



# News of Friends of Grasslands

*Supporting native grassy ecosystems*

*September -October 2009*

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## *Program*

**SAT-SUN 5-6 SEPT FOG Visit to Royal National Park Sydney with Michael Treanor.** See article on page 2 for details.

**SUN 13 SEPT, 2-3.30pm, Landscape walk with FOG at Mugga.** See page 2 for detail.

**SAT 19 SEPT, 9am to 4pm, FOG-ANU Fenner School Working Bee, Yarramundi Ridge.** Please let Jamie know if you are willing to lead a weeding team, help set up monitoring points, or run the registration or barbeque, or just volunteer for weeding. Lunch provided. More on page 2.

**SAT 17 OCT, 9am to 4pm, FOG-ANU Fenner School Working Bee, Stirling Ridge.** Please let Jamie know if you are willing to lead a weeding team, help set up monitoring points, or run the registration or barbeque, or just volunteer for weeding. Lunch provided. We will meet across Alexandrina Drive from the Canberra Yacht Club (car park on Mariner Place), Yarralumla. This is also by the lake-side bike track. More on page 2.

**SUN 18 OCT, 10.30-12.30, Visit to Tanya Hobbs' property, Jerangle.** More information on page 5. To register and for information on facilities, what to bring, how to get there, etc. contact [janet.russell@fog.org.au](mailto:janet.russell@fog.org.au) or 02 6251 8949.

**SAT 24 OCT Two short visits to botanic gardens.** Join FOG at the grassy woodland garden at the Australian National Botanic Gardens (11-noon, just turn up) and Southern Tablelands Ecosystems Park at the Arboretum (2.30-4, register with Cathy). More on page 2.

**SUN 25 OCT, 10-4, Visit to Gang Gang** a 50ha property belonging to ecologist Sue McIntyre and Jon Lewis. To register and for information on facilities, what to bring, how to get there, etc. contact [janet.russell@fog.org.au](mailto:janet.russell@fog.org.au) or 02 6251 8949.

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*Scaly buttons (*Leptorhynchus squamatus*), a common and colourful yellow daisy*



Images of grasses: red anther wallaby grass, wild sorghum, poa, and wheat grass. See Cultivation Corner (page 7).

## *Upcoming FOG events*

### **Visit to Royal NP Sydney**

SAT-SUN 5-6 SEPT FOG will visit the Royal NP, the oldest national park in Australia. It contains amongst the highest diversity in Oz, including a huge range of ecosystems from sub-tropical rainforest to heathlands and coastal grassy/lomandra dominated areas.

The visit will include trips to Garrawarra State Conservation Area and Madden's Plain with some significant hanging swamps and low heathlands. The spring heath flowering promises to be amazing. The Port Hacking Wildflower group, and possibly the well known field guide author, Mr Alan Fairley will join us. Side trips to Aboriginal carvings and beautiful waterfalls and swimming spots are planned.

FOG's delightful and former vice President Michael Treanor, Area Manager and responsible for the Park's management, will be our guide. He is also our contact, backed up by Margaret Ning.

FOG has booked Weemalah Cottage for the Friday and Saturday nights. A camping option is available. Talk to Michael or Margaret about catering/facilities/car pooling. His contact number is 02 9542 0615 (note this is a work number), email michael.treanor@environment.nsw.gov.au. Margaret's is margaret.ning@fog.org.au or 6241 4065.

### **Visit to Gang Gang**

SUN 25 OCT Gang Gang is a 50ha property, eight kilometres west of Gundaroo, belonging to Sue McIntyre, well known woodland ecologist, and Jon Lewis. FOG's visit will be an opportunity to discuss grassy woodland management and restoration and to undertake some plant identification.

Gang Gang lies on Ordovician sediments and is a mixture of forest, woodland and secondary grassland. Its history includes sheep grazing and a single pasture

improvement event on some of the property 35 years ago. It has a 'Chain of Ponds' drainage line with a few intact ponds persisting. Over 200 species of native plants have been recorded, including 13 lilies and 19 orchids.

Management issues include erosion control on the acid duplex soils, a small salt scald, restoring soil condition, controlling kangaroo grazing and tree density and the use of fire. Weeds are abundant in species richness (about 80 species), but natives are on top in terms of biomass.

For more information see Janet's contact details on cover page.

### **FOG-Fenner activities**

The FOG-Fenner Group is organising working bees at Yarramundi Reach (Sat 19 Sept) and Stirling Ridge (Sat 17 Oct).

Yarramundi Reach is a large natural grassland site. FOG's weeding efforts will make this site fantastic. Stirling Ridge, a spectacular woodland site, is home to the endangered button wrinklewort. The main problems here are woody weeds (blackberry, Cootamundra wattle and exotic trees) and blue periwinkle.

FOG-Fenner School Group was established earlier this year to involve ANU students and other volunteers in restoring these two important ACT grassy ecosystem sites, which are managed by the National Capital Authority (NCA). NCA welcomed FOG's involvement, and is sponsoring equipment and lunches. The NCA employed a well known grassland ecologist to prepare management plans to facilitate the restoration of these sites and is organising larger tasks, not suitable for volunteers, to be undertaken. Earlier this year it organised the mowing of Yarramundi Reach.

Jamie, FOG's energetic coordinator, needs volunteers to lead weeding teams, set up monitoring points, run the registration or barbeque, or just

assist in any weeding tasks.

Working bees provide a great opportunity to learn about these sites and to improve skills and to enjoy good company and food.

Volunteers, please bring old, long sleeved clothing, a water bottle and sun protection. Barbecue lunch provided. Enquiries: Jamie Pittock (jamie.pittock@anu.edu.au or 0407 265 131).

### **Botanic garden visits**

SAT 24 OCT Botanic gardens can play a very important role in the conservation of our grassy ecosystems.

In the morning (11-noon) FOG will visit the Canberra region woodlands gardens at the Australian National Botanic Gardens. This has a great collection of indigenous grasses and forbs. Hear the valuable conservation and gardening stories. For more information, contact Heather Sweet on 6242 4675 or Heather.Sweet@environment.gov.au

That afternoon (2.30-4pm) FOG will visit the exciting new Southern Tablelands Ecosystems Park and see the wonderful progress that has already been made, hear short presentations from David Shorthouse and Warren Saunders, and share some afternoon tea. Inquiries and registration, contact Cathy on 6257 1951 or limestone@grapevine.com.au.

### **Landscape walk at Mugga**

SUN 13 SEPT ACT Museums and Galleries is organising a landscape walk with FOG (details cover page). Geoff Robertson will tour the paddocks at Mugga Mugga, home to over thirty species of grass, and talk about identifying remnant native grasses, strategies to manage invasive species, and point out the landscape setting. Afternoon tea provided. Inquiries historicplacesbooking@act.gov.au, or 02 6235 5677 (10.00-4.00 Tuesday to Sunday).



## News Roundup

### ANBG alpine project

8 AUGUST a small FOG contingent visited the Australian National Botanic Garden (ANBG) Nursery to see at firsthand the work that the Nursery is undertaking on the alpine project which is collecting plant material for all species within selected alpine communities to study their seed properties and longevity, especially in the context of climate change. This was the third part of the trilogy of activities on this project. The first was Joe McAuliffe's presentation to FOG on 26 July 2008 and the second was FOG-ANBG alpine weekend on 2-4 January.

