



# News of Friends of Grasslands

*Supporting native grassy ecosystems*

*July-August 2005*

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## *Program*

SAT 2 JULY 1:00pm to 4:00pm. **FOG Winter Grassland Tour with David Eddy at Majura Field Firing Range.** (rescheduled from 18 June). The firing range has some of the best natural temperate grassland, yellow box red gum grassy woodland, and grassy forest remnants (around 330 native plant species) in the region and is not usually accessible, so please make an effort to join us. Seven threatened animal species and button wrinklewort have been recorded there. We will meet at Majura Field Firing Area turn-off on Majura Road. In either direction on Majura Road, there are green signs "Majura Field Training Area" 200m before the area. As there is a possibility of further postponement due to field-firing activity it is essential to book with Margaret Ning (details back page) if you are coming, and be punctual.

SAT 30 JULY 2:00 to 4:30PM **FOG winter slide afternoon** Two presentations: American Prairies and Reptiles of the Southern Tablelands with Geoff Robertson. Venue: Mugga Mugga Education Centre, Narrabundah Lane, Symonston ACT (opposite the Therapeutic Goods Administration Centre). Afternoon tea provided.

SAT 20/SUN 21 AUGUST **Coastal sea grasses at Narrooma** Saturday will be devoted to the study of sea grasses, led by Alan Scrymgeour. The Sunday program is still being considered, but this will be an interesting activity. You can also help us celebrate Geoff's 60<sup>th</sup> birthday on the Saturday night. For those staying on either Friday or Saturday night accommodation will not cost more than \$20 per person per night (campers free). Margaret asks that you contact her early. Full details of this activity are on page 2.

**For more FOG events in 2005** see page 4.



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- *Zornia dyctiocarpa; an uncommon grassland plant with a few secrets!*

Photos: Students from Telopea Park High.  
Story page 8.

## **News Roundup**

### **Di Chambers off to warmer climate** *Kim Pullen/Geoff Hope*

Di Chambers has resigned as FOG Secretary and from the FOG committee to work in Darwin on the 2006 Population Census.

Di was elected to the FOG committee at the February 2001 AGM, although she could not attend many meetings from June 2001 to August 2002 when she worked in Sydney on processing of the 2001 Population Census. In February 2003, and again in 2004, she was elected as FOG's Vice President and largely looked after administrative matters, as well as advertising FOG events to the wider community. At the AGM this year she flagged that she would be leaving Canberra in June, but took on the job of Secretary as a stopgap measure. This has been very helpful to both of us.

While Di's role has been a quiet one, she has made a great contribution over the years, and members of the committee will greatly miss her and her efforts. Di on the other hand is likely to have her hands full, but

looks forward to life in Darwin amongst the three metre high grasslands there.

### **FOG's new secretary**

Janet Russell has agreed to take over the position of Secretary following Di Chamber's departure. Janet has been a member of FOG for three years and has very much enjoyed the field trips and workshops she has been on since retiring from work in 2003.

Her main passion is the native garden she and her husband Andy started to create in 2001. The garden also has a small grassy woodland area in which they are starting to grow more native grasses and some grassland flora.

After a lifetime of working at a desk, Janet enjoys very much being outdoors and learning about the grasses and flora of the ACT and beyond. Despite swearing off membership of any committee, last year Janet agreed to make a contribution to the administration of the group by becoming the Minutes Secretary in late 2004, and has now agreed to take over the Secretary's job.

### **FOG welcomes alpine decision**

The FOG committee has welcomed the decision by the Victorian Government to cease grazing in the Victorian alps, especially as its members have observed at first hand the damage that can be done and which takes many decades to recover. FOG's Vice President, Professor Geoff Hope, an expert on alpine bog areas has written to the Victorian Government congratulating it on its decision and expressing his concern at Commonwealth's attempts to reverse decision. FOG has also written to the Victorian Government.

### **World Environment Day**

The Conservation Council reported that its World Environment Day activities were highly successful with the green cities workshop and its annual dinner. Apologies to those who booked too late. The Environment Expo on the Saturday had many groups participate including FOG which put on its display and even signed up a new member.

### ***FOG's Coastal Grasses Weekend at Narooma***

Saturday and Sunday 20/21 August

Where are Australia's richest grassy meadows found? Some would say in the warm tropical oceans into which Australia drifted some 45 million years ago after the break up of Gondwana. These grassy meadows are locked into the marine production system which produces seventy per cent of species found and eaten along our coast. Long before dry land grassy fields appeared, the marine meadows based on posidonia, zostera and halophila were driving estuarine ecosystems. These ancient grasslands still play their role from Byron Bay to Mallacoota. The Saturday will be devoted to the study of these sea grasses, led by Alan Scrymgeour. If you own a microscope, please bring it, or alternatively a good hand lens. Also small specimen jars would be useful. Some tramping through shallow water will be part of the day's activities and some work under cover will follow. The program for Sunday is still being considered. For those who wish to stay over on Friday and/or Saturday night in on-site cabins, please contact Margaret Ning 6241 4065 or Kim Pullen 6247-3639 to book for accommodation.

#### **NOTE FROM MARGARET:**

This will be a very interesting activity and the weather will be getting warmer, so it will be a good opening to the next spring season. Accommodation for the Friday and Saturday nights is 15 minutes from Narooma and includes a house with camping spaces. It won't cost more than \$20 per person per night (campers free), so please get in touch to book your places and support the new season's program. Also, Geoff's 60th occurs on the Friday and we would like to have dinner somewhere on the Saturday night to celebrate that.

Also please note that I would like to get expressions of interest **NOW** to gauge numbers (and make bookings) for both the sea-grass activity and the birthday celebration as I shall be away from Canberra from 31 July till 19 August. However I envisage that I shall be contactable by email while I am away (margaretning@iprimus.com.au or ning-margaret@hotmail.com).

