News of Friends of Grasslands

Supporting native grassy ecosystems

September-October 2006

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Program

(Note: many activities refer to contacting Margaret (Ning). Her details can be found on the back page.

SAT and SUN, 16 and 17 SEPT **Visit coastal heathland near Eden with Jackie Miles**. We plan to visit Green Cape, South of Eden on Saturday afternoon and another site on Sunday. Contact Margaret to arrange accommodation on Friday night at Garuwanga near Nimmitabel and/or Saturday at Eden, of if you need to express interest.

THURS 5 OCT 5-6pm. **Visit Rainer Rehwinkel's grassland garden** 23 McCusker Drive, Bungendore, see many wonderful grassland plants, and share a cuppa and cake (free). For carpooling and directions please contact Margaret.

SAT 7 OCT 12:30 to 6pm (or as long as you like) **FOG biodiversity survey of Blundell's Flat** This activity is being organised to assist in gathering information for a management plan being prepared for Blundell's Flat. For details of this activity see page 2.

SAT 14 OCT 8:30am to 5pm. **Visit newly identified grassland sites near Goulburn** with Greg Baines. During his recent presentation on the NTG recovery team and grassland surveys that it is undertaking, Greg showed slides of some exciting new grassland sites on private properties which we shall visit. We plan to meet at Ngunnawal shopping centre, corner Wanganeen and Jabanungga Streets, Ngunnawal at 8:30am to car pool. Contact Margaret for details.

THURS to MON, 19 to 23 OCT Four day visit to **Terrick Terrick and Hamilton Grasslands, Victoria**. If you have not been in contact with Margaret and you are still interested in this trip, please contact her.

THURS 26 OCT, 1:30 to 5pm (or as long as you like) **FOG survey of Murrumbateman Cemetery** For more details see article on page 3.

Special upcoming events

Sat. **18 Nov,** 1:00 to 4:30pm. *Discovering insects workshop with Kim Pullen and Roger Farrow.* Cost $10 for FOG members and $15 for non-FOG members. See article on page 5.

Tues-Wed, **28-29 Nov** (Note revised dates - previously 29-30 Nov) Australian Network for Plant Conservation's *ACT Grassy Ecosystem Workshop.* See special insert with this newsletter.

Some pea flowers at Brandy Marys (story page 8). Photos supplied by Jim Kelton: Australian trefoil *(Lotus australis)* - top, Behr's swainson-pea *(Swainsona behriana)* - middle, and mountain psoralea *(Cullen microcephalum)* - bottom.

News Roundup

OCC - to graze or not to graze

As FOG members will be aware, FOG has been responsible for the creation and management of Old Cooma Common Grassland (OCC) Reserve, in partnership with the Cooma Monaro Council. Many an enjoyable hour has been spent removing woody and herbaceous weeks, and on other activities.

In recent months, there has been some discussion in FOG-Council circles about how best to manage the herbaceous weeds. It has been decided that strategic grazing for conservation management should be applied and monitored as part of a larger Council driven, on-going weed management effort. The costs associated with this plan will be borne by Council as the Crown land trustees of the reserve. The fact that Council has now taken up its responsibility to actively engage in the management of the reserve is sign of real success of the overall project.

Conservation grazing is a tool used to manage biomass and weeds in grassland reserves, and it is not without its critics, especially as grazing can create problems of its own. Careful management and monitoring are required to be successful, including creating smaller paddocks so that grazing is controlled to ensure that selective grazing is avoided, and care in designing and placing watering points. Monitoring, if carefully devised, can measure the impacts of plant growth and vegetation structure, the presence/absence and/or abundance of particular species, and impacts on soil. The FOG committee is giving some attention a good monitoring regime.

FOG survey of Blundell's Flat

Following FOG's cold and wet tour of Blundell's Flat on 15 July (see *Bonding without bogging*, page 3), FOG plans to hold a biodiversity survey there on Saturday 7 October (see front page for time and meeting place). The aim of the survey is to gain information on the flora and fauna to assist in developing a management plan for this grassland.

A thorough plant survey will be undertaken, and we shall undertake opportunistic surveys of reptiles. It is hoped that Frogwatch will assist with a frog survey. Jenny Bounds will organize a bird survey.

Access to Blundell's is by two-wheel-drive, but the last part of the road is unsealed. Come prepared for some wet ground underfoot and for cool temperatures. The event may be cancelled in the event of heavy rain.

Meet for carpooling at 12.30pm at the Police College, Heysen St, Weston. (To get there, go south on Streeton Drive, turn left onto Heysen St, and park about 50 metres along Heysen St). Blundell's Flat is about a half hour drive from Canberra. Some people will stay later if we can organise a frog survey. Contact Margaret (details back page) regarding car pooling. Bring your lunch, afternoon tea and thermos.

FOG seeks your help
Kim Pullen, President

The Committee of Friends of Grasslands takes on a number of tasks during the year, ranging from keeping membership details up to date to organising excursions and meetings, writing submissions and of course producing the newsletter. Sometimes Committee members find themselves short of time and unable to properly cover all these tasks.

For this reason, I am canvassing members to see if there are any willing helpers out there. Recently, I emailed members on this matter and included a table setting out a *work plan* for this year. If there is an activity or task that you think you would like to help with, please reply contact me (details back page) - your Committee will be most appreciative, and you will learn something of the inner workings of FOG.

