News of Friends of Grasslands

supporting native grassy ecosystems

March- April 2000

FOG'S COMING EVENTS

AUTUMN 2000

Saturday/Sunday 25/26 March – Victorian grassland sites at Mt. Beauty, Mt. Buffalo National Park and Chiltern Regional Park We'll travel to Bright on Friday afternoon 24 March, and Michael Treanor will show us around his new patch. Ring Margaret if you want to join us.

Saturday 1 April - Radio Hill, Cooma, Briar removal (part III) If you can help us please contact Margaret.

Sunday 9 April, 8am – Brooks Hill Reserve, Birdwatching and Identification FOG will join the Brooks Hill group for this activity. Members may know of Brooks Hill Reserve, which is a 71 hectare remnant of native vegetation and wildlife habitat off the Kings Highway between Bungendore and Queanbeyan. It is dominated by dry forest and woodland with either a shrubby or grassy understorey. The reserve is available any time for bushwalking, birdwatching, photography and passive recreational pursuits. Dogs, horses and trail bikes are not permitted within the reserve. The reserve is on the right of the Kings Hwy, 7 kms on the Queanbeyan side of Bungendore, on the NSW/ACT border – there's a big carpark, picnic area and composting toilet. Meet at this car park and bring hat, gloves, paper bags, secateurs, and your lunch. For more information contact Hilary Merritt, 6236 9317.

Important notes on coming events:

- *Please put firm dates in your calendar.*
- *For outdoor activities, don't forget your hat, sunblock and drinking water.*
- *For insurance purposes, sign in/out at activities.*
- *For information about activities (including times, venues and carpooling details), please contact Margaret Ning on 6241 4065 (home) or 6252 7374 (work).*

Saturday 29 April - Radio Hill, Cooma, Briar removal (part IV) If you can help us please contact Margaret.

Saturday/Sunday 13/14 May - Souths TSR camping weekend, Bungonia Rd Permission is being sought to run a proposed outing to this site. Isobel Crawford will lead us on this activity, east of Goulburn.

June – Some more grassland sites (Inner Canberra) As we did last June, we shall seek out some more sites mentioned in Action Plan No. 1 on Natural Temperate Grassland.

July – Slides afternoon

The Bugs were out in force for the FOG Alpine Tour. See story page 6. Photo: Andrew Paget.

ALSO OF INTEREST

Sunday 5 March, 1.30pm - Fisher Parkland Working Bee Meet on Namatjira Drive near the vehicular track entrance to the Fisher Parkland, next to the boundary of the Fisher suburb (where the speed limit changes). Bring the family, a weeding implement, sun cream, hat, gloves and a water bottle. There will be refreshments at about 3.30pm.

March 16-17, 2000 – Inaugural National Grasslands Conference To be held by Stipa Native Grasses Association, the conference will explore in greater depth a number of the issues and developments discussed at the recent Clare conference. These will include pasture cropping techniques; providing a forum for the dissemination of such information in northern areas; and a focus on the exhibition of new and innovative developments relating to the harvesting and establishment of native grass seed in the Central West region. The conference will be in Mudgee and the cost will be $190 for government/industry funded delegates or $160 for self-funded delegates. The fees cover all sessions, morning and afternoon teas, two lunches, a conference dinner, conference handbook and proceedings, and some local transportation. Please contact Margaret for a conference brochure if you are interested.

Monday, 20 March - ACT Alive at Old Parliament House FOG will have a display

Thursday 23 March – Managing Woodlands Workshop, Orange The aim is to bring together woodland scientists and extension officers to discuss research and current practices in the management of woodlands, particularly those with grassy understoreys. Contact: Erica Higginson, ph 02 9585 6659, email erica.higginson@npws.nsw.gov.au

Friday 24 March - Is a fence enough? Community workshop on managing your grassy woodlands, Cumnock This is the second day of the Managing Woodlands Workshop. It's for everyone, particularly landholders, to hear what the scientists came up with and to voice their own experiences. Contact:Mollie Whitehorn, ph 02 6367 7226, email tonkin@netwit.net.au

19-20 April, Adelaide - Urban Biodiversity Conference A national conference to explore the benefits and practicalities of conserving biodiversity in urban environments. Hosted by the SA Urban Forest Biodiversity Program. More information from Angela Loram: ph 08 8296 4124, fax 08 8285 7384, mobile 040 928 3608

Sunday 23 April, 10am-4pm – Tidbinbilla's Easter Extravaganza FOG will have a display

8-15 October - Weed Buster Week

NEWS ROUNDUP

Radio Hill -Part 1

Radio Hill is the prominent hill to the east of Cooma with the Telstra facility on its summit that you see from the centre of town. It is one of two sites that FOG received a grant to do reclamation and protective work on. Six FOG members attended the first Radio Hill working bee on a sunny Sunday 29 January. There was a breeze, so that it wasn't too hot. We concentrated on taking out Pyracantha and the Briar Rose at the northern end of the reserve. (The southern end is the real hotspot for these 'woody weeds'.) We destroyed a number of quite substantial plants and will return for more fun on 26 February. While the hill is full of weeds you at least have the pleasure of wandering around in the Themeda for most of the day. An interesting place - I hope you can help with this, FOG's big project, next time.

Grass Identification Workshop- 22 January 2000

Alan Ford

Twenty people attended this workshop dealing with the identification of grasses. It was held at Mugga Mugga education centre, thanks to Will Inveen.

The day was divided into seven elements and commenced with Isobel Crawford, whose CCE courses on local botany and grass identification have benefitted so many of us, speaking about the characteristics of grasses. Isobel provided some notes to assist us through the first session.

Isobel explained the importance of the hand lens in the recognition process before proceeding to significant features in grass recognition, such as the ligule and an illustrated description of the grass flower. From there to the easy questions, the difference between grasses and sedges, which is always the first problem-the importance of the leaf sheath is something that stands out. Isobel took us through features of *Austrodanthonia, Microlaena, Carex* and *Juncus* to illustrate the challenges.

David Eddy's topic was identifying key local (exotic and native) grasses in the field. His approach utilised his extensive slide collection to illustrate vegetative, as well as floral, characteristics that would give an individual some cause for hope when in the field. His coverage was extensive, *Themeda, Poa, Stipa, Austrodanthonia, Joycia, Elymus, Microlaena, Dichelachne* as well as exotics such as *Holcus, Phalaris* and annuals like *Vulpia* and *Bromus*. This tour de force of the characteristics convinced at least one present that it was possible to have a go at identification even if you weren't sure of every detail, or every trap. Isobel had given the general overview of the principles and what to expect and David had then filled in some details of structure and leaf form that could assist in identification.

Geoff Robertson then gave us a personal view of learning about grasses. He raised such issues as the What, When, Why and Where does a species grow, related to ideas of dominance, abundance, whether common or uncommon, soil aspect and temperature. He referred to the importance of developing a herbarium to assist identification. A walk was held just prior to lunch to introduce the party to the Mugga Mugga grassland site.