## Overwhelming weeds art exhibit

Nicola Dickson, FOG member and visual artist, is holding an exhibition of her work entitled *Garden Games* from 22 July to 14 August at *The Gallery*, Canberra.

Her paintings and prints are botanical in nature and she has a particular interest in representing weeds so that they actually appear as the overwhelming plants that they are.

Her work explores some of society's past and current attitudes

to plants. She has a particular interest in contrasting how we enjoy experiencing plants in our homes in the form of pretty and predictable floral materials as opposed to how many plants act as overwhelming weeds. Sweet briar, Paterson's curse and blackberry are some of the plants represented.

The image shown is entitled 'Spread I' and is the first image in an artist's book compiled by Nicola, dealing with Baron von Mueller who, as most readers will know, is one of Australia's most famous and influential botanists, strong advocate of acclimatisation societies in the 1850s and accredited with having single handedly caused the widespread dissemination of blackberry in south-eastern Australia.

The exhibition will be opened by Dr Graham Eadie (6pm, Friday 22 July) and all FOG members are welcome to attend. The exhibition will be open 10-4 weekdays and 1-4pm weekends. The Gallery is located at the Canberra Grammar School, Monaro Crescent Red Hill.

All profits from the exhibition will go towards the weed eradication program at Camp Cottermouth owned by the ACT Scouts. Any enquiries, contact Nicola on 0407 309 455 or 6286



Nicola Dickson's etching, Spread I, from her artist book on Baron von Mueller.

7653. A brochure is enclosed with this newsletter.

### FOG response to Con Council Groundcover

The Conservation Council for the Canberra region recently received a retrospective substantial cut to its funding when the Commonwealth Government cut its GEVHO grant to meet administration costs from \$25,000 to zero.

The justification by the Commonwealth is that it should only fund on-ground work, e.g. tree-planting. Groups like FOG see the folly of this approach. It is like saying that to build roads, we ought to just get on with it without any assessment of the need for the road or other preparation work occurring. On-ground work is one element of conservation that includes research, education, and getting community involvement (advocacy). The government's action has been taken despite many reports that have now appeared to say that ill considered on-ground work may do harm to ecosystems, or waste money that may be better spent. Many FOG members have taken pen to paper to point out to the government their blind spot on this issue.

But I digress. The shortfall has led the Council to speed up its fundrais-

ing efforts, and some readers have received a letter seeking assistance.

The Council has asked member groups to assist, and FOG supports the Council doubling its fees. Despite its limited funds, FOG also made a one-off donation of \$600. Many other groups have also made generous donations.

FOG would also like its members to become more aware of the Council's work and this can be done by becoming an individual member (I-member) of the Council and/or making a tax deductible donation to the Bogong Fund. For more information contact the Council Office 02 6247 7808, e-mail ccerac@ecoaction.net.au or see web [www.ecoaction.net.au](http://www.ecoaction.net.au).

On 22 June the ACT Legislative Assembly passed a motion condemning the Australian government for its GEVHO cut to the Council.

### Bloody funny wasps - a new look at ant biology Dierk von Behrens

This is the title of a talk by Dr Robert (Bob) Taylor to the Canberra Field Naturalists, 7 July 2005 (8 pm Seminar Room, Gould Building, Botany and Zoology Faculty, Daley Rd, ANU).

## More FOG events in 2005

Please put these dates  
in your diary

SAT 17 SEPTEMBER 9:30AM to  
3:30PM **Old Cooma Common  
Working Bee**

THURS-SAT 13 to 15 OCTOBER  
**FOG grassy ecosystem  
tour of SA**

SAT 22 OCTOBER 10am to noon  
**Boorowa TSR.**

SUN MORNING 7:30AM 23  
OCT **Canberra Ornithologists  
Group and FOG, Jerrabombera  
Grassland Reserve**

SAT 12 NOV 2:00pm to 4:40PM  
**Workshop on basic grassy eco-  
system ecology and plant identi-  
fication**

SUN 13 (Not SAT 12) NOV  
2:00pm **Mugga Mugga grass-  
land walk** (not organised by  
FOG)

SAT-SUN 19-20 (not 20-21)  
NOVEMBER **Canberra Orni-  
thologists Group and FOG,  
Camp-out at Garuwanga, Bells  
Road, near Nimmitabel**

SAT 10 DECEMBER 10am to  
noon **Revisit Boorowa TSR**

Ants evolved from primitive wasps and retain many wasp-like characteristics which have greatly influenced their social evolution. The habit of wing-shedding after mating (with two exceptions) occurs nowhere else in the hymenoptera. How did this evolve? Why do ants not act as pollinators?

You will be delighted at the novel perceptions of our guest speaker who recently contributed to a *Harvard Festschrift* (celebratory publication) under the title of his talk to us.

Born in NZ, educated under E O Wilson at that international bastion of ant biology - Harvard - Bob has devoted a lifetime to the study of ants and their ways. Don't miss this intriguing illustrated lecture by the former curator of ants at Australia's National Collection of Insects at the CSIRO.

## Important native veg workshop

The Australian Network for Plant Conservation (ANPC) is organizing a workshop on rehabilitation of native vegetation in Armidale 19-20 July. The workshop will focus on the knowledge and skills required to undertake ecological rehabilitation and management of disturbed native vegetation. Themes include:

- NSW vegetation legislation essential for rehabilitation practitioners and projects,
- The ecological principles essential to planning a rehabilitation project,
- Applying the principles to actual rehabilitation projects (case studies, workshop activity, site visits, techniques), and
- Understanding the task (the goal for the site, consultation needed, responsibilities, issues such as conservation genetics, provenance, plant-microbe associations, monitoring and ongoing management).

The workshop will include presentations by experienced rehabilitation practitioners, a workshop activity and visits to selected field sites. There are concessions for volunteer community group members, students and pensioners. Registrations close 11 July 2005. For more information see web site <http://www.anbg.gov.au/anpc/wshop-NSWrehab-2005.html> or contact Sally Stephens 02-6250 9523.