Some diary dates

Margaret Ning

The following are FOG's program dates for November and December 2006 – please record them in your diary. For more details, please contact me (see back page).

Sat. **11 Nov**. 9:30 am to 3:30pm. *Working bee at Old Cooma Common,* Cooma.

Wed **15 Nov**. Lunchtime *St Mark's grassland with Benj Whitworth*.

Sat. **18 Nov**. 1:00 to 4:30pm. *Discovering insects workshop with Kim Pullen and Roger Farrow*. See *FOG insect workshop*, page 5.

Wed. **22 Nov**. 5 to 6pm. *Visit to Hall Cemetery.*

Sat **25 Nov**. 10 to 11am. *Mulanggari grassland with Benj Whitworth*.

Sat and Sun, **16 and 17 Dec**. *Southern Grasslands and swamps with Roger Farrow.*

Special interest to members

Tues-Wed, **28-29 Nov**. (revised dates previously 29-30 Nov.) Australian Network for Plant Conservation's *ACT Grassy Ecosystem Workshop.* See special insert with this newsletter.

In this issue

Bonding without bogging
Groundcover

SATURDAY 15 JULY Serious rain threatened, but Mark Butz, the leader for FOG's trip to Blundell's Flat, was eager to lead if others would follow.

Margaret had phoned around that morning and said to those who had booked for the trip, "would you believe that Mark and Geoff are still planning to go!"

While a couple of people decided to spend the day indoors, twelve people assembled, including two adolescents, at Heysen Street Weston at 9:30am. Trying not to look at the encroaching weather, they piled into four cars and headed into the mountains.

While the rain was reasonably heavy and the drivers of the sedans were a little nervy in the wet and slippery conditions, we arrived at Blundell's Flat below Mount Coree and everyone emerged from the cars in brightly coloured raincoats for FOG's winter trip.

Mark provided everyone with orientation, pointing out the various mountains around us (despite low cloud) and showing us the nearby arboretum. We proceeded to the Blundell's Flat grassland which showed many signs of rich diversity of grasses and forbs. This large area of meadow and grassland once supported *Keyacris scurra* and most of it escaped pine planting in the 1950s.

Damage has been done by attempts to drain parts of Blundell's Flat some time in the past, and Mark outlined plans to re-establish some of its natural fen and bog structure which had once been home to a population of northern corroboree frogs.

The continuing rain and icy wind cruelled any effort to compile a plant list, but the opportunity was taken to explore the site and visit Condor Creek (Condor is a corruption of the aboriginal name for the river).

Mark has taken a long-term interest in the site. He pointed out that it was used by CSIRO to capture insects which have become type specimens in the national insect collection.

FOG in rain and low cloud at Blundell's and leader Mark Butz.

There was a discussion on the possibility of a biodiversity survey (see page 2) which would assist in formulating the management plan. There was consensus that restoring the former wetland and controlling weeds would be an essential part of any plan.

Then it was back to the cars where there was some nervousness about the hill climb on the wet dirt roads. Finally the crew headed for Cooleman Court where we warmed up over hot coffee and chocolate.

Improved newsletter photos
Geoff Robertson, Editor

All going well, the quality of photos in this and future newsletters should be sharper. It should also be possible to email a PDF copy of the newsletter to members instead of posting it to them, if they wish to receive it in that form. The PDF file would be in colour. If you want to know more, please contact me (details back page).

Murrumbateman Cemetery

FOG has been requested to undertake a plant survey of nine areas of interest covering most of the three hectare cemetery. This will assist in the preparation of a management plan for the cemetery. We will also be recording birds, reptiles and possibly insects that we see. We shall also be recording birds and reptiles that we see.

Directions: from Canberra, turn left from Barton Highway into McIntosh Circuit just before Murrumbateman village proper (just past the right hand turn to Gundaroo) - the cemetery is about 0.75km along on the right, where McIntosh Circuit turns to the left. There is a brick entrance and the Council water towers can be seen to the rear of the cemetery. Straight on is a new subdivision developed by Shaw's. Join us for some or all of time if you would like to assist or learn about plant identification. For more information contact Margaret.

Sun moth and Chilean needle grass
Kim Pullen

A recent study by M.F. Braby and M. Dunford (*Australian Entomologist* 33:103-110) in grasslands along Ginninderra Creek in western Belconnen, ACT, provides strong evidence that the caterpillars of the golden sun moth (*Synemon plana*) feed on Chilean needle grass (*Nassella neesiana*).

The moth, which looks like a small butterfly, is confined to inland grass-

lands of south-eastern Australia, adults being 'on the wing' from November to January. Its distribution has been much reduced and fragmented coinciding with habitat modification, and it is considered an endangered species. The ACT is now one of its strongholds, and there are several sites within the city boundaries where it can be seen. The caterpillars live in the soil and feed on the underground parts of their host plants, and although actual feeding has not been observed, the insect has been associated with wallaby grass (*Austrodanthonia*) and spear grass (*Austrostipa*).

That it also feeds on Chilean needle grass is surprising and, needless to say, has implications for its conservation. The Braby and Dunford study also found the moth in association with Redleg grass (*Bothriochloa macra*) at a site in central Canberra - empty pupal cases were found protruding from tussocks of the grass and a several female moths were observed laying eggs on it.

