatch Monitoring

## A citizen science program in the ACT and region

- Sarah Sharp -

Monitoring plays a key role in the application of adaptive management. Monitoring is used to measure changes in defined attributes that reflect condition of particular components of biodiversity. It is relatively easily applied to measure changes in single species' populations and abundance over time, but less frequently used to measure changes in vegetation condition.

I have been involved through Molonglo Conservation Group (formerly Molonglo Catchment Group) with the development and implementation of a citizen science vegetation monitoring program since 2011. The methods were chosen to be consistent with those collected in monitoring and survey programs undertaken by ACT and NSW governments, while considering the need to be as simple as possible to ensure accuracy and consistency when undertaken by multiple surveyors with varied levels of ecological skills. The monitoring was undertaken by volunteers of ParkCare and Landcare groups and other individuals or groups, in order to assist them in identifying the outcomes of their on-ground work.

Since 2011 34 monitoring plots have been established in 21 locations in the ACT and surrounding region. The majority of plots were established in grassy woodland and natural and derived grassland, and others were established in shrubby woodland and forest. Management of the monitored plots included: single species weeding; more extensive weeding including woody weed control; burning including very cool burns undertaken as cultural burns by an Aboriginal elder and ecological burns; revegetation with trees, shrubs and/or herbaceous species; or no applied management.

I reviewed the data collected from 2011 to 2018 to determine the effectiveness of the program's ability to detect significant change in elements of vegetation and habitat condition in locations managed for conservation outcomes. The review involved a detailed analysis of the data, identification of changes in condition in the monitoring locations and, importantly, considered feedback provided by the participants. Recommended changes to improve and expand the Vegwatch program were specified. Data from seven plots within native grassy woodlands or grasslands provided by ACT Government were included to test the accuracy of the citizen science data.

The results showed that the data were consistent and compatible with that collected in other programs. The review of the data enabled the most relevant condition indices to be identified. These were used to describe change in condition. Importantly, over that time, condition did not decline in any plots, and in seven plots condition improved.

In the plots subjected to interventionist management (e.g. burning or woody weed control) and in the more disturbed sites vegetation condition was strongly aligned with soil moisture availability. This suggests that vegetation recovery from burning or removal of introduced woody vegetation is likely to be slower

and/or compromised in poor seasons. Further monitoring is recommended in those plots that have been most recently established to measure change following implementation of ecological or cultural burns, and also in plots in which revegetation has been undertaken.

While a number of less experienced participants indicated they had difficulties in elements of the data collection, others with more experience or good support identified that they gained knowledge and understanding of ecological processes as a result of undertaking the monitoring. Problems identified were mainly relating to the lack of consistent support to the

volunteers and limited opportunities to communicate results – several grant applications to secure funding to resource a part-time facilitator were unsuccessful, so that assistance was undertaken on a volunteer basis.

The review has demonstrated that the monitoring program measures changes in condition that can guide further management, and that the data from multiple programs can be combined to strengthen conclusions, and importantly, raise questions to be tested by trials and research. Direct feedback on the results for each plot provided to the volunteers assists them in identifying whether their site-specific desired outcomes are being met. The statistical analyses have revealed that some measurements can be simplified, and streamlined, making the data easier to measure and simpler to record.

Opportunities are being investigated to continue to expand and improve the program. The future of the Vegwatch program lies in it being adopted as a program that guides on-ground work, in parallel and supporting





other monitoring programs run by government departments. Specifically, it can be used to assist in better management outcomes.

The many people who have assisted with Vegwatch are sincerely thanked, especially the participants in the program, those who helped and advised with statistical analysis and provided feedback on the draft report. ACT Government's NRM Program and Capital Region Landkeepers are acknowledged for funding elements of the implementation and review of the program.

Information on the Vegwatch program and the report (Sharp S., 2020. Vegwatch Monitoring Program: practice and findings 2011 to 2018) are available at <https://molonglo.org.au/VegwatchReview> or contact me at [sarahsharp@grapevine.com.au](mailto:sarahsharp@grapevine.com.au).



## Weekend visiting Monaro TSRs

- Rainer Rehwinkel -

The 14 and 15 Nov Monaro Travelling Stock Reserve (TSR) field trip kicked off at Gegedzerick Travelling Stock Reserve (TSR) near Berridale. Part of this reserve, one of a handful that the South East Local Land Services (SE LLS) has leased to individuals or groups for five year conservation leases, has fallen into the safe hands of Upper Snowy Landcare (USL), which will be conducting experimental works to enhance the vegetation of the Ribbon Gum Woodland on part of the site. The visit was introduced by short talks by Lauren Van Dyke and Margaret Mackinnon from USL, who explained what they are planning at the site, and Justin Borevitz (ANU) who is working with USL. The woodland had a fair smattering of wildflowers, the most notable being the spectacular purple Mountain Swainson-pea, *Swainsona monticola*.

Next on the itinerary was Maffra Lake TSR. This reserve has a conservation lease in the capable hands of the reserve's neighbour. This site has one of the five known NSW populations of the endangered Omeo Stork's-bill, *Pelargonium striatellum*. These were in full flower. The lakebed was dry, despite the recent rains that have greened up the Monaro grasslands. Instead of water, there was a range of grasses and chenopods on the lakebed. In addition, this reserve has Natural Temperate Grassland, with populations of the vulnerable Mauve Burr-daisy, *Calotis glandulosa* and the rare Australian Anchor-plant, *Discaria pubescens*.

On the schedule was a brief stop at Dog Kennel Creek TSR. However, our program was designed to be flexible, so we continued on to Ravensworth TSR (Bobundara 15 Mile TSR). This is a spectacular site, with a profusion of Billy Buttons, *Craspedia variabilis*, along with a diversity of many other wildflowers. This site has also fallen into the safe hands of the neighbouring landholder under a lease. Ravensworth is one of the Natural Temperate Grassland gems of the Monaro.



Top Hut TSR -RR

Not on the itinerary, but, on the insistence of June Wilkinson, squeezed into the last hours of the Saturday, was a magnificent grassland on the Brothers paddock, part of the Wilkinsons' property at the very top of the Great Dividing Range south of Cooma. The quality and condition of this grassland is a testament to the fine management abilities of two generations of this family's stewardship. This site has arguably the largest known population of Hairy Buttons, *Leptorhynchus elongatus*, along with many other flowering forbs.