## Woodlands birds - going, going ...

4 JUNE 190 people attended the Canberra Ornithologists Group (COG) seminar on *woodlands for wildlife - recovery of our birds* held at the CSIRO Discovery Centre. The majority of attendees were people from the general public who responded to the advertising, as well as good representation from government agencies and community groups. The purpose of the free seminar was to promote the conservation of woodland birds and their habitats.

As participants learnt, woodland birds continue to decline in the Canberra region as a result habitat loss and other factors. There is less than five percent of the original wood-

lands left in the south east of Australia, and much of this is in small, unconnected patches.

David Lindenmayer spoke on his large-scale studies, including studies involving landscape restoration and corridors, and natural experiments on woodland bird responses. He profffered some new insights into farm and conservation management practices. He summarised proposed experimental research for the Mulligan's Flat and Gorooyarroo reserves in the ACT to try to bring some of the declining birds back to the reserves.

Alison Rowell summarised trends from a decade of bird surveys in the ACT. COG has been undertaking systematic surveys in grassy woodlands in the ACT for 10 years. There are now 13 locations and 126 sites in the study, in the three key woodland corridors around Canberra. Some of our common birds like eastern rosella and willie wagtail are showing surprising declines at these monitoring sites, as are introduced species like common starling, and threatened species like brown treecreeper and hooded robin continue to decline.

Jack Baker talked on reversing the decline of the Cowra woodland birds. Most of the western slopes and plains of NSW have been cleared of pre-European native vegetation and most of the birds have cleared out too. The first wave of local extinctions was mostly larger birds such as the mallard, birds of prey (including owls), black and Major Mitchell's cockatoos, and parrots. Now, a second wave of extinctions is underway with many of the smaller bush birds at risk. Nicki Taws and Suzi Bond spoke of their study of birds' breeding in re-vegetation sites. Geoff Barrett talked about the Holbrook Re-birding Project.

These presentations, and the panel discussion that followed, gave some fresh insights into the reasons why some woodland birds were declining, even in our largest woodland reserves, and what could be done on a practical level to bring them back into the landscape. The seminar was organised in collaboration with Environment ACT and CRES/ANU.

## FOG supports Science Fair

6 JUNE. The Science Educators' Association of the ACT (SEA\*ACT) opened the 2005 Science Fair display at Hughes Primary School held from 6 to 10 June. The Science Fair has been running for 27 years and involves hundreds of students from pre-school to college in the Canberra region, showcasing investigative science learning in public, Catholic and independent schools.

Students enter as individuals or as a group. The themes, which reflect ACT Curriculum Framework strands, are: earth and beyond (geology), energy and change (physics), life and living (biology) and natural and processed materials (chemistry).

Some of the highlights in the 2005 competition included primary students investigating how to produce the best damper or care for praying mantis, and secondary students undertaking consumer research on the most effective sticking plaster, or the control of white cedar caterpillar migration.

The projects judged 'most scientific' combined originality with experimental rigor, but working models of trebuchets, posters and creative interpretations of body processes also reflected teaching in science, helped students understand the concepts and provided visual interest and excitement in the exhibit.

FOG was acknowledged on the night as being one of the sponsors, and Geoff Robertson who attended the opening on behalf of FOG said he was amazed by the originality of the work on display. The entries from Hughes Primary largely focused on grassy eco-systems. Readers might recall FOG's involvement last year in Hughes Primary School's work on grassy ecosystems (see November-December 2004 and January-February 2005 Newsletters) and, as

one of the judges commented to Geoff, that project opened up a whole new area.

Results of the SCIPs project which FOG and STEP supported were also on display (see article by Annie Ter-



On-lookers at the Science Fair exhibition.  
Photo by Annie Termaat.

maat in this issue). A project on shaggy ink cap mushrooms also caught Geoff's eye (after the FOG fungi workshop) as did many others.

SEA\*ACT also launched its new website, <http://www.seaact.asn.au/> as the first point of contact for ACT educators of science looking for locally produced resources and professional dialogue.

### **Purchase of grassland properties** *Rowhan Marshall*

One of my responsibilities as a Project Officer in Real Estate Industry Liaison, based in Benalla in northeast Victoria, with the Department of Sustainability and Environment is to find avenues where real estate agents can market properties with conservation values.

I would be interested in any organisation or group that purchases grassland properties and the criteria that may be

used in purchasing grassland properties. My contact details are [rowhan.marshall@dse.vic.gov.au](mailto:rowhan.marshall@dse.vic.gov.au) and phone 03 57611 569.

*FOG has already replied to Rowhan, but he would be interested hearing from others.*

### **High country alliance**

The FOG newsletter has followed the efforts of Jim and Mary Kelton to protect the Brandy Marys leases (near Tumbarumba NSW) containing montane peatland community and grassy woodland communities, each with their amazing array of orchids and other species (January-February 2005 and March-April 2004), since FOG's visit to McPherson Plain in December 2003 (see January-February 2004 newsletter).

Recently, their efforts have gathered support with the formation of the High Country Conservation Alliance Inc (HCCA). The alliance has now released its first newsletter (May 2005).

The newsletter reports on efforts to establish a Voluntary Conservation Agreement (VCA) over the Brandy Marys leases, and various submissions made by HCCA.

One interesting snippet was an extract of a letter from the Department of Environment and Conservation stating that the NSW Scientific Committee was concerned about grazing in montane peatland community. The letter mentioned that the department will approach Forests NSW to minimise grazing in State Forest tenure land where peatland community is present such as at Brandy Marys and other sites.

Margaret Ning attended the HCCA's most recent meeting, and reported that it hopes to get a VCA over the

leases but that this would be a first for a State Forests Crown lease. For more information, contact jim.kelton@bigpond.com.