Further destruction at airport
Grasscover

Canberra Airport is successfully finishing its wholesale/retail outlet as Canberra residents and visits will have observed. Many FOG members continue to express concern that large areas of natural temperate grassland and golden sun moth and grassland earless dragon habitat have been removed with the agreement of the commonwealth government. There has also been criticism of the science which the airport has produced to justify its destruction of a threatened ecosystem and threatened fauna – a snow job! FOG has reported on developments from time to time (see Sept-Oct 2005 newsletter).

The airport has been translocating grassland patches as part of its efforts to mitigate grassland destruction. Many regard this as questionable in concept. FOG has not seen any scientific reports on the success of this activity.

FOG has advocated that at least the airport might publicise the airport as habitat for natural temperate grassland and threatened fauna, and support scientific efforts to further our understanding of this threatened ecosystem and associated threatened fauna. However, we have never had any responses to our urgings.

The proposed development of the north-south runway/taxiing area, which is subject to commonwealth government approval, will further reduce natural temperate grassland and grassland earless dragon habitat.

Book your survey now

Want to help us find out the extent, distribution and quality of remnant box-gum woodland?

Then don't miss the opportunity to take up our ***free, confidential Spring 2006 plant and bird surveys*** *being conducted through out the western slopes and western areas of the tablelands of NSW.*

Each landholder will receive a copy of the survey results for their property.

Contact Andrew Zelnik, Project Officer, Biodiversity Conservation in the Sheep-Wheat Belt Project of NSW, Department of Environment and Conservation (NSW). Ph.02 6298 9722 andrew.zelnik@environment.nsw.gov.au

CONSERVATION MANAGEMENT NETWORK

GRASSY BOX WOODLANDS

Containing cats

2 MAY *The Chronicle* reports that ACT rangers will start trapping cats in Mulligans Flat and Goorooyarroo Nature Reserves from the second half of this year "to protect wildlife in the reserves and the cats themselves." – a nice touch. This is part of the new cat containment legislation being implemented in the new suburbs of Forde and Bonner (now due for development in 2007) which are next to the reserves.

Woodland Wanderings

AUTUMN 2006 the latest issue of *Woodland Wanderings* (Grassy Box Woodlands CMN newsletter) covers a range of material including the increase in size of a white box remnant site in Forbes, evaluating the effectiveness of conservation management networks (CMNs) and biosphere reserves, Bobara Creek TSR, native legumes for grazing, a new research project on managing biodiversity and nature pastures in the Murray Darling Basin. It also includes offers of assistance.

In includes the latest *Austral Bugle* (Southern Tablelands Grassy Ecosystem CMN) with a round up of happenings in Southern Tablelands and a lovely insert on grassland flora, and it is free.

Lower Cotter Management Plan

The last issue of the FOG newsletter contained a news item on the draft Lower Cotter Management Plan. On 31 July FOG made a submission on the draft plan. Copies of this can be obtained by contacting fogcanberra@yaho-o.com.au.

FOG insects workshop

18 NOV. FOG is planning an exciting afternoon insect workshop on the ecology, habitat, and morphology (identification), with well known entomologists and members of FOG, Kim Pullen and Roger Farrow. The aim of the workshop is first, to familiarise participants with several selected insect groups that occur in the region so that they become acquainted with their ecology, habitats and identification, and second to develop educational material such as fact sheets and powerpoint presentations that can be used with interested groups and students in the region.

There is a limit of thirty people for workshop, so registration is on a first come basis. To cover venue hire, the cost is $10 for members and $15 for non-members. To inquire or register, contact Janet on (6251 8949) or email fogcanberra@yahoo.com.au.

Myna invasion

Anne I'ons

A new direction for us is responding to the myna invasion. All of the Mount Taylor perimeters are now infested with large flocks, living in the suburbs, and nesting in every available tree. Two very enterprising people are making $50 traps which work extremely well in back yards: these wire cages are baited with meaty bites (small dog food) and the mynas get into the traps to feed. They can't get out. Dispatch is one of three methods, all humane and acceptable.

Over 250 of the birds have been caught on the Kambah side of Mt Taylor over the last two months. There are still huge flocks on the ovals. A group has been formed, the Canberra Indian Myna Action Group to tackle the problem of Indian Mynas across Canberra. The Group has developed a strategy that involves public education, public info on ways to stop myna feeding and breeding opportunities and a humane trapping program. I have purchased three traps and if anyone is interested in trapping in your own yard, contact me. We can also assist with dispatch of the trapped birds.

I have two research reports by groups at Newcastle and Gosford: the reports are damning about the myna effect on our native birds and the mynas themselves are vectors for many diseases, particularly alarming seeing them in

Learn about butterflies and other insects at the insect workshop

such huge numbers on the school ovals and play grounds. My contact details are: ajions@iimetro.com.au. The contact for the Canberra Indian Myna Action Group is Bill Handke on handke@grapevine.net.au.

Frogwatch census

This newsletter has from time to time reported on the wonderful work of Frogwatch. The next ACT region Frogwatch census is planned for October and training sessions are planned for 26 September and 5 October. This is a great opportunity to learn about local frogs, how to identify them from their calls, and sound survey methods – knowledge required for their conservation. For more information contact Rachelle on 6278 3309 or waterwatch@ginninderralandcare.org.au.

Nature at the graves edge

Canberra region FOG members will be interested in *nature at the graves edge* study found under *biodiversity* on the Conservation Council's site (ccserac.office@ecoaction.net.au). This study was conducted by former FOG president, Sandie Jones, to determine ecological disturbance of cemeteries of the Southern Tablelands and the ACT.