In the afternoon Andrew Paget provided an engrossing insight into collecting native grass seed and growing native grasses. Andrew mentioned the progressive ripening quality of native grasses and the need to ensure that you took this into account when harvesting. He indicated that it was vital to test whether the seed was ripe and to conduct a fill rate test-for instance ripe seed per 100 florets - as well as germination tests before planting. He also provided a detailed account of the various methods used to plant native grass seed on a large scale. He described C_3 and C_4 grasses – the former have 2-4 month dormancy after ripening and should be sown early autumn. The latter have 2-9 month dormancy after ripening and should be sown early spring (see Andrew's table on page 9.)

Geoff Robertson then introduced the general principles relating to the monitoring of grassland sites, raising the question as to whether FOG should become involved in monitoring sites with the long term aim of producing a book on a selection of sites in the area. He raised the issue of whether FOG could play a part in research, what skills are required and how they could be achieved.

The day concluded with a practical identification session led by Isobel, utilising the Grasses of NSW and the Flora of NSW. The group attempted to identify a grass found during the pre-lunch walk and it provided an insight into just how difficult it can be. Thanks to Geoff and Margaret for organising the day, and to our speakers who provided stimulating sessions.

FOG's Annual General Meeting

Twenty one people attended the AGM on 19 February. For those of you who couldn't make it, you missed a short (one-hour) meeting and a delightful BBQ in the warm summer evening at Mugga-Mugga. Thanks to Will, again our host.

While it was a short meeting there was plenty happening. The old committee, thinking that they might get it right this time were largely returned with some notable exceptions. Former President, Art Langston stepped down from both his position as Treasurer and from the committee. Paul Hodgkinson, a former secretary, also stood down. Dierk stood down as Vice President (but remains on the committee). Michael Treanor was elected in his place. As Michael lives in Victoria, there will be a challenge to see how Michael's many talents will be used. Alan Ford (new Treasurer) and Benjamin Whitworth both joined the committee. Welcome both.

Geoff Robertson in his President's report gave a frank account of the achievements and problems. He mentioned a litany of names that make FOG what it is and, as usual focused on the tasks to be done. He also mentioned that he had been invited (and has accepted) membership of the WWF/NHT Grassy Ecosystems Grant's Assessment Committee and the Grassy Ecosystem Network (South East Australia) Steering Committee. The Treasurer's report indicated a healthy increase in the underlying financial situation, and the membership had also shown strong gains in 1999. Margaret Ning tabled an activities report summarising the activities for the year. Naarilla tabled a summary of the Workshop (23 November) on Where FOG is Heading. If you want to receive any of these documents please contact Margaret.

Conservation Council

The Conservation Council put in a comprehensive statement to the Urban Services Committee (St. Valentine's Day) on the Draft ACT Budget. Some highlights were: stressing the need to the Government to set targets for conservation and to account for selling off land, especially that with conservation value, as asset sales and not revenue. The statement highlighted the real cuts in environmental spending and while applauding many of the Government's announcements on the environment (eg Action Plans for threatened species and weed management) expressed serious concern that these

initiatives were for the most part unfunded. Copies of the submission are available from the Conservation Council.

Another initiative of the Council is the Woodlands-Grasslands Group, which meets on the third Thursday of the month. Jenny Bounds provides some background in her article on page 4. A few Foggers are taking an active interest.

Symonston chosen as prison site

On 29 December the ACT Government announced that it had chosen Symonston as the preferred location for the proposed ACT prison. Minister Gary Humphries mentioned that the Legislative Assembly Standing Committee on Justice and Community Safety had recommended the Government consider either Symonston, or Kinlyside in Gungahlin after an exhaustive process of public consultation.

Gary Humphries said the reasons for the choice were that the establishment costs, given that water, roads, electricity, telecommunications and stormwater were already largely in place, would be $170,000 compared to $700,000 at Kinlyside. Kinlyside was zoned as residential, whereas the prison boundary would be well away from residential areas and the long-stay caravan park in Narrabundah. Symonston currently houses the Quamby Youth Detention Centre and the ACT Periodic Detention Centre. The site is relatively close and accessible to the City, including by public transport. A key component of offender rehabilitation is the need to ensure accessibility of the prison by relatives. He also addressed environmental concerns.

Readers will recall that Friends of Grasslands made a written and verbal submission in the public consultation. While FOG did not have a preferred site, it pointed out that in choosing a site, environmental advantages and disadvantages need to be considered. There could be a number of environmental benefits in choosing Symonston, provided siting of the prison, materials used, etc. were consistent with the protection of the grassland and their threatened resident, the Grassland Earless Dragon. One advantage could be that the buffer around the prison could mean that a larger area of grassland could be conserved. See July-August issue of Newsletter.

The Minister stated considerable site planning work has to be undertaken before any developing can occur. He accepted that the site has threatened species of flora & fauna which need special attention in the development and management phases. The size of the site is 205 hectares whereas the likely size of the prison would be only 20-25% of that.

He mentioned that there will be ample opportunity for people to comment on aspects of the proposed siting, including environmental and social considerations. This will be important from FOG's perspective.

Brooks Hill

Alan Ford

On 15 January I attended the Brooks Hill seed collection outing conducted by the Brooks Hill Trust. The Reserve of about 70 hectares is on the Kings Highway just before Bungendore. We entered the Reserve from the picnic area at the Bungendore end and were confronted by Wallaby Grasses and, in particular, by a magnificent stand of Redanther Wallaby Grass. On the other side of a small creek Kangaroo Grass prevailed, as it did as you went up the hill. This is a mystery and may be due to changes in the soil or to different management regimes. Seeds were collected from Acacia and from local grasses and I finally learnt how to collect seed from grasses. An interesting Reserve which is well worth a visit. FOG will return to the reserve in April 2000 (see page 1).

L to R: John Wilkes, Ros Cornish and Will Inveen getting into some id at the Grasses Id workshop held at Mugga-Mugga. See story page 2. Photo: J. Geue

New suburb of Lawson

On 27 January Treasurer Humphries announced the creation of a new suburb, Lawson, between Kaleen and McKellar. He also said that the site of the Naval Station (currently Commonwealth land) is on track to have its first release of residential land within about two years. In all, the area comprises some 90 hectares and will be a mix of residential and open space. The Draft 2000-01 Budget sets aside $220,000 for design. The ACT Government will work closely with the Commonwealth Government to ensure the protection of heritage and environmental assets. As many of you know, the Naval Station is the site of a high quality grassland area. The Government has also announced 500 additional residential blocks becoming available; this time in Conder 9 and Banks 3.

Management plan for Canberra Nature Park

Jean Geue

Minister Brendan Smyth launched the Management Plan for Canberra Nature Park on Wednesday 9 February 2000 at the Aranda Snow Gums Heritage Site. Expounding on the 1989 aims in the initial letterbox drop and on the twelve year gestation period, the Minister agreed with the philosophy expressed at that time and said that consultation and good results always take a while.

The saga that started in 1989 continued with community input to the September 1996 *Draft Management Plan* with fourteen pro horse-riding submissions, seven pro bikes, four anti bikes, two pro gun dogs and eight general conservation ones (including a substantial one from the Conservation Council and the National Parks Association). The community got its chance again with the December 1997 *Final Draft* and a public hearing on 3 July 1998 by the Legislative Assembly Standing Committee on Urban Services. The government response to the Committee's twenty recommendations included commissioning a scientific report on horses in Canberra Nature Park, walking every horse trail and assessing each against guidelines from that report. Jill Landsberg's scientific report, a six-page document on managing horse riding, and the government response were tabled in the Legislative Assembly on 2 July 1999. The Management Plan itself was tabled late August and came

into force early September. The tradition was maintained with a six-month hiatus (printing/ Christmas) to launch the report.