### Frogwatch report

11 MARCH Rachelle McConville, ACT Frogwatch Coordinator, released the results of the October 2004 ACT and Region National Water Week Community Frogwatch Census. Nine species of frog were detected in the ACT including the spotted burrowing frog (*Neobatrachus sudelli*) not previously recorded in other censuses.

Almost 140 sites were surveyed by 230 volunteers. Their task was essentially to listen to frog calls and make a tape recording of 2-5 minutes (subsequently checked by Rachelle) at least one evening at a selected site during 17-23 October.

The most common species were the common eastern froglet and the spotted grass frog which was recorded at 94 and 91 sites respectively. These were followed by plains froglet (84), smooth toadlet (37), Peron's tree-frog (36), whistling tree-frog (32), eastern banjo frog (26), brown-striped frog (8), and spotted burrowing frog (1). The report is well presented and there is a picture of each species. Good work Rachelle.

The census is again planned for October this year, and participation is one way to learn about these amphibians. The report should be available on [www.environment.act.gov.au/airandwate/waterwatch.html](http://www.environment.act.gov.au/airandwate/waterwatch.html).

### Monaro Grassland Mail

#### Grasscover

Issue number 7 of *Monaro Grassland Mail* recently turned up in my mail, and I am always delighted to read this colourful gem.

There is a fascinating article by Jill Payne about her 33ha property and her efforts to keep it weed free since 1971. David Eddy has identified thirty-seven native grasses and forbs and ten native trees and shrubs. Unfortunately a fire break was imposed after the January 2003 fires, and this has become a source of weed infestation.

This has meant finding new strategies to recover lost ground.

There are several pieces by David, not to mention his magnificent colour photos, including an article on spear grasses and another on monitoring with photographing. There is a photo of a Monaro Grassland CMN member sign that are now starting to appear across the Monaro. Plus there is a lot more. For further information, contact David Eddy on 02 6242 8484.

## Stipa

### Fourth Native Grasses Conference

*Grasslands for production & conservation:  
both sides of the fence*  
11-13 October 2005, Burra SA

The sub themes are: where we have come from, where we are now, healthy landscapes - healthy profits, healthy landscapes - healthy biodiversity, establishment of healthy grasses, and healthy systems - a burning issue.

Inq.: Sue Rahilly, [suerahilly@bigpond.com](mailto:suerahilly@bigpond.com).

### ACT supports GED research

The University of Canberra with funding from Environment ACT is advertising a PhD to study the extinction process associated with the grassland earless dragon. The project should assist in finding better ways to manage and recover this species.

Closing date for applications is 31 October. Contact Stephen Sare ([sarre@aerg.canberra.edu.au](mailto:sarre@aerg.canberra.edu.au)), or Will Osborne ([osborne@aerg.canberra.edu.au](mailto:osborne@aerg.canberra.edu.au)).

### ANPC National Conference

The title of the National Conference of the Australian Network for Plant Conservation is *plant conservation, the challenges of chance* to be held in Adelaide on 26 Sept to 1 October. The deadline for submission of abstracts is 15 July, and the deadline for early-bird registrations is 30 July. For further information visit the conference website: <http://www.plevin.com.au/anpc2005/index.htm>

### Pygmy blue tongues discovered

23 SEPTEMBER 2004 The SA Herpetological Group (SAHA) *Spring 2004* newsletter reported that its members have found two new popu-

lations of pygmy blue tongue lizards which are found only in the mid north region of South Australia.

The pygmy blue tongue lives in spider burrows in areas of native grassland. Due to the reclusive nature of this animal, hand held torches and an optic fibre scope were used in the SAHG survey which visited 32 sites. Apart from SAHG members, 41 local landholders also took part in the survey. With this success under their belt, more surveys are planned.

### Lerp-infested trees not a problem

21 JUNE. According to an article in the *Chronicle News*, ACT Acting Environment Minister, Katy Gallagher said that lerp-infested trees were not a problem, and people with such trees in their garden should not use insecticides but should simply let nature take its course. Lerps are an important food source for some insect-eating birds, including the swift-parrot. The ACT government will monitor the situation over the next twelve months.

This small native insect has been damaging eucalypt trees around Canberra, turning leaves a mottled reddish brown and, in severe cases, making trees look as if they were dead or dying. Its full name is the white lace psyllid (*cardiospina albitextura*).

The damage occurs when the young lerp sucks the sap from the leaves, injecting a chemical that causes the distinctive mottled pink and brown appearance. However, the trees recover when the old leaves fall off and new ones grow. Lerp numbers increase every year in autumn, but this year there were more than usual. The last severe outbreak was in autumn 1999. The tree most susceptible to lerp attack is Blakelys Red Gum.

### One small Tasmanian grassland

SUMMER 2005 *The Web*, a newsletter of WWF's Threatened Species Network reports that a three hectare reserve has been created for a patch of basalt grassland near Brighton, Tasmania to protect one nationally and ten state listed threatened species. Previous this was crown and private land.

## Fun with fungi: FOG's workshop

Grasscover



21 MAY. Twenty-eight rugged-up people huddled inside Muga Education Centre for the FOG fungi workshop with Heino Lepp assisted by Judith Curnow. When introducing to Heino, Geoff Robertson showed some slides of fungi ending with a series of slides

showing a card and detailed response Heino had sent to FOG member Audrey Jones in 1996 in response to a query about a stinkhorn found at Garuwanga near Nimmitabel. Geoff said that Heino's response showed his natural enthusiasm, his sense of humour and the efforts he went to answer queries and encourage fungiphylia. Geoff said that this was now among the treasured memorabilia of Garuwanga. Heino said that looking at the advice nine years on, he wouldn't change it.

