News of Friends of Grasslands

Supporting native grassy ecosystems

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November & December 2022

Events

Sat – Sun 5&6 Nov

Shoalhaven River properties Big Hole

Register: margaret.ning@fog.org.au

Fri 25 Nov 1 – 3pm

Jarramlee Nature Reserve

West McGregor.

Register: margaret.ning@fog.org.au

Fri 9 Dec 5 – 8pm

FOG Christmas Party

Register: margaret.ning@fog.org.au

Work Parties

Budjan Galindji (Franklin Grassland)

2 & 23 Nov, 7 Dec

Wednesdays 9-11.30am

Register: margaret.ning@fog.org.au

Gurubang Dhauru (Stirling Park)

20 Nov, 18 Dec

Sundays 9am -12.30pm

Register: jamie.pittock@fog.org.au

Hall Cemetery

5 Nov

Saturday 9am – 11am

Register: john.fitzgerald@fog.org.au

Top Hut TSR (near Cooma)

Date and time to be finalised

Register: margaret.ning@fog.org.au

The latest updates are found on our website at Calendar

FOG Christmas Party

The FOG Christmas party is to be held at 5pm Friday 9 December 2022. Possible venues include Red Hill and the Conservation Council offices on Barry Drive, Civic, depending on the weather. A volunteer is needed to handle the organising side – please contact margaret.ning@fog.org.au or andrew.zelnik@fog.org.au

From the President …

5 August 2022

In the last newsletter I lamented at passing a high conservation value grassland or grassy woodland site infested with weeds and wondering "why isn't someone doing something to manage this habitat better?" Here I want to celebrate the crucial work that FOG is undertaking to conserve this flora and fauna that we love.

The past two months have been a whirlwind of activity as FOG members have taken critical actions to conserve some of the most significant biodiverse grassy ecosystem sites.

FOG leases the Top Hut Travelling Stock Reserve near Adaminaby in NSW to protect core habitat of threatened species. Like most of our grasslands three years of wet weather had generated a lot of biomass that needed judicious reduction to retain gaps needed to sustain fauna and forbs. In August FOG collaborated with Local Land Services to undertake a successful ecological burn and has now followed up with strategic weed control.

In October, FOG held our picnic for nature at Sweeney's Travelling Stock Reserve near Bungendore. As the grassland flowers bloomed in spring, FOG's crack team was able to make some significant additions to the fauna list for the site. Further, a number of problems with weed invasion and illegal use were reported to help Local Land Services better conserve this important remnant habitat.

Earlier the deplorable Defence Housing Australia proposal to destroy part of the critical grassland habitat at North Lawson was submitted to the Federal Minister for the Environment for assessment. FOG joined the Conservation Council in an

Work party at Top Hut TSR. Photo Andrew Zelnik

erudite submission calling for the project to be rejected. In October, the Minister declared that the project will be assessed by environmental impact statement, which will require more effort on our part to prevent a reckless project that should never have been countenanced in the first place.

Other FOG members have been working hard to have the Federal Government's environmental approval revoked for Canberra Airport's northern access road. The original approval was varied without notice by the previous Federal Government. The proposed road would bisect and threaten with extirpation one of two key known populations of the Canberra Grassland Earless Dragon.

To try and get ahead of the developers, Vice President Sarah Sharp and FOG Project Officer Aaron Midson (employed with the generous donations from you, our members) have been working for proactive conservation of grassy habitats outside reserves in the ACT. This involves identifying key remnants and connecting corridors outside reserves and seeking an overlay conservation zoning in the review of the ACT's planning laws. And after we have fixed the ACT, there is NSW …

These five examples highlight the great diversity of activities that FOG fosters to conserve grassland flora and fauna. Our work ranges from on ground weeding, to species surveys, to site monitoring, public education and advocacy. The range of work involved means that anyone can contribute and make a difference. We need more volunteers, so please contact me if you can help in one of FOG's many exciting endeavours.

Speaking of which, it is my great pleasure to welcome and thank Julia Raine, Hugh Coppell and Trevor Preston for joining the FOG Committee. Their willingness to help is greatly appreciated.

Thank you for your support for grasslands!

Prof. Jamie Pittock

Advocacy Report

Sarah Sharp

August 2022

Duplication of William Hovell Drive 01/08/2022

Construction of a 4.5 km road duplication is expected to start in the first half of 2023. FOG made submissions in July and August 2021 regarding the project's Development Application and Environmental Impact Statement. Now, following release of new reports from the ACT Government, FOG has reiterated the responsibility of government and developers to implement stated good intentions regarding environmental outcomes. Particularly, FOG picked up on weaknesses in procurement requirements for environmental contractors, and provided options for more ecologically sound species for planting. Release of plans from the ACT Government regarding environmental impacts of construction and offsets are expected in the coming months.

RSPCA facility in Pialligo 10/08/2022

The proposed development is located in an area currently used for grazing which retains patches of native grassland. These patches provide connectivity between more intact adjacent grassland and woodland. FOG highlighted the importance of these areas to Golden Sun Moth and Striped Legless Lizards. It is feasible that the use of the site by RSPCA can incorporate protection of these areas as part of the site design.

Throsby District Playing Fields 26/08/2022

Development of a sports facility at Throsby, adjacent to Mulligans Flat, is set to impact Yellow Box – Blakely's Red Gum Grassy Woodland (a critically endangered community), and the Superb Parrot (a vulnerable species). The key impacts occur in an area designated for a drainage line, without evidence of consideration for less damaging alternatives. Despite these impacts, the project is seeking permission to bypass environmental approvals. FOG argued that a full Environmental Impact Assessment be undertaken and highlighted the significant risk of weed invasion, making suggestions for replanting of species that are endemic to the community.

William Hovell Drive, shared user path, Coulter Dr to Bindubi St ACT (EPBC number. 2022/09238)

No areas of threatened communities or species are directly affected, but there is Box Gum Woodland (BGW) to the north of the eastern (Bindubi St) section. Issues identified are: weed management; sensitive design and construction to minimise loss of remnant eucalypts; fencing off the development area to prevent damage beyond the construction zone; and mitigation offsets to include use of native timber in adjacent woodlands, removal of woody and herbaceous weeds and replanting into areas between fragments of remaining woodland, outside the development area.

Weed control in ACT: meeting with ACT Minister for the Environment 29/08/2022

Three representatives from FOG met with the ACT Minister for the Environment, Rebecca Vassarotti MLA, and associates, to discuss invasive weed control and incursion management. The ongoing issue of the Canberra airport northern road was also discussed.

Biodiversity Network

The draft Biodiversity Network proposal has gone to the Biodiversity Working Group and FOG committee for comment. The concept has been discussed with advisors to the Minister of Environment and at the Biodiversity Conservation Forum held in June. The success of this proposal lies largely with the opportunity to change the planning legislation as part of the planning review to provide for a conservation category to be applied to land uses other than nature reserves or national parks.

September 2022

Lawson North DHA development proposal 07/09/2022

Identified as a controlled action due to highly significant impacts on Natural Temperate Grassland (NTG), Box Gum Woodland and threatened species. No justification was given as to why the development precinct within and outside the fenced former Naval Station has a higher priority than not developing the area.

Naturalisation of Tuggeranong Creek adjacent to Tuggeranong Homestead DA202240347 14/09/2022

Friends of Grasslands supports the naturalisation of the Tuggeranong Creek and other works that will result in improved water quality. This is an opportunity to significantly enhance habitat and connectivity along the length of the creek, using the local native species for the reconstruction as identified in the plan and ensuring all measures are taken as identified in the plan for weed control, ensuring no damage to heritage values, no damage or disturbance to mature native trees and minimisation of disturbance to other natural values. We recommend that native herbaceous, shrub and tree species be planted to enhance biodiversity benefits.

Ephemeral pools, catchment swale, Isabella Drive DA202240527 14/09/2022

Friends of Grasslands supports the development of ephemeral pools. We urge the use of native aquatic plants such as sedges and rushes to enhance the native habitat.

Airport Northern Road

01/09/2022: A letter was sent to the National Capital Authority regarding plans for the development of a new road at the Canberra Airport. The road would dissect and significantly degrade one of Australia's most important grassland remnants. Specifically, the affected area is one of the most important habitats of the Canberra Grassland Earless Dragon, a species at high risk of extinction. FOG is of the position that no further action should be taken regarding the road, as the environmental approval requires assessment of new information regarding the Canberra Grassland Earless Dragon. Since the environmental approval, the Canberra Grassland Earless Dragon has been classified as its own species, separate from three other species of Earless Dragon. A new listing of these four distinct species under the EPBC Act is currently in a draft stage.