Some 114 cemeteries are included in the study, and website reports on a number of characteristics on each site, and, for most, an indigenous plant species, are included. Thirty cemeteries were found to contain species of interest or significant habitat. Most cemeteries were found to be highly disturbed, with weed invasion, management and grave expansion being the main threats.

As old time FOG members will be aware, cemetery owners were given suggestions to help manage their environment as well as further research recommendations. From time to time this newsletter has reported what has been happening in individual cemeteries.

Kosciuszko to Coast

FOG has been actively participating in the K2C project (see May-June 2006 newsletter). Among the many irons in the fire, the project is hoping to attract substantial funds for its conservation education activities. To assist, FOG recently provided a letter of support which outlined the types of in-kind support FOG can offer. The letter provides a summary of FOG's education activity. For those interested in following this up, please contact fogcanberra@yahoo.com.au

Research on wallaby grass

29 JUNE. *The Land* reported that NSW Primary Industry researcher, Cathy Waters, said that a study of the genetic diversity of wallaby grass is now close to completion. The underlying purpose of the study is to provide a valuable native grass pasture to address dryland salinity. *The Land* reported on the many advantages of wallaby grass and work being done to provide good quality and cheap seed.

Weeds field manual

Steve Welsh

The Bureau of Rural Sciences has just published *A Field Manual for Surveying and Mapping Nationally Significant Weeds*. You can download a free PDF from http://www.daff.gov.au/brsweeds or order a free hardcopy or CD from the BRS online publications shop (http://www.affashop.gov.au/). The manual is also available from the front page of the Weeds Australia website http://www.weeds.org.au/.

Queanbeyan Growth Inquiry

Tom Baker, Project Officer, Monaro Conservation Society

The Monaro Conservation Society participated in the high profile Queanbeyan Land Release Inquiry, established by the NSW Government to advise on a number of proposed urban development release sites in the Queanbeyan area. A major issue is that of water availability from Canberra to adjoining cross border areas such as Queanbeyan. Fifty-four parties provided submissions and presentations to the independent panel which will report to the NSW Planning Panel. More information on the inquiry is available on www.planning.nsw.gov.au.

The Monaro Conservation Society supports and welcomes the content of the Regional Management Framework agreement and the associated (NSW/ACT) water resource and settlement cross border agreements, noting that they provide for the preparation of a NSW-ACT Cross Border Regional Settlement Strategy to assess proposed developments and also a Water Management Plan for the Queanbeyan, Molonglo and Jerrabomberra Creek systems. As yet, the agreements have not been signed by the Commonwealth, which has an interest in securing water for the National Capital.

The Society supports the development of a more co-operative, regional basis for decision making in relation to our resources, based upon maximising quality of life for residents and visitors. Fair and equitable share of water in particular should be based on efficient and ecologically sustainable settlements.

The Society's submission counselled a cautious approach to growth in both Canberra and Queanbeyan as it is prudent to do so in the face of greater uncertainty and lower future yield from its water catchments, as documented in the ACT Water Strategy. Also, an unusually diverse mix of ecosystems surround Queanbeyan, including threatened ecosystems and sensitive habitat for threatened species, as well as other natural features including the Queanbeyan River and Jerrabomberra Creek, Eastern Escarpment and the generally irregular landform. All these combine to constrain development in Queanbeyan.

The Society has been lobbying for some years, for the creation of a comprehensive and integrated system of formal reserves to identify, conserve and manage the corridors of bushland and grassland running south west of Queanbeyan from Melrose Valley to Tralee Station, Jerrabomberra, Mirrabee, Gale, and across and along the river, to the eastern escarpment and the Cuumbeun Nature Reserve north and south.

The Society's submission argued that the lower limit on growth, proposed in the Canberra Spatial Plan 2004, of 430,000 people is an appropriate upper bound for growth in the Canberra/Queanbeyan Region till 2034. The allocation of five percent of this growth (estimated at 2,900 dwellings) to Queanbeyan appears about right on the basis of triple bottom line accounting. The Water Strategy estimate of the sub-region's population of half a million by 2034 could encompass some Queanbeyan development.

The submission argues that the ACT's Lower Molonglo development proposals should take the bulk of the population increase up to 430,000-500,000 by the year 2034 and satisfying the Cross Border Regional Settlement Agreement Principles. This will mesh with existing infrastructure, viable public transport, social and community services, and promises negligible impact on the environment.

The Queanbeyan share of growth could be mostly accommodated through infill. The Oaks Estate Abattoir site (in the ACT but adjacent to Queanbeyan) is also potentially sustainable and could also take pressure off Queanbeyan markets. While the four proposals in the Tralee area all suffer from potential aircraft noise problems the Tralee and Poplars estates could accommodate growth, and provide some excellent conservation reserves.

The 'island' Googong proposal is contrary to the principles of sustainable development, requiring the development of all infrastructure and services 'from scratch'. There are also important social issues associated with rapid growth which risk leaving a poor legacy to new generations. Greenfields developments can have outcomes for affordable housing for lower income earners and create truly 'dormitory' towns, where there will be little employment, few services and high transport needs, leading to alienation of many residents. This can lead to a range of longer term social problems which will require public intervention.

Rapid growth in Queanbeyan already has many other costs, including the increasing congestion of many major arterial roads, and consequent loss of amenity and quality of life. Also, we are now seeing the emergence of serious management and planning problems, including inability to control weeds and inappropriate access and damage to natural areas.