The government has promised an 'Implementation Plan' within twelve months of the release of the *Management Plan*. Get your copy and comment if necessary - the devil is often in the detail. Parkcare groups get at least one free copy, otherwise they can be purchased from Macarthur House. A photocopy of the Landsberg report is available from Bill Logan at Environment ACT for $10 and I can supply the short documents tabled on 2 July 1999, preferably by email.

Science at its best

On 18 and 19 February, Iain Dawson and Susan Winder (ANBG) presented their results on Maximising Native Grass Seed Germination for the ACT Region. This was a two-year study funded by ACTEW and the Natural Heritage Trust. This was a most fascinating seminar and explained many things about seven of our favourite grasses. We hope to have a fuller report in a later newsletter. For more details I suggest you jump onto hppt:/ /www.anbg.gov.au.

Mitchell Grassland

Anne I'Ons

For the last 20 years I have monitored a small remnant of grassland in Mitchell. Hidden among the light industrial businesses on Vicars Street is a tiny, almost pristine grassland. Dumping is threatening this unique remnant, but Urban Services are trying to help with its preservation. I contacted Tony Bray about fencing off the section, and he has started the ball rolling. I hope to have more action to report within the next month. Scattered throughout the mainly native grasses are some superb examples of Blue Devil *(Eryngium ovinum),* a delight to behold in all their electric blue finery.

Proceedings from the Clare Bushcare Conference

The proceedings from the Bushcare Conference: Balancing Conservation and Production in Grassy Landscapes, held in Clare SA from 19-21 August 1999, are now available. Copies have been posted to those who attended the conference. Anyone else who would like to obtain a copy (free of change) should contact Environment Australia's Community Information Unit on freecall 1800 803 772.

PROTECTION OF WOODLANDS & GRASSLANDS IN THE ACT

Jenny Bounds

Jenny Bounds is a former President of Canberra Ornithologists Group, currently a Committee member, and a member of the Conservation Council Executive. She is involved in the management of COG's woodland surveys project and in the Regent Honeyeater Recovery project of Birds Australia.

In 1997, the Grassy Woodlands were declared an endangered community in the ACT and a suite of woodland birds were listed as threatened, under the Nature Conservation Act 1980. Canberra Ornithologists Group prepared the submissions to have the six bird species listed:

- Regent Honeyeater (endangered)
- Superb Parrot (vulnerable)
- Swift Parrot (vulnerable)
- Brown Treecreeper (vulnerable)
- Hooded Robin (vulnerable)
- Painted Honeyeater (vulnerable).

Grassy Woodlands are ecological communities where Yellow Box or Blakely's Red Gum or both are present, commonly dominant or co-dominant, and include alliances with other species such as Red Box or Apple Box. By definition, the trees form an open canopy above a species rich understorey of native tussock grasses, herbs, and scattered shrubs, in a variegated mosaic of vegetation patches with features transitional between forest and grassland. Conservation status for listing is assessed in a regional context, the bio-region, although management actions are limited to the ACT.

Since 1995, COG has been undertaking seasonal surveys of bird abundance in these communities, using point counts, at various sites across the ACT, commencing with Mulligan's Flat Reserve in 1995, and six more sites in 1998 (3 leaseholds, 2 additional nature parks and Majura Range, a Commonwealth owned facility).

While data has not yet been fully analysed, some interesting observations have emerged and questions and issues raised. Some sites adjacent to urban areas present few surprises, with less variety of species and high levels of feral bird species. With other sites, especially the large nature reserves and leaseholds distant from urban areas and with good quality habitat, there are questions of why the Brown Treecreeper is so patchily distributed or appears to be declining when there have been no noticeable changes to the landscape.

In 1999, Action Plans for Grassy Woodlands and the six threatened bird species were released by the ACT Government after community consultation. These outline conservation and protection proposals for the species or community, with the primary objective to maintain for the long term, viable populations of species or samples of the ecological community. There were some very good outcomes:

- Additional areas to be added to reserves: Mulligan's Flat - 28 ha to SW corner, Mt Majura – 19 ha east of Antill St, East O'Malley – 42 ha added to Mt Mugga reserve (this land was earmarked for housing development)
- Gooroo – planning review of this important area currently future residential on the Territory Plan
- Castle Hill & Symonston – management of native vegetation through Land Management Agreements (LMAs) with leaseholders
- Management of other areas, eg Majura Range, Majura Valley, Mt Majura & Mt Ainslie links, through LMAs or MOUs with government authorities.

A Woodlands Forum hosted by the Conservation Council and the Wildlife and Monitoring Unit of ACT Parks & Conservation Service was held in October 1999, to involve the community in ongoing management issues. One issue discussed was the definition of Grassy Woodland and the problem with some areas considered by community groups to be of high conservation value, or known to provide habitat for threatened species of fauna, which do not fit the strict definition of the listed Grassy Woodland community. While the fact that an area does not meet the strict definition will not mean it cannot be protected or managed as part of a vegetation corridor etc, the process is not as straightforward.

A good example is the Newline Quarry area near the airport, where 2 threatened bird species have been recorded; this has a mostly exotic grass understorey, but large numbers of mature, closely spaced Yellow Box and other species of trees are also present. Regent Honeyeaters have been recorded at Newline, a species which utilizes nectar from Yellow Box but which is not fussy about the quality of the understorey. Newline is apparently government owned land grazed under lease arrangements and should be managed in a way sensitive to the significant bird fauna using the site.

Another example is a grasslands site at Conder proposed for road development which has a very high quality, intact native grasses and herbs community, and Hooded Robin records in the past, but the site falls between the definitional cracks of a grassland and woodland. A conservation 'battle' with government has ensued over this site.

Over the next 12 months, COG is extending its woodland surveys to at least another four sites. It has representatives on the Woodlands and Grasslands Working Group of the Conservation Council which will be developing strategies and long term plans for both high conservation areas and areas not covered by Action Plans. A particular focus will be the conservation of broad corridors of native vegetation, adequate management arrangements, properly funded research and public education.

COG has identified a number of issues which need to be focused on in the future.

- 5 years of Mulligan's Flat data to analyse – a grant will be needed to fund this future management of Mulligan's Flat Reserve - tree regrowth, urban presence as houses encroach and cats and dogs
- Gooroo, a very important area adjacent to Mulligan's – input to the planning review & management of leaseholds
- Rural leaseholds – native vegetation management through LMAs
- Research on the ecological requirements and distribution of the Brown Treecreeper in our area
- Listing of another group of woodland birds declining in the region - Jacky Winter, Diamond Firetail, Speckled Warbler, Painted Button-quail, Southern Whiteface.

COG is also alarmed, as are other environmental groups, about serious and sustained cuts to the budgets of environmental agencies in the ACT, which will hamper their ability to properly implement the Action Plans for threatened species, as well as many other environmental policies, strategies and projects.