23/09/2022: A letter was sent to the Federal Minister for the Environment and Water, urging the minister to suspend the approval of the northern road. FOG argues that the Department's Consultation Paper on a new listing of four species of Earless Dragon includes new and critical information that shows the airport population is not one of many populations widely distributed but one of just three small populations with a severely restricted distribution. This airport population is on the brink of extinction.

29/09/2022: Meeting with Department of Climate Change, Energy, the Environment, and Water

Four representatives from FOG met with the Commonwealth ACT assessments office to discuss the Canberra Airport Northern Road and Lawson Grasslands developments.

Rebecca Vassarotti has publicly expressed concern about the ecological issues relating to the development of the northern road.

Tree planting and biodiversity 07/09/2022

A letter was sent to ACT Transport Canberra and City Services Directorate and the ACT Conservator to suggest that better protocols be followed for the urban forest tree planting program, to protect and enhance grassy woodlands and grasslands biodiversity. This followed tree plantings aimed at achieving ACT's tree planting target that occurred in and adjacent to ACT grasslands and subsequently required removal. Follow up with the Conservator, Bren Burkevics by phone and Daniel Iglesias by email indicated a strong commitment to protect biodiversity. The relevant officers in TCCS will be in touch, and further discussion of this will occur at the next Biodiversity Conservation Forum in November.

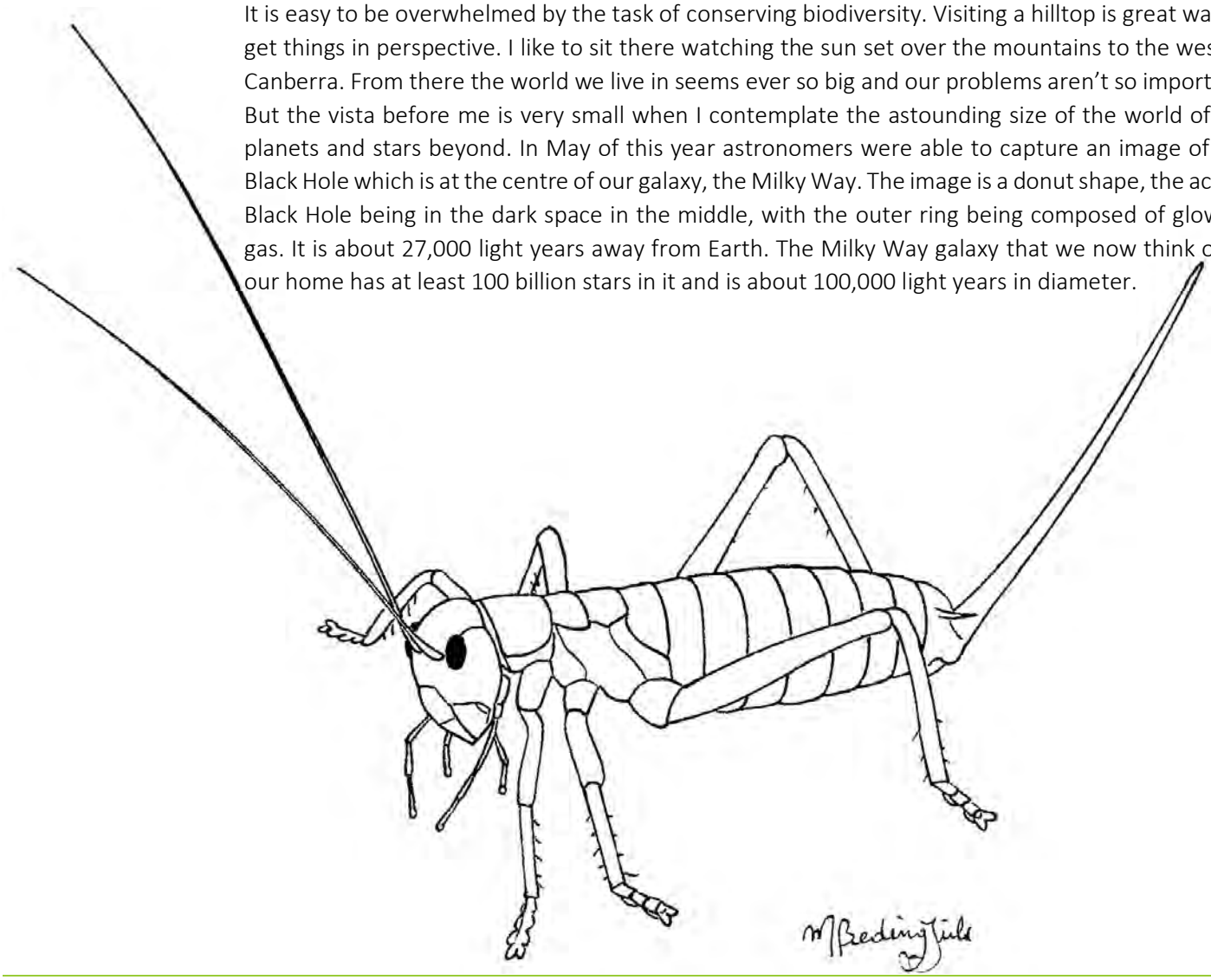
Canberra Raspy Cricket, a threatened species that occurs only near Canberra

Michael Bedingfield

We are privileged to have a rare grassland cricket exclusive to our region. The scientific name for the Canberra Raspy Cricket is *Cooraboorama canberrae*. It is the only species of the genus *Cooraboorama*. The drawing I have provided is of a female which has a long, pointed ovipositor at the rear of its body. This feature is absent from the male. The insect is yellow-brown in colour and about 25 mm long. It digs a burrow in the soil up to 60 cm deep which it lines with a silk-like substance to keep the walls stable. It is nocturnal, emerging from its burrow at night to feed. It has mostly been found in native grasslands. Although it used to be quite common, urban expansion and farming practices have reduced its natural habitat considerably. It may also be affected by weed invasion and changes to the fire regimes of the past. The species has no wings and so does not fly. This limits its ability to move around the countryside so habitat fragmentation is a serious problem for it.

Unfortunately it has been neglected, and apart from the above there is very little specific knowledge about its food preferences, habits, life cycle or other habitat requirements. But I can give some additional general information about Raspy Crickets. The family Gryllacrididae is for Raspy Crickets or Leaf-rolling Crickets. Members of this family are nocturnal and omnivorous. Although they have strong back legs they do not jump. They have an annual life cycle, with the young nymphs emerging in spring and growing to adulthood by a series of moults. When mature they mate and create the next generation. Using her long ovipositor, the female lays her eggs in the soil, which overwinter there. They get their name 'raspy' from the sound they make when threatened.

It is easy to be overwhelmed by the task of conserving biodiversity. Visiting a hilltop is great way to get things in perspective. I like to sit there watching the sun set over the mountains to the west of Canberra. From there the world we live in seems ever so big and our problems aren't so important. But the vista before me is very small when I contemplate the astounding size of the world of the planets and stars beyond. In May of this year astronomers were able to capture an image of the Black Hole which is at the centre of our galaxy, the Milky Way. The image is a donut shape, the actual Black Hole being in the dark space in the middle, with the outer ring being composed of glowing gas. It is about 27,000 light years away from Earth. The Milky Way galaxy that we now think of as our home has at least 100 billion stars in it and is about 100,000 light years in diameter.



Our solar system is in an extraordinary orbit around its centre, hurtling through space at the incredible speed of about 828,000 kph, taking about 230 million years to complete one circle. Despite this rapid motion we have the illusion that the Earth is quite still. And the Milky Way is just one of many billions of galaxies in the known universe, so beyond our galactic home there is so much more.

These numbers are hard to understand and show the incomprehensible mystery of the world we live in. Our knowledge and concept of the world is constantly expanding with marvelous new discoveries. With space travel our world has gotten bigger, but the world of the Canberra Raspy Cricket has become much smaller. All that is left of Natural Temperate Grasslands are small, scattered remnants. This has affected the cricket's ability to survive and flourish as it once did. It occurs only in the Canberra region and has been found in various places in the north of the ACT, as well a near Queanbeyan and Bungendore. Its nocturnal habits mean it is rarely seen and it is not getting the attention it deserves.

The Canberra Raspy Cricket has not yet been formally recognized as threatened and officially is just considered to be rare. However there are people trying to change this and get the necessary listing and the government protection it deserves. It is interesting that we have come to learn so much about outer space and objects that are millions or trillions of kilometres away, and we know so little about the Canberra Raspy Cricket that lives in our neighbourhood. The project that produced the image of the Milky Way's Black Hole cost nearly $60 million. One can only dream about what we could do to help our threatened species if social priorities were different and more generous funding were available. Hopefully we can learn more about this insect and it will have a secure future.