Heather Sweet described the project (see photo), and the group then observed some of the work on growing plants to help establish a better understanding of their horticultural characteristics, which is also important in conservation work. Of special interest to the group was the work being undertaken on several non-alpine species, namely, two threatened Canberra species, Tuggeranong lignum and Ginninderra peppergrass, and *Zieria obcordata* from the Wellington area. The group was also given a tour of the Nursery's many spectacular plants. After a mild winter afternoon, the group visited Hudson's Cafe.

### FOG slide afternoon

25 JULY Seventeen FOG members attended the FOG slide afternoon at Mugga on what FOG members have been doing. Andrew Zelnik reported on his project *Biodiversity Conservation in the Sheep-Wheat Belt of NSW Project* and Rainer Rehwinkel on his recent trip to Borneo.

From 2004 to 2007 the Grassy Box Woodland Conservation Management Network and the Department of Environment & Climate Change NSW carried out the project which



principally involved biodiversity surveys on private and public lands in the western slopes and western parts of the tablelands principally targeting remnants of the box-gum woodlands endangered ecological community and associated threatened fauna and plant species. A number of FOG members' properties were included in the project. Andrew described how sites were selected and surveyed, and some of the findings and outcomes which included a greatly expanded knowledge of box-gum woodland sites in NSW. We hope to provide a summary of his talk in a future edition of the newsletter.

Andrew faced many questions. The audience was also particularly interested to learn about Andrew's current project on Travelling Stock Reserves and asked many questions on that topic also.

Rainer visited Borneo in January this year in the hope of sighting birds. On that score, he said he was a little disappointed, as there were many birds, but the vegetation is so prolific that seeing birds is difficult. On the other hand, his eye was easily attracted to the vegetation and wonderful scenery. He had many wonderful plant and landscape pictures. Given his encyclopaedic knowledge of the natural world, he fascinated the audience with his pictures and stories of

his experiences, especially as he was able to draw comparisons with familiar Australian flora.

Unfortunately, the third speaker, Greg Baines had come down sick and so we missed his report on natural temperate grasslands – another time hopefully. This allowed Andrew and Rainer to present their excellent material at a more leisurely pace.

### ACT Sustainable Cities Awards

FOG was awarded a Highly Commended in the Protection of the Environment category and received a framed certificate. The winners of this category were the Booderee Junior Rangers; a collaboration between Jervis Bay School, the Commonwealth managed Booderee National Park and the Wreck Bay Aboriginal Community. FOG's thanks goes to Bernadette O'Leary and Al Gabb and who put together FOG's entry.

### Woods' Flowers index

FOG has a copy of the **combined** plant index to the fabulous Betty and Don Wood books, *Flowers of the South Coast and Ranges of NSW (three volumes)* and *Flowers of the ACT and Region*. If you would like an electronic copy (pdf), please contact [margaret.ning@fog.org.au](mailto:margaret.ning@fog.org.au).

## **Grassland report**

*Grasscover*

6 AUGUST Field Naturalists of Canberra and FOG held a joint meeting which was addressed by the Commissioner for Sustainability and the Environment, Maxine Cooper, who reported on her *ACT lowland native grasslands investigations* which was released in March. The report is somewhat lengthy and detailed, and in fact, Maxine Cooper's slides were somewhat detailed, that is, there is not one big thing that needs to be done but many varied tasks.

However, one finding was somewhat startling, namely that there is an urgent need for land management actions to be undertaken to protect the sixty percent of the Territory's lowland native grassland sites that are currently in a critical condition or approaching this state. The threatening processes that have caused the demise of the grassland sites include weeds, inappropriate mowing regimes, overgrazing by stock, eastern grey kangaroos and rabbits. The prolonged drought has exacerbated the effect of these processes. FOG is currently studying the report and planning its response.

## **Southern Tablelands' daisies**

6 AUGUST Geoff Robertson gave a fascinating talk on daisies of the Southern Tablelands, to the Friends of the ANGB, exploring the various tribes and genera of daisies, indigenous and introduced, and illustrating their common features and differences. During the talk he gave each member of the audience a daisy so that each person could disassemble it to understand the fundamental structure of daisies Geoff was describing. We won't just walk past them in future, not even those not so loved exotic daisies.

## **FOG advocacy workshop**

12 AUGUST A full report on the workshop will appear in the next issue.

## **A very disappointing answer**

*Geoff Robertson*

3 JUNE. After many years of negotiation by Jim and Mary Kelton and the High Country Conservation Alliance, the Kelton's request for a conservation lease on their property has been rejected by the Minister for Primary Industries, Ian MacDonald.

While the minister acknowledges that there have been delays (an understatement) in coming to his decision he says that "Forests NSW has no conservation agreements on its tenure as it considers that the environment values on State forests are adequately protected"! Further he adds "NSW advises that a conservation agreement would not materially add value to the conservation of environmental values." Readers may make their own judgements about these statements.

FOG has supported the Keltons in this matter as newsletter readers will be aware. FOG has made many informal contacts with NSW officials on this and related matters. Officers in DECC have told us on numerous occasions that their hands are tied and that Forests NSW basically ignores them or fobs them off. Clearly staff in Forests NSW are not aware of conservation and heritage values on Forests lands, nor would one expect them to be. If it were, it would be cooperating with DECC and private lessees to achieve good conservation outcomes. Jim has produced oodles of information which shows that the Minister's statements are a fob off.

A further problem that this causes is that the Kelton's have not been able to access funds for conservation activities because one either needs to own the land or have the owners' permission to carry out conservation activity.

## **Observations on fireweed**

*Two FOG members own an ex-dairy farm on the South Coast which they are trying to restore to forest grassy woodland. Overhearing them talking of their battles with fireweed, we*

*thought that FOG members might learn from them.*

'On one weekend, the two of us pulled two ute loads of Madagascan fireweed (*Senecio madagascariensis*), for about two hours on the Saturday and about the same on Sunday. There were three serrated tussock plants in these areas as well. Apart from being a major problem on our property, fireweed is also along the roadside verges, and African lovegrass is also a problem.

On our property, we have a major issue with fireweed. To my very unscientific observations, its prevalence differs under different management regimes. In two areas, one that is grazed by our small flock of sheep and another that is regularly slashed, there is little if any fireweed. However in other areas, one that has been left completely undisturbed for two years, one that was burnt last July and one that is grazed by cattle, the fireweed is overwhelming – particularly in the cattle grazed area. Sheep seem to eat the fireweed but cattle deliberately avoid it.'

## **Weed risk of plants used in reveg**

*Benj Whitworth*

I came across an interesting article on the weed risk of plants used in revegetation, for example, plants used to combat salinity. The weed assessment process involves a series of technical questions covering broad criteria such as invasiveness (likely rate of spread), impacts (negative effects of the weed and potential distribution) and areas where the weed could invade. Species are then categorised from negligible to very high weed risk. Twenty species were selected for assessment. For the full article see:

[http://www.dwlbc.sa.gov.au/assets/files/fs16\\_environs\\_weed\\_risks.pdf](http://www.dwlbc.sa.gov.au/assets/files/fs16_environs_weed_risks.pdf).