Endangered Omeo Stork's-bill (*Pelargonium striatellum*) and an unusual & little-recorded grass (*Puccinellia perlaxa*) at Maffra Lake TSR - RR

The Sunday morning started with an extended visit to Top Hut TSR. I'm pleased to say that FOG has secured a five-year conservation lease on this reserve, which is arguably the best, most floristically diverse and weed-free grassland TSR in the region. We started by hearing some words from Leon Miners and David Eddy from the SE LLS about management of TSRs, and a monitoring program for the Monaro Grassland Earless Dragon, *Tympanocryptis osbornei* in association with the NSW Department of Planning, Industry and Environment. It was indeed pleasing to hear that this TSR supports a



population of this newly recognised endangered species. Leon demonstrated to the FOG visitors how the dragon monitoring is undertaken, showing those unfamiliar with the process the transect line and the "spider tubes" that are used to catch the dragons.

The grassland looked spectacular, with a multitude of daisies, some orchids (*Thelymitra pauciflora* and a *Diuris* sp.) and some pink-flowered Smooth Pimelea, *Pimelea glauca*. Top Hut TSR will be the focus of management by FOG over the next five years. We will be putting energy into removing the few weeds that the site supports.

Most of the FOG participants had a stop at one of the Monaro Golden Daisy, *Rutidosia leiocarpis*, sites on Dry Plains Rd, but Margaret and I shot off to investigate a site alerted to us by Naarilla Hirsch as part of FOG's advocacy work. For us, this was the discovery of the weekend. It was a floristically diverse grassland right at the edge of Adaminaby. There was a bit of a mystery as to its tenure. Initially, we were informed it was a TSR, but subsequently found out that it is the Town Common. It's really great to know that you can still unearth previously unknown gems like this beautiful grassland right on the edge of a village in the Monaro region.

Once again, demonstrating the flexibility of the itinerary, we decided that everyone should have the opportunity to visit this grassland, so after our lunch stop at Adaminaby, we all visited this site. Not only is it a beautiful grassland, but we found new populations of Monaro Golden Daisy, Mauve Burr-daisy, Hoary Sunray, *Leucochrysum albicans*, Australian Anchor-plant, Mountain Moths, *Diuris monticola*, and many, many other wildflowers. The site also supports the beautiful compact and rarely encountered form of Chamomile Sunray, *Rhodanthe anthemoides*.

Our last two scheduled stops for the day were truncated to one. We spent more time at Rhine Falls TSR and dropped Iron Pot TSR off the agenda. Rhine Falls, I'm pleased to say, was also a surprise, with its shady Mountain Gum woodland and populations of orchids and other wildflowers. In my late 1990s assessment of Monaro TSRs, I thought I'd visited this TSR. However, wherever I'd been when I thought I was at Rhine Falls TSR, it was *not* here!

One interesting observation here was the profusion of flowering shrubs on the roadside reserve immediately adjacent to the reserve that were not present inside the reserve. This is a demonstration of the sensitivity of so many of the grassy ecosystems flora to even the intermittent grazing that TSRs receive.

The weekend was particularly well patronised, with many people from the Monaro region participating on both days. We once again welcomed visitors from Sydney! I'd like to thank Andrew Zelnik for his excellent efforts in putting together the itinerary and maps, and Margaret for her organisational skills. For more information on the Conservation Lease that we have over Top Hut TSR, please contact [margaret.ning@fog.org.au](mailto:margaret.ning@fog.org.au). Remember, you can donate to a special FOG fund that supports this lease, and if the

opportunity should come up again next year, we may be able to apply for a lease on another TSR.



Hundreds of Hairy Buttons (*Leptorhynchus elongatus*) atop Great Dividing Range, arguably the largest population in SE NSW - RR



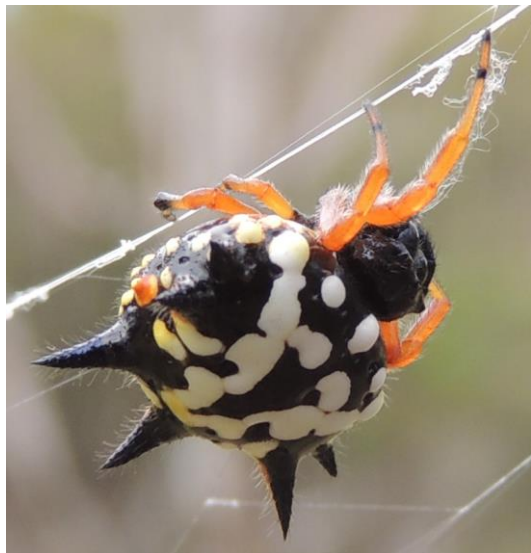
The 'newly-discovered' grassland at the Adaminaby Town Common - RR

Many local folk joined the trip and for many this was their first FOG event. In all, there were 30 people attending day one and 28 on day two - about 38 people all up. Following the trip Brian Everyingham circulated a link to his photo album, as did others. Many wrote to Margaret expressing their enthusiasm and thanks. For example, Candice Anderson wrote "Thank you for welcoming Peter and me to FOG on the weekend - we learned so much in just one day, and the sites we visited were absolutely beautiful! And thank you Brian for the attached PDF and link. A lot of work there!" - ed.

# Pointy Crab Spider and Jewel or Christmas Spider

- Michael Bedingfield -

The female Pointy Crab Spider often chooses a dry grass seed-head when creating her egg sac, and my photo shows one perched on the seed-head of a Kangaroo Grass plant, *Themeda triandra*. She was a very good subject and did not move at all while I photographed her, being determined to protect her eggs against my intrusion. The browned off dry seed-head matched her colouring and provided good camouflage. Females have a body length of about 10 mm and the male up to 6 mm. They have an



The Pointy Crab Spider – MB

elongated, tapering abdomen that has a pair of pale coloured lines along its length and is slightly wrinkled toward the end. They don't make a web but are ambush predators, waiting patiently on pale coloured vegetation such as grasses, flowers or leaves. The front two pairs of legs are quite long for their body length and are made strong to enable the grasping and subduing of prey. They feed mainly on moths but also capture other insects and other arthropods. While waiting the favourite posture is with the forelegs extended widely in readiness for a possible catch.

Pointy Crab Spiders have the scientific name of *Runcinia acuminata*, and belong to the family *Thomisidae* for crab spiders. This species is common and is distributed widely across Asia from Japan to India. The *Atlas of Living Australia* shows records of it along the east of Australia from Cape York down to Victoria. Crab spiders are so called because of their resemblance to crabs. The two front pairs of legs are relatively large and strong. They are also able to scuttle sideways and backwards. Some are ambush predators like this species but others are also wandering hunters. While they don't make webs, they do spin silk for drop lines and for use in reproduction purposes.