References: https://www.environment.act.gov.au/__data/assets/pdf_file/0010/1156951/Grassland-Strategy-Final-WebAccess.pdf
https://www.planning.act.gov.au/__data/assets/pdf_file/0009/594108/Jarramlee-Offset-Management-Plan.pdf
https://www.9news.com.au/technology/astronomers-capture-first-image-of-milky-way-huge-black-hole/563c3d63-d6c2-4e88-a2a3-c5fd58beac7f
https://www.environment.nsw.gov.au/-/

Rain Keeps Coming - Close Up on Three More Happy Species

John Fitz Gerald

For this contribution, I'll sprinkle three more species enjoying our rare run of wet years - one environmental weed and two native grasses.

Verbena incompta, Purpletop, is a target for FOG's control work alongside Lake Burley Griffin. Unfortunately this invasive is now seen in many places not far from water around suburban ACT. It has status as an environmental weed in NSW, ACT and Vic. It originates from South America and is an annual or short-lived perennial plant that produces large quantities of seed. Close inspection of its seeds is fascinating - as my image shows, they have a sectoroid shape (like a segment of a citrus fruit), with brown and smooth curved outer surface, patterned and hairy on the 2 planar surfaces, and relatively large.

Verbena incompta, Purpletop

Eragrostis brownii,
Common or Brown's Lovegrass

Eragrostis brownii, Common or Brown's Lovegrass, is a valuable native grass. It is most common in Vic and NSW but present in all states and territories. It mostly occurs within 300 km of the coastline. This grass is perennial, generally low (to 0.6 m) and grows in many environments. I've seen it doing particularly well in damp places. Its seeds are small, smooth and ellipsoidal.

Eragrostis parviflora, Weeping Lovegrass, grows right across the country from coast to continent centre, mostly in Vic and NSW, but also is present in Qld, SA and NT. This delicate native species is annual, growing to 1 m. Its seeds are similar to those of *E. parviflora*.

The scale bars near the base of all 3 images represent 0.25 mm. Micrographs were taken at the National Seed Bank of the Australian National Botanic Gardens. They can be reproduced freely if attributed and linked to the Creative Commons licence CC BY.

Some of the information above came from websites, including Plantnet - plantnet.rbgsyd.nsw.gov.au and ALA - www.ala.org.au

Eragrostis parviflora, Weeping Lovegrass

Tributes to Alec Costin

Those who are familiar with the Monaro and the High Country will be familiar with the name of Alec Costin, even if they never met him in the flesh. A number of people sent comments on Alec who died on 22 August 2022, aged ninety-six.

Geoff Robertson

In my early days with Friends of Grasslands, when I was trying to get my head around grasslands, someone gave me good advice. Essential reading he said was A. B. Costin's *A Study of the Ecosystems of the Monaro Region of New South Wales with Special Reference to Soil Erosion,* 1954, and Keith Hancock's *Discovering Monaro: A Study of Man's Impact on his Environment*, 1972.

It took some time to track these books down. I finally found two copies of Costin's book in the second hand book shop in Lyneham, one in good condition and other tattered. Not believing my good fortune I quickly took the better copy from the shelf. I then noticed that the face of the person beside me dropped and he explained that he had also planned to take that copy. I was only a second ahead of him. A conversation quickly discovered our mutual interest and I settled for the tattered copy - it was also much cheaper.

That very day I began to read it. It was absolutely fascinating, bringing many strands of ecology together, and the Monaro vegetation in particular. So many matters were so well explained by Costin. I considered it was a foundation on which I built my understanding of grasslands, ecology, ecological processes, the history of vegetation on the Monaro since the last ice age - I still often refer to his book and pass on his learning. I treasure my tattered copy.

I often heard mention of Costin's name and stories about him. What I read and learnt about him conjured up an image of this absolutely fabulous scientist, spending much time in these parts and setting the foundation for the study and understanding of ecology in this country. His book, based on extremely solid research, took many years to be published, presenting him with a major challenge. Thank the lord he persisted.

I never met the man but I felt I knew him. I came across a fabulous long interview with him by David Salt in 2006 on the Australian Academy of Science Website. Here is the link: Costin interview by David Salt. Amongst other matters, Alec mention his time at ANU working with the likes of Frank Fenner, but the one that is a stand out to me is Nugget Coombs, who for me was an outstanding economist and human being - Alec describes Nugget as a "great bloke" who "has helped me a lot in my life, particularly in my scientific life".

Alec Costin was a soil ecologist by training - my first job in the public service was working in the mail room for the Department of Soils in the NSW government. I left that job before I began my full-time university studies. I thought at least that I had something in common with this great man. I also eventually acquired a copy of Hancock's book.

Klaus Hueneke

In memory of Alec Costin who after a long and fruitful innings (90+) and an avalanche of botanical and ecological activity In my book *People of the Australian High Country* (1994), I described him as a mountain god with flowing blonde hair. Now he is really up there with the others.

Here are a few glimpses, just quickly off the cuff.

At Macquarie Uni in the 1960s I read that he and Dane Wimbush were interested in the impact of Snowgums on snow retention and water release. They built various water-funnelling contraptions out of sheet metal and located them at different elevations in different habitats. A device at the bottom measured the amount of water released over subsequent months. They soon discovered that Snowgums increased the total amount of snow retained and helped to release moisture slowly. In time, probably a couple of decades, Thredbo management, amongst others, took note and actually replanted trees so that ski runs weren't so wide.

In a course on Land Management I must have first heard of *Ecosystems of the Monaro*, a study called 'monumental and groundbreaking 'whenever it is mentioned. He laboured over it as a young man in the 1940s and 50s. Many years later someone whispered, 'There's a box full of bound copies at the Soil Conservation Service '(NSW). I think I bought it for a song and later, at a time of porridge three times a day, sold it at a much needed profit. Thanks Alec.

Somehow I was good enough for an Honours degree but - what to study? I thought of Geoff Mosley and Alec Costin. They should be able to direct a young idealist. Arriving in Canberra I spoke to Alec's wife, a doctor, who said Alec was too sick to see me. Oh no, alas. Geoff did see me further down the highway in Melbourne. I ended up writing about conservation matters in the Sydney Region. I never learnt why Alec was sick from time to time. Probably too conscientious, perhaps overworked.

At this time I led a walk from Kossie over Townsend, Carruthers and Twynam to Jagungal and back, and stumbled across the clover plantings, wire netting and water re-directing ditches he and others built up and down those severely eroding elephants. Many tons of precious topsoil had gone down the creek during the grazing era, or more accurately, the over-grazing era. He and staff stayed in what became known as the Soil Conservation Hut or down in stone cottages at Waste Point.

In the 1980s I was again looking for a suitable thesis topic and hit on the idea of an environmental history of the Snowy Scheme. It slowly morphed into a closer look at the greening of the high country. As part of this I took numerous historic photos into the high country, found the exact place where they were taken and took the photo again. The change since the 1939 fire filled me with great hope. This was when I actually met Alec in the flesh so to speak. He was generous with time and ideas, and quite exacting, even a bit testy, when I spoke in scientific terms (no common species names here). We spoke about his and Dane's conservation work at Daners Gap and in no time Dane came up with a complete set of the before and after photos they'd taken. Very useful. Thank you, once again. In the 1990s I was travelling through Bodalla a lot. I'd heard he came from there, and near retirement had bought a farm close to old stomping grounds. People told me the Costin name was well known in the district and so it was. By then I knew he'd had six children, three of whom were triplets I think. One of them was Acacia living in Thredbo. I'd read one of her books about wild horses and finally met her in 2019. She told me Alec had recently moved to a house overlooking marvellous and crystal clear Wagonga Inlet at Narooma. He'd inherited an enormous library and was wading through it one book, one careful thought at a time. She said, 'Go and see him'. Alas, I was too shy, too inhibited, and truth be known, a little afraid. He was a god after all.

I forgot to mention the item Alec is best known for: the definitive *Kosciusko Alpine Flora*, now unfortunately out of print. It was a four-authors effort by Costin, Dane Wimbush, Max Gray, and Colin Totterdell who took the superb photos. They too have passed on. The book was a constant seller for my Tabletop Press. Thank you Alec for the third time.

Rainer Rehwinkel

Alec's influences in conservation are still current. I used the 'Vegetation Map' in Alec's landmark study of the ecosystems of the Monaro to prepare the first digitised map of grassland boundaries in the late 1990s. That work has echoed down to the present time and has enabled us to understand the extent of natural grasslands in the Monaro and Molonglo regions.

Stephen Horn

A Study of the Ecosystems of the Monaro Region (1954, CSIRO Publishing) all 850 pages of it, has pride of place on my shelves. Alec Costin's passing should be noted in the grasslands community.

Jenny Horsfield

The following paragraphs are taken from my book *Native grasslands and the people who care for them*.