During the first session, Heino outlined the some fungi basics. He stressed that fungi are no longer considered plants; they form a separate kingdom. He later disclosed that he had begun photographing fungi when he began bushwalking after his arrival in Canberra. There wasn't much written about Australian fungi, so he naively thought there wasn't much to know and that it mightn't take too long to master. However, as each year passes, he said he becomes more aware of how

little is known about Australian fungi.

The number of larger species (macro fungi) alone would equal the number of plant species. There are many more micro species which can only be studied with the aid of a microscope. Only around five percent of Australian macro fungi have been formally described.

Macro fungi are best known by their fruiting bodies: mushrooms, coral structures, puff balls, stinkhorns, spine,

woody pore, leather or shelf, jelly, and cup fungi. However, the fruiting body typically represents only five percent of the fungi. Heino likened the fungi fruiting body to apples on apple trees in terms of the amount of mass that fruit occupies.

The main part of the fungi, the vegetative part, is the *mycelium* which grows in the soil or host body. It is a mass of fibres, which cannot be seen by the naked eye. A single such thread is called a *hypha*. The tips of the *hyphae* release enzymes which break down humus and absorb nutrients which are then circulated through the *mycelium*.

Fungi play many useful roles in ecology breaking down and recycling nutrients. Perhaps the most interesting are *mycorrhizal* fungi which have an intimate relationship with roots of plants providing them with nutrients, and often allowing an exchange of nutrients between plants.

Heino spent much time with his spellbound audience explaining the strategies that fungi adopt to grow, spread and find suitable hosts (vegetatively), or produce spores (sexual reproduction). Spores are usually carried by wind, but some species of truffles provide a food source and the spores pass through the intestinal tract of animals. A common microscopic feature in many fungi species is the *basidium*, a club-shaped structure bearing spores, typically four spores. Questions on these and many other subjects kept coming until time-out was declared for morning tea.



"I would be happy if you ate this, but I wouldn't".

After morning tea, time was taken up with answering questions that arose during the tea break. There was fascination with the subject of poison mushrooms. Heino then took up the challenge of identifying specimens from Geoff's slides taken at Garuwanga and other places over the years. Heino used each slide to illustrate many features of the fruiting bodies.

Many mushrooms are white, grey, and smooth,

and are difficult to identify to genus or species. Some genera can be readily identified by normal eyesight though many require a microscope. There were lessons here regarding the use of photography to identify species. With mushrooms, for example, the photographer should take a picture of the cap, the underside of the cap, the stalk (look for presence/absence of any ring of tissue or skirt-like membrane around the stalk), and the base.

People collecting field specimens for identification should ensure that they get the complete mushroom, including the base below ground. Heino recommended taking notes about colour (as these typically fade as the fungi dries out), any other characteristics and habitat. The specimen should be placed in a paper (not plastic) bag or in greaseproof paper and stored in a refrigerator, not a freezer. It should be noted that collecting fungi, as with plants, requires permission from the owner and/or a licence.

As some of Geoff's slides showed pictures of lichens, Heino took the opportunity to explain the structures and different forms of lichens. The Australian National Botanic Garden (ANBG) website has many pictures of fungi that may assist with identification ([www.anbg.gov.au/fungi](http://www.anbg.gov.au/fungi)) - though the emphasis of the website is general fungal information, rather than identification.

Many hands helped to get the antipasti lunch ready which went down well, discussion continued unabated, and many a new friend was made.

After lunch Heino set out on the tables a number of specimens that Judith and he had collected at Mugga that

morning, or the ANBG the previous day, and other specimens that some of the participants had brought for identification. Among the specimens that Heino collected were several that he said were exciting and would enter the national herbarium, including a bird's-nest fungus.



He described the Fungimap project which was an attempt to get a better understanding of the distribution of Australian fungi. This project had selected one hundred species of fungi that were readily recognisable by sight – some were common and some were rare. Amateurs could participate and those who had, had greatly helped to extend knowledge of Aus-

tralian fungi.

Some favourite Heino sayings were “the answer is both yes and no”; “the answer is both fast and slow”; and “I would be happy if you ate this, but I wouldn't”.

Thanks Heino and Judith for an outstanding day. Any inquiries about fungi (other than questions about edibility) can be sent to [Judith@anbg.gov.au](mailto:Judith@anbg.gov.au), but make sure that you mention fungi or Heino in the email title, otherwise Judith will be quick to delete any suspected spam.

## *School-industry partnership project*

*Annie Termaat*

SCIPs (school community and industry partnerships in science) projects are funded by the Department of Education, Science and Training (DEST) and managed by the Australian Science Teachers Association (ASTA). In November 2004 Telopea Park School was very fortunate to be offered a grant to the value of \$3000 in one of the three rounds available.

SCIPs projects are about creating connections between schools, teachers and the rich science and technology resources that lie beyond schools. The deep local knowledge and experience held by community groups such as FOG is an example of this type of resource.

In return, the SCIPs partners are supported by project publicity and have the opportunity to share their knowledge, perhaps interesting students in careers or community work involving the environment. In the future, Telopea Park School may also be in a position to donate plants to a model Southern Tablelands botanic garden at Birrigai by our Southern Tablelands Ecosystem Park (STEP) partner.

Our project aimed to develop awareness of significant Aboriginal staple plants in the Canberra region, and to

develop skills in data collection (involving transects), and in plant propagation methods. The grant enabled our students to have the opportunity to work with a plant ecologist on Black Mountain to study the impact of the reserve's fire history on red-anther wallaby grass (*Joycea pallida*), to explore several Australian plant habitats at the Australian National Botanic Gardens (ANBG), and to improve the school's facilities to support the cultivation and the creation of a permanent garden area for plants of Aboriginal cultural significance. Future directions of the initiative will include the propagation of additional plants for sale at Telopea Park School's annual fete, *Le Burp*, and to promote their introduction and use in domestic landscaping.

