News of Friends of Grasslands

Supporting native grassy ecosystems

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July–August 2014

FOG dates to note

Mid-winter talk and slides afternoon

***26 July*:** The annual social get-together with tea and talks. Saturday afternoon at Mugga Mugga Education Centre, Narrabundah Lane, Symonston. More details p. 2.

Stirling Park, Yarralumla ACT: five workparties in June, July and August, to restore the habitat for Button Wrinklewort *Rutidosis leptorrhynchoides*. More details p. 2.

Register for these with Jamie.pittock@fog.org.au or Peter McGhie pmcghie@optusnet.com.au

***29 June*:** Sunday morning, 9.30 – 1 pm

***16 July*:** A Wednesday workparty, 9.30 am – 1 pm

***26 July*:** Saturday morning, 9.30 am – 1 pm

***13 August*:** Another Wednesday, 9.30 am – 1 pm

***31 August*:** Sunday morning, 9.30 am – 1 pm.

Jerrabomberra Nature Reserve Grasslands walk

***23 August*:** A Saturday walk in this restored grassland area, talking with Canberra Nature Park rangers. Please note the date. More details in the e-Bulletin, late July.

Hall Cemetery working bee

***13 September*:** Just a note for now. Details for this Saturday morning workparty will be in the next newsletter.

Lake Bathurst excursion

***11 October*:** A forward notice about this all-day Saturday trip is on p. 2. Full details will be in the next newsletter.

'Grass half full or grass half empty? Valuing native grassy landscapes', *30 October – 1 November*

FOG's 20-year anniversary forum, with talks and field trips; inspiration to continue to value and conserve natural grassy ecosystems. Watch www.fog.org.au/forum2014.htm for details.

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Contacts for FOG groups & projects

Tom Baker (left) and John Fitz Gerald (right) chatting before the Poplars weeding session, 10 May.

Tom Baker OAM

Well deserved and well done to Tom Baker, member of FOG, who has been awarded an OAM in the Queen's Birthday Honours, 'For service to conservation of the environment in the Queanbeyan region'.

Tom has been a friend of Queanbeyan grasslands over many years and a driving force behind so much that has happened in conservation in Queanbeyan NSW. He was a founding member of Queanbeyan Landcare — which is also long-time member of FOG. Queanbeyan Landcare has been active and successful in restoring a number of local sites, including the Poplars at Jerrabomberra. Other FOG members have begun helping at this site (see page 3) thanks to Tom's invitation. Tom has been the host on Radio Landcare, QBN FM 96.7 and 2XX 98.3, for over 16 years, publicising conservation and related issues via guest speakers, of which I have been one on a number of occasions. Tom has often featured in our FOG newsletter. He was also a stalwart in the formation of Kosciuszko to Coast (K2C) and he has been an active supporter of that group ever since.

These points only touch on Tom's years of history and influence in conservation and environment. Read more at www.gg.gov.au/queens-birthday-2014-honours-list/.

Geoff Robertson

Coming events; Membership matters

Midwinter presentation

Come and enjoy a chat with, and the company of, other members of FOG on

Saturday 26 July
at Mugga Mugga Education Centre,
Narrabundah Lane, Symonston ACT,
3.00 – 4.30 pm.

The fire will be lit, the room will be warm and cosy, and there will be afternoon tea and plenty of time to socialise around two short talks focusing on Stirling Park, Yarralumla ACT:

- Jamie Pittock: Achievements of the working bees;
- Sarah Sharp: Plant survey findings, 2014 vs 2005.

RSVP with acceptance or apology, or enquiries, to: kris.nash@fog.org.au (FOG Secretary), or sarah.sharp@fog.org.au (FOG President).

Lake Bathurst, forward notice

This visit will have an early start, 9.30 am, on Saturday 11 October at Lake Bathurst village. Expect to be out for the whole day, so bring water and lunch, sun-protection, boots for walking and preferably knee-length gaiters in case of Tiger Snakes.

We can expect to see a pretty amazing place that is rarely visited by field naturalists!

4WDs are essential for access, and we will car pool from the village to limit the number of vehicles going to the lake shore, from which we will walk.

Watch out for fuller details in the next FOG newsletter.

Rainer Rehwinkel

Stirling Park, 29 June, 9.30–1.00

The upcoming workparty on 29 June at Stirling Park, Yarralumla ACT will start from a base camp on the crest of the ridge at the Lake end. If you are coming by car, park at the intersection of Clarke St and Fitzgerald St and walk up the grass track to the ridge (i.e. head north-west). We will be working down the hill on the north-west side of the ridge where there is a good mix of established Cotoneaster and *Pyracantha* together with some privet. Our aim is to clear these out and so restore the habitat of the Button Wrinklewort *Rutidosis leptorrhynchoides*.

A good morning tea is guaranteed. Please remember: gardening clothes, solid footwear, sunburn cream, eye protection and drinking water.

Contact: Peter McGhie pmcghie@optusnet.com.au

For details about workparties on 16 July, 26 July, 13 August, 31 August, *contact Peter or* jamie.pittock@fog.org.au

Base camp at 'smoko' during the May workparty at Stirling Park. Left–right: Jamie Pittock, Peter McGhie, John Fitz Gerald, Margaret Ning, Sarah Sharp, Allan O'Neil, Paul Ratcliffe. Photo: Ann Milligan

Membership matters

FOG welcomes new members Lynette Matthews, of Downer ACT, and William Willis, of Greenleigh NSW.

Membership of Friends of Grasslands Inc. costs $20 per (calendar) year (individuals, families, not-for-profit organisations), and $5 per year (students, concessions) or $50 per year (corporate).

Payment can be made by EFT to BSB 633 000, A/c 124770835, adding your name in the reference/description; or by posting a cheque to PO Box 440, Jamison Centre ACT 2614.

For sale! 309 Stoney Creek Rd, Berridale

This 100 acre property is mainly tree-covered, though it also has 2 fenced gardens which are chemical-free and usable for commercial production. There is ample water, via collection from the roof plus 4 dams. Solar hot water and solar panels feeding to the grid make the property self-sufficient in power. Two slow combustion fires provide heat for cooking and warmth for the lounge room. One of the fenced gardens also has a slab shed which could easily be converted into a cottage.