## **Newsletter available electronically**

You can receive the newsletter electronically. The electronic version is in colour. To arrange, contact [margaret.ning@fog.org.au](mailto:margaret.ning@fog.org.au).



***Zieria obcordata***  
Geoff Robertson

For a long time I have been smitten by *Zieria obcordata*, that tiny flowered plant that we have seen at George Taylor's property at Wellington. I have twisted my body into difficult positions to take very inadequate photos.



On 8 August on our visit to the ANBG, there it was, in fact a huge bench of it, with pink (not white as I have seen it) flowers - the flowers even seem bigger. I thought that I would share my photo (see right) and excitement with our readers.

**Little whip snake**

25 MAY NSW National Parks and Wildlife Service issued a press statement about the humble terracotta roof tile finding an environmentally friendly role being recycled as important grasslands habitat and as a survey tool in Turallo Nature Reserve at Bungendore.

The 25 hectare Turallo Nature Reserve is one of the region's finest examples of natural temperate grassland, an ecosystem now regarded as among the most threatened in the country. The reserve was declared in 2003 to protect a high quality native grassland remnant, and the unique flora and fauna that it supports. FOG has visited it many times.

NPWS Ranger, Damon Oliver, said today that the roof tile was filling two important roles within the reserve. Turallo is 25 hectares of native grassland with very few

trees and almost no rocks, so habitat for any grassland reptiles in this space is quite limited. About five years ago NPWS spread the tiles around the reserve to create habitat and to survey the site for wildlife. The special thermal qualities of the roof tile attracts animals such as the



threatened little whip snake, other small grassland reptiles, frogs such as the spotted marsh frog as well as a range of invertebrates, including the rare and spectacular Canberra raspy cricket.

According to Damon Oliver, "The roof tiles are now readily used by a range of species and we are able to locate them easily within the grassland because they are so obvious. One of the great advantages of using the roof tile as a survey tool is that normally grassland wildlife is small, inconspicuous, difficult to locate and occupies cracks and crevices that are extremely difficult to survey. The roof tile has changed all that, and now we are able to monitor effi-

ciently the local population of the little whip snake to determine management strategies at Turallo. So far we have established that the reserve contains a healthy population of little whip snake as well as a number of other more common reptiles such as the three-toed skink.

**FOG visit to Jerangle property**  
Tanya Hobbs

SUN 18 OCTOBER Margaret Ning and Geoff Robertson will lead this walk and provide information on plant identification and interpretation on our property at Jerangle.

It takes us a couple of hours to make a complete loop of the grasslands bit of the property on foot, assuming plenty of time to stop and look at different plants. The very steep bit at the back is scrubby tree regrowth with not much of a grassy understorey.

There are quite a lot of weeds but there also seems to be a pretty big diversity of native grasses for such a relatively small and formerly quite overgrazed area (though, surprisingly, not much kangaroo grass). We also have a fair amount of the more common herbs/shrubby things and some of the yellow clustered everlasting.

The property was once part of a sheep station and the previous owner said when he bought it ten years ago it was pretty much grazed bare, so the more delicate and edible stuff mostly seems to have disappeared, maybe also due to fertiliser. I think it has probably been 'pasture improved' because there are still remnants of phalaris and clover in small patches.

For more information about facilities and how to get there see Janet's contact details on cover page.

**FOG website**

The FOG website ([www.fog.org.au](http://www.fog.org.au)) is now well established and attracting over 2,000 visits per month. If there is anything you'd like to contribute to the site, let us know: [web-manager@fog.org.au](mailto:web-manager@fog.org.au).

## Fertilising grasslands

When grasslands are fertilized their productivity is increased but their plant diversity is diminished. In the last fifty years levels of plant-available nitrogen and phosphorous have doubled worldwide. This additional supply of plant nutrients is predicted to be one of the three most important causes of biodiversity loss this century. The research, led by Professor Andy Hector from the University of Zurich, shows for the first time the exact mechanisms that lead to the loss of biodiversity from grasslands following fertilization.

Different plant species profit from nutrient addition to different degrees with some species growing much faster than before. Consequently, some understorey species are overgrown by their faster growing neighbours and shaded and without access to sufficient sunlight they eventually die out. With the help of Pascal Niklaus from the ETH Zurich and researchers from the University of Zurich, he established an ingenious experiment where they added artificial light to the understory of fertilized grasslands.

This additional light countered the negative effects of fertilization and prevented the loss of plant diversity. Counter to earlier beliefs, competition for soil nutrients had no influence on changes in grassland diversity. "This study is the first direct experimental proof that competition for light is the main mechanism of plant biodiversity loss after fertilization," says Yann Hautier summarizing the results of his PhD work. "The addition of nutrients causes competition for the vital sunlight to follow a 'winner-takes-all' principle."

Competition for light following eutrophication is one of the main causes of the loss of plant diversity. The results of the work from Hector's research group have implications for sustainable management of grasslands and for the de-

velopment of conservation policy. "Our research shows that it is necessary to control nutrient enrichment if plant diversity is to be conserved in the long term" concludes Andy Hector. Source ScienceDaily (May 1, 2009)

## Wildlife friendly fencing

The wildlife friendly fencing project is raising awareness of the impact of barbed wire and netting on Australian wildlife, especially bats, birds and gliders, and developing guidelines for good practice. More than 70 wildlife species have been identified in Australia as occasional or regular victims of barbed wire fences. A Threatened Species Network (WWF) grant has provided an initial funding for this project. For more information, see <http://www.wildlifefriendlyfencing.com/index.htm>

## NASSELLAdeck

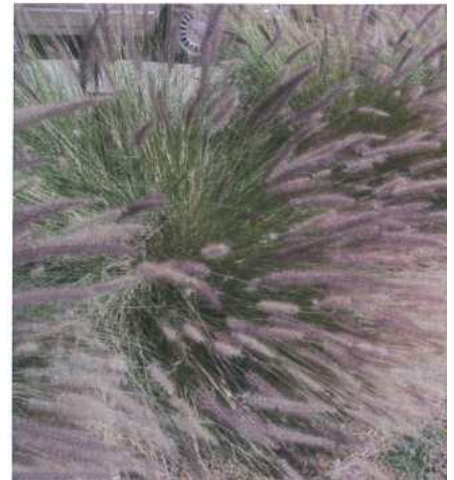
The National Chilean needle grass (CNG) program is developing a 'NASSELLAdeck' - a weed deck that uses seed and other diagnostic features to identify and distinguish CNG and other *Nassella* species from native grasses. This will greatly assist weed managers throughout Australia with the difficult task of identification and management of invasive *Nassella* spp.

The NASSELLAdeck project will be delivered in three stages. The Australian Government has provided funding for stage 1 of the project, which will essentially be a scoping phase. This will involve the identification and collection of voucher specimens of the grasses that are most likely to be misidentified as *Nassella*.

## New weed alert

African fountain grass (*Pennisetum setaceum*), forbidden for sale in the ACT and declared noxious in the NSW, has been found in the ACT. It is a large tussock grass with numerous seed heads between 10 and 25 cm long and is easily confused with other ornamental grasses. If you spot it, or think you have, please report to Canberra Connect, 13 22 81.