Alec Costin has had an influential role in Australia as a research scientist, as an early supporter of the Australian Conservation Foundation, and as a passionate communicator to the public on the value of science in policy decisions about land use. Probably his best-known book is Kosciusko Alpine Flora, written in collaboration with Max Gray, Colin Totterdell and Dane Wimbush. The book was published in 1979 to mark the 50th anniversary of the Division of Plant Industry, one of CSIRO's longest established research groups. The book aimed 'to combine scientific merit and popular appeal' and expressed the hope that '[in] sharing the results of our enthusiasm and experience with others – and by trying to present the beauty as well as the science – we trust that they too will come to understand and appreciate this unique and wonderful flora and in doing so, become committed to conserving it'.

The book lives up to this noble aim, combining a detailed taxonomic section on the 200 alpine plant species, expert maps of the main alpine vegetation communities and geological features, stunning and dramatic photographs of the alpine landscape, and individual colour plates for each of the 200 species with reference to their common names, growth forms and habitats.

Costin points out the major contribution that the great botanist Baron Von Mueller made to the knowledge of Australian plants both through his own exploration and collecting, and in his correspondence with the scientific community in England which provided the basis of the seven-volume Flora Australiensis of George Bentham in the 1860s. It might be said that Costin and his colleagues carried on that proud tradition with their own research and publications.

In the 1950s Costin saw at first hand the impact that grazing was having in the alpine region. He made the dry observation, 'In Mueller's day the Australian flora excited the interest of scientists throughout the world. But in that time in Australia, with its pastoral economy, the main interest in native flora was as a feed for livestock.'

After grazing was withdrawn from the Kosciuszko alpine area in 1944, Costin and his colleagues began to trace the slow recovery of much of the area, though in the 1970s he found 'sheet erosion near Mt Twynam still active despite the cessation of grazing over 30 years ago'. Some of the colour photographs in Alpine Flora are a celebration of a landscape undergoing spectacular recovery, with mass spring and summer flowering in steep herbfields above the glacial lakes. And a photograph of the cross-section of a dwarf Mountain Plum Pine indicates that this species can live for several hundred years - though many were lost in the area through past burning practices.

COSTIN AM
ALEC, BAILLIE
30/09/1925 – 22/08/2022

Most loved husband of Margaret (dec).
Adored husband of Beryl (dec).
Loved father and father-in-law of Jane, Ian, Richard, Annabelle, Annie, Rosemary, Will, Paul (dec) Francesca, Acacia and special friend & son-in-law of Peter. Loved brother of Noelene (dec), Grandad to Reuben, Mathew, Nathan (dec) Micah & Anna-Rose, Joel & Helen.
Special uncle and uncle-in-law to Peter, Judy, Michael, Tanja, Chris, Jennifer and grand-uncle to Jeremy. Treasured friend of many and always Alec's close neighbours.
Mentor & inspiration to generations of mountain ecologists. Protector of the mountains, soils and the natural environment. Keen observer and life-long, lover of nature.
Friend to all creatures great and small, native and non-native, especially his beautiful dog Bella (dec).

Alec's family would like to thank the kind and compassionate staff at IRT Home Care, especially Carnie, his close friend Karleen and the wonderful staff at Moruya Hospital.

Alec's wishes were for a small and private funeral. A Tribute Gathering will be held in Canberra towards the end of September to honour Alec Costin's contribution to science, nature and the protection of the environment, especially the Australian Alps.

Crace Grasslands Nature Reserve Visit

Trevor Preston

About 4 years ago when I began logging sightings onto Canberra Nature Map I realised that our grasslands were under-represented, so I began a crusade to document local grassland reserves. When I first visited in 2019 these areas were dry but had rich native grassland flora with stunning displays of wildflowers especially in spring and summer. I fell in love with these wild and under-appreciated places.

I had heard there were some well-preserved areas in Crace grasslands that included the rare Button Wrinklewort (*Rutidosis leptorhynchoides*), but I had no idea where they were. Looking from the outside as you drive around Crace grasslands you can see a Canberra Organic Growers' garden, Belconnen Model Aero Club, piles of timber, power lines, rows of planted trees, grazing cattle, and a lot of exotic grass. I wondered if this was even a real reserve! Thankfully I thought to ask Margaret Ning where I needed to go to find what I was looking for, and with that help I was able to find absolutely

Button Wrinklewort
(*Rutidosis leptorhynchoides*)

stunning areas of native grassland wildflowers including the area of Button Wrinkleworts which is really something special.

Since the second half of 2020 rains have given this reserve a new lease of life, along with a succession of weeds. Among the worst of them is Phalaris (*Phalaris aquatica*) which has encroached closer and closer to the areas rich in wildflowers, and in some cases smothered them out. I was quite worried about the long-term effects on this beautiful reserve. I voiced my concerns to Margaret, who was able to organise a meeting on site attended by myself, Margaret, Sarah, Andrew, and Kym Birgan and Wade Young from ACT Parks and Conservation Service. We were able to observe the spread of Phalaris, and an incursion of Chilean Needlegrass (*Nassella neesiana*) was also identified in the Button Wrinklewort area. Wade and Kym told us about the weed control and surveying that have been done in this grassland by ACT Parks and Conservation, and future needs of the reserve were discussed including consideration of a cool-weather mosaic burn in 2023. Spraying is problematic in an area close to the array of native herbaceous species within the critically-endangered grassland, and the wet weather has been an ongoing challenge over the last two years. However Wade and Kym have managed to set up a small trial to test the effectiveness of the Chilean Needlegrass control and to ensure its minimal effect on native grassland plants. Hopefully this will be successful so further protection can be implemented.

Crace Grassland Nature Reserve is well worth a visit, especially from October through to January. There are several ways in, the easiest is to follow Hoskins Street Mitchell southwards and just before it veers 90 degrees turn down the little unnamed road that goes past the COG's Mitchell Community Garden. You can park at the end near the cattle yards. From there, if you walk around to the far side of Belconnen Model Aero Club you will find a stunning patch of native grassland flora. The rocky ridges are all worth a visit as well.

Crace Grasslands Sightings can be seen on Canberra Nature Map https://canberra.naturemapr.org/locations/sightings/105

Thanks to all who made the time for this on-site meeting, to Margaret for organising it, and a special thanks to Wade and Kym from ACT Parks and Conservation Service. We look forward to further cooperation with them to keep this wonderful place protected.

Some species to keep an eye out for
Synemon plana (Golden Sun Moth)
Delma impar (Striped Legless Lizard)
Menetia greyii (Grey's Skink)
Perunga ochracea (Perunga grasshopper)
Flora
Arthropodium fimbriatum (Nodding Chocolate Lily)
Bossiaea buxifolia (Matted Bossiaea)
Bossiaea prostrata (Creeping Bossiaea)
Bulbine bulbosa (Bulbine Lily)
Caesia calliantha (Blue Grass Lily)
Calocephalus citreus (Lemon Beauty Heads)
Calotis anthemoides (Chamomile Burr-daisy)
Chrysocephalum apiculatum (Common Everlasting)
Convolvulus angustissimus subsp. *angustissimus* (Australian Bindweed)
Cryptandra amara (Bitter Cryptandra)
Cyanicula caerulea (Blue Fingers)
Daviesia genistifolia (Broom Bitter Pea)
Diuris chryseopsis (Golden Moth)
Erodium crinitum (Native Crowfoot)
Eryngium ovinum (Blue Devil)
Goodenia pinnatifida (Scrambled Eggs)
Leptorhynchos squamatus (Scaly Buttons)
Linum marginale (Native Flax)
Pultenaea procumbens (Bush Pea)
Pultenaea subspicata (Low Bush-pea)
Rutidosis leptorhynchoides (Button Wrinklewort)
Tricoryne elatior (Yellow Rush Lily)
Velleia paradoxa (Spur Velleia)
Vittadinia muelleri (Narrow-leafed New Holland Daisy)
Xerochrysum viscosum (Sticky Everlasting)
Zornia dyctiocarpa var. *dyctiocarpa* (Zornia)

Lemon Beauty Heads
Calocephalus citreus

Native Crowfoot
Erodium crinitum

Spur Velleia
Velleia paradoxa

Peach Heath
Lissanthe strigose

Left:
A thallose liverwort
Asterella drummondii

Right:
Scaly Buttons
Leptorhynchos squamatus

FOG Grassy Ecosystem Grants Update

Andrew Zelnik, FOG Supported Projects Sub-committee

First, many thanks to all who have donated to the Grassy Ecosystem Grants program via FOG's Public Fund, and a big thank-you to my FSP Sub-committee colleagues Ken Hodgkinson and newcomers Alice Hathorn and David Johnson for their help with assessing this year's applications - also to Janet Russell, who has stepped back from her involvement this year. Since 2017 she has ably and diligently contributed to the development of the grants process and provided much-needed help with assessments and administration. This year, helped by further widening of our external advertising net, we received seven applications for grants totalling $10,081, well in excess of our $5,000 annual budget maximum. We note that this year's applications appear to have come solely from our external advertising. Two from Victoria concern research on urban under-storey restoration and on-ground revegetation of native grassland. Four from NSW are for drone survey/research, on-ground woody weed control, public education, and creation of a grassland seed production area. One is from a private landholder in Queensland undertaking on-ground native-grass restoration. All applicants have been notified of the outcomes of their applications. Subject to further information from several applicants, the Committee approved our recommendations that grant offers of $1,500 each be made to four applicants, three to be funded from the FOG Public Fund and one from the FOG Publications Account.