See: www.realestate.com.au/property-lifestyle-nsw-berridale-7598947

News roundup

Good progress at Stirling Park

Peter McGhie

A huge volume of woody weeds was cleared by the May workparty at Stirling Park, Yarralumla ACT. Much of the plant material was Boxthorn — which left its mark on a few arms and legs! It was all dragged onto the pile outside the fence opposite the rusty sculpture in Alexandrina Drive (Blue Gum Point), from which the NCA's contractors cart it away. We had 22 workers, ranging across students, Friends of Grasslands and members of the Save Stirling Park Group. It is pleasing to note that the numbers of volunteers continues to grow as more people realise the importance of retaining Stirling Park and of removing exotic and non-indigenous interlopers. These are the infestations of Cotoneaster, Firethorn (*Pyracantha*), Boxthorn, Olive trees and the Cootamundra Wattles which have spread prolifically and impede the growth of species indigenous to this area. Where the Tasmanian Blue Gums were felled and burnt is not pretty at present, but FOG has ordered 200 locally indigenous trees and shrubs which the August workparties will plant. As these start to grow, and other local species and wildflowers begin to re-populate the open space, the visual effect will increasingly improve for all those who walk, run, learn or otherwise benefit from Stirling Park.

Above: Frilling of the trunk with herbicide is a way of dealing with very large woody weeds at Stirling Park. Below: One of the piles of weeds removed by workparties at Stirling Park. Photos: Ann Milligan

Poplars grassland visits in May

John Fitz Gerald

FOG is helping the Queanbeyan Landcare group in its so-far 6-year-long quest to restore the Poplars grassland, Jerrabomberra NSW. FOG has provided a grant of $1000 for weed spraying, and is also giving physical help.

FOG members were strongly represented at a weed-control session on Saturday 10 May. The planned session on 3 May had been washed out by welcome autumn rain. Nonetheless, a keen group went for a cold and wet walk on the site that day, finding some shrubs in flower and many species showing early and active leaf growth.

On 10 May, with better weather, 13 workers tackled large woody weeds, mainly exotics including Cotoneaster, Hawthorn and Firethorn, and a few Cootamundra Wattles. Two chainsaws assisted loppers and bushsaws in the hard work. Tom Baker, of Queanbeyan Landcare, was delighted by the cleared vegetation alongside already-cleared grassy woodland and shrubland. He extends sincere thanks to FOG. Needless to say, much remains to be done, but the progress is very encouraging.

Above: *Acacia genistifolia* flowers stand out in the heavy rain on 3 May at the Poplars grassland site.

Right: A Greenhood Orchid rosette spotted on 3 May in the restored grassland area beside the patch where woody weeds are now being attacked.

Photos: Andrew Zelnik.

News roundup, continued

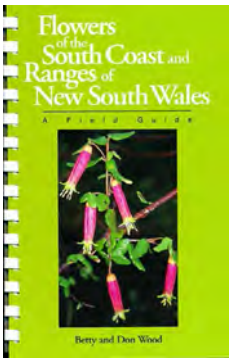
FOG supported the 'Discover Wildlife: Art and Science' symposium

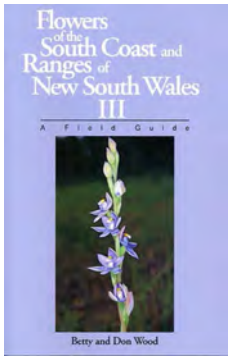
Ann Milligan

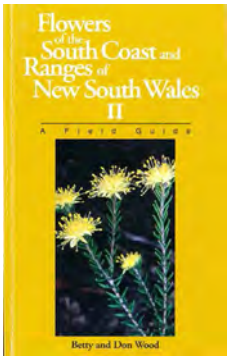
FOG contributed conservation information for the 'Discover Wildlife: Art and Science' symposium pre-dinner drinks session, on 16 May at University House, ANU. FOG was one of several local conservation groups that put up displays in support of this Wildlife and Botanical Artists Inc.'s event. Our display, organised by Geoff Robertson, John Fitz Gerald, Margaret Ning and Ann Milligan, attracted a fair proportion of the dinner guests interested to hear about the work of FOG, Ginninderra Catchment Group, Wildcare and others. Julia Landford, organiser of the symposium and art exhibition, reports that one special photograph donated by Steve Parish OAM (a large 1500 mm x 550 mm framed photo of the wet lush habitat for Leadbeater's Possum in the Yarra Ranges forest, Victoria) is for sale. Contact Julia at ajlandford@gmail.com if you are interested.

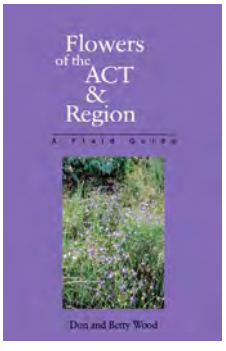
Flowers of the South Coast and Ranges of NSW and *Flowers of the ACT and Region*

The combined index for these four plant books is now up to date. There are two versions: with and without common names. For the combined index, email <woodbook@optusnet.com.au>. The books themselves are on sale at The Botanical Bookshop and similar bookshops in ACT and NSW, and from The Australian Native Plants Society (ACT). See cover photos below.









'Managing native pastures for productivity and conservation'

Ann Milligan

Years of observation, practical farm management, reading and research have given Alison Elvin a large amount of knowledge and strong belief in the value of native pastures for livestock production. She generously shared this with the 22 attentive and absorbed local landholders and residents, including several FOG members, at her all-day-workshop on Saturday 21 June, at John Starr's Gold Creek Station, Hall ACT.

Alison (a long-time member of FOG) told us about summer- and winter-active perennial native grasses, and their management via grazing and burning. Managed native pastures give reliable feed through drought, and protect the soil, compared to non-native species which can fail. Clumps and turfs Alison had brought, as well as a paddock walk, helped us learn how to tell grasses apart.

FOG was invited to give a short presentation on our group and the work in progress at Hall Cemetery. Geoff Robertson and Margaret Ning obliged, also alerting the group to the FOG forum at the end of October.

Our thanks to Alison, of Natural Capital Pty Ltd, for her instruction, John for his hospitality, and Karissa Preuss, catchment coordinator at Ginninderra Catchment Group, for organising this free workshop in a series for landholders and interested others, funded by a Federal Community Landcare grant.