For more information contact Lionel Woodford, Department of Primary Industries, Vic. (03) 5336 6612, or [lionel.woodford@dpi.vic.gov.au](mailto:lionel.woodford@dpi.vic.gov.au).



## Street trees capture carbon

25 JUNE in a statement titled *Street trees to play a key role in capturing carbon emissions*, Minister for Environment, Climate Change and Water, Simon Corbell, said that street trees will capture more carbon than those in native forests, when tabling the report, prepared by the Australian National University, *A Carbon Audit of Vegetation Biomass in the ACT*, in the Legislative Assembly.

"The report found that in 2008 non-urban native vegetation contains 95% of the current carbon stock in the ACT yet produce only 28% of projected sequestration, or 57,000 tonnes by 2015" he said. "In contrast, urban vegetation (street trees) contains only 1% of the carbon stock yet will capture 48% of projected carbon sequestration or 98,000 tonnes by 2015. ACT pine plantations contain the remainder of the projected carbon stock."

The report, which was conducted by the Fenner School of Environment and Society at the Australian National University, found that the Territory's vegetation contained an estimated 28,438,000 tonnes of carbon. This comprised 28,153,000 tonnes in the non-urban estate and 285,000 tonnes in the urban estate.



## Cultivation Corner:

### Grasses that grow in my garden Geoff Robertson

About twenty species of local native grasses grow in our little courtyard garden at Ngunnawal (Canberra). Many have been deliberately introduced but others arrived uninvited.

Many years ago we translocated a twenty centimetre square soil sod from Garuwanga (near Nimmitabel) because a house was to be built there. While that sod seemed to contain nothing special, over the next twelve months 23 native herb species emerged from it, including a sun orchid, but most species did not naturalise. Nevertheless, some delicate snow grasses (*Poa* sp.), weeping grass (*Microlaena stipoides*) and common wheat grass (*Elymus scaber*) did naturalise. On rare occasions, we have made other introductions.

Those uninvited grasses, we suspect, found their way as seed carried on our clothing, or came from the seed of grasses growing wild in Gungahlin. Of course, there is a lot of not so welcome annual exotics which require constant weeding. We have also encountered Chilean needle grass and serrated tussock. Being slow to mulch the garden, there is much bare ground for plants to establish.

#### FOG e-Bulletin

The FOG e-Bulletin contains the latest information on FOG on happenings and more. It contains no pictures so that its size is minimal.

If you haven't been receiving it, and you want to, please provide Margaret with your e-mail address at <membership@fog.org.au>. Also let Margaret know of address changes.

While some native grass species naturalise easily, others don't. The latter include some vigorous growers as well as some that struggle to hang on. Our soils are extremely shallow, mostly sitting on rock, and little top soil has been created since we arrived, which I put down to laziness



Short wallaby grass. Also see images of grasses on cover page.

on my part. One conclusion I draw is that most grasses would do better on deeper soils.

A possible observation is that grasses decide what suits them best. Initially, I was inclined to place them where I wanted them, but they seem to have other ideas, picking up their skirts and moving. Actually, they just died in areas that didn't suit them, and colonised and thrived, relatively, in areas that did.

Grasses that have naturalised easily are weeping grass, common wheat grass, river tussock (*Poa labillardieri*), snow grass, many wallaby grasses (*Austrodanthonia* sp.), red leg grass (*Bothriochloa macra*) and corkscrew grass (*Austrostipa scabra*). Wheat grass has always been vigorous, although in recent years it seems to be declining in our garden (not sure why).

I believe river tussock should be planted in somewhat wet places, and often isn't, but it seems to thrive anyway. Some of the other poas

have amazing coloured stalks and are very attractive plants.

The several species of wallaby grass seem to come and go. My favourite, but not a stayer, is short wallaby grass (*A. carphoides*), which seems to be favoured by golden sun moth.

Red leg grass was self introduced but only seems to like dampish spots in our pavers, a bit inconvenient. The corkscrew grass, I suspect, will become a menace. Windmill grass (*Chloris truncata*), common in Gungahlin, arrived with some encouragement and seems to be naturalising nicely. A native lovegrass (*Eragrostis* sp.) and hairy panic (*Panicum effusum*), self sown, seem to turn up each year.

Four grasses that we have planted seem to thrive but have shown no sign of naturalising; tall spear grass (*A. bigenulata*), brushtail (*A. densiflora*), another speargrass (*A. rudis*) and red anther wallaby grass (*Joycea pallida*). *A. rudis* is a star performer, growing with vigour to two metres tall.

Amongst the grasses that struggle are kangaroo grass (*Themeda australis*), barbed wire grass (*Cymbopogon refractus*) and wild sorghum (*Sorghum leiocladium*). A self sown plume grass (*Dichelachne* sp.) also appears to be hanging on, and produced a single offspring which is surviving.

The presence of these grasses has taught me a lot about our local grasses and their likes and dislikes. Their habitat preferences in my garden parallel their preferences in nature. Those that seem to thrive in my garden are generally those which like dry and skeletal soils. It would be interesting to have others' observations.

## *Gungahlin Grassland and Woodland Sites* Grasscover

SAT 20 JUNE The 2009 FOG winter Canberra tour was not unlike its predecessors, the weather was cold, but thankfully not windy, and a small (ten people) but dedicated group of learners were eager to look at the selection of sites that Geoff Robertson had chosen. The aim of the activity was to look at some high quality, but somewhat neglected grassland and woodland sites in the Gungahlin area, which left to their own devices were slowly improving but were subject to the vagaries of management that did not appreciate their true worth.

The first site chosen was Franklin Grassland which is on Flemington Road a little north of Wells Station Road. Earlier this year, Anett Richter had organised a FOG Clean Up Australia Day event at this site which contains a population of golden sun moth. Unfortunately, a last minute reconnoitre on the Saturday morning, showed that the site was no longer accessible from Flemington Road, owing to road duplication construction taking place. A phone around of those planning to come allowed the group to meet at the second site, although it was necessary to meet a few people on Flemington Road and redirect them. In future, it may be preferable to access the grassland from Amy Whittington and Ellinor Walker Streets, Franklin (but these streets are not yet marked on Google Maps).

So the first site was Crace Grassland (see photo). The group met at the corner of Bellenden and Hoskins Streets Mitchell, and from there walked to a medium quality site within the reserve, where the group quickly started to identify grasses and forbs. While plants look pretty dowdy at this time of year, old foliage of lemon beauty head and blue devil were enough to get the group excited. Much time was also spent identifying the various grasses and other forbs present. Geoff said that the particular patch we were looking at was fairly typical of the Gungahlin grasslands such as Crace (we only touched a small part of it), Gungaderra and Mulanggari Grasslands, as well as the Franklin reserve. Much of these reserves comprise native pasture with significant patches of medium quality grassland. All could claim one to several threatened fauna and/or flora species. They were not particularly well looked after but slowly the grassland was improving. It was hard to extract people from the site as there was a keen interest to identify all the plants. On the way to the next stop



we drove by Gungaderra and Mulanggari Grasslands.