The students' activities were embedded within the normal Year 8 (plants/ecology) unit offered during term 1. Michael Doherty's (CSIRO Sustainable Ecosystems) address on plant responses to fire went far beyond textbook knowledge, was relevant to recent experiences of Canberra's community and used language the students could understand. He also instructed the class in transect techniques on Black Mountain and has offered to review stu-



students' analysis of the data generated on the excursion he led.

Josephine Walker of FOG and STEP provided a variety of bush tucker plants, seedlings, *Lomandra longifolia* seed (which is now germinating) and advice on suitable potting mixes and techniques. This was invaluable in helping students plan a garden of plants of Aboriginal cultural significance. A small number of seedlings of other species (based on the species identified from the ANBG Aboriginal trail) were purchased from the Society for Growing Australian Plants, and will also be naturalised within the Telopea Park School grounds.

Finally, Geoff Robertson of FOG presented a slide show to the class showing local grassland ecosystems and their significant biodiversity. He explained how with changes in Aboriginal husbandry and agricultural practice, some species such as the yam daisy have become rare. Many students were astounded by the huge variety and beauty of the local native wildflowers.

A direction in modern curricula is that they are personalised, i.e. cater for the individual interests of students. In this project, two students with a passion for mathematics were chosen to complete the statistical analysis of the class' data and report to the class; other students helped erect the polypropylene growth cabinet, assembled the metal garden shed provided in support of the project by the school's P&C, or publicised the project at an Australian Education Union stall. Throughout the year, small groups of students will also be rostered to help maintain the plants in the garden.

The project also matched the ethos of the International Baccalaureate Organisation's Middle Years Programme that is being introduced at Telopea Park School. This international curriculum directs schools to make links with the classroom and the community. The SCIPs project has been a model for Telopea Park school staff on how the programme's core perspectives, *Community and Service*, *Environment*, and *Approaches to Learning* can be embedded in a discipline without losing academic rigour. For me the whole experience has been professionally refreshing.

The permanent garden area of plants of Aboriginal Cultural Significance (with signage) means that awareness of this SCIPs project and the value of these plants will be sustained at Telopea Park School.

### Postscript: comments from students

Each student made comments on each of the activities and presentation. The following are a reasonable representative sample.



**Transect study Black Mountain** (top photo cover page) - "Mr Doherty taught us a lot about fire history and how the ecosystem responds. He showed us how some plants grow back. He also taught about fires and how the canopy doesn't always burn. I thought he presented the information clearly and really well. It kept me interested for the whole time."



**Visit to ANBG** (top photo this page) - "It was good to get out and actually look at all the habitats, ecosystems, different species of plants and how they live and where. There was so much variety there in a small space; you would have to travel all over the country to study these environments otherwise."

**Students assembling the growth cabinet** (bottom photo front page). "Building the glasshouse was interesting and I am sure it will be a useful addition to the

Photos by Annie Teraat:  
Front page and above: Telopea park students  
Bottom: Geoff Robertson in front of Telepoa Park class

school."

**Mr Geoff Robertson's presentation to class** (bottom photo this page). "His report about plants and the pictures he showed us was a good way of making it more interesting and informative. He interacted well with the class making the lecture fun and lively. We learned more about why certain plants were given the name they had. There were so many different flowers shown to us, but the main plant that caught everyone's eye was the 'Chocolate Lily.'"

**Class reflect on Mr Robertson's and SCIPs project the next day** (middle photo cover page). All the students have also been given a CD of photographs taken throughout the project. "I think this term's work has been more hands-on than theory. I think we learn a lot more when we go on these field trips, and have guest speakers to talk

to us about what we are doing in the unit. Mr Robertson taught us a variety of plants we find around Canberra and

throughout Australia. Using the SCIPs grant for these uses really helped me learn and get more out of science.”

## *Karen loves snakes, turtles and lizards*

*Geoff Robertson*



At a recent meeting of the ACT Herpetological Association, I was enthralled by a talk by Karen Guillen about her work on accepting injured reptiles, nursing them back to health and returning them to the wild.

Karen spent much time talking about the long-neck turtle, the main turtle indigenous to the Canberra region and beyond.

Turtles that are brought to her are usually injured by cars, and often the shell is split and may even be semi-detached. Dogs may also inflict damage on shells.

While some injured animals are euthanized immediately after inspection by a vet, some animals that appear to be very sick are assisted in the hope that they might recover. Reptiles have an amazing ability to recover from pretty serious looking injuries. Karen has become particularly expert in turtle recovery. Normally she cleans the injury, administers an antibiotic, rejoins the shell and secures it using tape. The wounded area has to be kept dry, which is a difficult task as turtles eat, drink and defecate only in water. Karen explained how she manages to keep the turtle shell dry if the crack is on the top, while allowing the animal to sit in water for a short while. After up to two weeks when the cracked area dries and natural rejoining of the shell commences, she uses a special paste and glue to seal and strengthen the recovering area. In the past, carers would use fibreglass, and some “experts” still advocate this, but, according to Karen, fibreglass is too rigid and does not allow the shell to grow normally. Karen is delighted when she can return a turtle to the wild.

Karen’s interest in reptiles does not stop with turtles, and she had many stories and pictures of different lizards and snakes. Her stories covered how they were rescued, what needed to be done to assist their recovery and whether they were released back into the wild. Because of their injury, some animals can not cope back in the wild, but are too healthy to euthanize and are kept in permanent care where they become important members of education programs, e.g. Jake the shingleback who is missing a front leg, and Bingle the bearded dragon who is blind in one eye.

Recovered animals mostly come from roadsides or from people’s properties. Injuries are caused by cars, dogs, cats, fences and garden netting - Karen has become adept at freeing brown snakes from garden netting.

Karen has come to prefer looking after reptiles because they do not form human attachments, as mammals do, and so they can be returned more easily to the wild. Her preference for them has also developed because in a perverse way she finds them delightful while most people find them ugly or to be feared.