The successful applications are as follows:

- Reintroducing grasses and wildflowers to stony knolls at Galgi Ngarrk Grasslands, Craigieburn VIC.
- Aerial survey of Old Cooma Common employing a novel method (drone & AI) to detect Monaro Golden Daisy, Cooma, NSW.
- Construction of a Seed Production Area (SPA) for Grassy Ecosystem species, Deniliquin, NSW.
- Inspiring conservation and wise management of Box Gum Grassy Woodlands in the Gunning area, Gunning NSW.

Acquittal of remaining 2019-2021 grant projects

Since our last update (Mar-Apr issue) the acquittal of remaining grants from 2019, 2020 and 2021 have essentially been completed. There are five 2021 grant projects yet to be acquitted. Three of these (two PhD research projects and STEP) have been directly impacted by the past year's high levels of rainfall, pushing forward completion dates into 2023. STEP has had to redirect efforts to the repair of their site at the National Arboretum following major rain damage earlier this year. The weed-control project in the remnant woodlands at Mundulla Common in SA appears to be on track for completion in late 2022. The interpretive signage project for Monash Grassland here in the ACT has also experienced delays but is likely to be completed in early 2023. Articles on these projects will appear in forthcoming issues of the newsletter. For more information about all grant projects see the list on our website at http://www.fog.org.au/supportedprojectslist.htm.

Help wanted

We need help to run our grants program in its administration and in generating ideas for improvement. All contributions will be gratefully received. If you would like to help out, please contact me at andrew.zelnik@fog.org.au

The Gallery of Grasses at STEP

Wal Kelman

This article is reprinted, with permission, from the September 2022 issue of the STEP newsletter.

The Gallery of Grasses project began in July 2020. Its aim is to demonstrate the diversity of our collection at STEP by planting out rows of spaced plants so that the diversity of the species can be compared.

At present we have 20 species. These encompass 5 sub-families and 8 tribes in the classification of the grass family (Poaceae), already a good representation of the native grasses of the Southern Tablelands of NSW.

Grasses in their pre-flowering (vegetative) phase have a similar structure - a bunch of stems (tillers) and generally narrow elongate leaves. However, when in flower the diversity of flowerhead (inflorescence) types (eg spikes, racemes and panicles, spathes) and arrangement of the flower groups (spikelets) and the characteristics of the flowers themselves (glumes, lemmas, paleas and awns) and of the seed (caryopsis) are used in the classification of grasses. So, the familiar Kangaroo Grass *(Themeda triandra)* has a spatheate inflorescence (two reddish bracts at the base of the spikelet) and a spikelet of 7 flowers, 6 of which are male flowers producing pollen, and a single, awned bi-sexual floret that produces a seed.

One can speculate as to why this arrangement is fitting. Grasses are predominantly open- or wind-pollinated, in contrast to many other flowering plants in which insects or birds carry pollen between flowers, a more directed process. The spread of grass-pollen for seed-production is a more undirected process and therefore requires more pollen to ensure fertilisation.

The collection also demonstrates a further distinction - that between the pre-flowering phase when grasses look the same, and flowering, when grasses display a wide range of flower arrangements In the collection we have relatively simple paniculate grasses like the Austrostipa (Spear grasses) and Paa that have single florets in the spikelet, next to more complex arrangements like that in *Themeda triandra* (Kangaroo Grass).

Other divisions among grasses may also be evident when they are grown together. Species like the Austrostipa tend to develop earlier in the season ie. flower in spring and are generally dormant in summer. This contrasts with the later, summer flowering species like *Themeda* and *Bothriochloa*

Family: Poaceae

Subfamily (Ps type)	Tribe	*Species*
Pooideae (C3)	Aveneae	*Dichelachne crinita*
	Poeae	*Paa labillardierei*
		Paa sieberiana
		Paa induta
		Paa ensiformis
		Austrostipa bigenicu/ata
	Stipeae	*Austrostipa scabra*
		Austrostipa densiflora
Ehrhartoideae (C3)	Ehrharteae	*Microlaena stipoides*
Danthonioideae (C3)	Danthonieae	*Rytidosperma caespitosa*
		Rytidosperma carphoides
		Rytidosperma pallidum
		Rytidosperma pi/osum
Chloridoideae (C4)	Pappophoreae	*Enneagon nigricans*
	Cynodonteae	*Chloris truncata*
		Sporobo/us creber
Panicoideae (C4)	Andropogoneae	*Sorghum /eioc/adum*
		Bothriochloa macro
		Cymbopogon refractus
		Themeda triandra

This is how our present collection of grasses fits into the broad classification of the family

A further distinction related to the above is that between what are termed "C3" and "C4" grasses. C3 grasses have a default biochemical pathway of incorporation of CO2 into the plant (C3 referring to the fact that CO2 is incorporated into compound with 3 carbons), while in C4 grasses have a "turbo-powered" photosynthetic pathway, in which CO2 first appears in a 4-carbon compound. The C4 grasses have a specialised leaf anatomy that has the effect of maintaining high CO2 levels in the leaf, and that in its turn leads to higher photosynthetic efficiency than in C3 grasses.

The details of the C4 pathway, now a basic element in the grass story on the planet, was first elucidated by two CSIRO scientists working in Canberra in the 1960's.

The C4 pathway has evolved many times in plants and is thought to have arisen in

response to survival under moisture stress and changing atmospheric CO2 levels. The C3-C4 distinction is also related to the geographic distribution of grasses in Australia. The grass flora of the hotter, sub-tropical and tropical regions of central and northern Australia is predominantly C4 *(Astrebla, Eragrostis, Sporobolus)* while the cooler, temperate regions of southern Australia is mainly C3 *(Austrostipa, Rytidosperma, Poa).*

We hope to expand the collection in the future through seed collection and propagation, and supply from native plant nurseries such as Cool Country Natives.

Top Hut TSR Update - With an Eye on the Future!

Margaret Ning

Sunday 25 September at Top Hut Travelling Stock Reserve (TSR) was a very interesting day. First impressions were of a distinct green tinge across the approximate 7ha southern part of the TSR that had undergone the ecological burn six weeks earlier. There was no apparent ash on the site, which was no surprise as there had been quite a few falls of rain over those weeks. Consequently, the spring forbs and grasses were already growing well, and a handful were already flowering, viz *Ranunculus lappaceus, Hovea heterophylla, Cymbopogon* sp, *Leucochrysum albicans*, an early *Craspedia variabilis*, *Pimelea* sp., *Cryptandra amara, Leucopogon fraseri, Dillwynia prostrata*, and *Calotis glandulosa*. But sadly, so were the weeds powering away, essentially enjoying the small amount of inter-tussock space that had been created by the fire.

The *Grassland Flora* cover view post-fire. Photo: Aaron Midson

We embarked on a few weeding tasks which enabled us to get a better feel for the site, and over lunch there was much conversation when the seven of us discussed 'what next'. We speculated that In a year's time, more biomass control was likely to be needed as the veg is already growing well, and there is the very real prospect of a third La Niña year. We agreed on the need for immediate follow-up spraying, in order to take advantage of the reduced biomass which means that the weeds are currently more visible and require less chemical. Because the site is of such high quality, we thought spraying would best be done by bush regenerators with back packs.

Asking around, we think that we can interest a couple of bush regenerators in what is needed to be done at the site while the targets stand out and are at their smallest. A couple of us who normally volunteer at the working bees would be available to supervise the team. Looking at our Top Hut coffers, which have received a total of $1650 in public fund donations so far, we have now paid for three of the five annual LLS lease payments (3 x $150), and there are just sufficient funds on hand to cover a team of two bush regenerators to do two days work each on the site.

The FOG committee has agreed to this expenditure, and plans are proceeding to engage the bush regen team.