Mulligan's Flat Nature Reserve

- Increased from 130 species to 155 since 1995
- 40 breeding species to 78 since 1995
- Has four threatened species
- Superb Parrot first record 1998
- Hooded Robin stable population, several pairs
- Brown Treecreeper – resident small number – status is uncertain and appears to have declined in last decade
- Regent Honeyeater - 6 birds in 1999 (other records 1985 and 1993)
- Diamond Firetail and Double-barred Finch have declined in last 12 months (possibly since last drought period)

Gooroo (NE Gungahlin)

- Good quality habitat - grazed by sheep
- Adjoins the south-eastern edge of Mulligan's Flat Reserve
- at least 3 Hooded Robin territories/up to 9 birds on one visit
- 1999 - pair Regent Honeyeaters attempted to breed
- Brown Treecreepers occasional
- Records of woodland species known to be in decline regionally - Jacky Winter, Speckled Warbler, Diamond Firetail, Southern Whiteface
- Red-capped Robin breeding

Mt Majura Nature Reserve

- Mostly good quality woodland on fringes of NE urban areas
- Some prior grazing – some weed infested areas
- Part of important corridor from Mulligan's Flat running south through Gooroo
- Wide variety of woodland birds, eg thornbills, gerygones, Scarlet Robin, Leaden Flycatcher, Sacred Kingfisher
- Five species of cuckoos, pair Koels December 1999
- No threatened bird species in any plots
- Regent Honeyeater breeding in 1995
- Diamond Firetail, Speckled Warbler records in area
- Common Myna in nearly all surveys
- **Majura Firing Range**
- Large Defence facility – good quality woodlands and mature trees
- habitat overall not as good as Gooroo or Mulligan's Flat (less diverse understorey, past grazing, clearing and other activities have caused some erosion and degradation)
- Resident populations of Hooded Robins in southern area
- Brown Treecreepers scarce
- Southern Whiteface, Diamond Firetail – regular spots where recorded

Symonston (Callum Brae/Mt Mugga area – leasehold)

- Degraded in parts, few trees/weeds
- Plots with good understorey scarce
- Mt Mugga area proposed for CNP
- Good variety of bird species - one area number of trees with hollows – rosellas and martins nest there
- Transient species – birds move through
- Nesting Kestrels and Little Corellas, & Peaceful Doves regularly
- Brown Treecreeper at 2 places where fallen timber
- Diamond Firetail records in past, but appear to have declined in last 12 months

Castle Hill (leasehold north of Tharwa)

- Extensive tree re-growth, some defoliation of young and old trees
- Low density sheep grazing - no obvious impact
- Bird species diverse and abundant
- On honeyeater migration route
- Occasional records of Hooded Robin, Brown Treecreeper, Jacky Winter
- Regent Honeyeater records in past (1980s)
- Rufous Songlarks back in 1999 season after several years absence of bird species - one area number of trees with hollows - rosellas and martins nest there in last 12 months

Red Hill Nature Reserve

- Site surrounded by urban area
- Around 50 species recorded
- No threatened species
- Speckled Warbler abundant
- Feral species common - Common Mynas and Starlings on fringes of suburbs



TWO grAussies IN MY GARDEN

Philippe Gontier

These days Europe seems to be successful for Australian people: from the Rugby world cup to the Davis Cup they have brilliantly met victory. Some Australian grasses do succeed well in my garden too! Its location is about 65 kilometers north-east of Toulouse, in the south-west of France. There I grow several poaceae among them : *Poa labillardieri* and *Themeda triandra* var. *japonica* also called *Themeda japonica.*

Poa labillardieri, (Tussock), is named in reference to the French botanist Jacques Julien Houtton de Labillardiere (1755-1834). It is a showy mound of falling thin leaves growing in Australia and New Zealand. Mine has withstood temperatures down to -10 to -12C degrees, and does not seem to suffer from cold winds, for it is planted in a rather protected area against a wall. Anyway, I have heard of northern gardeners who have it in their gardens where it seems to behave rather well. Not surprisingly, this Poa stands summer dryness well, even though it is a little bit too early for me to have a firm opinion about that. So far, I have harvested seeds, but they do not seem to be fertile. Indeed it is a beautiful grass with its falling blue leaves and I firmly recommend it to any grass lover wishing to try it.

Themeda triandra var. *japonica* is not really an Australian grass, but is a close parent to *Themeda triandra*, the Kangaroo Grass. As its name indicates, this grass, (*T. japonica*), originated from Japan. Both of these *Themeda* are not especially attractive by themselves, but their autumn colours are fantastic: from orange to red. I have heard that these colours are most spectacular when grown in a winter cold area, but I cannot confirm that. According to a friend of mine who saw numerous *Themeda triandra* in the Australian mountains, they are beautiful when coloured so. Maybe some folks down there, (or up there as you like), could tell me about that?

The universe of grasses and sedges is full of marvels too often unknown by people. This is the reason why a group of friends decided to create a French association dedicated to them: Gramagr : GRoupement d'AMAteurs de Gramin, or GRAsses AMAteurs GRoup.

Anybody wishing to chat about grasses is welcome to write to me. My address is La Lauzi, 81 300 Graulhet, France, email: twi@club-internet.fr or gramagr@pop.multimania.com, or Gramagr web site : http://www.multimania.com/gramagr/

Congratulations to the Australian Rugby team for their victory. Tim Horan is a fantastic player, (the rest of the team too). All the best from France for 2000, Philippe.

FOG IN THE MOUNTAINS, 4-6 FEBRUARY: FROM COSTIN TO WHAT KATY DID?

Alan Ford

A B Costin was one our great scientists and a very important person in charting the ecology of our region. Hence it was no surprise, as FOG went into the mountains, to see people reaching for *Kosciusko Alpine Flora* in their attempts to understand exactly what it was that they were looking at. Others were seen busily perusing Ian Fraser's *Wildflowers of the Snow Country* as a different and later reference, or I R McCann's *The Alps in Flower.*

Twenty-five members attended this excursion, which was based at the Canberra Alpine Club's lodge at Perisher. The lodge windows were good for birdwatching - no time was wasted on this trip. Most people arrived on Friday night, which made it easier to determine the options for the Saturday program.

We set out for Charlottes Pass on Saturday morning, ultimately deciding, because of the wind, that the party would go in its entirety to Mt Stilwell (6743ft) for the day. To get to Mt Stilwell you walk along Kangaroo Ridge past the ski lifts through what Costin categorises as tall Heath and Tall Alpine Herbfield. The latter is largely a *Celmisia-Poa* alliance. The *Celmisia* is certainly prominent in the landscape once you start climbing and get into the walk. (It's not very steep, just a gradual climb to the slopes of Mt Stilwell).

The other striking plant is *Craspedia*, and I suppose it stands out because of size and colour. In fact, one of the interesting points about exploring the landscape once you are on the slopes of Stilwell is the diversity of life in a cold climate zone. From the white of *Prostanthera cuneata* to the colour of the *Euphrasia* or the *Wahlenbergia*. It was only after I noticed the *Brachyscome* that I realised why that is part of one of the sub alliances within the herbfield.

It isn't just the spectacular or noticable that is important in this area; you watch for the *Gentian, Carraway, Gingidia*, the sheer wonder of the alpine *Stackhousia, Prasophyllum*, to say nothing of the mysterious *Juncus* and *Luzula*. One should never forget the ever-present, all powerful, *Poa.*

The second day was the occasion for the Y2K Bug identification. Information on spiders, beetles, weevils, bugs, flies, etc. was provided on the helpful handout provided by the day's organiser, Kim Pullen. We went down the road to Pipers Creek initially and to another creek further down the road after that. The latter was notable for a visit to a grassland site to see what was there as a contrast to Pipers Creek.