I asked Karen how she thought her efforts contributed to the conservation of animals in the wild. She said that rescuing animals often provided an opportunity to help people understand how they might change their behaviour to protect and not destroy wild animals. Often landowners are won over when it is pointed out that snakes eat ro-



Long-neck turtle after the shell has been repaired with special paste and glue. Next page: Karen’s monitor, and Bingle the bearded dragon who is blind in one eye.

dents and without them we might be overrun with rats and mice, or that many lizards eat insects. Turning up and actually rescuing a snake will immediately keep that snake alive, while landowners may think their only choice is to destroy it. Explaining the predation by cats and dogs might also lead to more responsible pet care. Working with an injured animal in the presence of the less informed often arouses the interest and respect of onlookers. Sometimes this has led to some people become assistant animal carers.

As many people who keep animals know, living with an animal provides endless opportunities to learn about animal biology and behaviour. This is an extremely important source of knowledge which is being passed on to rangers, landowners and managers. In my own case, participating in the ACT Herpetological Association’s display each year has allowed me to get up close and personal with two threatened reptile species, the grassland

earless dragon and the striped legless lizard. I have observed many interesting biological and behavioural points at these displays. Looking after wild animals with the aim of returning them to the wild also enables the carer to learn about issues associated with ensuring successful survival in the wild.

I asked Karen whether returning animals actually helped their conservation. I suggested that removing an animal often opens up an opportunity for another animal, and returning it might just increase competition for limited food and habitat resources. While Karen saw merit in this view, she thought that returning some animals such as long-neck turtles and bearded dragons was particularly beneficial. Given that there is heavy predation of these species by dogs, cats (domestic and wild), and cars, she thought that returning these animals increased the likelihood that these species may survive in the wild.

In the case of turtles, which live a very long time, she is very concerned that only older animals are being brought in. She thinks that predation by foxes is wiping out young turtles and there is anecdotal evidence that foxes eat ninety percent of turtle eggs. Therefore returning breeding animals when the population of young turtles is very depleted at least gives turtles a chance.



A similar situation exists with bearded dragons. Once these dragons were numerous in the region but now they are rarely seen. Anything that can be done to return injured bearded dragons is a plus to their survival. In the case of more common animals such as blue tongue lizards, so high is the predation by introduced animals and cars in some areas, that replacing them is a bit of an insurance policy.

Karen is a very popular speaker and educator, and through her talks she has, like many people who keep reptiles, shared her experience of enjoying and learning about the reptiles that exist in the Canberra region.

Most people cannot identify any of the turtles, goannas, geckos, legless lizards, dragons, skinks, and snakes that are found in and around Canberra, but thanks to people like Karen, this is changing.

Karen told me that as a child she loved playing with wild lizards. She has been in Wildcare Queanbeyan, which rescues, rehabilitates and releases injured and orphaned native animals, for over ten years.

During that time she has specialised in caring for injured and sick reptiles. She is the Display Coordinator for Wildcare and organises displays at agricultural shows, fetes, etc. Karen is also a member of the Monaro Amphibian and Reptile Keepers (MARK) group.

## *Remote-sensing mapping of grassy ecosystems in the Southern Rivers CMA*

*Rainer Rehwinkel*

Southern Rivers Catchment Management Authority (CMA) recently funded NSW Department of Environment and Conservation (DEC) to produce mapping/modelling data of grassy ecosystems in two CMA regions: the Monaro (covered by the three local governments in the Monaro), and the Southern Tablelands section of the Shoalhaven catchment. Separate reports were produced for each region.

The mapping data are based on multi-spectral, multi-image analysis of Landsat data. In each project, multiple scenes covering a range of seasons and spread over a number of years, were analysed by Agrecon (a University

of Canberra-based company that specialises in remote-sensing technology), to produce maps of each of the two areas, using an unsupervised classification approach.

The maps, each with a number of mapping units, are informed by ground-truthing data points collected by Isobel Crawford and myself. Each field site area was a circle with a 15 m radius to approximate the 25 metre pixels in the final analysis. The field data collected at each site included:

- AMG eastings and northings,

- Vegetation type (native grassland, secondary grassland, grassy woodland, native or exotic pasture, crop/weedy pasture, or bare ground),
- Groundlayer structure (a qualitative measure of vertical and horizontal structure - high, medium, low, or none),
- Native plant diversity (a qualitative measure based on species richness and presence of declining forb species - very high, high, medium or low),
- Topography,
- Geology, and
- Other attributes that were not used in the analyses, including a full species list (natives and exotics, herbaceous and perennial) and their frequency.

For each project area, more than 270 sites were sampled. In some sites there is considerable variation (speckling) of derived mapping units that are adjacent to each other, even though such patterns cannot be detected on the ground. In other cases, one unit may actually include two or more different, though often related, vegetation types on the ground. In an effort to make the analysis more robust, each of the sample sites were "cloned" to the eight adjacent pixels. This has the effects of increasing the effective sample size and "smoothing out" the inherent variability in the resulting mapping units.

The mapping units derived by Agrecon were primarily described by the percentage frequency of occurrence within each unit of the vegetation descriptions of the sampled sites. Thus, mapping unit 19 is described as 30 percent native grassland, 24 percent secondary grassland, 21 percent grassy woodland, 21 percent native pasture, two percent mixed pasture, and one percent weedy pasture/crop. This means that of the sampled sites (121 sites in Mapping Unit 19), 30 percent were native grassland, 24 percent were secondary grassland, 21 percent were grassy woodland and so on.

Each mapping unit is further described by a table that gives the same sort of breakdown, by percentage frequency, of other attributes, including the groundlayer diversity, groundlayer structure, topography, and geology. Each of the mapping unit tables has information on the area occupied by the unit within each mapping region, the percentage area occupied, the number of sites sampled and the percentage number of sites sampled. In the Shoalhaven catchment, particular attention was given to secure samples proportionately to the area occupied by each mapping unit.