The next stop was 46 Wanderer Circuit, Amaroo, where we parked our cars in the narrow street and walked down across the bridge over Ginninderra Creek to two remnant grasslands. We passed a nice patch of apple box, and ex-

plored a patch of river tussock grassland and then a patch of stipa grassland also harbouring wallaby, kangaroo, nine awn and windmill grass and several forbs.

Geoff was familiar with this site as it was close to his home. He argued that patches like these need to be mapped and managed for the biodiversity values – it was pretty obvious that few people were aware of their existence. These patches could easily be linked together along

Ginninderra Creek and linked with ridges such as Ngunnawal Hill reserve. There was a lot more connectivity present than maps of Canberra showed, he said. We then drove along Wanderer Circuit, turned around and went to Evella Street, Amaroo, which almost joins Wanderer Street, near another part of Ginninderra Creek.

Ginninderra Creek at Evella Circuit is a spectacular site. There are several magnificent rocky outcrops. Geoff pointed out how this water system is linked to Horse Park Wetland, which is now on private land. Few people were aware of these treasures. There were two blights: One was the huge dam just north of Evella. This had drowned some nice creek areas, rocky outcrops and patches of remnant vegetation. Second, a high quality area of yellow box red gum grassy woodland, which contained some rare plants such as barb wire grass, had been overgrazed. Those who have visited here on an earlier FOG trip found this was disappointing. On the other hand the sward of kangaroo grass along the creek needed to be reduced.

Our next stop was about two kilometres away, near Hughes St, Ngunnawal. This is part of Hill Reserve which is linked to the previous sites just visited by native grasslands and woodlands. Again, there were many plants to see. As Geoff pointed out, the hill was an ecotone between dry forest and box woodland communities and had a rich grassy understorey. Over the years this had been improving.

Six of the group then adjourned to a coffee shop in Gungahlin and were in no rush to leave. They were finally evicted when the shop owners said they were closing up.



## Tongway on restoring landscapes *Groundcover*

Those who have been members of FOG for some time, will be aware that David Tongway has featured in many FOG on-ground workshops talking about landscape function. While we have enjoyed his notes on landscape function, and he has come to greatly influence the way we think about landscapes, many people have asked David, when are you going to write a book?

Well he has wound back his field work and is writing his book. David has kindly given FOG the cover and preface to his book, which explains what it is all about. David says that the book will retail about \$30US, a good price. Reproduced below is the draft preface to the book. It is part of a series supported by the Society for Ecological Restoration (SER) [<http://www.ser.org/>]. David has contributed to several other books in the series already.

David has informed FOG that the book does not cover the protection of individual threatened species as such, but the approach would be suitable as long as the investigators maintain some objectivity. A crucial part of the approach is a hard-headed appraisal of the current situation, and some people can't escape from their passionate wishes enough to do this.

FOG is very excited about this book and will no doubt be promoting it in various ways. Here is the Preface:

"Landscapes around our globe are in need of restoration. Basic functions such as the capacity to deliver goods and services to humans have been diminished when there is a critical need for such functions to be increasing as human populations grow.

*Restoring Landscapes* is not about returning all damaged lands to some 'pristine' state – it is about returning landscapes to an accepted level of functionality. The level of improved capacity to deliver functions (goods and services) depends on the goals of stakeholders – those people with an interest in or dependence on a landscape, whether or not they live in that landscape. Stakeholders may wish to restore a landscape to a more natural state to achieve improved biodiversity goals, for example, and *Restoring Landscapes* can help these stakeholders. However, the use of most of our globe's landscapes is to provide goods such as food, fiber and minerals, and ecosystem services such as clean water, to the billions of people who depend on these landscape functions. *Restoring landscapes* is about helping people improve the capacity landscapes to provide such goods and services.

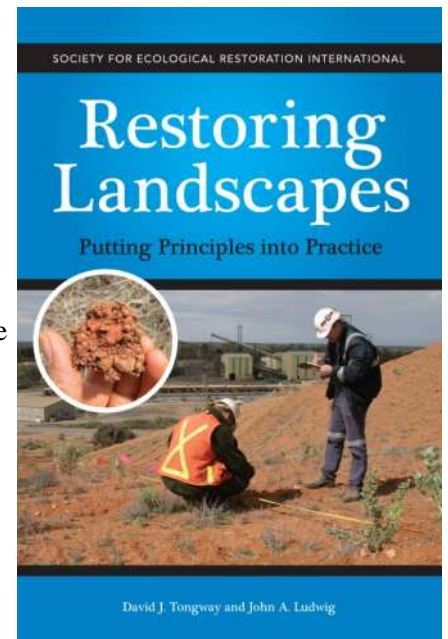
To effectively design a way to restore landscape functions, we first need to be clear about what we are aiming to achieve. This leads from identifying what landscape processes have become ineffective and what problems have resulted from these losses in efficiency.

The next step is to critically analyze the problem to gain an understanding of what has caused the loss of capacity. Then, solutions to the problem can be designed, which include selecting and applying landscape restoration technologies or modifying current management actions. The design also includes monitoring, that is, collecting data to evaluate whether gains in capacity have been achieved. If not, we need to re-examine whether the goals are still appropriate (were they too ambitious?). More likely, we will need to re-analyze the problem (did we underestimate the importance of a process?), and re-design a solution (what technology or treatment needs to be adjusted?). This going back (revision?) to improve restoration is called an 'adaptive learning loop' – a very important component of *Restoring landscapes*. If monitoring data and its evaluation indicates that restoration trends are towards the desired goal, then monitoring continues until the data confirms that goals have been successfully achieved – the end.

At the heart of *Restoring landscapes* is setting clear goals, critically analyzing the problem, designing effective solutions, monitoring effects, evaluating trends in data and, most importantly, adaptively learning to get improve trends, if needed (the usual case). In this book we will explain the principles behind this adaptive landscape restoration strategy, and we will present examples of why we have found that putting these principles into practice leads to successful landscape restoration.

Because of these examples of success, *Restoring Landscapes* will be of interest to restoration practitioners, which we view as a people with a wide range of interests and skills. For example, we see mine site rehab professionals, natural resource managers, members of the public caring for their lands, elected leaders responsible for public lands, scientists, and lecturers' education and training their students.

In our changing world with ever increasing populations needing the goods and services provided by landscapes, improving the capacity of damaged landscapes to carry on these functions is becoming an increasingly important challenge. We feel that *Restoring landscapes* will help all those facing this challenge."



## Tuggeranong Homestead

Jenny Horsfield

This historic property has stories to tell us about indigenous land use, early pastoral settlement and the War Historians' tenancy. MOTH (Minders of Tuggeranong Homestead) has been the voluntary custodian of the site since 1992 and is still very active in caring for the property from both an environmental and cultural viewpoint. We work closely with the present lessee, Neil Gillespie, who runs Tuggeranong as a conference and functions centre.

MOTH has appreciated the interest FOG has shown in the site, and we are especially grateful for the advice and expertise which Geoff Robertson has provided on his visits to the property. He helped us prepare an application for an ACT Environment grant some years ago, which allowed us to do much useful work in the remnant woodland, clearing blackberries and briars and removing rabbit burrows.