We saw a wide range of the fauna in these groups and were provided with excellent views of spiders (both wolf and orb), numerous Weevils, beetles and bugs, (including a tiny bug that enjoys the Poa). What preys on the latter?

The most spectacular was the close encounter with juvenile and adult mountain grasshoppers, a form of katydid, the adult female in particular having a truly glorious colour scheme, designed to warn any potential predator of extreme danger. The only problems we met along the way was the need to watch out for jumping ant nests and the constant preoccupation with March flies.

We saw the external evidence on one tree of the existence of a grub boring its way through the interior. Yellow-tailed Black Cockatoos earn their living finding them. We were also privileged to watch three dragonflies in the process of emerging into the world - their wings at various stages of expanding to their full glory. It is wonder that any survive seeing their vulnerability during that process.

Thanks to Margaret, Leon and Kim for organising a superb weekend. Andrew Paget has produced a consolidated list of the plants and this is available if you would like a copy.

FLORABANK SURVEY

Naarilla Hirsch

In 1998 FloraBank conducted a survey into native seed collection, storage and distribution in Australia, and produced a detailed report of the results. The mining industry is an extensive user of native seed for rehabili-

tation, and does so mostly by direct seeding methods over comparatively small areas. Other users rely heavily on mass planting of tubestock over larger areas. These users are the community (for revegetation and landcare activities), the public sector (on public lands) and, on a smaller scale, forestry and bushfood operations.

Demand for native seed for revegetation and landcare activities is increasing across Australia, particularly for seed indigenous to the local area in which it will be used. However, in the survey, many community seed users reported that they are unable to source any local indigenous seed or have difficulty in obtaining a reasonable range of species in the quantities required. A further difficulty is that seed users must trust that the seed purchased comes from the locality claimed, for there is no practical way of determining seed origins and currently no native seed certification system operating in Australia. Among community respondents, half considered that commercial suppliers rarely or never provide sufficient information. Another concern is from how narrow a genetic base (how few plants) seed is collected, with many commercial collectors having little time for genetic parentage considerations.

The provenance of seed is also increasingly considered a seed quality issue. In most states indications are that indigenous seed is available in some regions only and within all regions there are local areas for which little or no local indigenous seed is available. The questionnaire found that most seed collectors tend to collect in their local area, so there are still many areas where commercial suppliers simply do not operate or do not supply indigenous seed, or where there are no community-based seed suppliers.

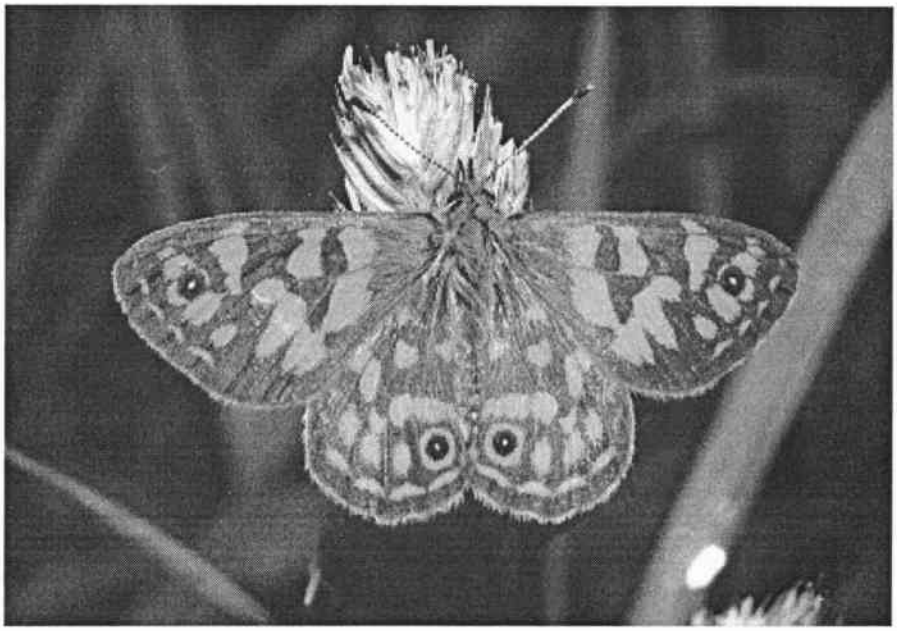
There may also be considerable natural, logistical, and bureaucratic barriers to collection. The factors responsible for collection difficulties relate to climate, vegetation, terrain, access and isolation, and may vary greatly between regions and contribute greatly to regional scarcity. There are also large gaps in available information on key aspects of collection and storage practice for many species.

Whenever there is increased effort in revegetation, or a switch from tubestock to direct seeding, increased community seed collection capacity will be required unless commercial operators are quickly able to supply locally collected seed in that area. However, the report estimates that there are less than 50 community seedbanks (that store in excess of 20 kgs of seed) operating in Australia. As well as collecting, storing and distributing native seed to meet the ongoing seed needs in a region. almost all community seedbanks provide advice, assistance and training, and promote and develop local capacity for wider use of native seed from a wider range of local species and provenances in revegetation work. They promote and develop an understanding of the local flora and may have important strategic roles, such as coordination of indigenous seed collection and supply in a region.

Many respondents to the survey reported that the state of our knowledge about seed collection, storage and germination, limits our capacity to revegetate and almost certainly our ability to maintain and improve biodiversity.

Source: Native seed in Australia: a survey of collection, storage and distribution of native seed for revegetation and conservation purposes, a report to the FloraBank project, by Warren Mortlock, 1999.

Contact Warren Mortlock, the FloraBank coordinator, on 02-6281 8585, for a copy of the report.



This beautiful butterfly along with many other spectacular invertebrates were seen during the FOG trip to the alps. Photo: Andrew Paget

FISHER PARKLAND

Alan Ford

Beginning with the initial clearing and use for farming and grazing, many of Canberra's open spaces have become degraded and taken for granted. With only patches of remnant vegetation left and with diminishing numbers of wildlife, concerned residents are ready to play a part in restoring the parkland immediately south of Fisher. They are to hold a working bee on Sunday 5 March at 1.30 pm at Fisher Parkland on Namatjira Drive. The immediate intention is to weed some areas that have been identified as needing attention and to identify the range of surviving native plants.

Fisher Parkland is the area within the southern boundary of the suburb of Fisher, the Tuggeranong Parkway, Namatjira Drive and Sulwood Drive. It is part of Canberra's Urban Parks and Places, designated as semi-natural open space. The Parkland has recently been the subject of cooperation between the Park Care groups at Cooleman Ridge and Mount Taylor through activities on Clean Up Australia Day in March 1999 and Green Up day in September 1999. These activities raised community awareness of the Parkland.

One of the reasons nearby residents became

interested in the Parkland is the remnant native vegetation. Many varieties of birds use the area as a corridor between Cooleman Ridge and Mount Taylor. Kangaroos, reptiles and other wildlife hold an attraction to users of the Parkland. The dam provides a habitat for ducks, frogs and yabbies. The surviving flora and fauna need to be assessed to determine how to manage the Parkland, to conserve and restore the native species in the area.