The resulting geographic information system maps can be read in a number of ways. The mapping units can be shown as "Vegtypes" where each unit is shown independently. Alternatively, categories (grouped units) can be shown. Another useful presentation of the data is to show units by the percentage frequency of "Native Groundlayer". Each of the mapping units can thus be shown in different ways, best thought of as "probability surfaces", indicating the percentage probability of finding that attribute in any given site, based on the ground-truthing data.

Further analysis can be undertaken, for example:

- Classifying units to fit the classes described in McIntyre *et al.* (2002) as used by the Monaro Conservation Strategy;
- Analysis with CRA data to derive extant patterns of under-sampled vegetation types; as in Fallding (2002);
- Modelling using threatened species records, CRA data and geology maps, etc., to produce modelled distributions of threatened species, as in Fallding (2002); and
- Gap analysis to model current distribution of an endangered ecological community and to plan further surveys, as being undertaken by the Grasslands Project Officer for the Natural Temperate Grassland National Recovery Team.

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## *Zornia dyctiocarpa*

### *An uncommon grassland plant with a few secrets!*

Michael Bedingfield



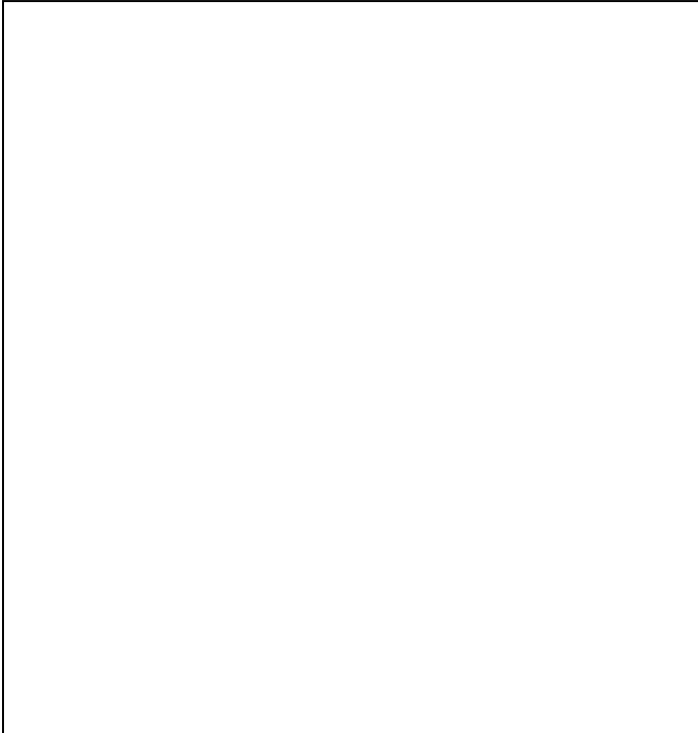
*Zornia dyctiocarpa* is a native perennial pea of grassy ecosys-

tems, with yellow-orange flowers. The flowers are small, don't open widely, and grow from within a pair of ovate shaped bracts, so they don't attract attention. The fruit is a chain-like pod of small seeds which break off separately. The leaves are bifoliate, i.e. having two leaflets, each of up to three cm length at the end of small stems. Its growth is prostrate and scrambling, often only 5 to 10cm high, and a large plant will be at most 30 cm high. Local plants are most often smaller and easily overlooked. In the framed drawing, the plant is presented at half size, and shown separately is a single flower at twice normal size, with two branch sections at actual size.

*Zornia* are dormant and invisible over winter in our region. In the warmer months, when there is sufficient rain, they produce tender new growth, flower and set seed. When it gets drier they brown off and wither, and soon there is no trace of them again. In a dry year they can remain dormant all through summer. So they are rather elusive and mysterious. For habitat they prefer grasslands, woodlands and open forests. They occur here in the ACT and on the Southern Tablelands, as well as elsewhere in NSW, and also QLD and NT. Although widespread they are a fairly rare plant and their locations are being recorded by Wildlife Research and Monitoring (WRM) of Environment ACT.

In the Tuggeranong Hill Nature Reserve near Conder there is a small patch of *Zornia*, which is in a vulnerable location quite close to the houses. In 2003 I talked to WRM, and with their support I set out to transplant some of them to a safer place. At the time they were dormant and invisible, but later during the following spring I dug up five plants and put them in pots. I kept them at home over the summer, to recover from the trauma and to produce some new growth. They did very well, flowering profusely and making hundreds of seeds, which I collected and are now in a government seed bank. As winter approached, the plants browned off, withered and became dormant again. I waited until there was a good winter rain to plant them out while they were sleeping. This came in August 2004, and I planted

them a short distance from a safer patch of *Zornia*. The spring was a bit dry and even though I watered them a couple of times they grew only a little. In December there was some good rain, and when I visited them in January I found all five plants had produced nice green growth, four had flowers and two had seeds. After the warm weather advanced they withered again and were hard to see. This followed their typical growth pattern. So far we have a success story, but I will be more confident of the method if they all reappear next spring or summer.



I was also asked to experiment with propagating the *Zornia* from seed. I was able to get some older seeds to germinate, but after a while the seedlings turned yellow and died. It was then suggested I get some soil from the base of established wild specimens and put it in the pot with the seeds. This is because some peas need certain bacteria in the soil in order for them to flourish. But the result was the same - the young seedlings sprouted but turned yellow and died. So, some further investigation is required to work out a way of propagating them. If anyone has done so successfully, Nicola Webb of WRM would be interested, and she can be contacted at work on 6207 2116.

As with a number of our rarer native plants a little work needs to be done to understand their habits and to ensure their continued survival. *Zornia dyctiocarpa*, an uncommon and interesting native pea which has its own secrets!

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