News from other groups

'Landscapes for Birds' forum *Saturday 5 July*, 1.00–4.30 pm

Canberra Ornithologists Group's forum about conserving bird habitats. ACT Legislative Assembly, Canberra. *Details:* www.canberrabirds.org.au

National Tree Day planting, *Sunday 27 July, 8.30–2.30*

Restoring Box–Gum Woodland. Bus only, from Civic (ACT) or Gundaroo (NSW). *Must RSVP:* ph 02 6253 3035, admin@act.greeningaustralia.org.au

Development planning for biodiversity, *6–7 August*

A workshop at CSIRO and Fenner School ANU, ACT, about biodiversity, urban and peri-urban planning, future populations and legislation. *Details:* http://www.myerfoundation.org.au/programs/project.cfm?loadref=125

Forum on the state of native plants in the ACT *Wednesday 20 August*

A one-day forum to raise awareness of, and discuss, the state of native plants in the ACT. At University House, ANU, ACT. *Details to come:* EIANZ (ACT) http://www.eianz.org/

Reflect, Explore and Inspire *17–18 October*

A forum celebrating 25 years of ParkCare and Landcare in ACT, 2014 *Details:* jasmine.foxlee@act.gov.au

FOG Advocacy

Naarilla Hirsch

April

1. ***Draft ACT bilateral agreement with the Commonwealth concerning environmental approvals***: FOG did not oppose the concept of a 'one stop shop' for environmental approvals, but our concerns about the draft bilateral agreement included: a) the potential conflict of interest within the ACT Government, in its conservation role and its involvement and remuneration gained in the land development process; and b) the lack of information about connectivity required in assessment reports.
2. ***Draft ACT Strategic Bushfire Management Plan Review***: FOG attended a briefing by the Emergency Services Agency. FOG recognised the increased consideration of ecological values in hazard reduction burns and acknowledged the skills being applied by fire teams to achieve more strategic burns. However, FOG indicated concern about conservation matters, including: a) conflicts of management where conservation areas occur with Inner and Outer Asset Protection Zones; b) need for greater commitment for bushfire management to maintain biodiversity of areas of threatened vegetation; and c) need for increased community engagement and education to raise public awareness of the risks of wildfire and promote actions to reduce the risk.

2a. ***Annual Bushfire Operational Plans (BOP)***: FOG went to a briefing at the Conservation Council. The Fire Management unit works closely with the Conservation Planning and Research (CPR) unit to minimise impacts on conservation with fuel reduction actions (which include slashing, grazing and burning) to guide implementation of burns to achieve positive ecological outcomes and monitoring outcomes. Maps that show the annual BOP actions are at http://www.tams.act.gov.au/parks-recreation/bushfire_management/bushfire-operations-plan.

3. ***Draft National Capital Authority (NCA) 2014–16 Bushfire Operations Plan***: FOG supported the NCA for its ongoing efforts to undertake strategic fire management on environmentally significant national lands. FOG recommended consideration of several issues, including: preventing weed spread; coordination with weed-control efforts; care in protecting hollow trees and vegetation of ecological importance from destruction; use of the planned burn program as an opportunity to fell and burn non-heritage-listed, non-indigenous trees; and a burn at Scrivener's Hut ('Surveyors Hut') to reduce biomass and promote regeneration of the threatened Button Wrinklewort.
4. ***Biodiversity Offsets Policy for Major Projects (NSW Department of Heritage and the Environment)***: FOG raised the need to: a) ensure economic benefits could not be used to discount offset requirements in exceptional circumstances; and b) ensure management for biodiversity takes precedence over management for carbon credits. FOG supported the concept of an offsets fund to complement the policy, and suggested criteria that should be used in administering such a fund. Such a fund should also be applied to conserve in perpetuity key areas of crown land that contain remnants of Box–Gum Woodland and Natural Temperate Grassland.

May

5. ***Natural Temperate Grasslands (NTG) of the South Eastern Highlands Bioregion as an endangered ecological community***: see p. 6.
6. ***Senate inquiry into amendments to the bill on bilateral agreements***: FOG's concerns in addition to those provided in the earlier review (see 1. above) included: a) the potential for inconsistent decision-making and inconsistent standards across states and territories on matters of national environmental significance; b) the need for fee structures to cover not only the cost of decision-making but also of monitoring; for example, of action management plans and ensuring compliance.

June

7. ***Draft Canberra Airport Master Plan 2014***: FOG expressed its appreciation for the opportunities to consult regularly with Canberra Airport Group on conservation issues. The submission identified that while environmental issues are incorporated into the plan, they are covered in a perfunctory manner. The submission recommended that: a) the plan should identify and describe all the environmental values (threatened communities and species and associated management issues); b) provide references to the relevant documents created by the Airport and by environmental agencies.