Geoff accompanied me on another ramble around the property on Monday 3 August. Having first visited the site about six years ago, Geoff commented on the many positive changes he could see since that time. The practice of adjusting horses has ceased, with subsequent recovery of grassland and young eucalypts. Native grasses favoured by our drought conditions, are colonizing well. We discovered two young black sally (*E.stellulata*) growing near an ancient parent tree at the corner of the property, where the original Tuggeranong Creek used to run.

MOTH is a founding member of the Southern ACT Catchment Group (SACTCG) and our coordinator, Steve Welch, has been very active in seeking support for long-term projects on the property. We are currently working on a large project to rehabilitate the old Tuggeranong Creekline, now a dry creekbed as all the run-off goes down concrete drains to the lake. Extensive plantings of native grasses (especially *Poa labillardieri*) has helped stabilize the steep banks of the creek, though plantings of other species have not been as successful – there is a lot of hopeful trial and error involved in this kind of work! We are also working towards establishing native grass cover in the old orchard, together with the preservation of a number of historic oaks. We have a working relationship with Calwell High School as part of the 'Schools to Work' program; we are able to obtain seedlings from Lanyon High School, and we also run occasional work parties with staff from Price Waterhouse Coopers. So caring for this property is a communal effort.

I had invited Geoff to visit the property this time out of a particular concern at the way African lovegrass is spreading from the surrounding suburbs and road verges. He agrees with me that this grass is now one of



Jenny Horsfield pictured in front of remnant grassland in foreground and box woodland in background at the Tuggeranong Homestead site.

the most potent threats to our native grass cover. His advice to me was to publicise as widely as possible the problem this weed poses and see if we can get government support. SACTCG also see it as a major environmental issue. We would like to see some spraying carried out as soon as possible but MOTH doesn't have the resources to deal with this. Any offers for on-ground assistance from FOG members would be gratefully received.

### FOG Membership To join or renew

FOG membership entitles you to receive our newsletter and e-Bulletin, to attend FOG's many and diverse activities, and much more.

**The cost is small:** \$20 for individuals and families, \$5 for students/concessions and \$50 for organisations. Membership is due on 1 January each year.

Membership forms are available on our website: [www.fog.org.au](http://www.fog.org.au) and you may pay by cheque or electronically.

While donations are not tax deductible, they are always very welcome.

**For inquiries** contact Margaret Ning on 02 6241 4065 or [membership@fog.org.au](mailto:membership@fog.org.au)



## Fire: Problems with control burning *Ted Edwards*

Many FOG members know Ted Edwards as someone who has made a major contribution to Australian entomology, particularly our understanding of moths, and who has made a number of contributions to FOG (photo from FOG archives, the FOG insect workshop 1 June 2002). I came across this thought provoking piece by Ted and asked him for permission to publish it. He asked me to stress this was his personal view as an experienced taxonomist -editor.

Control burning is carried out principally to reduce the dry fuel on the forest floor. Most Australian forests have a dry forest floor, and if moisture is present it is either only in the deep litter layer, already partly broken down in immediate contact with the soil or due to the temporary diurnal pattern of moistening from dew.

In sclerophyll forests and woodlands, dry litter is broken down by macro-invertebrates. Some macro-invertebrates, and all micro-invertebrates, fungi and bacteria only become important in moist litter. Almost all studies of litter breakdown have concentrated on the fauna of moist litter and have little relevance to the normal Australian situation. This is partly because many studies have employed Berlese (or Tølgren) Funnels which is a European-developed technique for studying the litter fauna. First dry litter is discarded and only moist litter is sampled. Next the large leaves and almost complete leaves are sieved out and only the already mostly broken down leaves are retained. The samples are placed on a broad-mesh sieve over a funnel. Heat and light is applied above the sample and the organisms escaping the heat and drying are driven through the sieve down the funnel into a jar of preservative below. This is an easy technique to use in Europe but it is no use in Australia, except in rainforest, where the litter is dry to start with. The fauna, which often makes cases for shelter in the surface layer of litter which is discarded in a Berlese Funnel, is adapted to remain in the case in desiccating situations where the case is the best shelter. It is this largely unsampled macro-invertebrate fauna which feeds on the whole or largely intact dry leaves in the surface layers of leaf litter that is important in Australia. This fauna is almost completely unstudied.

The macro-invertebrate fauna in dry litter consists (at least) of nymphs of grasshoppers (a few) and larvae of beetles (a few) and moths (many). The moth families involved are: *Oecophoridae*, *Lecithoceridae*, *Pyrallidae*, *Tortricidae*, *Hepialidae* and in some, moister situations some *Tineidae* and *Noctuidae*. In particular the ubiquitous *Oecophoridae* are important.



*Oecophoridae* are found in all Australian terrestrial habitats although they are less dominant in the most tropical northern fringes of the continent. There are thought to be over 5,000 species in Australia but fewer than half of these have been scientifically recognized and given names. Many of these feed on the green leaves of plants in the normal way but also a very significant number (we know too little to guess at how many, certainly hundreds, probably over a thousand) feed on dry leaf litter on the forest floor. In the only instance where counts have been made a mean of 438 larvae per square metre of litter was found. A series of 130 gram samples of litter yielded from 54 to 252 larvae. Further it is not unusual to see fallen Eucalypt branches where the dead leaves have been skeletonised by *Lepidoptera* and *Coleoptera* larvae. *Oecophoridae* are known to feed on the leaf litter of eucalyptus, melaleuca, kunzea, acacia, banksia, and poaceae.

This work has been done by taxonomists whose legitimate interest extends to the general outlines of the biology of the organisms they study but it does not extend to detailed studies of leaf litter break down. Taxonomists have taken these studies as far as they legitimately can, particularly given the endangered nature of taxonomic studies in today's science, the fundamental importance of taxonomic studies and the generations of work still to be done to even describe the Australian fauna.

What is relevant to the control burning method of managing forests and woodlands is that the macro-invertebrates, micro-invertebrates and the rest that are essential in leaf litter breakdown in Australian forests are entirely vulnerable to fire. Fire kills them all. The normal way that these invertebrates deal with fire is to repopulate from unburnt refuges following the fire. This is the basis of the recommendation that if control burning is essential (for political reasons) then a micro-mosaic burn is preferable over the large scale very hit-and-miss practices currently used. As an example of what is meant by hit-and-miss the air drop of incendiaries may be claimed to produce a burn of 30% of the forest floor. But usually the fire either fizzles or escapes and the figure aimed at is not even remotely met. Further, does 30% mean 90% of northern slopes and 10% of southern slopes or 100% of hill tops and 0% of creek banks or some other unknown combination? There are a few *Oecophoridae* which are known to live in silken tunnels in the soil and feed on the litter. However these are arid zone species and in this case living in the soil seems an adaptation to arid conditions and not fire. All species known which live in fire prone areas remain in the litter.

*Continued next page*

From a philosophical point of view, a technique (control burning) which kills all the biological agents of litter breakdown is very unlikely to be an efficient or effective way to control litter. Biological agents are able to control litter without fire. There are numerous sites which may be cited, without fire for 50 years, which have no excessive litter build up. Unfortunately some studies of litter build up after fire have had no adequate controls where a genuinely unburnt treatment was part of the experiment. Most have had an "unburnt" treatment which has in fact had less than a decade to recover and no cognizance was taken of the possible proximity of refugia. At the same time there have been no studies at all of the vagility of any of the biological agents of litter control.