Of course, it would be wonderful if further donations to the public fund were received, that could be used to pay for other periods of bush regen spraying over the next few months. The timing is perfect as far as the emerging vegetation is concerned, and future donations could be used immediately on the site, and would buy time until a larger grant could be sought from the NSW Environment Trust in a year's time. This grant would pay a small team of bush regenerators to spot spray **all** weeds on the site, in order to 'restore and rehabilitate'. Funding for improved fencing would also be sought, as well as for some buffer spraying to help to maintain the quality of this iconic Monaro site. There are encroaching Nodding Thistles on all sides!

Experimentation in the broom patch. Photo Andrew Zelnik

It is a pleasure to contribute to the wellbeing of this special site, but it can become frustrating when it is impossible for our small team to keep pace with what is going on there. The reward for being able to achieve some of our plans for the site in the near future is very alluring.

Donations

FOG uses donations to fund various projects such as Top Hut TSR, and other on-ground projects such as the Grassy Ecosystem Grants. You can make a tax-deductible donation to the FOG Public Fund:

Direct debit: BSB 633 000, A/c 15343960 (Bendigo Bank).
Please include your name and notify our Treasurer(treasurer@fog.org.au) to receive your tax-deductible receipt

Or Cheque: payable to 'Friends of Grasslands Public Fund', mailed to Treasurer, Friends of Grasslands Inc., PO Box 440, Jamison Centre, ACT 2614. Include your name and postal address to receive your tax-deductable receipt

You can include your preference for use, if any, when you make your donation. By law the final decision on the use of tax-deductible donations to the FOG Public Fund rests with the FOG Public Fund Management Committee. Donations to the Public Fund of $2.00 or more are tax-deductible".

Recent FoG Events

Burn at Top Hut

Emily Sutcliffe

On Tuesday 9 August an ecological burn was carried out in the south paddock of Top Hut Travelling Stock Reserve. Three members from FOG travelled down on the day to watch and walk through the ash afterwards, planning for spring.

The burn was organised primarily by Leon Miners and David Eddy of South East Local Land Services (LLS), and Rob Armstrong from NSW Department of Planning and Environment. Its purpose was to reduce biomass for the Monaro Grassland Earless Dragon (GED) *Tympanocryptis osbornei*, which struggle to move around in dense, high grass. The Monaro GED is listed as endangered in NSW under the Biodiversity Conservation Act 2016 and its population appears to be in decline. Research has shown that GED prefer a more open grassland with shorter grass. This knowledge, combined with the input of experts on GEDs and grassland ecology, spurred the push for a burn at Top Hut as the best option before the dragons emerge in the warming weather.

A fire team from NSW NPWS conducted the burn, with help from LLS. They started out by wetting down fence lines and brush-cutting the grass, in some areas to remove the risk to the fence and surrounding properties.

There was a slight wind mostly from the southeast, and the fire team chose to start along the north-eastern fence which borders the road, then let the fire burn slowly downhill and north-westwards into the wind. It took around 3.5 hours to burn around 6.3 ha of the approximately 7.5 ha paddock.

Even though the day was cold, and there had been 50mm of rain in the area a few days before, the grass canopy was dry and burnt well, if a little slowly for us excited onlookers. Almost the whole of the southern paddock was burnt, even the wet drainage line. Only the rocky outcrop areas with low biomass and some areas around wombat holes did not burn. Everyone there on the day, especially the experts, were very happy with the outcome.

As the burn progressed we were allowed to walk through the ash-covered grass. The fire burnt off to around 50mm above the ground with burnt Poa tussocks around 100-150mm in height, and most of the forbs did not appear to be affected. Exceptions to this were some *Bulbine glauca* and something unidentifiable. Removing the tall grasses also revealed a greater dominance of Poa tussocks, more *Discaria pubescens* and many very green *Luzula*. We could

also see where the wombat trails were, as they had burned slightly less. Some jobs identified for spring working bees were the broom outbreaks on either side of the road, some *Potentilla* and St John's Wort, a sweet vernal grass clump near the access gate and hopefully a full on flat-weed armageddon.

The word of the day was 'lodged', which describes the grass when the seed heads have fallen over - this can change the way the fire behaves.

All photos by Andrew Zelnik.

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FOG at ParkCare Display, Jamison Plaza, Macquarie, ACT

Andrew Zelnik

Once again FOG took part in the joint ParkCare display at Jamison Plaza, from Friday 16th to Sunday 18th September 2022. Initiated in 2011 by Jean Geue, FOG member and long-term member of Friends of Aranda Bushland (FoAB), this annual display showcases the aims and achievements of local bush-care groups and other conservation organisations. FOG has participated every year except 2021 when it was cancelled. The organiser of this year's event was Linda Beveridge, convenor of Friends of Black Mountain (FoBM). Also present with displays were ACT Parks and Conservation's ParkCare team, FoAB, Friends of the Pinnacle, Friends of Mount Painter, STEP, and Ginninderra Catchment Group.

The various Parkcare group displays viewed from the FOG display end.

I helped Geoff Robertson to coordinate FOG's display. We used the existing excellent information posters developed by Geoff and David Eddy, plus more images and maps to illustrate the current range and locations of FOG's on-ground activities and project sites in the ACT and NSW (Monaro). We emphasised the list of Grassy Ecosystem Grants awarded since 2017 and the latest 'Celebrate Threatened Native Grasslands (CTNG)' poster, which stirred much interest. Most of the 20cm x 40cm give-aways were snapped up and we sold some of the larger 30cm x 60cm versions of the poster along with a few copies of *Grassland Flora* and *Woodland Flora*.

Through our display FOG engaged with many passing members of the public, even when neither Geoff nor I were there. The display coordinator, Linda Beveridge, later congratulated Geoff "…on the interest shown by visitors in your group's role and activities.". Also of great benefit to FOG were the conversations and renewal of ties with members of other display groups including ACT Government staff, especially Marty Bajt of the ParkCare team, and the several grassland reserve rangers who dropped in. Not surprisingly we also crossed paths with other FOG members wearing their volunteering hats at other group displays.

Jean Geue, seen here checking out the other side of FOG's display board.

FOG's visit to burn sites, Budjan Galindji and Gungahlin Hill

Margaret Ning

In the afternoon of Saturday 27 August, a group of 14 FOG members visited a couple of local sites that had undergone deliberate burns earlier in the year. Budjan Galindji Nature Reserve, formerly known as Franklin Grasslands Nature Reserve, formerly known as North Mitchell Grassland, underwent an ecological burn, organised by the Offsets group, on 21 March 2022. Our second destination was Gungahlin Hill which had a hazard reduction burn in early April 2022.

At Budjan Galindji (BG) we know our south-east corner site rather intimately, and were well aware that there was a lot of Kangaroo Grass (*Themeda triandra*), and extensive areas of Phalaris, Cocksfoot (*Dactylis glomerata*), Paspalum and Fog Grass (*Holcus lanatus*), with random occasional patches of native forbs there before the fire.

Following the fire, we were absolutely amazed at the early emergence of Blue Devil (*Eryngium ovinum)*, Variable Plantain (*Plantago varia)*, Bindweed (*Convolvulus angustissimus*), along with large areas of Common Everlasting (*Chrysocephalum apiculatum*) and Lemon Beauty Heads (*Calocephalus citreus*). Obviously the exotics also started their regeneration very early too, and, as we wandered around, we could easily see where exotic grasses and forbs had been sprayed since the burn. It was good to see how less chemical was being used on the

weeds because they were greatly reduced in size by the fire.

Lots of interest in what's happening at BG. Photo: Andrew Zelnik

Over time it has become easier to ID new species (both native and exotic) as they emerge at BG, and we are quite excited about a handful that were not previously on species lists for the site (Vanilla Lily (*Arthropodium milleflorum*), *Arthropodium* sp. (could be *A. fimbriatum or A. minus,* Scaly Buttons (*Leptorhynchos squamatus*), Kidney Weed (*Dichondra repens*), Rock Fern (*Cheilanthes* sp.) and others that we hadn't seen there before (Sundew (*Drosera hookeri*). We enjoyed showing them off as we walked around.

At Gungahlin Hill, just off the Barton Highway near Crace, we went in a little blind as to what had been happening at the site over the last two years of La Niña. The hazard reduction burn in early April had been quite hot in places, and as we wandered around the fire area and the areas immediately adjacent to it, we tried to see if there was anything obvious happening. However we realised that we didn't have enough knowledge to make any conclusions. The good news is that because the area is a virtually weed-free area of forest in Canberra Nature Park, there is no need for follow up weed control there.

Gungahlin Hill – note burnt shrubs and tree leaf scorching high above the ground. Photo Andrew Zelnik

And that is the difference between the two sites. One requires extensive follow-up weed control because of the high weed composition there, and the other doesn't. Thanks to the diligent and hard working Budjan Galindji Parkcare group that meets twice a month, BG is receiving the attention it deserves.