The full text of FOG submissions appears on the FOG website www.fog.org.au

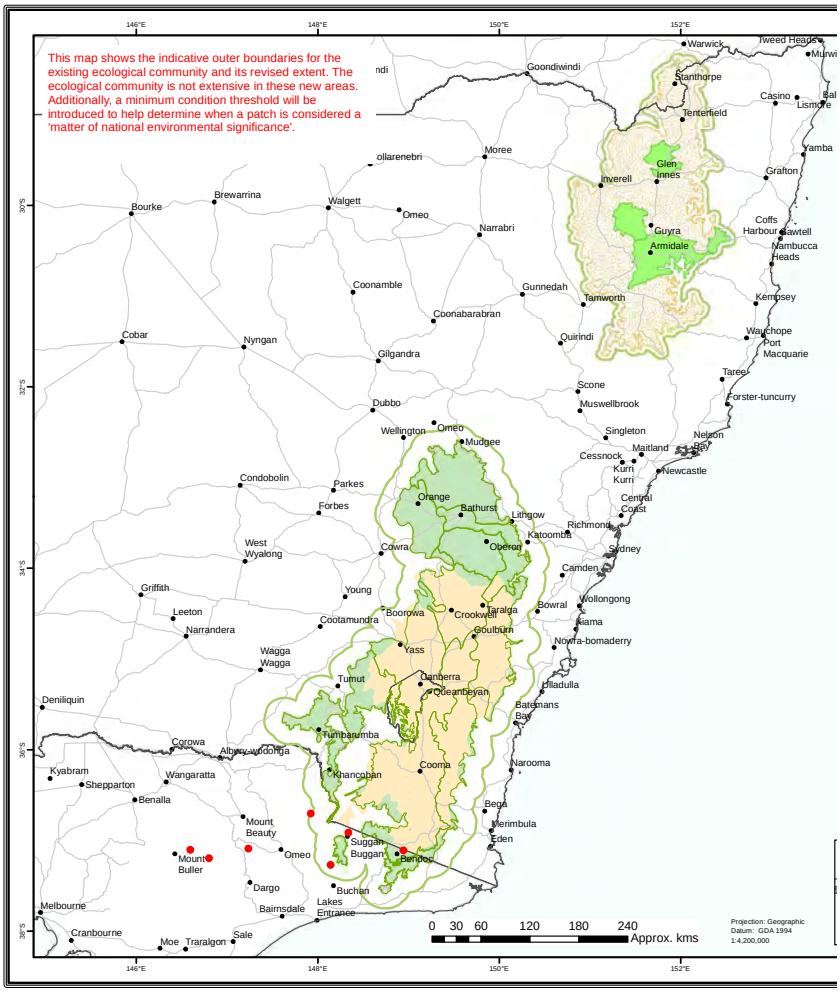
News roundup, continued

Listing update for 'Natural Temperate Grasslands of the Southern Tablelands' ecological community

The listing (under the EPBC Act) of the ecological community called Natural Temperate Grasslands of the Southern Tablelands ('Natural Temperate Grasslands') is being reviewed.

These grasslands are now identified, based on a scientific assessment, as occurring across the South Eastern Highlands and areas immediately adjacent, and in related natural grasslands on the New England Tablelands (outlined on the map).

Listing under the EPBC Act (the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*) means activities that threaten to cause significant negative impacts to the ecological community need to be referred to the Commonwealth environment minister for assessment and approval.



For both NE Tablelands and SE Highlands, the outer line marks the edge of the revised ecological community area; the inner line (southern area) marks the edge of the SE Highlands bioregion. Natural Temperate Grasslands were formerly listed as being in the area marked pink, which fills the SEH bioregion outline to just north of Crookwell and Taralga, and to the Victorian border in the south-east, and to between Yass and Tumut in the west.

Such activities do not include routine property maintenance and land management that are in line with laws and guidelines. They may include large new developments, works or infrastructures, and matters that could involve permanent clearing of areas of high-quality native vegetation.

The updated listing will include the broader extent of the ecological community, help identify patches where a referral may be necessary, and help promote an ecosystem-scale approach to threat abatement.

The Minister for the Environment will make the decision on whether to update the listing, by the end of 2014.

Public consultation and input from land managers is invited and important, until 11 July. See www.environment.gov.au/biodiversity/threatened/nominations/comment/natural-temp-grasslands-se-highlands-ne-tablelands/.

* * *

FOG made a submission on this matter, in May. Below is a precis of the submission; the full text is on the FOG website, www.fog.org.au

The Commonwealth has asked for comments on listing Natural Temperate Grasslands (NTG) of the South Eastern Highlands Bioregion as an endangered ecological community. This will replace the current listing of NTG of the Southern Tablelands of NSW and the ACT. The new listing covers a larger area, based on a bioregion rather than a geo-political boundary, and includes two more grassland types. FOG believes that this ecological community should be listed as critically endangered rather than endangered, and made a number of comments about the proposed condition thresholds. FOG also commented on a number of considerations in the proposed listing, including the definition of a patch, sampling protocols, timing of surveys, targeting assessments, and impacts on buffer zones.

Naarilla Hirsch

For the full map, see: www.environment.gov.au/biodiversity/threatened/nominations/comment/natural-temp-grasslands-se-highlands-ne-tablelands/.

Text about the listing update is adapted from www.environment.gov.au/biodiversity/threatened/nominations/comment/natural-temp-grasslands-se-highlands-ne-tablelands/.

Articles

Incidence of a previously unidentified Natural Temperate Grassland type in the Lower Molonglo Valley and possibly elsewhere in ACT

Sarah Sharp

The Natural Temperate Grassland endangered ecological community of the ACT, as defined under the ACT *Nature Conservation Act 1988* and the Commonwealth *Environmental Protection of Biodiversity Conservation Act 1999*, is described as occurring in frost hollows, where cold air drainage impedes the growth of woody vegetation. These characteristics are found mainly on the major valley floors of Canberra, Gungahlin, Majura, Jerrabomberra and Tuggeranong. After the ecological community had been declared under ACT and Commonwealth legislation a further site was identified (ACT Government 2005), at Kama Nature Reserve (now just called 'Kama') in the Molonglo Valley.

In 2012, Armstrong et al. described plant communities in the Upper Murrumbidgee catchment of NSW and the ACT. The authors of that study surveyed multiple sites across the region including the ACT, and grouped similar sites using classification analysis. Rainer Rehwinkel identified and described eight natural grassland plant communities; see Armstrong et al. (2012). Of these, four communities are equivalent to the five previously-described natural grassland communities that form part of the Natural Temperate Grassland declared endangered ecological community (ACT Government 2005).

The community called Kangaroo Grass – Purple Wire-grass – Wattle Mat-rush dry tussock grassland ('Rocky Natural Grassland', r8) is described from surveys of sites in NSW. This grassland association occurs on steep exposed places, including in river gorges. Such slopes are north-westerly in aspect and overlook extensive valleys or plains; they are subjected to hot drying north-westerly winds in summer, and that is a major factor for this community (Armstrong et al. 2012).

Recent deliberation of vegetation in the Molonglo River riparian corridor has led to the view that this plant community, r8, also occurs in Molonglo and possibly elsewhere in ACT, and that much of the habitat for the vulnerable Pink-tailed Worm Lizard *Aprasia parapulchella* is probably Rocky Natural Grassland.

Previous descriptions of sites containing Pink-tailed Worm-lizard habitat assumed the vegetation community was derived Box–Gum Woodland (where the trees had been cleared). There are, however, extensive areas with exposed surface rocks along the Molonglo River where there is no evidence whatever of trees having been there. There are no isolated trees and no stumps, and no regrowth. Nevertheless, there are trees within the drainage lines between the exposed slopes. This suggests that the treeless areas have not been cleared, but instead may be naturally treeless.

A comparison of the main characteristics of Pink-tailed Worm-lizard habitat and the Rocky Natural Grassland community indicates that they correlate closely, both in plant species present and their location in the landscape.

The tight spacing of rocks and the exposed slope in this part of the Molonglo River valley are assumed to exclude the natural regeneration of trees (Photo: S. Sharp).