Restoration of the remnant native vegetation across the Parkland will help to ensure that the area continues to provide a vegetative and wildlife corridor between Mount Taylor and Cooleman Ridge; secure the various management zones; prevent the misuse of the parkland; and create a quiet, safe recreation area.

SMART PASTURES

Mary Goodacre and Darryl Cluff, DLWC, Mudgee and Coolah. (This article was first published in Stipa Newsletter No. 9, September 1999.)

It is becoming increasingly obvious that Australian native pastures are not poor cousins to "introduced" pasture species, as many Australians once thought.. In fact, some aspects of their growth make them "smart pastures". One interesting feature of our grasslands is the way C3 and C4 plant communities evolved to take best possible advantage of our difficult "freezer to fryer" climate.

What are C3 and C4 plants?

Photosynthesis is the process that plants use to convert carbon dioxide and water, in the presence of sunlight to carbohydrates. These are the building blocks for plant growth. There are two different photosynthetic pathways plants use for this process.

Plants using the C3 pathway rely on the enzyme, "rubisco" to fix carbon atoms from carbon dioxide in the air. The first stable product in this process is based on 3 carbon atoms, hence the C3 pathway label.

C4 plants use the enzyme, "PEP carboxylase" to fix carbon from atmospheric carbon dioxide during photosynthesis. The first stable product in this process is a 4-carbon molecule, hence the C4 pathway name.

So what?

Generally, C3 plants are more "temperate" plants, and grow best under cool, moist conditions. Photosynthesis in C3 plants is about three times more efficient under these conditions than in C4 plants. Hence, C3 plants require less sunlight energy to photosynthesize than do C4 plants (i.e., they function efficiently in shaded areas or in cloudy conditions). Such conditions allow more CO_2 to be absorbed by the leaves of these plants through pores in the leaves known as "stomates". Unfortunately, rubisco combines with oxygen as temperatures increase to produce phosphoglycolate, a useless product to the plant, in a process known as photorespiration. Up to 50% of the carbon fixed during photosynthesis can be reconverted to CO_2 during photorespiration. In warmer, drier conditions, C3 plants photorespire more than they photosynthesize. In effect, they begin to die.

In such conditions, C4 plants have a distinct advantage over C3 plants, as photorespiration in C4 plants is almost absent. C3 plant productivity is limited by water availability.

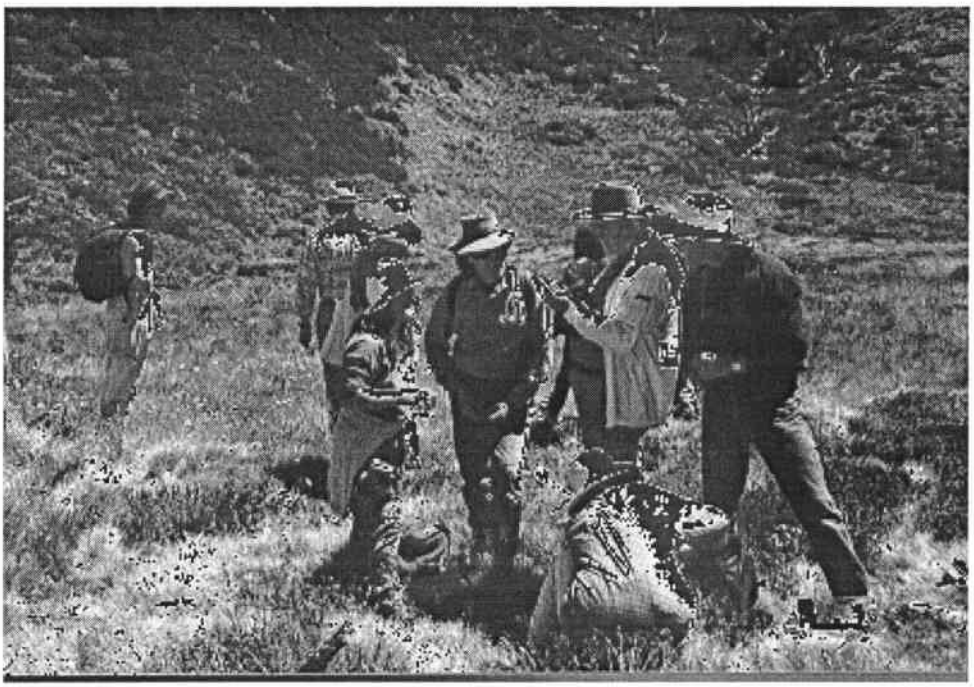
C4 plants are more "tropical" plants, growing best in warmer, drier conditions. The C4 photosynthetic pathway uses more sunlight energy than the C3 pathway to convert CO_2 to carbohydrates. In hot, dry climates, this higher energy requirement is balanced by very low levels of photorespiration. More of the CO_2 absorbed by C4 plants is converted to plant material in warmer conditions compared to that in C3 plants. But in cooler conditions, C3 plants convert water and CO_2 to plant matter more efficiently than C4 plants. In fact, below 15 °C, many C4 species begin to hay off as the energy necessary for the C4 photosynthetic process becomes increasingly limited. C4 plants grow best when energy from sunlight is plentiful.

But how do the technical differences between C3 and C4 plants affect the way these species interact in mixed pastures in central NSW?

Season

In pastures, the most obvious feature of C3 and C4 mixtures can be seen in the production patterns of the pasture throughout the year. C4 grasses provide varying quantities of green feed for grazing animals from Spring through to early Autumn. Think of when you see green leaves on red grass (*Bothriochloa macra*) and kangaroo grass (*Themeda australis*). They are two good examples of C4 native grasses found in the central west NSW tablelands and slopes.

By compari-



The weather was perfect for these Foggers to examine the rich native alpine flora. This photo taken near Mt Stilwell, Charlottes Pass.

son, C3 species, such as ryegrass (*Lolium* spp), common wheat grass (*Elymus scaber*), weeping rice grass (*Microlaena stipoides*) and sub clover (*Trifolium subterraneum*) are most productive from Autumn through to the end of Spring, early Summer. This is when temperatures are relatively low, evaporation is low and moisture is relatively reliable (see figures 1 and 2). These conditions favour the C3 photosynthetic pathway over the C4 pathway. Photorespiration is minimal, and less energy (from sunlight) is needed to convert CO_2 to carbohydrate in C3 plants, compared to C4 plants.

C3/C4 pastures can help overcome the "summer feed droughts" commonly experienced by graziers who rely on winter-active annual pastures. Complementary growth patterns enable C3/C4 pastures to produce green feed in varying quantities throughout the year. Animal production from such swards can be more productive than from annual-dominant pastures, given the year-round supply of green feed.

Quality versus quantity

The leaves of C3 plants are generally higher in protein than those of C4 plants under the same conditions. C3 plants have a higher concentration of the enzyme rybisco,(a protein) in their leaves than do C4 plants. All legumes are C3 plants, even though the productivity pattern of lucerne suggests it should be a C4.