There have been no adequate studies on the effect of control burning on biodiversity. Such studies as have been done, selected one or two groups to study and ignored the vast remainder of species affected. Often these chosen groups were chosen inadvisedly, for example ants were chosen because they were ubiquitous, common and comparatively easily identified. However ants are only one family, have a fairly standard biology, nest in protected places and are largely carnivorous or nectar feeders which because of their sedentary habits can have a plastic biology and switch between numerous food sources. As a choice for studying effects of fire it is a particularly unfortunate one.

Biodiversity studies are notoriously difficult. As a retired *Lepidoptera* taxonomist (and only one full-time working *Lepidoptera* taxonomist in Australia) I know that no, even vaguely complete, inventory of moths for any site has ever been attempted in Australia. Attenborough says with some justification (*Life in the Undergrowth*) that if a virus wiped out all vertebrates the natural plant communities as we know them would hardly change but if the invertebrates were wiped out the world would change dramatically. Yet vertebrates are studied to exhaustion and invertebrates ignored. We also know from experience that if one wants to collect moths in the top end of the Northern Territory, in the Darwin area the diversity of moths at night in an annually burnt area will be very low and much effort to seek places rarely burnt for geographical reasons is worthwhile. But no studies have been done and no figures are available and nor are there baseline studies available of what a genuinely unburnt area supports.

Biological breakdown of the litter results in recycling of the nutrients with little loss of nutrients to the forest. Burning results in vast nutrient loss to the forest. Loss of nutrients due to control burning is of major concern.

Repeated control burning will result in artificial selection within and between plant communities such as to favour rapidly growing, short lived plants. In other words the forest would change towards a weed scape or grassland. This is precisely what is not wanted. It

means that control burning, just from this effect, will become less effective year by year as plants which rapidly regrow and die are selected for. While it could be argued that grassland may result in a less intense fire each year the speed with which a grass fire moves can be very fast.

Control burning, for safety reasons, is carried out in a season when wildfires are unlikely. In other words, it is done in a season when the flora is most definitely not adapted to fire.

There is a lot of very dubious information about aboriginal burning and plant adaptation to fire. Aborigines had everything to lose and nothing to gain by extensive burning. Their gain was in accessibility to country and in concentrating game. A Canberra example is relevant. Kangaroos would have been very common in the frost pocket grasslands along the rivers and major creeks and particularly where forest cover was nearby. A sensible course would be to burn a patch of the small area between creek and forest to concentrate game which could be stalked from both sides. There was risk, and no point in burning much more, and certainly not in burning extensively and far from water. In central Australia, as the fauna did not mostly need surface water, burning may have happened elsewhere, but again there was everything to lose from large scale repeated burning.

There is also a major inconsistency in the stories of flora adapted to fire. Up to a point it is true that eucalypts and many other plants survive fire well. But the plants' adaptations have happened on a timescale quite different to the aboriginal time scale. *Hakea* and *Banksia* are said to be adapted to fire because they drop seeds after fire. But they also drop seeds when they die. Fire may stimulate germination but how many would germinate anyhow given enough time? So while these plants and eucalyptus are adapted to wildfires, these genera are millions of years old and the adaptations are for most species in the genera is slow, they have not adapted to an aboriginal fire regime which has only been applied over say 50,000 years. What the aboriginal fire regime has changed is the composition of plant communities and their extent. It has not had time to significantly change any species responses to fire.

Some people say many rare plants pop up after fires. This may be true and it does mean the some grasses and forbs can take advantage of an opening up of a plant community by fire, but it may be taking the observation too far to imply that these plants would disappear without fires. These plants may exist at a low density in a natural unfired community. In certain situations the opening up of plant communities is performed by invertebrates. An instance is the mixed grasslands and herb fields of alpine areas in Kosciuszko National Park where the larval feeding of the hepialid moth *Oncopera alpina* opens the grasslands to become herb fields which will gradually revert to grasslands and so a cycle without fire involvement is established.

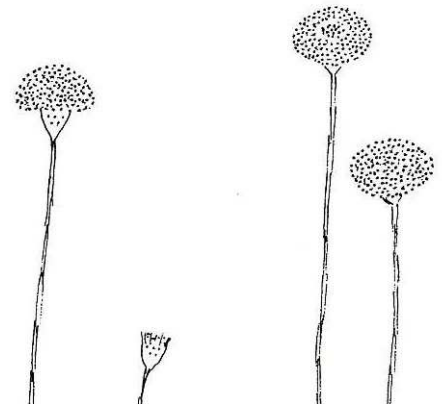


## Scaly buttons - *Leptorhynchos squamatus*

- a common and colourful yellow daisy - Michael Bedingfield

Button daisies are a common sight in our native grasslands, but what sort of buttons are they? There are our present subject, scaly buttons (*Leptorhynchos squamatus*), hairy buttons (*L. elongatus*), billy buttons (*Craspedia variabilis*), yellow buttons (also known as common everlastings, *Chrysocephalum apiculatum*), button everlasting (*Helichrysum scorpioides*), button wrinklewort (*Rutidosis leptorhynchoides*), and others. They are called button daisies because the flowers are similar, without normal petals, and are round and button-like.

It can be a little confusing using the common names, and sometimes they vary for the same plant. For example, in *Flora of the ACT* by Burbidge and Grey, published in 1970, the common names used for *Leptorhynchos squamatus* and *L. elongatus* are hairy buttons and scaly buttons respectively, the exact reverse of popular current common names given above. On the other hand, getting to know the botanical names of our natives requires a quantum leap into the unknown, because those names can be quite a mouthful. Despite the difficulty in making this mental jump it can be rewarding, and it is the best way of communicating accurately. Fortunately there are books which give the correct pronunciation of these words. We'll continue with the popular common name of scaly buttons, whose scientific name is *Leptorhynchos squamatus*, and it is pronounced lep-to-RINK-us skwah-MAH-tus. The common name comes from the plant being scaly on the flower stalks.



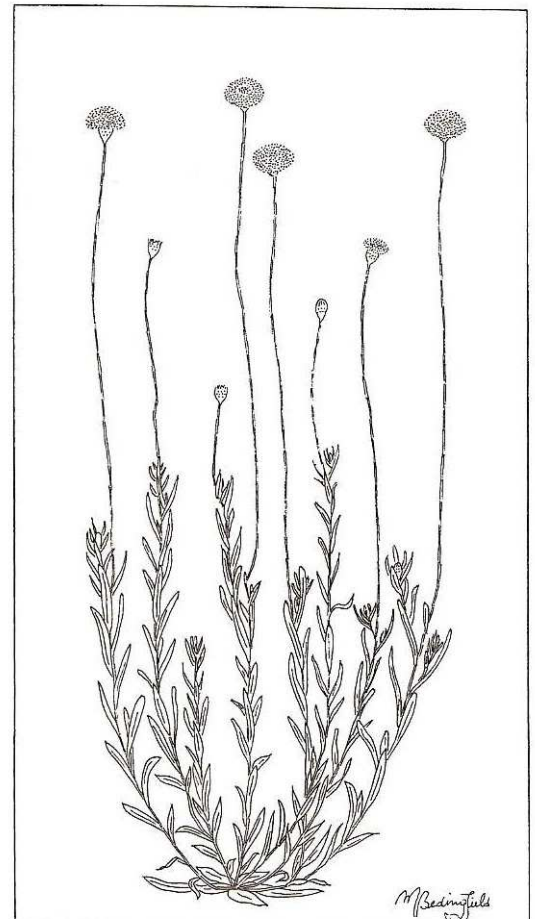
Scaly buttons are perennial, and in the Canberra region they begin their growing season in winter, producing new growth from the dormant rootstock. They start with a small rosette of leaves and the beginnings of flower stems. They seem to be able to do this in relatively dry times, provided there is just a little rain, and when spring arrives they have a head start. There is a spurt of growth in spring, and with only a moderate amount of follow up rain, they can be relied upon to flower. So there are usually some scaly buttons to see, if only in small numbers. On higher quality sites these daisies can occur in quite large patches. So in wetter seasons they can produce an exceptional display, a sea of yellow dots across a hillside.