Pink-tailed Worm-lizard habitat is dominated by rocks and grassland or pasture, usually characterised by absence of, or very sparse cover of, trees. There is little or no leaf litter and the groundcover is predominantly native grasses, particularly Kangaroo Grass *Themeda triandra*, Redleg Grass *Bothriochloa macra* and Barbed-wire Grass *Cymbopogon refractus* as well as Wattle Matrush *Lomandra filiformis* (most recently described in Wong et al. 2011).

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Rocky Natural Grassland: Incidence of a previously unidentified NTG type, continued

The greater the proportion of Kangaroo Grass and other species indicative of little disturbance, the greater the likelihood of Pink-tailed Worm-lizards occurring there. Creamy Candles (*Stackhousia monogyna*), Scaly Buttons (*Leptorhynchos squamatus*) and Early Nancy (*Wurmbea dioica*) are typical of little-disturbed areas, and they are all species typical of Rocky Natural Grassland (Armstrong et al. 2012).

On the basis of existing data there may be up to 100 ha of Rocky Natural Grassland in the Molonglo Valley. If so, these areas would meet the criteria as endangered Natural Temperate Grassland under the Commonwealth and ACT legislation.

Existing grassland containing high quality Pink-tailed Worm-lizard habitat in Molonglo, previously identified as derived grassland (Box–Gum Woodland). Note the total absence of trees, shrubs, stumps or other evidence of past trees, right across this landscape, but their presence along the river (Photo: S. Sharp).

References

ACT Government (2005). *A Vision Splendid of the Grassy Plains Extended.* ACT Lowland Native Grassland Conservation Strategy. Action Plan No. 28. Environment ACT, Canberra.

Armstrong R.C., Turner K.D., McDougall K.L., Rehwinkel R., Crooks J.I. (2012). Plant communities of the upper Murrumbidgee catchment in New South Wales and the Australian Capital Territory. *Cunninghamiana* 13(1): 125–266.

Wong D.T.Y., Jones S.R., Osborne W.S., Brown G.W., Robertson P., Michael D.R., Kay G.M. (2011). The life history and ecology of the Pink-tailed Worm-lizard *Aprasia parapulchella* Kluge — a review. *Australian Zoologist* 35: 927–940.

(This article is summarised from a note of the same name for the ACT Government, by Sarah Sharp, Will Osborne, Rainer Rehwinkel, David Wong, in November 2013).

Spotted-tail Quoll (*Dasyurus maculatus*), previously known as Tiger Quoll

Margaret Ning

First printed in the ACT Herpetological Association newsletter June–July 2014.

Crawling along Gungahlin Drive in two slow lanes of traffic at 8.45 am early in April, I looked out of the driver's window in time to see a road-kill quoll.

Because it was in the middle of the two lanes of traffic it was still in good recognisable condition. I saw 30 cm or so of rusty brown undamaged side/flank with cream-coloured spots. (No sign of head, feet or tail, but the undamaged side was sufficient for a confident ID.) I called Geoff and asked him to pass on the information to TAMS rangers. Within 45 minutes, Murray Evans of ACT Conservation Planning and Research had possession of the carcass and was back in his office letting me know that its entrails had been eaten earlier (a raven perhaps?), and that a lane-changing vehicle had damaged it a bit more. DNA tissue samples were taken and it has been lodged in the CSIRO Wildlife Collection.

Apparently it is one of only a handful of Spotted-tailed Quolls to be found in the Canberra region in the last five years. I heard of another quoll road kill in Tuggeranong a year or so ago, and there is a newspaper report of one up a tree in Charnwood some years back. Google 'quoll, Charnwood, tree' for that one. Murray said it is usually dispersing males that come to our attention. They are normally found in forested country, and are active climbers.

The Spotted-tailed Quoll is an endangered species and numbers have declined seriously over the last few decades. In a Department of the Interior booklet released in 1968 (*Wildlife in the ACT*) two quoll species were listed as being in the ACT: the Spotted-tailed Quoll and the Eastern Quoll (*Dasyurus viverrinus*), which is now thought extinct on the mainland.

I wish I was reporting a live quoll sighting at our Nimmitabel property, rather than Canberra road-kill. Let's hope the poor little thing is a sign that there is an enduring population not too far away from here.

The Quoll. Photo: Murray Evans.

Articles, continued

Golden Sun Moth habitat translocation — an Australian first

*Wil Allen, Principal Ecologist SMEC**

It is not often as an ecologist you get to work on 'the latest thing'. But over the last two years my team and I have had the opportunity to develop an exciting new technique to mitigate impacts on Golden Sun Moth habitat that can result from development.

Golden Sun Moths (*Synemon plana*) occupy a wide but highly fragmented area of native grassland and native and mixed pasture across the ACT region. They live in the soil, feeding predominantly on roots of Wallaby Grass (*Austrodanthonia* sp.) and other species. The Moth appears to live in the ground for three years, emerge between October and January ('the flying season'), mate, and then die. On emergence the female lies flat on the ground displaying a striking orange orb on her wings. The more drab-coloured males circle above, looking for this signal.

Threats to the Golden Sun Moth include clearing, pasture improvement, overgrazing and weed invasion. For years the Golden Sun Moth has bedevilled public and private development proposals in grassy environments across the region because of its widespread 'boom and bust' distribution pattern. Being a critically endangered threatened species listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* means this invertebrate is afforded the highest level of protection ... and there would be many who say 'Thank goodness,' because native grasslands need all the protection they can get.

An emergent translocated female Golden Sun Moth in November of 2013. (Photo: SMEC / ACT Government / Melita Milner)

The translocation project

It all began when I started as the principal ecologist at Snowy Mountains Engineering Corporation (SMEC) in Canberra three years ago. I was immediately allocated the role of environment manager for the Majura Parkway design project. For those of you who are not aware of this development, it is an 11.5 km stretch of highway-standard road that, when completed, will connect the Federal Highway in the north to the Monaro Highway in the south via the Majura Valley.

A condition of approval for this project was the harvesting of Golden Sun Moth larvae from the alignment prior to construction. We duly undertook this task and donated the harvested moths to a larvae translocation research program run by University of Canberra and the ACT Government.

In undertaking the larvae harvest in the autumn of 2013 it occurred to me that a potentially better way of preserving some of the grassland bio-resource, about to be consumed by the road development, would be simply to move the habitat instead.