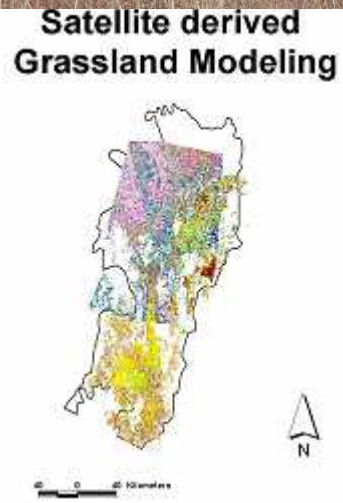
The Society anticipates that the next stage will be the preparation of the Regional Settlement Strategy as set out in the Cross Border Agreement, guided by the inquiry process but also involving the community. The strategy should be based upon the ACT (& Queanbeyan) Water Strategy, as awaited by the community since the agreed 1995 Canberra and Sub-region Planning Strategy.

Then Queanbeyan Council will need to develop a new Structure Plan for Queanbeyan in tandem with the new Local Environment Plan: the Society has recommended that a Community Consultative Forum be set up for the Structure plan and LEP process. Only then, should development proposals and Local Environment Plan/s be exhibited.

Natural Temperate Grasslands Implementation Project

Greg Baines

"Austral Felix", the term used by the explorer Mitchell as he traversed the grasslands and woodlands of south-eastern Australia in the 1830s (Environment ACT 2005) reflected the apparent boundless agricultural potential of the area. That potential has been well realised over the past 170 years, much of it at the expense of native grasslands. Estimates vary, but at the time of European settlement there were probably more than 480 000 hectares of grassland on the Southern Tablelands in addition to a similar area of yellow box woodland.



TOP: A high quality NTG site on basalt north of Goulburn
MIDDLE: Grassland model used by the Recovery Team.
BOTTOM: Greg Baines speaking to Windellama Landcare members on grassland identifiaction (photos by Greg and NSW DPI).

Today we have a name for remnants of those grasslands: Natural Temperate Grasslands (NTG). Early European settlers and Indigenous people before them did not need a special name for these areas. They did not practise reductionist science as we do today and a name was scarcely required for a resource that seemed endless. For both settler and Aboriginal alike, the woodlands and grasslands provided food, clean water and fuel in relative abundance. Unfortunately, from an ecological viewpoint, much has changed and today we find that it is necessary to classify types of vegetation to better understand their ecology and to enable us to recognise and therefore conserve our dwindling grassland resources.

As a precaution against further loss, and to begin the process of recovery, NTG was listed as an Endangered Ecological Community under the Commonwealth Environment Protection and Biodiversity Conservation Act.

To assist in the task of describing, locating and conserving this ecosystem, the National Recovery Team for Natural Temperate Grasslands of the Southern Tablelands was formed. The Recovery Team is comprised of representatives from a mix of government agencies and community groups, all of whom share an interest in managing native grasslands. Farmers, conservation groups and land management agencies all provide input into how the Recovery Team collects and uses information on NTG.

Together with the Department of Environment and Heritage, the Recovery Team developed a National Recovery Plan for NTG. This plan outlined the steps required to conserve NTG and a project was developed to implement the plan.

Today we are two years into the implementation project and are starting to make important progress on the work of describing and understanding NTG. A key first step was achieving agreement on the definition of NTG. A definition allowed people to classify whether areas were NTG or not and cleared the way for more work on the composition and distribution of the community.

Armed with a definition, field staff have undertaken a series of botanical surveys over the last two years to locate remnants of NTG and collect information on their condition. Locating NTG is a bit like finding the proverbial needle in a haystack. The difficulty arises not only because NTG is rare, but also because it primarily occurs on private land and it can not be easily identified from traditional sources such as aerial photography. To

address this last issue the NSW Department of Environment and Conservation commissioned a series of grassland vegetation models based on satellite imagery. These models have allowed the survey teams to locate possible NTG sites in previously unsurveyed locations in the north of the Southern Tablelands. Requests were then made to landholders and, where access was provided, botanical surveys were undertaken.

This process of modelling and surveying has greatly enhanced our understanding of NTG in many ways. Firstly it has identified a number of large remnants that were previously unknown to local ecologists. Data collected from the sites are proving valuable in developing ways to measure the quality of NTG and to describe the biodiversity within NTG. The survey data are also being used to further develop the modelling, this in turn will allow for more accurate estimations of both the area of NTG and the key locations for conservation of grasslands. Finally and perhaps most importantly, many landholders with NTG have been made more aware of the conservation values of their properties and ways in which they can manage those locations for both production and biodiversity conservation.

Knowledge of a vegetation community is often both crucial and limited in the early phase of conservation planning. Effective conservation of biodiversity requires a good understanding of the range of the diversity involved. John Benson (1994) and Alex Costin (1954) provided the basis of our current knowledge of the component species and floristic associations with NTG. However both studies were largely limited to the Monaro and central regions of the Southern Tablelands. Data collected from sites between Braidwood and Taralga are currently being analysed with ACT and Monaro sites to determine if other grassland associations exist that were not described by Benson or Costin. The outcomes of this analysis will be important for understanding NTG and planning how to best conserve the diversity it contains.