Water use

Before settlement, Australian pasture systems were largely dominated by C4 species, e.g., kangaroo grass, mitchell grass, etc. Annual forbs and grasses could be found in larger proportions in native grass swards on the slopes and plains of central west NSW. Legumes such as *Glycine* and *Desmodium spp* made a small contribution to the natural system. C3 perennials such as *Microlaena* and *Danthonia spp* grew largely in the cooler months, or during cooler periods in late Spring and Summer. Such pasture mixes were able to make use of rain falling at any time. Consequently, run-off was minimal, infiltration rates were higher than those recorded now, and water draining down through the profile was only in the order of 1% of the incident rainfall.

In an effort to overcome a perceived "winter drought", non-native species that grew predominantly in the cooler months and Spring, eg, sub clover and ryegrass, were introduced. While these systems did produce feed during winter, in conjunction with phosphate fertilizers, the trade off was the shading out and subsequent loss of the more productive, warm season, native perennial grasses. In effect, the perceived 3 month "winter drought" was traded for a 6 month "summer-autumn drought". This shift in activity did not only affect the productivity of the grazing animal. It also reduced the efficiency of water and nutrient use by pastures, leading to problems such as dryland salinity and increasing soil acidity.

Summary

The natural grassland found in Australia 200 years ago were well adapted to the Australian climate. C3 and C4 species grew in complementary mixes and made use of much of the available moisture whenever it fell. They were "smart pastures".

This clever mix of species within this system should tell us a thing or two about how our agricultural systems could operate with more long term success in this environment. Healthy perennial-based pastures maintained ground cover and made the best use of rain whenever it fell. Warm and cool season species in the mix produced green feed that powered the grazing enterprise at most times throughout the year.

In the Central West of NSW, where rainfall patterns are less defined, i.e., neither strongly winter nor summer dominant, the C3 and C4 pastures successfully coped with the climatic variability. The principles of their success could be the key to developing long term agricultural systems that meet our environmental, economic and human requirements.

NATIVE GRASS GENERA: GROWTH SEASON AND SOWING TIME

Andrew Paget, University of Canberra.

AUTUMN-WINTER-SPRING GROWING
(C_3 grasses) Sow in April-May
Agrostis
Austrodanthonia
Austrofestuca
Bromus
Deyeuxia
Dichelachne
Dryopoa
Echinopogon
Elymus
Festuca
Joycea
Poa

SPRING-SUMMER-AUTUMN GROWING
(C_4 grasses) Sow in October-November
Amphibromus
Aristida
Bothriochloa
Chloris
Cymbopogon
Cynodon
Dichanthium
Digitaria
Diplachne
Enneapogon
Enteropogon
Eragrostis
Hemarthria
Homopholis
Imperata
Isachne
Neurachne
Panicum
Phragmites
Pseudoraphis
Puccinellia
Sorghum
Spinifex
Sporobolus
Themeda
Zoysia

UNUSUAL CASES (Don't fit C_3 or C_4 categorisation)
Austrostipa/Stipa
Microlaena

UNCERTAIN
Glyceria
Oplismenus
Tetrarrhena
Triodia

ABRS KEYS TO THE FAMILIES OF FLOWERING PLANTS OF AUSTRALIA AND TO THE GRASSES OF AUSTRALIA

Katy Mallett

The ABRS keys to the Families of Flowering Plants of Australia and to the Grasses of Australia use a program called LucID. The key to families identifies plants to families, so in the following information you need to exchange the term 'species' for 'family' for this key.

LucID is an interactive key. In a paper key, you have to make a particular choice about your plant (let's say the number of florets), and then move on to another specifically defined choice (let's say the presence of awns on the glumes). If you don't have the part of the plant, or don't understand the question, or are unsure, you can easily get stuck. An interactive key allows you to choose which questions you will answer, and in what order. Start anywhere! It means that you can look for distinctive features of your plant (it's very tall, it's hairy, the leaves are clumped at the base) to get to a small

range of species. If you don't seem to be getting anywhere, you can ask the program to prompt you with questions that it thinks will best separate your plant. If you can't answer a question, you can always go on to the next one, or search through for those which you do understand. Or you may just want to find out more about a particular species, and all species in the grass key will have a description and a map. Most will have illustrations and further information.

LucID was developed by the Centre for Pest Information, Technology and Transfer at the University of Queensland, and is friendly and simple to use. It is designed to be used in a Windows or NT environment, and uses windows to help you identify your plant. When you first open the key, you are presented with four windows. The top left one has a list of 'characters' and the bottom right one has a list of 'taxa remaining'. The other two remain empty until you start using the key. A 'character' is a broad feature of a plant, such as a geographic region, plant height, or leaf shape. A 'state' is one of the different forms that a character can take (such as lanceolate, linear or ovate for leaf shape). If you click on a character it will give you a choice of several 'states', or ask you to type in a dimension (e.g. for plant height). If you have chosen leaf shape, you select the shape that best matches your leaf by dragging it across to the top right hand box, which keeps a record of the questions you've answered.

The 'states' have illustrations and notes attached to them (on little buttons labelled with an 'i') to help you choose. Click on an 'i' and a new window pops up with the information. You can drag the illustration over to a projector to get an enlarged image, or over to a book to get the explanatory notes. You can then select your leaf shape by double-clicking on the appropriate picture.

Not sure? Choose another question. Your plant has a leaf shape part way between two states, or more than one state? Choose more than one shape. Think you've made a mistake in your answer? Drag the offending question back out of the top right hand box into the top left-hand box again. It is not worth puzzling over a question for too long: there are plenty of others to choose from. Try to choose characters that you think make your plant different, as that will narrow the list much faster.

Each time you make a choice, the list of 'taxa remaining' gets shorter (it tells you how many at the top of the box), and the species that don't match the characters you've chosen are listed in the bottom left hand corner. After a few questions, you may have only a small group of species left. You could then decide just to look at the information about each species, or ask the computer to prompt you with the best questions to answer at this point. 'Best' is one of the buttons up along the top toolbar of the program, and can be used at any time, although it is slower if you use it early on as it has to sort through a large group.

All species have a little 'i' box next to them. At any point you can click on the 'i' box, and you will get a little menu, allowing you to choose notes or images. Select one, and it will give you a choice of images (line drawings, colour photographs and a map), or a description and notes. Flipping through these should help you decide whether your identification is correct.

There are many more features to LucID. The help function is quite comprehensive, and will explain many of the features, such as being able to add your own notes, or setting an error tolerance to allow for your mistakes.

LucID keys are being widely used. The most well-known is the Euclid key of south-eastern Eucalypts. Another plant key under development through ABRS is Wattle, a key to all the Acacias in Australia, which should be available very early in 2000. Other keys are planned or are in various states of development.

During the Grasses Identification Workshop ramble we found a beautiful stand of Barbed Wire Grass and added many new species to the Mugga-Mugga flora list. Photo: J. Geue

NEWSLETTERS RECEI ED

Naarilla Hirsch

As usual, there are some interesting snippets in the Community Biodiversity Network's newsletter *Life Lines*. Last October the Grassy Box Woodlands Conservation Management Network was launched. The network's goal is to manage the existing remnants of grassy white box woodlands throughout their range. It has given rise to the first network protected area of its type in Australia. Sites already included in the network are the Monteagle Cemetery (Young Shire), the Woodstock Cemetery (Cowra Shire) and Tarcutta Hills (near Wagga Wagga). The network's name has been carefully word to enable the network to expand into the other endangered grassy box woodlands in the future, such as grey box, yellow box and bimble box. During October the grassy white box woodlands were also listed as a nationally endangered ecological community.