The alignment location from which slabs of Moth-laden soil were moved prior to construction in April 2013.
(Photo: SMEC / ACT Government / Wil Allen)

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Articles, continued

Golden Sun Moth habitat translocation — an Australian first, continued

With generous additional support from Roads ACT my team and I set up an experiment to cut an area of turf known to contain a high density of Moth larvae, and move it away from the alignment. The turf was moved to another area of the road reserve not affected by the development and where we knew there was no Moth.

Before we moved the soil we made a botanical assessment of the originating turf and estimated the density and age classes of the Moth larvae we found in that area.

Moving the turf was problematic because we only had access to standard construction equipment, not specialist turf cutting machinery. We believed the ground was too rough for us to be able to use commonly available turf cutting tools so we did the best we could with what we had. The turf cutting and transporting went well, but laying it down required considerable manual handling to make the soil slabs sit comfortably in the slots we had made for them. Finally, we watered the translocated soil and then left it for the winter.

In spring of 2013 we erected nets over the translocation destinations and monitored the emergence of moths into the nets during the 2013 Moth flying season. The results exceeded our expectations. Both male and female Moths emerged in significant numbers. Emergent Moths were logged and then taken back to an unimpacted portion of the original habitat and released.

Because of cracking and folding, laying down the Moth-laden soil slabs in the slots cut for them at the translocation site was a challenging task. (Photo: SMEC / ACT Government / Wil Allen)

As far as we can tell, this is an Australian first. We have successfully translocated Golden Sun Moth habitat and the emergence data seem to suggest mortality rates are relatively low. This is particularly pleasing because of the challenges in laying the turf down. I was concerned that it would dry out from the underneath and kill its resident Moths, or that the plant species composition would change and they would starve. I was also aware that experiments involving the handling of insects collected from the wild often result in high mortality rates.

What does this mean?

This is a pilot technique, still in development. I think this early success means that translocating Golden Sun Moth habitat has the potential to 'soften' the effects of a proposal that (a) mostly avoids Moth habitat but still has impacts on the fringe of a large population, and (b) negatively affects small isolated populations that may be at risk of extinction anyway.

Also, let me tell you what it does *not* mean. It does *not* mean that developments can ignore the fundamental requirement to avoid the Golden Sun Moth's native grassy habitats. It also does *not* mean that habitat translocation can comprehensively make up for the loss of habitat in areas where impacts are deemed unavoidable.

A male Golden Sun Moth recently emerged from the translocation site in November 2013. (Photo: SMEC / ACT Government / Wil Allen)

The Golden Sun Moth habitat translocation team is Wil Allen, Melita Milner, Cameron Summerville and John O'Brien. Special thanks to Roads ACT for their generous support.

Cultivation corner

The unseen web

Janet Russell

I have developed an interest in almost everything that has appeared in our garden over the last 14 years. Initially we thought of our garden as bird habitat and did not turn our minds to much else. As the birds were slow in finding us, I began to take an interest in butterflies and insects and their larvae. There is nearly always something to see except for the winter months when it is less inviting being out there anyway. Even the few honey bees that are around have disappeared by late autumn.

While I have been photographing fungi for some time, it was a talk by Heino Lepp that captured my imagination about these strange fruiting bodies that seem to appear from nowhere. He talked of the exchange of nutrients through the network of hyphae, the microscopic threadlike vegetative part of fungus that together form the mycelia, the web. The mycelia can be seen sometimes while turning over the soil. It forms an underground network that can result in eucalypts and other plants sharing nutrients. I saw a warning on one website, to be careful not to use herbicide on plants close to the Cherry Ballart *Exocarpos cupressiformis* because these large shrubs are partly parasitic on other plants' roots. There is a world underground that we often do not think about.

I have seen mycelia near *Eucalyptus* sp. in the inside garden but have not seen any fungus on the ground in that part of the garden. Recently however I found one, wedged and misshapen, between two species of *Eucalyptus* that have almost become welded together over the years because they have grown from closely-spaced saplings. I found out unfortunately that fungi on trees may or may not be benign and I have yet to investigate the condition of these two trees.

While there is a physical web there is also the web of known relationships with others yet to be discovered. I was delighted to find out that the Blunt Greenhood, *Pterostylis curta* we have growing in a pot had produced one fertilised capsule last season. The pollination of the flower was something I had not seen but I understand that the only known pollinator of this species is the male fungus gnat whose larvae feed on fungi, roots and organic matter in soil. The gnats assist with the spread of fungus spores and plant pollen. There is also a down-side as they and their larvae are associated with the spread of a form of root rot. The larvae leave a silvery trail on the soil that can be confused with the trails of slugs and snails. The Lord giveth and the Lord taketh away.

Slime mould *Fuligo septica*

Beaked Earthstar
Geastrum pectinatum

I discovered the native Fungus-eating Ladybird *Illeis galbula* on the washing drying on the line one day, and managed to get a photograph of it (below). It feeds on black mould and powdery mildew. I have found out very little about this ladybird and its relationship to native plants. The sole reference I did find said this species were observed supplementing their diet with the pollen of *Acacia* sp. (as well as Privet *Ligustrum* sp., unfortunately). The main subject of other resources were cucurbits such as zucchini, melon etc., either grown in backyards or commercially. The ladybirds feed on the powdery mildew that grows on the stems and leaves of these plants and is very familiar to vegetable gardeners.

Powdery mildew is not very interesting but fungi do come in all shapes, sizes and colours and grow on leaf litter, bark mulch, gravel, and dead trees as well as living trees. I found the Fungus-eating Ladybird for the first time last December and I will be interested to see if it appears in the garden again. My Blunt Greenhoods have multiplied to fill the bowl. I did not sow the seeds last season but I will this year using some of the soil from the bowl to see if they germinate. The plants multiply quite rapidly forming more small corms each year. I would like to see if I can get some of them to sprout and thrive in the garden. I have never been an orchid enthusiast but I have become quite attached to these greenhoods. The more I learn about the garden and what lives in it, the more fascination it has for me.

Fungus-eating Ladybird
Illeis galbula, on washing.

Boletus sp.