Jewel Spiders have the scientific name of *Austracantha minax* and are also known as Christmas Spiders. They are endemic to Australia, and are quite unique in being the only species in the genus *Austracantha*. The colouring is mainly shiny black with decoration in variable patterns of white, yellow and orange. The abdomen has six sharp projections or spines radiating outwards and slightly upwards. This colouring and form makes them very easy to identify. The females are larger with a body length of up to about 12 mm, and the males grow to about 5 mm. They have eight eyes arranged in two rows.

They are orb-weaving spiders belonging to the family *Araneidae*. They like to build their webs one or two metres above the ground between a pair of adjacent shrubs, where they catch flying insects. The females are the most often seen and they like to rest upside down in the centre of their web. Most orb-weavers destroy their webs and rebuild them daily, but these spiders keep theirs intact. They are social spiders and sometimes will form aggregations with lots of them living in close proximity to one another. They are distributed widely around the country and neighbouring islands although there are fewer records of them in the drier central plains of the continent. They like woodland habitats with an understory of shrubs and locally they can be found in our grassy woodlands where they will make use of the shrubbery present.

Life is on an annual cycle with juveniles emerging in early spring. After growth to maturity mating occurs during summer. A female can mate with more than one male. But the male will stay nearby before and after mating. He will drive off other rival males to ensure he is the father of the offspring. He does this until the female's reproductive cycle is over. Later the female lays her eggs. She creates an orange-brown egg sac from closely woven silk attached to some vegetation. The spiderlings spend winter in the safety of their egg sac to begin the cycle again when the warm weather returns.

Neither of these species is aggressive towards humans and their venom is only mildly toxic. The Pointy Crab Spider is reported to be essentially harmless to people. The Jewel Spiders rarely bite but if they do the result is only mildly painful. There are many interesting creatures in our grassy ecosystems and to find one or more of these spiders is a nice surprise.

References:

<http://www.findaspider.org.au/find/spiders/320.htm>

[http://www.arachne.org.au/01\\_cms/details.asp?ID=2185](http://www.arachne.org.au/01_cms/details.asp?ID=2185)

<https://en.wikipedia.org/wiki/Austracantha>



The Jewel or Christmas Spider - MB



# Interaction between plants and the life in the soil

## Part II

- Sarah Bates -

This is the second in a series of three articles by Sarah, a FOG member and PhD candidate researching the role of interactions between plants and soil microorganisms in weed invasion. This article is about some of the questions and experiments she is undertaking to understand the interactions between native plants and weeds, and native soil microbe communities. The third part on some of her findings will appear in a future article.

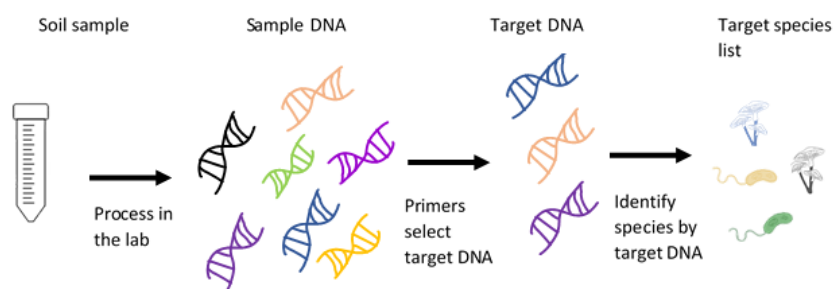
Soil microbe communities are important as they can dramatically affect plant performance in positive to negative ways, changing plant populations and local plant survival. My main questions are: what are the soil microbe communities of native grassy ecosystems, and how much do plants influence soil biotic communities? I am interested in these questions in regards to protecting and understanding temperate native grassy ecosystems. Say for example weeds are entering grasslands and altering the soil community, these communities may have had important mutualistic partnerships that native plants rely on. Or weeds could be making changes in soil communities that favour their growth or seedling establishment, giving themselves an advantage over time. These changes to the soil could persist even once the weed is removed, making it difficult for natives to re-establish in that area. This is a familiar experience to me, after continuous removal of weeds and replanting the area with native species, the native species often struggle to establish and thrive, while the weeds continue to return and grow without issues.



Soil collection at Mulanggari Grasslands

The experiments I conducted looked at both plant response to soil communities and changes in the soil microbe communities made by different plant species. I collected soil from three grassy ecosystems around ACT (Mulanggari Grassland Nature Reserve, and two roadside reserves in Fraser and Kambah). These sites were selected for high cover of *Themeda triandra* (kangaroo grass), low disturbance and lack of weeds. I then set up a large glasshouse experiment with nine grass species, three key native grasses (*Themeda triandra*, *Poa sieberiana* and *Austrostipa scabra*) and six weeds of varying impact (*Eragrostis curvula*, *Nassella neesiana*, *Phalaris aquatica*, *Lolium perenne*, *Festuca arundinacea*, and *Dactylis glomerata*). I have measured the plant response to these soil communities and am in the middle of applying new molecular technologies to assess what is in the soil and how the soil microbe communities responded to the nine species.

New technology has given us the ability to get a better understanding of what microorganisms are in the soil. Briefly, as shown in the diagram, this new technology allows us to take a soil sample and process them in the laboratory to separate out the DNA from all the other components in the soil. Then the DNA is selected for by specific primers, which are specific strands of DNA that are able to isolate the DNA of interest. I targeted bacterial and fungal DNA, as I am interested in microbes such as nitrogen fixed bacteria, pathogens and mycorrhizal fungi. The primers selected for all bacterial and fungal DNA in each sample. After some processing and cleaning, we then undertook the process of metabarcoding. This is a genetic analysis which results in every bit of target DNA being identified. This ends up producing a species list for the soil, including any species we do not know, based on unique DNA. After this the data processing takes place. I will pair up each unique strand of DNA with any known species from large DNA databases. Then I can compare these, and list changes between soil samples from different locations and from different host plants. This is an amazing tool to address the questions I am interested in, but also is one of the only ways to understand what is happening in this microscopic world. I look forward to updating you on the results in 2021 and to see how much native plants and weeds are altering soil communities of our temperate grassy ecosystems and what we can learn from this to better understand, protect and restore grasslands.



A diagram of the steps taken to identify what is in the soil microbe community by molecular techniques. 1. Soil is taken from the experiments and processed in the lab to isolate the DNA. 2. Target DNA is then selected by using primers. 3. Species lists of microorganisms can be made by identifying all the different segments of target DNA. 4. Species lists can then be compared between soil samples.