Postscript - 3 October BG had around 30 Early Nancy (*Wurmbea dioica*) adorning it, another 'not on the species list' species that has emerged!!

Gurubung Dhauru Work Party

Jamie Pittock

On 18th September 15 FOG volunteers gathered to restore the Haines Creek corridor in Gurubung Dhaura (Stirling) Park following earlier weed control. Some 240 grasses and rushes were planted along creek banks. Earlier FOG plantings are thriving with River Tussock and Spiny Matt Rush beginning to stabilise bare and weedy banks.

Work at Hall Cemetery

John Fitz Gerald

On Saturday 1 October, seven volunteers turned out on a cool and damp morning for the spring session of weeding in the cemetery woodland. A total of 18 hours of work was completed, mostly pulling up some of what is basically an ocean of weeds - most action was on Cleavers, Fog Grass and Ribwort Plantain.

We were pleased to find that our Sow-thistle work from last season has been highly successful with just a few plants needing to be pulled this time.

Unfortunately, the exotic grasses are really growing fast and ready to produce many flower stems.

Andrew Zelnik had his camera at the ready to capture a few scenes. He also notes from a second visit on the following (warmer) day that Eastern Brown snakes are out and about.

A team pulling Cleavers and hanging them on Acacia stems for drying. A special welcome to new volunteers Vivian and Hugh in the background of Andrew's photo

Andrew's impressive photo of a brown snake at the Cemetery

News Roundup

Court confirms that clearing of grassland was illegal

Geoff Robertson

Our newsletter has followed the saga of Jam Land, a company owned by Richard and Angus Taylor, which cleared up to 28.5 hectares of natural temperate grasslands on a property in Corrowong in southern NSW in 2017.

An article by Lisa Cox in *The Guardian* (*Court upholds finding that company part-owned by Angus Taylor illegally cleared grasslands,*12th September 2022) reports on recent developments as follows. In 2020, three-and-a-half years after Jam Land sprayed herbicide on the property, an investigation by the Federal Department of the Environment (FDE) concluded that the grasslands had been removed illegally and Minister Susan Ley ordered Jam Land to restore 103 hectares (254 acres) of grasslands on another part of the property. Jam Land sought a judicial review in December last. The applicants had raised three issues, including that the grasslands had not been validly listed under national environmental laws; and that the government had failed to specify "with sufficient precision" what action was required to repair or mitigate the damage.

On 6th September, Justice Michael Lee dismissed the application and ordered Jam Land to pay the Government's costs. Following the judgement Jam Land had 28 days to consider whether it wished to appeal against the decision to the full federal court.

Some of the bizarre features of this case are indicated by the statement that "Angus Taylor sought meetings with senior environment officials and the office of the then-environment minister Josh Frydenberg about the grasslands while the investigation was under way. Documents released to *The Guardian* under freedom of information laws in 2019 revealed that Frydenberg's office subsequently sought advice about whether laws protecting grasslands could be changed. Other documents sought by *The Guardian Australia* are the subject of an ongoing freedom of information case in the Administrative Appeals Tribunal."

All this illustrates the need for stronger Federal Government action to protect critically endangered ecological communities. In this case it took a long time for the FDE to take action, its penalty was a little vague, and there was no fine. We need to do better. The laws protecting our biodiversity need to be stronger in future.

More details of the decision may be found in the above article by Lisa Cox found here. I am very grateful to Lisa and to *The Guardian* which has doggedly followed up and reported on this issue - largely ignored by other media. The case was also reported by Miklos Bolza (AAP) under the heading *Angus Taylor's firm has to fix eco-damage* in the Crime topics in *The Western Australian* found here.

ACT City Services aims to increase its tree-planting quota

The article summarised below appeared in the Canberra Times on 10 September 2022

City Services aims to increase the urban canopy by planting 18,000 trees this year. Planting fell short last year with 9,888 trees in the ground, with about 5 per cent expected to perish. City Services manager Daniel Iglesias says there are a number of reasons why trees may not be successful but as we learn more the success rate will improve. Additional contractors are being procured to almost double planting right across Canberra for the 2022-2023 season, with a focus on sparsely-covered suburbs. Mr Iglesias told a recent Senate estimates hearing: "We are focusing on areas which have low canopy cover, where we can get the best bang for our buck".

Friends of Grasslands' Aaron Midson and Sarah Sharp want a considered approach to planting to ensure it doesn't harm grasslands. Picture by Elesa Kurtz

While the ACT's ambitious plan for 30 per cent urban tree-canopy cover by 2045 has been broadly welcomed (see CT article of 25th September 2021 by Steve Evans, 'Tree-planting plan allocated for Canberra in the ACT budget', on the city's aim to reach the goal of 54,000 new trees by 2024), conservationists have warned that poorly planned plantings can do damage. Friends of Grasslands president Jamie Pittock says the right trees in the right places have many benefits, including sequestering carbon and conserving biodiversity, but that tree-planting must include other components of ecosystem restoration such as herbaceous and shrub species and timber and rocks to increase benefits for wildlife. Professor Pittock says that while City Services have responded to concerns about the potential impact on indigenous biodiversity, more checks are needed to ensure trees are planted in the best places. "There have been some instances of trees being planted in places that could negatively impact indigenous biodiversity," he says."The choice of species planted, spacing of plantings and the diversity of species planted could be enhanced." He says that Friends of Grasslands is surprised that counting has only included actively planted trees, omitting trees naturally regenerated as a result of better management practices such as reduced mowing. "The target could usefully be broadened beyond trees to embrace further conservation of native grassland and grassy woodlands in our city," says Professor Pittock. "This would involve better conservation of remnant habitats outside the formal ACT park system and more emphasis on restoration of ecosystems that expand and link remnant habitats."

City Services has been working with community groups from across all five districts in Canberra to enhance the urban forest. Picture by Robert Triggs

ANU professor of natural history and palaeoecology Simon Haberle says that simply setting targets is not enough. Variety and diversity of species across the urban landscape need to be considered. "We know that increased diversity of tree planting can help reduce the impact of airborne allergies from tree pollen. Shifting the species selected to be more in favour of non-allergenic trees will also be important in the long term planting plan for the ACT," he says.

Invasive Species & The Lawson Grasslands

Jamie Pittock

FOG engages politicians from all mainstream political parties to seek their support for conservation of grassy ecosystems. On 6 September, Senator David Pocock made a number of welcome contributions in the Senate, saying:

"*Invasive species are wreaking havoc on Australia's ecosystems and threatening our biodiversity. There are huge costs not only to our biodiversity but to our farmers and our economy, costing at least $25 billion a year. We have let the destructive influence of invasive species into our country and now we are dealing with the costs. Invasives are threatening 1,267 Australian native plants and animals, and 82 per cent of all of our threatened species are being pushed towards extinction by invasive species. Australian mammals now represent more than a third of all mammals that have become extinct across the globe since the year 1500. The recent State of the Environment report was clear: invasive species are putting pressure on Australia's biodiversity, and these pressures look set to continue and increase in the future.*

We need to act swiftly if we are to halt this decline. In the ACT, action groups are working hard against ongoing extinctions. Members of my community have raised concerns about the development of grassy woodlands at North Lawson in the ACT and the impact this could have on endangered threatened species such as the golden sun moth. It is important to protect habitat where it still exists, and submissions for consideration under the EPBC Act close tomorrow. I look forward to helping ensure that our new environmental laws actually address the concerns of everyday Australians about the way that we are protecting and looking after our natural heritage".

FOG looks forward to reporting similar positive contributions from other political leaders promoting conservation of grassy ecosystems.

Conservation Council Update

Geoff Robertson

It is always sad when someone moves on, especially as a relationship has been built up and a lot of momentum generated. Helen Oakey, Conservation Council Executive Director, has provided excellent leadership to the Conservation Council. She is an example of someone who is very focussed, energetic, and has a keen eye for outcomes. Our relationship was built up while I was still president of FOG and continued during the campaign on Lawson north. She has put tremendous energy into this, taking on a large share of the responsibility, and building support around a challenging, complex and difficult issue. Her successor will have a great example to follow.

Sarah Sharp

I have worked closely with Helen Oakey over the past three years as a member of the Biodiversity Working Group. During that time there has been a strong focus on strategic biodiversity outcomes, including development of priorities. These were used for promotion for the ACT elections, and we were very pleased to see that many of these priorities were recognised and acknowledged as key matters for the elected government. Since then there has been a strong focus in the BWG to further these priorities. In particular, close to my heart, I have been working closely with Helen and others to develop a proposal to introduce a Biodiversity Network in the ACT, an approach aimed at improving conservation management on all lands of ecological value, as well as to seek better legislative protection of areas that are not in the reserve system. Additionally, as Geoff has highlighted, FOG has worked closely with Helen and the Conservation Council on other matters. I will personally miss working with Helen, but look forward to ongoing collaboration with the Conservation Council.