Photos: Janet Russell

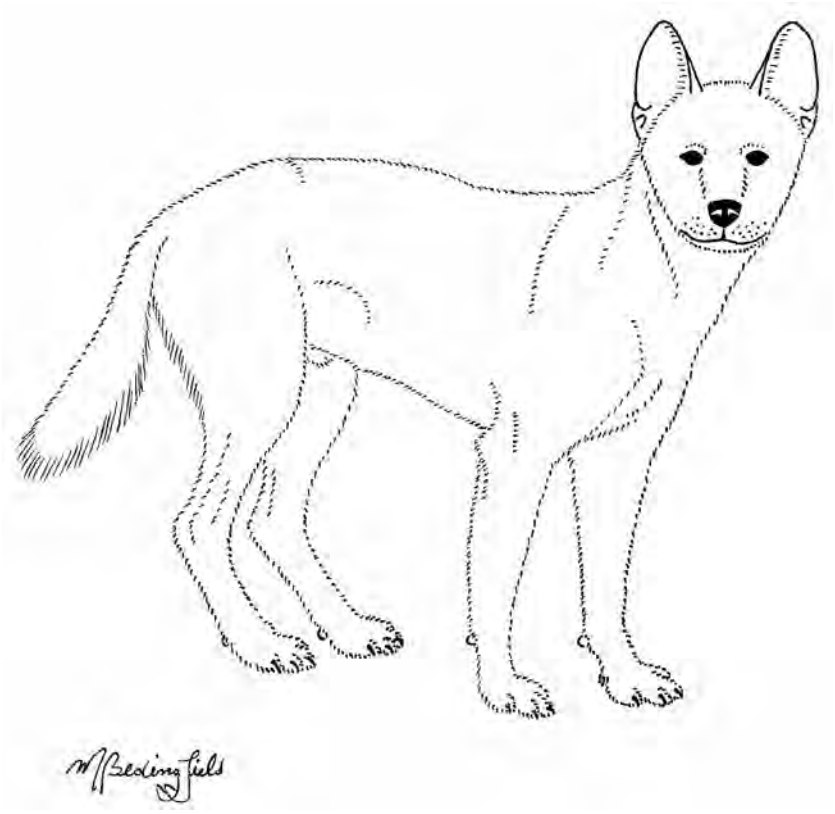
Biodiversity and the Dingo, *Canis lupus dingo*, an Australian top-order predator

Michael Bedingfield

The Dingo is loved by some and maligned by many, but it is our largest land-based predator, so its importance in Australian ecology cannot be underestimated. It is thought to have arrived here 4000 to 5000 years ago with seafarers from SE Asia. At that time the Tasmanian Tiger or Thylacine, was the largest mammalian predator, and the Tasmanian Devil coexisted with it. By 3000 years ago both the Thylacine and Devil were extinct on the mainland. The most common view is that this happened because of competition from the larger Dingo. The Dingo did not reach Tasmania, and there the Tasmanian Tiger survived until 1936, its downfall being the result of European settlement and persecution. The Tasmanian Devil is now the largest marsupial predator, but it is listed as endangered.

The Dingo is a magnificent animal, known zoologically as *Canis lupus dingo*; it is a subspecies to the Wolf *Canis lupus*. The domestic Dog is descended from the Wolf and is called *C. lupus familiaris*. The Dingo occurs throughout mainland Australia and is also found in SE Asia from where it originated. It is usually ginger coloured, though it can be black, and in alpine areas it is often white. In Dingo–Dog crossbreds the colour is variable. The Dingo rarely barks and breeds only once each year, and thus differs from domestic dogs. Its preferred habitat is grassland or woodland that is adjacent to forest, but it is able to live in a variety of habitats.

If it is truly wild it is naturally shy of humans. When it is hunting alone it eats smaller animals, such as rabbits. In packs it takes larger animals such as kangaroos or wallabies. Because it will readily attack domestic animals, such as sheep, goats and calves, most farmers regard it with disdain. It will breed with feral dogs, and consequently there are few surviving populations of pure Dingoes. Distinguishing between a purebred Dingo and a Dingo–Dog hybrid can be a difficult business because there is no defining characteristic that is totally reliable. Even deciding whether a particular animal is a Dingo or a wild Dog can be challenging. The subspecies has been listed as 'vulnerable', mainly because of this interbreeding and the resultant loss of genetic purity.



The Dingo is excluded from the ACT and Southern Tablelands by the Dingo Fence, and is restricted to remote areas such as Kosciuszko and Namadgi National Parks. On the other side of the Dingo Fence the animal is quite common. The dividing line can give us a guide to the effect of the Dingo. Where the Dingo is more common, native biodiversity is noticeably higher. Top-order predators are known to be biodiversity regulators, and it is believed that the absence of the Dingo in many areas has had a detrimental effect on the natural ecology.

Large predators can have many roles. First, they control numbers of large herbivores. So, in the Dingo's absence, for example in our region, the Eastern Grey Kangaroo has no natural predator and its numbers can increase to the limit of the land's carrying capacity. The effect of this can be devastating, especially in times of drought. They can eat too much of the grass, ruining the habitat for smaller grass-living mammals, ground-living birds, reptiles and insects. Less food is available for insect-eating birds and other animals, so they can decline too. Also, without the protection of the native grasses among which they normally grow, many native plants become stressed and cannot survive. Overgrazing leads to bare ground, enabling weeds to become established. Species can be lost and the whole ecosystem can suffer. This has happened in some ACT nature reserves and consequently the ACT Parks and Conservation service has to organise the painful task of culling kangaroos.

Second, in the absence of an established large predator smaller predators become more common or even abundant. Wolves and Dingoes will harass, or attack and kill, smaller predators that they see as competitors for their food or their territory. In an experiment in

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Biodiversity and the Dingo, Canis lupus dingo, *continued*

arid Australia, two Dingoes were enclosed in a fenced paddock 37 sq. km in area. Seven foxes and six cats were introduced to the enclosure. Within 17 days the Dingoes had killed all the foxes. Within 103 days all the cats were dead, the dogs having killed at least three of them. These medium-size predators are called mesopredators. We have seen the damaging effect of the spread of foxes and cats on native wildlife. They prey on smaller animals such as reptiles, birds and mammals whose numbers then decline. They have been the cause of the extinction of numerous small mammals, and the survival of a number of threatened species is at risk because of them. Ecologists claim that whenever Dingoes are abundant then native marsupials are common and foxes and cats are not.