## Recent FOG Events

### Young Rangers' Bioblitz – MG

18 Oct. The Young Rangers and their families headed out to Mulanggari Grasslands with a focus on learning how to use the Canberra Nature Map to record their sightings. Mulanggari certainly turned on a show for them with abundant flora and fauna and I'm happy to report that the young rangers embraced the opportunity with many new records added to Nature Map.



Photo by M. Fokker

### Carwoola – GR

24 Oct. On what promised to be an exciting revisit to a member's property at Carwoola, east of Queanbeyan, major rain threatened reducing the number of attendees to five people plus Tim, the owner. We alighted from cars at 1.30pm but then had to duck for shelter as a large scud released its load. When the rain cleared, the group, umbrellas in hand, moved off on its 2.5km round trip wander. FOG had visited Carwoola earlier in spring - see report in our previous newsletter (p11) - where over 100 native plant species, including an amazing display of Early Nancy were observed.

The rain held off for the remainder of the visit, the weather being most pleasant. The group moved slowly, stopping at each plant that was unfamiliar to some members of the group, discussing how one identified it. And this included the find of the day, a buttercup doubletail orchid, *Diuris aequalis*, a new location for the species. Finally the group reached its destination and was very impressed to see a great diversity of plants in a grassy woodland context, including six species of flowering orchids. We added around another 40 species to the previous species list. It is a gem of a property.

While the visit was meant to be completed by 4.30pm, no one was in a hurry and so departure from the property was much later. Rumours of a flowering bearded orchid at the nearby reserve was too good an opportunity to pass up and so after Tim's the group visited there. The reserve also put on a good flower display and the group saw at least three bearded orchids. Thanks Tim and Margaret for an exciting visit.

### Lawson Grassland Open Day – RR

26 Oct. The Lawson grassland open day did not look promising, as the day began with a heavy downpour and cold winds. But by the time it was due to start people began to assemble, and the numbers grew throughout the day. At day's end it was declared a success with a large number of local residents attending. Largely organised by Rainer Rehwinkel



Some of Lawsons treasures by K. McGilp

and Kat McGilp (Ginninderra Catchment Group), it commenced with many stalls and walks. Rainer showed the walk leaders the highlights, and they in turn led about five groups of 8-10 people. Following the walks, Rainer had organised a largish group of enthusiastic speakers to talk about grasslands, their protection, and restoration and community involvement. F

OG members assisted by manning a FOG stall, leading walks and providing a speaker.

The aim of the day was to gauge interest in forming a new Landcare group for the Lawson Grasslands. The group is planning to have a group planning session and get-together onsite early in the 2021 New Year. Questions for discussion include how often should we meet? For further inquiries contact [rainer.rehwinkel@fog.org.au](mailto:rainer.rehwinkel@fog.org.au).



Photo by K. McGilp

### ConCouncil 2020 Spring Dinner – GR

The Conservation Council's spring dinner on 7 November was a great success. Our FOG table of eleven people at Ngunnawal was one of over eighty-plus locations comprising 260 attendees. The food and beverages were delivered late Saturday afternoon - varied, healthy and scrumptious - particularly the dessert. Ours was a varied and fun group.

We linked into the uTube presentation which was well structured, informative, entertaining, etc. Choosing a speaker for such an event is a challenge and when I heard that Costa Georgiadis was the speaker, I thought the ConCouncil might have chosen better. However, before the evening, I was beginning to change my mind, especially when I discovered one day that FOG's Facebook page had a "like" from Costa - I was a little intrigued.

Costa was amazing - full of energy and totally captivating. He prepared for his talk by writing down by hand the names of each of the ConCouncil's 43 groups and thoroughly researched each - hence the Facebook "Like". "What an amazing group of organisations", he said. He listed the different types of groups, from "friends" to "revolution". He described the range of activities of the groups. I was pleased to hear words like "conservation", "biodiversity", "advocacy", "citizen science", "grasses", "grasslands", "cultural burning", "Bruce Pascoe", "Charles Massy" - they were just some, as you may image. He was amazed by the power of Canberra Nature Map. He came up with a single word to describe it all - "regeneration" - and he had numerous other "re" words, e.g. "reusing, recycling, reallocation, re-imagining,



refusing..." He posed questions such as "what are you doing to "cut through?", "what is your story?", "what language do you use?" He said that "gardening" touched every group - I cannot disagree. "Gardening is not threatening, yet it is highly political" he said. He added "it all comes down to soil". He posed questions about "how and where do you use your influence?" and "do you share what you are doing?" So much is happening - "how do we raise the ante?" His enthusiasm, hopefully, was contagious!

There was much more to follow, such as an auction, presentation of the ACT Environment Awards, election of the new board, a comprehensive report on the ConCouncil's activities for the year, and the program finished with a musical performance by Canberra's LGBTIQ+ Qwire - just great. Smuggled into the program were group reports on the relationship between individual groups and the ConCouncil - Sarah Sharp gave an excellent account of FOG. Congratulations to the organisers on an excellent evening.

### **Hall Cemetery – JFG**

The story of Hall Cemetery this year has centred around devoting many hours, under COVID 19 restriction, to control the amazing burst of weeds. The story continued with events on the 6th and 7th of November.

On 6 November, John and Margaret welcomed and worked with a Jobs for Canberra crew, consisting of team leader Jenilee DeLandre and three helpers, who were present for five hours. Jobs for Canberra is an ACT Government initiative, an economic response to the COVID 19 pandemic, to provide employment opportunities undertaking community friendly activity. The crew has worked with FOG in three locations helping with environmental restoration. Tasks at Hall on the 6th including planting Blakely's Red Gum trees (*Eucalyptus blakelyi*) inside the main cemetery block, after trimming the grass around each spot where trees were planted, and scalping (removing soil) close to the plants.

The group also installed a very obvious pink corflute tree guard around each tree with two securing stakes. This planting, done with approval from Canberra Cemeteries and ACT Conservation Research aims at securing the health and long-term succession of trees in the open grassy woodland containing the grave sites at Hall. Another task was slashing areas of rapidly growing, flowering Phalaris in the woodland surrounding the cemetery block. The photo shows leader Jenilee, left, and crew members Warren and Imran. FOG



Pic. Jenilee with crew Warren and Imran

wishes to thank Greening Australia for providing the plants and guards, and ACT government for the person-power.