The location of sites, the floristic association they belong to and the list of plants they contain are all examples of data. Before we can turn data into knowledge, we need to store them in a consistent and retrievable way. The project is currently working on establishing two Microsoft Access databases, one for ACT data the other for NSW data. The databases will store similar sorts of information collected with similar methods enabling agencies to easily answer questions relevant to all grassland sites. The Recovery Team will also explore the option of making a version of the database available to the public. This version will only contain public land sites, but would be useful for planning field trips and making submissions on planning proposals.

All the data and knowledge in the world will not achieve effective conservation of NTG if it remains solely with the Recovery Team and participating agencies. Landholders are the key to the conservation of NTG and play a vital role if the project is to increase awareness of grassland conservation issues and help instigate best practice management. Management guidelines for production and conservation already exist (e.g. *Managing Native Grasslands* by David Eddy) and emphasis has been placed on delivering this information to participating landholders. In addition, Recovery Team members are participating in field days and workshops to help raise community awareness and knowledge.

The Recovery Team is only one of many groups working on the conservation of grasslands and we are maintaining links with other researchers to keep up to date with changes in management practices.

The project still has two years left to run, by which time we will be able to paint a more complete picture of the location and types of NTG and have a number of landholders actively involved in managing these grasslands that have played such an important role in the habitation of our country.

Useful references on grasslands

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Brandy Marys

Geoff Robertson

Introduction

My first experience of Brandy Marys was in December 2003 when it was part of a FOG trip to visit the magnificent McPherson's Plain. While our visit lasted several hours, it was not enough time to cover the plain thoroughly, let alone explore the other parts of Brandy Marys. Leaseholders Jim and Mary Kelton welcomed me again in December 2005, and this time I had a more extensive tour, but again it was rushed and I did not see everything.

Brandy Marys are two adjoining State Forest NSW (SFNSW) grazing leases (900ha in total) on the Bago Plateau in the Bago State Forest held by Jim and Mary Kelton. The leases vary in elevation from 840 to 1200m. They adjoin the Kosciuszko National Park to the East, Bago State Forest to the north and south, and freehold land to the west, and are located between Tumbarumba and Kiandra. They include part of the McPherson's Plain wetland-grassland complex, shrub land, mixed alpine ash *(Eucalyptus delegatensis)* and mountain gum *(E. dalrympleana)* forest complex, snowgum *(E. pauciflora)* woodland, riverine and wetland areas. They are also home for many threatened and rare fauna and flora species.

The Keltons

The Keltons have held the lease since 1995. While it is a cattle grazing lease, they decided not to graze the lease because they realised that cattle would destroy the fragile wetland and grassland ecology. They have been encouraging their neighbours to follow their example. Unfortunately, this means that the lease is generating no income, and with meagre off-farm income, it is a struggle to make ends meet. Jim has obtained degrees from the Universities of New England and Canberra. He is a qualified consulting archaeologist, and in his second degree he majored in parks and reserve management. He has documented evidence of aboriginal occupation of Bago State Forest and Brandy Marys in particular, as well as with expert advice, the fauna and flora.

Various ecosystems

It is the grassy ecosystems that first attracted FOG's interest in Brandy Marys. The extensive treeless McPherson's Plain, fringed by snow gum woodland, is a truly magnificent site at any time during the year, although I have yet to see it covered in snow. The plain supports a very rich flora of grasses, forbs, shrubs and bryophytes. A permanent stream meanders through it, and Jim is attempting to slow the flow so that some of the plain can return to a wetland. The higher and drier areas of the plain may be described as montane grassland. When FOG members first saw it in December 2003, McPherson's Plain contained extensive areas of pink, purple and yellow hews from trigger plants, euphrasia, and daisies with hundreds of thousands of several species of leek and other orchids. It was the most amazing grassland that I have ever seen.

Julian Ash (Australian National University), in an unpublished paper, identifies five separate forest communities, and as, for the most part, they have not been logged, he rightly refers to them as old growth forest. The 30ha of mountain gum and alpine ash community, which I visited on my second trip, contains trees from four cohorts, the oldest being 220-260 years. I took several photos of Jim dwarfed by these trees. Julian Ash suggests that the alpine ash were not killed by fires which were nevertheless able to stimulate new generations of trees to grow - a rather unusual phenomenon. Many readers will be aware that, typically, all alpine ash trees are killed in a fire and the following generation is of a single age. This gum-ash community has a highly diverse fern and shrub understorey. Some 7ha of this community exist on basalt soils.

Mountain gum is a key species in three of the other forest communities on Brandy Marys. In the 100ha dominated by mountain gum as a single species, there are trees over 400 years in age. This mountain gum community grows on granite soils and has a grassy understorey. In one other community, mountain gum combines with snow gum and candlebark *(E. rubida)*, and in the fourth community, these three species combine with narrow-leaved peppermint *(E. radiata)*. The remaining community of black sally *(E. stellulata)* and broad-leaved sally *(E. camphora)* is dominant along water courses, often with a sphagnum understorey. Each of these communities has a high floristic value and provides habitat for many animals.

Throughout the property there are large numbers of sphagnum bogs and wetlands - montane peatlands and swamps are currently a NSW listed threatened ecological community. On Brandy Marys, these are generally in good condition, although Jim showed me small patches where brumbies and cattle had destroyed some areas. A magnificent creek with its own cascades runs through one section of the property.

Orchids

With the assistance of orchid expert Peter Branwhite (whose photos are included on this page), Jim has identified 64 species (22 genera) of orchids in Bago State Forest, of which Brandy Marys has 50, (and many of these are only found on the Brandy Marys leases). Two species, *Prasophyllum bagoensis* and *Diuris pedunculata*, are listed as endangered under NSW legislation. A further eight species of orchids found on Brandy Marys' leases have recently been nominated by Peter Branwhite, supported by David Jones, as endangered, to the NSW Scientific Committee.