The plant grows up to 30 cm tall, with multiple flower stems which can also be branched, with the yellow flowers occurring at the tips of the branches. The leaves are deep green and sparsely hairy, and grow along the lower part of the flower stems. The upper parts of those stems become a shiny brown-red as they get older. The older leaves of the original rosette tend to fade or dry out. The flower bud is brown and white. The yellow daisy has a dimple in the middle when young, a dome shape when fully developed, and is 8 to 15 mm in diameter. The peak flowering time locally is in spring. At other altitudes they will flower at different times to the Canberra region, and later in the high country. When the weather dries out, the plant browns off and withers, gradually disappearing from the landscape.

Scaly buttons are widespread and common in our region, occurring throughout NSW, from the coast to the highlands and out west too. They are also found in Vic, SA, Tas and WA. They have a different form at higher altitudes, however, with the underside of the leaves being white and woolly. They occur in a variety of grassy habitats, but especially grassland and grassy woodland. They do better on less disturbed sites, but are able to tolerate light grazing. They can even be found scattered among the dense swards of African lovegrass in the Murrumbidgee River corridor near Point Hut Crossing, where I noticed a few of them beginning their growth cycle this year as early as June.

It would take rather a lot of space to compare this plant with all the other button daisies so I'll just look at the one most similar, which is the hairy buttons. They have a lot in common, such as hairy leaves and the same shaped flower. A noticeable difference between the two is that the leaves are longer for the hairy buttons, perhaps the reason for its botanical name *L. elongatus*. The leaves of hairy buttons also have rolled margins, and the flower-heads are larger, being 20 to 35 mm wide. This is an uncommon plant, and occurs only on better sites.

The framed drawing shows the scaly buttons at half size, with a few flowers shown separately at normal size. *Leptorhynchos squamatus* is one of our more resilient daisies, providing a splash of colour in spring in our grassy areas, even in drier times.



## *FOG groups and projects*

**Activities** organises FOG field trips, talks, workshops, on-ground works, support to other groups, property visits, and the FOG calendar. Inquiries: [activities@fog.org.au](mailto:activities@fog.org.au).

**Advocacy** prepares submissions and advocates for grassy ecosystem issues. It holds occasional meetings and workshops. Inquiries: [advocacy@fog.org.au](mailto:advocacy@fog.org.au).

**African love grass (ALG) monitoring** holds monitoring days at the Bush Heritage property at Scottsdale. Inquiries: [linda.spinaze@fog.org.au](mailto:linda.spinaze@fog.org.au).

**Committee & correspondence** The Committee organises, coordinates and monitors FOG activities. Members are Geoff Robertson (Pres.), Isobel Crawford (Vice Pres), Al Gabb (Sec.), Sandra Hand (Treas), Kim Pullen (Imm. Past Pres), David Eddy, Stephen Horn, Tony Lawson, Bernadette O'Leary, Margaret Ning, Sarah Sharp, and Benjamin Whitworth. Andy Russell is public officer. Inquiries/correspondence: [committee@fog.org.au](mailto:committee@fog.org.au). Postal address: FOG, PO Box 987, Civic Square, ACT 2608.

**Communication** produces *News of Friends of Grasslands* and *FOG e-Bulletin*. Inquiries: [geoff.robertson@fog.org.au](mailto:geoff.robertson@fog.org.au) (newsletter), and [tony.lawson@fog.org.au](mailto:tony.lawson@fog.org.au) (e-Bulletin).

**Cultivation and Conservation** encourages growing of local grasses and wild flowers to learn about their horticulture and ecology, and produces *Cultivation Corner*. Inquiries: [janet.russell@fog.org.au](mailto:janet.russell@fog.org.au).

**FOG ANU Fenner School**, with the National Capital Authority, holds regular working bees at Yarramundi Reach (grasslands) and Stirling Ridge (woodlands). Inquiries: [jamie.pittock@fog.org.au](mailto:jamie.pittock@fog.org.au).

**Financial matters, excluding membership**, contact [sandra.hand@fog.org.au](mailto:sandra.hand@fog.org.au) or Sandra on 02 4846 1096.

**General inquiries** Contact [info@fog.org.au](mailto:info@fog.org.au), Geoff Robertson (6241 4065) or Janet Russell (6251 8949).

**Golden sun moth** In 2008-09, FOG conducted a major survey of GSM in Canberra region. Inquiries: [geoff.robertson@fog.org.au](mailto:geoff.robertson@fog.org.au).

**Hall Cemetery**, with ACT Government, holds regular working bees to protect the Hall leek orchid and generally restore the site. Inquiries: [andy.russell@fog.org.au](mailto:andy.russell@fog.org.au).

**Media spokesperson** Geoff Robertson (6241 4065). FOG is a regular contributor on Radio Landcare, Tues 9-10am on (2XX, Canberra 98.3FM).

**Membership and newsletter despatch** See Membership box (page 10). Newsletter despatch is fourth Tuesday of Feb, Apr, June, Aug, Oct. To help, contact [margaret.ning@fog.org.au](mailto:margaret.ning@fog.org.au).

**Old Cooma Common (OCC)** with Cooma Monaro Shire Council manages the OCC Grassland Reserve. Working bees are held twice yearly. Inquiries: [margaret.ning@fog.org.au](mailto:margaret.ning@fog.org.au) or [david.eddy@fog.org.au](mailto:david.eddy@fog.org.au).

**Southern Tablelands Ecosystems Park (STEP)** FOG helped established STEP (at Canberra's International Arboretum), a regional botanic gardens and recovery centre to showcase local ecosystems, especially native grasses and forbs. Inquiries: [limesone@grapevine.com.au](mailto:limesone@grapevine.com.au).

**Woodland Flora** is planning the production of *Woodland Flora*, the sequel of the popular *Grassland Flora*. Inquiries: [sarah.sharp@fog.org.au](mailto:sarah.sharp@fog.org.au).

**Website** ([www.fog.org.au](http://www.fog.org.au)) full of FOG information, back issues of *News of Friends of Grasslands*, and program details. Inquiries: [webmanager@fog.org.au](mailto:webmanager@fog.org.au).