On the following day our two volunteers came back for FOG's scheduled work party attended by seven volunteers. Some worked with their own line trimmers on tall grasses, while others slashed and removed seeds of weeds such as Milk Thistles, Cleavers and Capeweed. The event finished with a short walk on tracks to enjoy the fantastic wildflower display around the graves. While a significant impact was made on the weed burst, more keep emerging. As always, any member keen to help with the battle should contact Margaret or John.

### **Stirling Park work parties – GR**

FOG's Stirling Park group is responsible for work on National Lands managed by the National Capital Authority, and Blue Gum Point, managed by the ACT government's Transport Canberra and City Services (TCCS). Working bees were held at Blue Gum Point (TCCS) on 8 November and Attunga Point (NCA land) 13 December. Fifteen volunteers were present on each occasion. Over time, the Stirling Park group has grown in both the size of the area managed and the range of tasks undertaken. Master of Ceremonies, Jamie Pittock, allocated a variety of tasks to volunteers, and lead by example in some of the many tasks undertaken.



On 8 November, the group largely removed woody weeds - large and small - to be mulched (photos (GR) of Andrew and Jamie removing woody weeds) and on 13 December, the group spread forb seeds over grassland areas, removed woody weeds and undertook lake shore planting (photo (AZ) of Paul, Sue, Geoff and Jamie). Meanwhile Jamie has met the EnviroAg (EA) team at Blue Gum Point to discuss weed control works (Blackberry and St John's wort spraying) for FOG on ACT and national lands.

### **Yarramundi Flowering – GR**

In our last issue of our newsletter we reported on the scrape site at Yarramundi Reach. Two years ago two sites were scraped of plants (mostly weeds) and top soil, and seeded with native grassland plants - grasses and forbs.



These sites struggled through the drought, almost causing despair, but John Fitz Gerald, the project leader, stuck to his guns and let nature take its course. The rains have made a big difference. On 9 November John reported "I went to mop up a little ALG at Yarramundi yesterday and was delighted by the wildflower display in our Demonstration Reveg. We've had a good white show (Sunrays) for weeks, now we have blue (Linum). Pics speak for themselves - this is the eastern scrape."



#### **Ginninderry Scrape Monitoring - AB**

On Thursday 11 November 2020, Marg Ning, John Fitz Gerald, Emily Sutcliffe and Alice Bauer (Ken Hodgkinson could not make it due to high pollen forecast), joined forces with the Ginninderry Conservation Trust to monitor their scrape site (0.27ha). The scrape is only several months old (seeded in May), and planted with a variety of local treasures, including: native grasses, bulbine lily, native flax, blue bells, hoary sunray, common everlasting, bindweed and more!

John had organised the survey methods and with the help of Rachel and Tyson - we completed cover/abundance surveys and step point surveys along a transect.

We enjoyed a lovely lunch provided by Ange Calliess and co, and enjoyed learning about theirs and the developers' mission. The Trust was formed to manage and restore the



L-R: Emily, Tyson, John, Marg and Alice

conservation corridor along the Murrumbidgee River adjacent to the new Ginninderry development. With a conservation reserve, the Murrumbidgee River, and the never-ending rolling hills of NSW as your backyard... I wouldn't mind buying in also!

A special thanks for Cafe Stepping Stone at Strathnairn for their delectable lunch and freshly made lemonade.

#### **Scottsdale Monitoring – LS**

Our annual monitoring of Scottsdale took place on 11 November. FOG volunteers have been monitoring African Lovegrass (ALG) on the Bush Heritage property of Scottsdale for the past 10 years. Our most recent area of monitoring has been a patch adjacent to the Monaro Highway. This area was aerially sprayed four years ago with a lower-than-recommended spray rate (1 litre/hectare, which is about 30-50% of the recommended rate) of flupropanate, and our monitoring is helping to assess the effectiveness of this spraying regime.

Phil Palmer, the manager of Scottsdale, explained to our group of 10 volunteers, that the aerial spraying was cost-effective for large areas of spraying. It was also more even in distribution than on-ground methods. Additionally, follow-up spraying was always conducted after the aerial spray to target any missed plants. Flupropanate has the advantage that themeda and red-leg grass are resistant to it. Since the initial spraying near the road four years ago, additional areas have been sprayed each autumn in various other parts of Scottsdale. In the areas where there was good native cover and follow-up spraying with a different herbicide, the results are looking good.

There appear to be two main types of ALG on Scottsdale. There is the fine-leaf variety, which responds well to the spraying of flupropanate. And then there is the other variety (they call it the Canberra species!) which has thick stems and leaves, and is resistant to the spray.

Phil went on to say that one effective way of managing ALG is to intersperse burning-off with spraying the regrowth after the burn, and then repeating the process. Currently Phil and his team are about to sow some treated areas with the red-leg seed which they harvested earlier this year.

He also reported that the fires of last summer had affected 73% of the property. Some trees will not recover (*Eucalyptus viminalis*, *E. melliodora* and the radiata pines near the entrance) whereas *E. bridgesiana* is recovering well. He estimated that 80% of the affected areas will recover, but there will be a change in the vegetation structure.

Many thanks to the volunteers who spent the lovely sunny day peering at a tape-measure on the ground – Margaret Ning, Geoff Robertson, John Fitz Gerald, Elena Guarracino, Katarina and Franc Crepinsek, Libby McCutcheon, Alex Kirk and Graeme Hand. Also thanks to Brett Howland for organising the GPS co-ordinates and recording sheets and the excellent morning-tea and rolls for lunch, and who now has the time-consuming task of processing all the data.

#### **Franklin Grassland – GR**

Since the last newsletter, the Franklin Grasslands Parkcare group, organised by FOG, has held three work parties (4 and 25 Nov, and 2 Dec). The group now has a solid member core. In 2021, it will continue to hold two-hourly work parties on



the first and fourth Wednesday mornings in the summer months, hopefully before the heat of the day.

Ranger Craig Wainwright has introduced the "Wainwright" method of clearing patches - he has knocked down areas of re-emerging blackberry, phalaris, and other weeds, particularly in the higher quality grassland areas, leaving bare ground. As new plants emerge some weeks later, a second spray targets weeds. We have been amazed by the many native grasses and forbs emerging in these patches, which have become a focus of weed removal and direct-sowing of wallaby grass seed - an interesting experiment. Unfortunately, Craig has been reassigned, although he assisted in preparing the site for our Christmas celebration.