The table below provides a summary of the genera that have been found.

Genera	Prev. genus	Bago SF	MB Leases
Arachnorchis	Caladenia	1	1
Bunochilus	Pterostylis	1	1
Calochilus		1	1
Chiloglottis		5	2
Corunastylis	Genoplesium	1	1
Corysanthes	Corybas	2	2
Diplodium	Pterostylis	4	1
Dipodium		1	1
Diuris		4	4
Eriochilus		1	1
Gastrodia		3	3
Glossodia		1	1
Hymenochilus	Pterostylis	2	2
Microtis		3	3
Petalochilus	Caladenia	2	2
Prasophyllum		8	8
Pterostylis		7	6
Speculantha	Pterostylis	1	
Spiranthes		1	1
Stegostyla	Caladenia	2	2
Thelymitra		12	6
Thynninorchis	Arthrochilus	1	1
TOTAL		64	50

Plant biodiversity

The orchids are of course examples of plant biodiversity. But anywhere I looked there were magnificent arrays of some familiar grassy ecosystem plants such as austral bugle, copper-wire daisy, creamy candles and button daisy. I understand that the NSW Department of Environment and Conservation (DEC) has nominated three species which occur on the leases for listing as threatened. These include *Dillwynia palustris, Celmisia pulchella,* and *Utricularia monanthos.*

Rare and threatened animals

Jim Kelton with his scientific training is keen to document what species he has been able to observe. This also provides evidence on why Brandy Marys and Bago Forest are special places. The leases are known to contain populations of powerful owl, yellow-bellied glider, olive whistler, spotted-tail quoll, gang gang parrot, squirrel glider, and broad-toothed rat. In the extensive areas of habitat, other rare and endangered animals are likely to be discovered.

PHOTO: The treeless MacPherson's Plain.

Dingos

Jim has taken up the cause of dingos, and in fact owns five. When I first visited in 2003, five dingos bounded towards me and several being young, playfully jumped all over me – causing a pleasurable adrenalin rush. While not opposed to baiting for wild dogs along the fringes of Kosciuszko National Park, he has been campaigning against baiting in the core areas of the Park.

Aboriginal occupation

Jim's love of the land and passion for archaeology partly comes from his aboriginal roots. Jim is a Waradjuri with some Dutch ancestry thrown in. Numerous flaked and ground stone tools, grinding grooves, stone circles and 'shield' scars on trunks (some cut with a steel axe) attest to a rich history of aboriginal occupation into the colonial era. Jim has been documenting aboriginal sites in the Bago Forest. In all, 140 aboriginal sites have been recorded (and registered with DEC) at Brandy Marys alone. The Keltons have been appalled by the destruction of aboriginal sites during forestry operations. Jim has been drawing attention to the destruction of around fifty DEC-registered aboriginal sites in two compartments of Bago Forest during 2003-2004 logging operations. With the support of local aboriginal leaders, the Keltons hope that the NSW authorities will prevent logging of archaeological areas of Bago Forest, including the leases. He has also been advocating that NSW agencies should do more to educate the indigenous and wider community on the importance of aboriginal heritage.

Recent history

Travelling around Brandy Marys and also looking around the area, it is obvious that Brandy Marys has retained a much higher degree of biodiversity than other properties have, and so I was curious to learn more about the history of the property.

Originally, Bago Forest was a series of Crown leases. In 1985 the leases were handed over to SFNSW who began logging them gradually. SFNSW offered grazing leases to interested graziers, but on the understanding that the leases would eventually be logged. The previous Brandy Marys' lessees were absent landlords, who according to

Jim did not get around to acquiring cattle for the lease for some time. When they finally put some animals on it, they had some problems with cattle theft and so stopped grazing. When the Keltons acquired the lease, they were concerned that grazing would destroy wetland areas and lead to the extinction of many flora species, and so have not grazed the land. Staff in SFNSW, have mentioned that by not grazing, the Keltons are not fulfilling the lease conditions. However, it would appear that we should thank the Keltons for sticking to their view.

The future

The chief threats to Brandy Marys, and Bago Forest more generally, would be logging the old growth forests, and resuming cattle grazing on McPherson's Plain and in wetland areas, which would destroy the structure and biodiversity of these areas. Logging would also destroy many aboriginal heritage sites.

To prevent logging, the Keltons have been attempting, so far with limited success, to negotiate a conservation agreement over Brandy Marys. Initially they obtained a twelve month forestry moratorium over Brandy Marys, which has since expired. There have since been some ongoing discussions with SFNSW. DEC has also been investigating a number of the orchid species. The Keltons have also been founding members of the High Country Conservation Alliance (HCCA), a group which is supporting them in their efforts, as well as looking at what can be achieved to conserve and manage other high quality remnant vegetation in the region.

In part the story of Brandy Marys has been recorded in the FOG newsletter. The Jan-Feb 2004 edition recorded FOG's first visit (see articles on an early Christmas gift and McPherson's Plain), while information on orchid species appeared in the March-April 2004 and Jan-Feb 2005 newsletters). A report on HCCA appeared in the July-Aug 2005 issue. A large two-page spread on Jim Kelton and SFNSW appeared in the *Tumut and Adelong Times* on 2 April 2004.