As an example of the importance of the large predator in an ecosystem consider the effects of exterminating the Wolf from USA's Yellowstone National Park, which was completed in the 1920s. Since the Dingo is the same species as the Wolf, this is a valuable lesson. Without the Wolves, Elk numbers increased and their browsing and grazing changed the vegetation landscape. Certain trees in the park were not producing many new saplings and there were soil erosion problems. Beaver numbers declined significantly, but numbers of the Coyote, a mesopredator, rose considerably. With the controversial reintroduction of the Wolf during the 1990s Elk numbers dropped to a more natural level. The vegetation changed gradually, and in particular the Willow trees made a comeback. Willows are an important part of the Beaver's diet and building methods, so the Beaver numbers increased as well. Their dam-building increased the area of open water in the park and caused the water-table to be raised. This improved conditions for a variety of species, such as waterfowl. Wolves were found to be attacking and killing Coyotes, which declined in number. From the point of view of biodiversity, the reintroduction was a great success. On the down-side, the Wolves were sometimes straying into farmland outside the park. So just as in Australia, with Dingoes being in our national parks, arrangements were put in place to deal with those wanderers and protect livestock.

Throughout the world there is increasing pressure on larger predators for a number of reasons. We see them as threats to our own safety or the safety of our domestic farm animals, and there is also destruction of their habitat, and poaching. Many species are regarded as threatened or endangered. Examples are the Amur Leopard, the Snow Leopard, various subspecies of the Tiger, the Cheetah, and the Grizzly Bear. Wolves were once very common in Great Britain but are now extinct. However, there are also people who are trying to work out how we can co-exist with these animals, and therefore retain a healthier and more varied natural world.

The Dingo is an important part of our natural grassy ecosystems, and its absence creates the problems mentioned above, resulting in inevitable losses to our native biodiversity. The challenge is to balance the practical realities of farming domestic animals and the ideal of preserving a healthy level of biodiversity that includes the Dingo or wild Dog. It is worthwhile looking at ways we can do things differently, and live in a less destructive and more harmonious way.

Being a top-order predator is a great responsibility. An added complication to the Dingo's job is that the colonists brought mammals to the country, some of which went feral. Now we have more wild herbivores than before; for example, horses, camels, deer, goats and rabbits, and omnivorous pigs. It would be very naïve to think that having all these new animals roaming in the wild would not cause significant biodiversity losses. Even though Dingoes eat them, rabbits have still had devastating effects. Dingoes are opportunistic hunters and scavengers, and will eat a variety of animals, from insects and birds to pigs or Buffalo. They have difficulty hunting the larger animals and usually attack their young. However, instead of persecuting the native dogs, it may be more useful to engage their help in controlling these exotic pests.

It seems certain that there will always be Dingoes or wild dogs in our country, but whether we will always have the purebred Dingo, *Canis lupus dingo*, is not so clear. Interbreeding with wild dogs is hard to control, and it seems inevitable that in the long term the 'pure' Dingo will become extinct in the wild. There are people concerned about this and who are trying to keep the genetic line true in captive animals. On the other hand, experts think hybridisation will not affect biodiversity because the Dingo hybrids behave in much the same way as the purebred animals. The truth of this will be tested over time.

Whether you like them or not, Dingoes are very much a part of our natural environment, and the more we understand and respect them, the better we will be able to look after our precious country.

My references have been these web sites, and others:

australianmuseum.net.au, onlinelibrary.wiley.com, en.wikipedia.org, theconversation.com, abc.net.au, dingoes.org, australia.gov.au, basementgeographer.com, reptilepark.com.au, environment.gov.au, dpi.nsw.gov.au, hindawi.com;

and FOG newsletter September 2007.

Contacts for FOG groups and projects

General inquiries
Contact info@fog.org.au *or* Sarah Sharp (0402 576 412) *or* Janet Russell (02 6251 8949).

Activities organises FOG field trips, talks, workshops, on-ground work, support to other groups, property visits and FOG's calendar. *Inquiries*: activities@fog.org.au

Advocacy prepares submissions and advocates on grassy ecosystem issues. It holds occasional meetings and workshops. *Inquiries*: advocacy@fog.org.au

Committee & correspondence. The committee organises, coordinates and monitors FOG activities. Members: Sarah Sharp (President), Kris Nash (Secretary), Leon Pietsch (Treasurer), John Fitz Gerald, Naarilla Hirsch, Stephen Horn, Tony Lawson, Ann Milligan (newsletter), Katherina Ng, Margaret Ning, Kim Pullen, Rainer Rehwinkel, Andrew Zelnik.
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Communication produces FOG e-Bulletin.
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Financial matters, excluding membership, *contact*: treasurer@fog.org.au

***Grassland flora* and other sales.** FOG sells and distributes the book *Grassland Flora*, other books, cards and T-shirts. *Inquiries*: booksales@fog.org.au

Grassland monitoring. FOG holds monitoring days at the Bush Heritage property 'Scottsdale' near Bredbo, NSW. *Inquiries*: linda.spinaze@fog.org.au

Hall Cemetery. FOG with ACT Government holds regular working bees to protect leek orchids and generally restore Hall Cemetery. *Inquiries*: john.fitzgerald@fog.org.au

Media spokesperson: Sarah Sharp (0402 576 412).

Membership. New members are welcome. We have two new membership categories: $20 per year for not-for-profit organisations, and a new 'voluntary life membership' category. Membership forms are at the website.
For inquiries, or to help with newsletter dispatch, contact: membership@fog.org.au

National land. FOG, with the National Capital Authority, holds regular working bees at Yarramundi Reach (grasslands) and Stirling Park (woodlands), ACT.
Inquiries: jamie.pittock@fog.org.au

Newsletter. *News of Friends of Grasslands* is dispatched on the fourth Tuesday of February, April, June, August, October, December. Please send photos and articles about FOG or related grassland activities before the third Tuesday of those months to editor Ann Milligan at: newsletter@fog.org.au

Old Cooma Common. FOG, with Cooma-Monaro Shire Council, holds working bees twice yearly at the Old Cooma Common Grassland Reserve.
Inquiries: margaret.ning@fog.org.au

Southern Tablelands Ecosystems Park (STEP).
STEP is a regional botanic garden and recovery centre at the National Arboretum Canberra. STEP showcases local ecosystems, especially native grasses and forbs.
Inquiries: secretary@step.asn.au, *or* The Secretary, STEP Inc., PO Box 440, Jamison Centre ACT 2614.

Website, www.fog.org.au The website holds information about FOG and grasslands, back issues of the newsletter, and program details.
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