Another innovation has been Vanessa's grassland nursery. With Craig's assistance she received planter shelves, pots, soil and seed and now has a nursery with mostly wallaby grass, at various stages, six chocolate lilies and one *Bulbine bulbosa* (see photo). So the group will be planting these at an appropriate time.

On 10 Dec, the group held a very successful two-hour planning



Vanessa's Nursery

session - five park care members and Maree Gilbert and Martin Bajt (ACT government) attended. Geoff circulated a discussion paper beforehand, setting out the objectives, strategies, and roles of the parkcare group, FOG and ACT government. Also Maree and Martin outlined the new structures in ACT government and their implications for Franklin. The meeting was timely - until now the group has been feeling its way and the ACT government structures have been undergoing substantial changes. However, matters such as the offset plan and the landscape plan are still to be finalised - we hope that FOG will be closely consulted on these matters.

Many themes emerged from the meeting: there needs to be a strong focus on the reserve being a community asset, while "placing the grasslands first" - access and removing weeds along fence lines will help; the outburst of rain-induced weeds of phalaris and wild oats, making parts of the reserve almost impenetrable, needs serious and immediate attention - slashing should be considered; a seed orchard and bush garden in the north east section is very welcome and highly likely to go ahead; planned burns are to be encouraged; the group will join Ginninderra Catchment Group; FOG will press ahead with community engagement and since the meeting has discussed with Suzanne Orr MLA an autumn clean-up day accompanied by a letter box drop to local residents; and FOG will consider lobbying for an appropriate level of resourcing for the reserve.

Finally, the reserve has put on a great flowering - kangaroo grass has over performed, blue devil and common everlasting abound, as will lemon beauty head.

## Wandiyali – MN

Nov 28. Starting at 8.30am in an attempt to beat the heat, nine of us assembled for our Wandiyali wander (rescheduled from the stormy day of 31 Oct). We hoped that the forecast 34 degree heat would at least permit us to get in a half-day exploratory walk before it was too hot to proceed.



Credit: C Larcombe

In the absence of Rainer, who was laid low by a tummy bug, Carolyn Larcombe (Wandiyali Restoration Trust), became our leader for the day. While we waited for everyone to arrive, Carolyn gave us background information on Wandiyali and answered numerous questions on offsets, which is a hot topic. The property is in the process of being enclosed by a conservation fence primarily intended to exclude foxes and cats, with the longer term goal of introducing eastern bettongs to the site. Carolyn will be making a Zoom presentation to FOG members early in the new year.

Then she led us off across the property, pointing out the sward of flowering Kangaroo Grass giving its best display for the last 20 years, and the Poa Tussock (*Poa sieberiana*) many of which were flowering for the first time. Other resplendent grasses in the course of the day, included Red-anther Wallaby Grass (*Rytidosperma pallidum*), Swamp Wallaby Grass (*Amphibromus* sp.), a small patch of *Echinopogon* sp.), intermittent Plume Grass (*Dichelachne* sp.), and Corkscrew Grass (*Austrostipa scabra*).

We passed through shady areas as well as more open areas, which led to occasional debate over the Eucalyptus ID, and many changes in vegetation types.

Particularly impressive floral displays included a multitude of Fringe Lilies (*Thysanotus tuberosus*), and the last of the Rough Burr-daisy (*Calotis scabiosifolia* var *integrifolia*), and Lanky Buttons (*Leptorhynchus elongatus*). We saw evidence of a successful season for Early Nancy (*Wurmbea dioica*), and Bulbine Lily (*Bulbine bulbosa*).



Perunga Grasshopper – C Larcombe

We visited a ring tree, wandered through huge numbers of onion orchids and lesser numbers of Midget Greenhood (*Pterostylis mutica*). Others in the group drew plants to everyone's attention, and asked questions. Possibly the only



outstanding mystery for the day was a small shrub that heavily resembled Ploughshare Wattle (*Acacia gunnii*) - but that had a slightly hairy finish to it. Carolyn said other Ploughshare Wattles on the property were 'regulation appearance', but there was just the one specimen that had set us talking.

Given the smattering of *Rytidosperma carphoides* across the property, we kept our eyes open for any flying Golden Sun Moth, but possibly it was a little too breezy or maybe even not hot enough? On the walk back to the vehicles, Carolyn came across a *Perunga Grasshopper* (see photo). Andrew also took pictures of some unfamiliar critters - Inland Sprinkler Squeaker, a cicada, (*Popplepsalta notialis incitata*),



Inland Sprinkler Squeaker - Andrew Zelnik

Eucalyptus leaf beetle (*Paropsisterna beata*) and an orb-weaver spider, possibly Broun's marbled orb-weaver (*Backobourkia brounii*).

Numerous discussions on 'management' transpired in the course of the day, not only with respect to Wandiyali, but also on surrounding areas which were also offsets. Branches had been laid along a drainage line, and are very effectively facilitating the

regrowth of vegetation along its edge. We paced ourselves, took a drinks break as well as lunch in the lovely shade, and were able to get back to the vehicles in time for an early afternoon departure. It was starting to warm up heaps!



Broun's marbled orb-weaver (possibly) - Andrew Zelnik

## Adaminaby Weekend - MN

On 5 and 6 December a group of FOG members, mainly from the Cooma area, visited some grassland sites around Adaminaby. The main aim of the visit was to revisit our newly-discovered Adaminaby Common and to undertake some weeding at Top Hut, FOG's recently acquired TSR. Unfortunately, the visit was marred by very strong winds.

I can report that the Adaminaby Common grassland was three weeks further into the season than our earlier visit, but that said, while some species had passed on, others were now more apparent and as attractive as what had come earlier. A dozen or so cattle were roaming around however, and the thistles were continuing to grow, neither of which augured well for the grassland's future, or at least its seasonal outcome. The handful of Monaro Golden Daisy (MGD) on the site were more or less finished for the season, and the patch outside the Common on the road verge had been mown!! A few kilometres from Adaminaby, on Bushrangers Hill Rd, the MGD was also past its peak, and only a low proportion of flowers were still yellow.

The MGD plants were still in impressive numbers however, and looked very healthy. Sadly some St Johns Wort is sneaking on to the site. However the Chamomile Sunray (*Rhodanthe anthemoides*) looked absolutely gorgeous - peak flowering. The wind was starting to blow.....

We drove past the new Adaminaby Cemetery but didn't stop, and it was good to see that it had not been mown. By the time we reached Old Adaminaby Cemetery the wind was severely up, and we wandered around reasonably quickly. There were large numbers of yet-to-flower *Podolepis*, presumably *P. hieracioides*, as they had multiple buds on each stem. We didn't stay long as the wind had sapped our enthusiasm. This site will have to wait for another day.