Meeting with the Department of Environment

Geoff Robertson

On 21 September members of FOG met with staff of the Commonwealth Department for the Environment to discuss concerns over the proposed northern road at Canberra International Airport, where approval has been given to construct the "north road" which would bisect habitat for the critically endangered Canberra Grassland Earless Dragon. FOG opposes the road and has written to Ministers for the Environment, copies to other relevant ministers, several times expressing its concerns.

The meeting was also used to discuss FOG's submission on Lawson North — readers will be well aware of FOG's and others' position on this issue (see FOG's special bulletin 1 Sept circulated to members).

Discussions were honest and open. Departmental staff were receptive to FOG's arguments. We learnt that the Department respects FOG's submissions as they are dispassionate and well researched.

Threatened Species Action Plan: Toward Zero Extinctions

Geoff Robertson

On 4 October the Minister for Environment and Water (Tanya Plibersek) released the *Threatened Species Action Plan: Towards Zero Extinctions.* This Plan 'sets out a pathway for threatened species conservation and recovery over the next 10 years'. It prioritises 110 species and 20 places, and will drive action where it is needed most to deliver flow-on benefits to other threatened plants and animals in the same habitats. The Canberra Grassland Earless Dragon (*Tympanocryptis lineata)* is included in this list. Along with the release of the Plan, it was announced that Key's Matchstick Grasshopper has been listed as endangered.

Environment organisations recapture REO status

Geoff Robertson

On 4 October a joint media release by the Minister for the Environment (Tanya Plibersek) and Assistant Minister for Competition, Charities and Treasury (Andrew Leigh) reinstated eight organisations to the Register of Environmental Organisations (REO). These include Climate for Change Inc, Our Atmosphere Ltd, Veterinarians for Climate Action Ltd, Zero Emissions Noosa Inc, Climate and Environment Foundation, The Bimblebox Alliance Inc, Whitsunday Conservation Council Inc, and Australian Land Conservation Alliance Limited. This means that taxpayers may now claim a deduction for donations of $2 or more to these organisations. The previous government had prevented this — a worrying policy because all environmental organisations need to be able to advocate strongly for their objectives.

Biodiversity certificates

Geoff Robertson

On 26 August a joint media release by the Prime Minister and Minister for Environment announced the creation of biodiversity certificates to increase native habitat and support Australian landholders. It will operate in a similar way to the carbon crediting legislation. According to PM Albanese, the scheme will "…kickstart a nationwide restoration. Our market (scheme) will be open to all land managers – whether they're farmers, people interested in conservation or Indigenous land managers." This is a great initiative. However, such a scheme will need careful monitoring while not placing an unreasonable reporting burden on those who participate in it.

Mountain Skink listed

Geoff Robertson

On 9 August the Minister for the Environment announced that the Mountain Skink *(Liopholis montana)* has been listed as endangered, following the impacts of the 2020 bushfire. Walkers in the mountains should keep an eye out for this rare but delightful skink.

Late news - Lawson North

Geoff Robertson

On 11 October a delegate of the Environment Minister published a determination, made on 7 October, that the Defence Housing Australia (DHA) housing proposal at Lawson north is a controlled action and needs to be assessed through an Environmental Impact Statement (EIS). So, while FOG and others who submitted statements and supporting evidence were not successful in arguing that the proposal is 'clearly unacceptable', the action by Environment suggests that it holds a relatively high degree of concern about the proposal. EIS is a high level of assessment reserved for complex high-profile cases, which Lawson deserves.

FOG wishes to thank all those who made submissions on these matters and/or who have actively supported FOG and the Conservations Council's campaign to stop the destruction of a large area of natural temperate grasslands and woodlands, and habitat for threatened species, at Lawson.

Next the Minister must give DHA written guidelines for the preparation of a draft EIS about the relevant impacts of its proposed action. FOG will ask the delegate that public comment be sought on draft 'tailored' EIS Guidelines. Once the guidelines are finalised DHA will prepare the draft EIS, at which stage there is an opportunity for the public to make further comment. This may all take some time.

The Conservation Council's Executive Director Helen Oakey has stated, with FOG's endorsement, that "We continue to remain concerned that the proposal will receive approval under the EPBC process, and that we must work with DHA and the new Federal Government, including Katy Gallagher, who as Minister for Finance, is the shareholder in DHA, to withdraw the proposal or make significant changes to it, such that it doesn't result in the destruction of 15 hectares of critically-endangered grassland."

Exotic perennial grasses – abating the threat

Sue Ross

A new report *Abating the threat of exotic perennial grasses in native grassy communities in eastern NSW* https://www.environment.nsw.gov.au/topics/animals-and-plants/pest-animals-and-weeds/weeds/widespread-weeds/introduced-grasses/exotic-perennial-grass-reports has been published by the NSW Department of Planning and Environment (DPE). The report, with an overview and four regional reports, is authored by Julia T Rayment and Kris French of the University of Wollongong and Morgan H Brading of NSW DPE. The report is of particular interest because it focuses on the impacts of exotic perennial grasses (EPGs) on native communities of conservation importance, rather than agricultural impacts.

The report provides an interesting and important package of information to guide land managers on prioritising and treating EPGs in threatened ecological communities (TECs). The information includes definitions of EPGs; information about those that are still commercially available as trade-off species commercially viable for agriculture; a risk assessment tool; reports on field surveys and links to key resources for management.

Based on published research, and available as an online resource, this is one of the tools land managers can use to identify which EPGs are of most concern in the land they manage. The tool ranks species in terms of characteristics that facilitate invasion into native areas.

Australia's dismal wildlife species recovery report

Sue Ross & Jamie Pittock

A recent preprint copy of *A report card methodology to showcase progress towards threatened species recovery* has been distributed by the World Wildlife Fund https://www.wwf.org.au/news/news/2022/new-report-card-grades-every-federal-electorate-for-threatened-species-recovery#gs.bhg8de. The report rates federal electorates and includes state, territory and local government areas in the national assessment.

The lead authors are Dr Michelle Ward, conservation scientist with the World Wide Fund for Nature-Australia and Dr Tracy Rout, conservation analyst with WWF-Australia.

The report assesses four indicators: proportion of species with recovery plans, proportion of species with federal funding, proportion of habitat protected, and proportion of species with an improved threat status. The indicators are measurable and scalable and can thus be used by other countries and for other species.

The overall grade for Australia is Fail.

While five (0.3%) species achieved an A for the output indicator threat status improvement, every other species (99.7%) achieved an F.

In the ACT, the federal electorate of Fenner with 74 threatened animal and plant species and Canberra with 33

scored a D for conservation, compared to Bean with 123 threatened species and an E ranking. Across the border, Eden-Monaro with 161 species scored an E too.

The Australian Capital Territory scored the highest of the states and territories in both average grades of the input and output indicators and contained species with the highest proportion of habitat protection and dedicated funding.

While the ACT ranks best among the 8 States and territories, and has good government programs on paper, the limited outcomes highlight how much more could be done to implement effective recovery programs. NSW rated a very poor 5th. The report should spur us all on to seek real threatened species recovery outcomes from our governments.

Federal electorate results can be seen at the interactive *My Backyard* https://www.wwf.org.au/get-involved/my-backyard.

Grass Identification Course with Harry Rose

The National Seedbank at ANBG has organised training courses in Grass Identification in late November 2022. The courses will be run by well-known grass-ID expert and agronomist from Northern NSW, Harry Rose. Harry is the lead author of the NSW DPI resource *Grasses of the NSW Tablelands* and regularly runs ID workshops for Local Land Services throughout NSW. ANBG advises that there are a few places open for the one-day advanced ID course that will run on Tuesday Nov 22 at ANBG. The charge will be $100 for this day. Harry describes his advanced course as follows: 'Grass Identification will use keys in *Grasses of NSW*, the spiral-bound reference by Jacobs, Whalley and Wheeler. This course is a mix of formal presentation and hands-on and will be over eight hours long. Participants must already be familiar with grass terminology (viz flowerhead types, and descriptors of structures such as ligules, florets, glumes, awns ….). Instruction concentrates on the keys to genera but occasionally goes into species keys. Hand lenses will be used, not microscopes. 25% of the course will be run outdoors to simulate field ID (if conditions are suitable), but will run inside if not.' Anyone interested in registering or learning more about this one-off opportunity, please email john.fitzgerald@fog.org.au as soon as possible.

Help wanted - newsletter distribution

Involves picking up newsletters from the printer (near Belconnen); printing labels and getting stamps; folding into envelopes and posting around 75 newsletters every 2 months. Training, support and equipment provided. Starts January 2023. Contact paul.archer@fog.org.au.

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