Life Lines also has a brief article on a draft report by Dr Barry Traill (Australian Woodlands Conservancy) on the status of birds in the New South Wales temperate woodlands. The report reviews the status of 263 bird species that occur in temperate woodlands (including species found in grassy woodlands). Twenty-eight of these are "woodland specialists", of which thirteen are already listed as threatened in NSW. Another four should be recommended for listing as threatened species, nine were judged as "near threatened", and a further

23 species show inconclusive evidence of major declines.

The ANIC (Australian National Insect Collection) News contains flyers on recent CSIRO publications on beetles and heliothine moths. The *Research Profile* features a FOG committee member, Kim Pullen. I look forward to the day Kim reaches his goal of producing an insect fauna for the ACT, as I'd like to know what some of the insects I meet in my garden and on walks are.

FOG NEEDS YOUR HELP

Can you help with any of the following? If so please contact Margaret Ning

1. Fold, label, and dispatch newsletter
2. Post out papers from workshops, etc.
3. Set up photo album and prepare other materials for display
4. Publicity: place ad for FOG in Fridge Door and other media. If really keen, organise publicity and information for media.
5. File statistical returns
6. Organise promotions at ACT Alive, World Environment Day, Tidbinbilla
7. Be FOG's representative at the Conservation Council
8. Visit sites, identify plants, and offer advice regarding management (this may need some training)
9. Built up documentation about sites visited
10. Look after FOG's grass display
11. Organise a particular activity

We also have a spare committee position for someone who would like to get a little more involved.

ACTION PLANS FOR ENDANGERED AND ULNERABLE SPECIES

Naarilla Hirsch

Action plan for the Golden Sun Moth

The Golden Sun Moth usually occurred in natural temperate grassland dominated by wallaby grass. The adult moth is unable to feed or drink, so is short-lived and must mate and lay eggs rapidly. They are day flying and only active under sunny conditions from about 11am to 1pm. The males fly rapidly about, looking for a female. Females rarely fly, and walk from grass tussock to tussock to lay eggs. Larvae feed on the underground parts of wallaby grass tussocks.

The moth was declared endangered in the ACT because it is at risk of premature extinction in the ACT in the medium term due to current severe and continuing decline in population or distribution, as evidenced by direct observation and by severe decline in quality and quantity of habitat.

Conservation objectives are to protect and manage those sites where habitat of high conservation value remains, develop detailed management strategies for remaining sites of lower conservation value where the moth remains viable. Objectives also include continued monitoring and research on native wallaby grasslands and on the moth and its biology so that potential threats may be recognised and understood.

Intended management actions cover a range of activities. Issues, research needs and management actions will be coordinated with those identified in the Action Plan for Natural Temperate Grassland (which includes the moth's habitat). Surveys will determine the extent of the ACT population, and there will be a long term monitoring program of the moth and its grassland habitat, and of the impact of changes to management practices. Research will focus on the dynamic response of the moth and its grassland habitat to management practices (including burning, grazing, mowing and soil disturbance), impacts of grassland management on the moth within reserves, and population viability.

Management guidelines will be developed and distributed to assist landholders to manage sites so as to conserve and maintain the moth's habitat and population consistent with other land activities and other conservation requirements. The public will also be provided information on the conservation, management and research actions being undertaken, so that measures being implemented are understood and supported.

All known ACT sites of the Golden Sun Moth have been ranked into categories of high, moderate, low and minimal conservation value. At the time the action plan was prepared, three sites (one high and one moderate conservation value) were already in nature reserves. Another four (including Belconnen Naval Station) were identified as to be considered as nature reserves in the future. Memoranda of Understanding were to be negotiated with the Commonwealth for another five sites (including Majura Field Firing Range). Four sites of low or minimal conservation value occur in urban open space, and the remaining three sites are within the urban fabric. Planning and site management mechanisms will be applied as required to urban sites so that, where possible, the natural grassland values of the moth habitat are conserved in the context of the primary land use.

Source: ACT Government, 1998. *Golden Sun Moth* (Synemon plana)*: An endangered species*. Action Plan No. 7. Environment ACT, Canberra.

Wildflowers and snow gums near Charlotte's Pass, Kosciusko National Park. Photo: Anne Newbrigge

FRIENDS OF GRASSLANDS INC
Supporting native grassy ecosystems
Address: PO Box 987, Civic Square ACT 2608
Web address: http://www.geocities.com/Rainforest/Vines/7769/index.html

Your committee:

Geoff Robertson	President	6244 5616 (w) 6241 4065 (h & fax)	geoff.robertson@facs.gov.a
Michael Treanor	Vice President	03 5750 1632	mallee6@hotmail.com
Naarilla Hirsch	Secretary	6289 8660 (w)	
Alan Ford	Treasurer		alford@cyberone.com.au
David Eddy	Committee	6242 8484 (w) 6242 0639 (fax)	deddy@ozemail.com.au
Linda Hodgkinson	Committee		abel@aucom.com.au
Will Inveen	Committee	6242 4675	will@dynamite.com.au
Margaret Ning	Committee	6252 7374 (w) 6241 4065 (h & fax)	margaret.ning@abs.gov.a margaretning@primus.com.au
Kim Pullen	Committee	6246 4263 (w)	kimp@ento.csiro.au
Dierk von Behrens	Committee	6254 1763 (h)	dierk.von.behrens@immi.gov.au
Benjamin Whitworth	Committee		echosurveys@bigpond.com.au

Membership enquiries: Please contact Margaret Ning whose details appear above.

FRIENDS OF GRASSLANDS NEWSLETTER

You have read this far, so we must have kept your interest. If you are not a member of Friends of Grasslands why not subscribe to the newsletter? It comes out six times a year and contains a lot of information on native grassland issues.

You can get the newsletter by joining Friends of Grasslands. You do not need to be an active member - some who join often have many commitments and only wish to receive the newsletter.

However, if you own or lease a property, are a member of a landcare group, or actively interested in grassland conservation or revegetation, we hope we have something to offer you. We may assist by visiting sites and identifying native species and harmful weeds. We can suggest conservation and revegetation goals as well as management options, help document the site, and sometimes support applications for assistance, etc.

Of course you may wish to increase your own understanding of grasslands, plant identification, etc. and so take a more active interest in our activities. Most activities are free and we also try to arrange transport (or car pool) to activities.

If you are already a member, you might encourage friends to join, or even make a gift of membership to someone else. We will also send one complimentary newsletter to anyone who wants to know more about us.

HOW TO JOIN FRIENDS OF GRASSLANDS

Send us details of your name, address, telephone, fax, and e-mail, etc. You might also indicate your interests in grassland issues. Membership is $20 for an individual or family; $5 for students, unemployed or pensioners; and $50 for corporations or organisations - the latter can request two newsletters be sent. Please make cheques payable to Friends of Grasslands Inc.

If you would like any further information about membership please contact Margaret Ning, or if you would like to discuss FOG issues contact Geoff Robertson. Contact details are given in the box above.

We look forward to hearing from you.

Friends of Grasslands Inc
PO Box 987
Civic Square ACT 2608