On the Sunday, it had rained overnight, and the wind blew and blew and blew. It was still blowing a gale when we arrived at Top Hut TSR, so Lauren set about carefully spot spraying thistles, while most of the rest of us cut and bagged Goats Beard (*Tragopogon dubius*) heads, or took photos of the many still flowering treasures. We stuck it out for around 90 minutes, and then called it a day! It was wicked, and very disappointing and frustrating to have to leave so early.

I would love to get back there to attack those *Tragopogon* as they were just on the verge of releasing their fluffies. If anyone is on a road trip in that area, why not pop in and see what is happening with the flowering, and spend an hour despatching some of those wretched *Tragopogon*! I am now planning the next visit to Top Hut TSR for Saturday 9 January.

## Silly Season Celebration @ Franklin - GR

On Thursday 10 December, FOG held its penultimate event for the year, celebrating a successful year on the large nature strip outside Franklin Grassland. Twenty-three people attended, twenty-four if we include Andrew who joined us earlier to set up the gazebo but then disappeared. The attendance was very good, especially as it clashed with many similar celebrations, and some stayed away due to COVID 19. Heavy rains at 3-4pm had passed over - the weather for us was then perfect.

Good food and wine helped to create a wonderful atmosphere as people sat around and mingled with a year of challenges and achievements behind us. Everywhere grasses, native and exotic, within the reserve were a metre high apart from the lengthy pathways that had been cut within the reserve, thanks to our ACT government colleagues, Maree and Craig. This allowed a large group to visit the ephemeral wetland with its amazing display of swamp wallaby grass and two species of *eleocharis*.

Suzanne Orr neighbour and MLA, joined us for the celebration and said a few words, as did numerous FOG members, young and old, who reflected on the year and the many new challenges FOG was taking on.

### Authors and contributors in this issue

AB - Alice Bauer, AZ - Andrew Zelnik, CL - Carolyn Larcombe, DM - David Meggitt, GR - Geoff Robertson, JFG - John Fitz Gerald, KM - Kathryn McGilp, MG - Maree Gilbert, LP - Leon Pietsch, LS - Linda Spinaze, MN - Margaret Ning, NH - Naarilla Hirsch, RR - Rainer Rehwinkel, SB - Sarah Bates, SR - Sue Ross, TM - Tein McDonald and Vanessa Goss - VG.

# News Roundup

## BCT Monaro Grasslands Agreements - GR

On its website, the NSW Biodiversity Conservation Trust (BCT) has released data on its private land conservation agreements. In relation to Monaro Grasslands, it reports signing eleven conservation agreements covering 1,829 hectares. These cover natural temperate grasslands that provide habitat for several state and nationally threatened species including the pink-tailed worm-lizard, striped legless lizard, small purple-pea, button wrinklewort, Monaro golden daisy, Austral toadflax and the grassland earless dragon. The BCT has invested \$12 million to fund the annual conservation management payments to these landholders. Typically, the BCT is paying these landholders from \$164 to \$300 per hectare per annum over the life of these agreements. [More on agreements](#)

## More Flaws in the EPBC Act - SR

*The Conversation* (18 Nov) quoted an article by Manu Saunders, Deborah Bower, Sarah Mika and John Hunter (University of New England). "We found a huge flaw in Australia's environment laws. Wetlands and woodlands will pay the price." In the article the authors discuss how the *Environment Protection and Biodiversity Conservation Act* includes assessment condition thresholds, one of which is patch size, but not connectivity of small patches. This means the law may allow a number of patches, which provide valuable connectivity but don't individually meet the size condition, to be cleared or developed without approval.

The article continues with examples of why these flaws need to be addressed and the legislation amended accordingly. Finally, the authors call for more work to understand more about connectivity, and a change in condition thresholds to protect biodiversity in these times of rapid climate change.

Read the full article at [flaws in EPBC](#).

## Grassland Flora 3rd edition - GR

The third edition of *Grassland Flora* has been published! The first edition was published in 1997, with three reprints. The second edition was published in 2011 and reprinted once. It was expected that that would be the last, given in total 16,000 books had been printed. However copies of *Grassland Flora* have run out – a delightful surprise. The FOG committee decided, on advice from Sarah, to produce a third edition which contains a number of changes, including updates of plant names and improved photo clarity. Under the arrangement with the printer we are now able to print in small quantities. The prices remain the same, with the wholesale price at \$12 and retail price at \$20. Prices for *Woodland Flora* are \$15 and \$25 (\$20 for FOG members), respectively. Book orders may be placed with Sarah at [booksales@fog.org.au](mailto:booksales@fog.org.au) or through the website ([purchase](#)). Great work Sarah.

## The Life of a Mountain Hut – GR

Newly published, *The Life of Four Mile Hut - Four Mile Hut* by Klaus Hueneker, tells of the social life of Australia's High Country through the "EYES of his beloved hut. Klaus says, it is not his story - "I was just the curser pusher, the ghost writer

for the hut. It did all the thinking and story telling. It told me what to write starting from its birth in 1937, its fastidious builder Bob Hughes ..., the passing of thousands of smelly sheep, visits by even more smelly dingo trappers and the many poets that loved to sit and recite in front of the hut's fire." The book retails at A\$30.00 and contains 230 pages, 21 chapters and has about 30 small photos inside the paperback covers.

This is the third book this year written by a FOG member, and Klaus' fourteenth. His popular original book *Huts of the High Country* was first

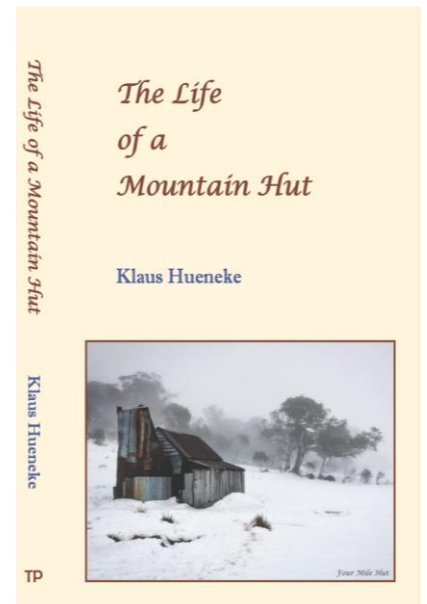
published almost 40 years ago. To order the book and to look at the many other titles sold by Klaus and Patricia Hueneker's online shop, please click here: [WWW.Tabletoppressbooks.com](http://WWW.Tabletoppressbooks.com).

## Murrumbateman News

In early November, Friends of the Murrumbateman Village Grassy Woodland reported very happily that "more species are flowering and animals are very active. Some of wildflowers at their best. Native grasses are flourishing. Insects are abundant. Grassland lizards are very active - we hear them squeaking to each other but they are so fast and good at hiding... Some hand weeding is also being done - thanks to the volunteers who brave weather and hayfever to pull out these pesky weeds." It also reported that it had



engaged independent ecologist consultants from Umwelt Australia to do a biodiversity assessment of the site and were employing Local Land Services to undertake a 20 metre wide fire hazard reduction in the asset protection zone. In December, it reported that LLS had undertaken fire hazard reduction (18 Nov), removed old fence posts and undertaken a general tidy up. Photo - Milk maids seen at the woodland Annaliese.





## Recovery continues at Rutidosia Ridge - DM & TM

Fifteen bush regenerators volunteered at the recent 3-day bush work camp (3-5 November) at Bush Heritage Australia's Scottsdale Reserve at Bredbo, NSW. This is the third camp at the site this year run in collaboration with the Australian Association of Bush Regenerators (AABR), supporting local workers who visit the site on a more regular basis. During the November camp, two of the visiting volunteers carefully hand-weeded around a small population of button wrinklewort (*Rutidosia leptorhynchoidea*) on the Ridge (which is unsurprisingly called 'Rutidosia Ridge'), while the 13 others (all experienced regenerators) undertook very careful spot spraying in the rest of the 10ha site to release of grassy ecosystem natives post-fire.

Rutidosia Ridge was not in good condition prior to the January fire - it had been grazed intensively for many decades and was dominated by weed. When Bush Heritage acquired the property in 2006 this ridge was largely dominated by African love grass (*Eragrostis curvula*) and serrated tussock (*Nassella trichotoma*) and part of it had been sown down to an oats crop! But button wrinklewort occurred there, making the site an important location for restoration work. Aerial spraying with flupropanate (1L/ha) was undertaken of the African love grass and serrated tussock a few years ago, which commenced a process of recovery by some native perennial grasses and forbs that remained on site despite the weed. But recovery was slow and far from certain. Things suddenly changed when the January 2020 fire cleared the dead African love grass thatch. A great deal more native germination of soil-stored seed occurred, presumably stimulated not only by the more open conditions but possibly also by the heat and smoke of the fire, at least for some species. The challenge, however, was that large numbers and densities of herbaceous weeds also germinated or re-sprouted, threatening the recovery. These weeds required rapid attention before they outcompeted the natives and before they recharged the seed bank - if anything is going to recharge the soil seed bank, we want it to be natives, not weeds.

While some parts of the site are in better condition than others, useful natives are coming up all over the 10 ha Rutidosia Ridge site. Many native forbs that were in flower during the November camp including silky swainson's pea (*Swainsona sericea*), yellow pimelea (*Pimelea curviflora* subsp. *fusiformis*), scaly buttons (*Leptorhynchos squamatus*),

bulbine lily (*Bulbine bulbosa*) and the ubiquitous bluebells (*Wahlenbergia* spp.) and goodenias (*Goodenia* spp.).

Weeds included African lovegrass, wild oats (*Avena fatua*), yellow catsear (*Hypochaeris radicata*), orange hawkweed (*Tolpis barbata*), vipers bugloss (*Echium vulgare*) and St Johns wort (*Hypericum perforatum*) plus many others.

Many of the visiting regenerators were from Sydney and had experience in post-fire spot weeding. But all agreed that it was wonderful to be working in the grassy ecosystems of the Monaro, and expressed an interest in returning to work on the site in the future, to help the site recover over time and to witness that process.

## Spring Season on Monaro

The 2020 spring on the Monaro Plains has brought many joys ... "Heaven in a wild flower...." and a cloud in a wineglass. Graziers, landholders and observers of native grasslands are rewarded well this spring with an exquisite floral light show of purples, yellows and creams to challenge any floriate.

Fortunately, original native grasslands that also maintain commercial grazing enterprises can still be found on these ancient basalt plains. These paddocks teem with a diversity of plants including the stunning rare and endangered Monaro Golden Daisy. Treading softly through them releases the aroma of honey and the mysterious symphony of disturbed insects, bees and can you believe it – birds. You simply feel alive to the sound of music.

Sadly the push to increase stock numbers has seen the rise in blanket chemical applications to create monoculture crops and designed to wipe out the native grasses. Native plants and forbs do not recover from this treatment and are mostly lost for ever. The landholder is then left on a roller coaster ride of heavy mechanical and high cost inputs in the constant struggle to keep weeds out and retain topsoil.



Meanwhile the superb native grassland in this photo tempts you to relax in its unique beauty and enjoy a glass of aptly named "Tread Softly" Pinot Grigio.

## A community day with a powerful impact – GR

FOG received a link to the Woorndoo Land Protection Group's On line Community Day, held on 27 Nov. The program included sessions on the Woorndoo Project (John Delpratt), a case study on mapping roadsides for conservation and repair (Lincoln Kern), an introduction on native grasslands (Ammie Jackson), looking to the future (John Morgan) and seed production (Paul Gibson Roy). It is well worth anyone who



Photo credit: G. Little

wants to understand grasslands to take the time - new and old hands - to look at the material, as it is both highly informative and challenging. The material illustrates what can be achieved at scale - for both large grassland restoration and grassland corridors. John's session challenges us to focus our thinking and efforts. Given Victoria's Covid 19 lockdown, sessions were given from odd places - John was sitting in his car. The following are links to the [full session](#) (2hrs 40mins), the [John Morgan](#) session, and Paul Gibson Roy's session at [Paul Gibson Roy](#).

*Prepared by Monaro residents post the recent Friends of Grasslands tour of the Monaro Travelling Stock Reserves, June Wilkinson, Lauren Van Dyke, Jane Dixon, Pam O'Brien .*

### Signs @ Sth Gundagai Cemetery - AZ

In our last issue we reported on FOG's visit to Narrandera (pX) and made mention of a stop on the Friday at Gundagai cemetery to observe the signs that were there (p3). These signs were also referred to in Andrew Zelnik's article *FOG's Grassy Ecosystem Grants 2020* (p7). We stated that photos of the signs were included, but they were omitted. Now here they are, thanks to AZ. These are two of the four signs paid for from a FOG grassy grant - ed.



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