An Australian Habitat Garden
Transforming a Garden in Lyons

Alan Ford

Imagine a front yard of cotoneaster, photinia and two large pine-trees. The ACT Government wanted me to keep one of the pine-trees, can you believe it! Then, imagine it being taken out, it only takes a couple of days.

The idea

The idea is to create an Australian habitat garden in front, based on local plants from local seed. The only difficulty is a Mugga ironbark in one corner. I have declared it exempt and it has been allowed to stay because it is a truly impressive beast. In the longer term it may have to go for safety reasons.

Photos supplied by Alan Ford

At the time the original vegetation became mulch, the area was subject to mechanical intervention to remove root systems and raise the centre section of the yard, and some rocks were placed at that point. A variety of local grasses and other herbaceous plants plus two shrubs were planted into what was intended to become a native grassland garden. Local native shrubs were placed along the front edge and on the other side of the driveway to provide screens and to enhance the range of habitats available. I have used only my own compost, commercial soil conditioner and/or commercial native potting mix around the plants. Otherwise the area is basically as at the time the house was constructed.

The problems

The front garden was initially planted in March-May 2003 and planting has been continuous since that time. Clearly the process has been affected by the recent drought (mind you, if you asked the kangaroo grass it would respond – drought, what rot) and some plants have been lost during that time. Of course, you have to implement a weeding regime and stick with it as though it is a military operation.

I have come to the conclusion that some plants from Black Mountain do not survive very well on the plain. The same applies, unfortunately, to plants from the higher parts of Namadgi. It may well be that better soil preparation, water regime, protection and location may assist their survival rate.

Another factor is that the block slopes down from south-west to north-east. I haven't bothered about the drainage but it may affect plant growth patterns.

The plants

Apart from these limitations, plant selection does not present a problem. Burbidge and Gray and the Paget CDs provide a huge variety and the local growers are most helpful. The front now has five grasses and the only difficulty is that the kangaroo grass (*Themeda triandra*) insists on trying to take over (by the way, never plant *Themeda* under the drip line). Poa tussock (*Poa sieberiana*) was chosen, as I am at mid-slope and thought that was more appropriate. There were several of the larger River Tussock (*Poa labillardieri*) that arrived as escapees with some of the material. I had forgotten that, as I am just below Oakey Hill, there would be an effect. One of the two *Poa lab*s is now trying to beat up a mat–rush (*Lomandra* sp.).

Ten daisy species have been planted and all have survived. The standard bearer is the common everlasting (*Chrysocephalum apiculatum*) which goes beserk. At the other end of the scale is the local version of hoary sunray (*Leucochrysum albicans*), which, as far as I can tell is really only bi-annual in most of the garden although it appears to have a preference for certain conditions and in those it appears to be able to go on and on.

Vanilla lily (*Arthropodium milleflorum*) and nodding chocolate lily (*Dichopogon fimbriatus*) do equally well. You have to watch it with some of these things, they disappear for a large part of the year and you have to plan for that. Although they don't look nice, I have put white plastic tags next to where these have been planted so that, for the first two years, I have some time to get used to their placement in the landscape.

I need to digress to mention the shrub screen, which will help create diversity. There is red-leaf wattle (*Acacia rubida*), a number of *Cassinia quinquefaria*, which are truly impressive once they reach a metre or so and a few others, the local hop bush (*Dodonea viscosa*) and woolly grevillea (*Grevillea lanigera*) scattered along the lines.

The landscape

I am trying to create a messy looking landscape and you have to plan for that. You have to get used to the idea that it is not going to look neat and you can ensure that by scattering different types of plants, utilising grasses and daisies as a base, over the available space. You are going to get relatively small flowers in a variety of colours across that landscape and they will often go on where the surrounding exotic gardens are dead. This is a key because you are trying to create a diverse habitat that will attract a variety of native creatures. You have to look for these and the discoveries can make the hard work really worthwhile.

What happens

What happens in an Australian habitat garden? If you put in a pond, (and I haven't) you could get frogs. However with my variety of plants I get a range of creatures and other things.

The other things are a slime mould and a number of fungi. We have people in the ANBG that are experts in fungi and they are going to be asked to identify these, eventually.

The creatures that you notice (apart from the birds) are the insects and related invertebrates. The butterflies are the most noticeable and their response to the new conditions meant six or seven species in or around the garden. Then there are the little black ants, the various forms of insects, and a load of spiders, at least I can identify the wolf spiders. The developing garden may have had an effect on the paper wasps' nest as there are two operating nests this year.

I think the evolving garden is gradually having an effect on the birds. The local magpie family really enjoys itself and there is now a visiting superb fairy-wren family. The difficulty is the common myna presence and that may affect the situation. It is probable that the bird response will not become significant until the shrubs in the front and the back are more developed and the back becomes more of a jungle.

In early January 2006 I finally found a lizard, probably a striped skink. I was quite surprised as I am a fair way into the suburb and I thought it too far for a small creature to come, particularly when it would have to find its way through a number of unfriendly back yards.

There is a nature strip which is now largely the local red grass (*Bothriochloa macra*). That is the subject of the next transformation. Then there is a back yard, a separate saga - and when I say saga, I *mean* it.

There are a huge number of people to thank, particularly from the Wednesday Walkers and the ANPS grass group. Without their help, it wouldn't have happened.

Sheep's burr - Acaena ovina - a native weed?

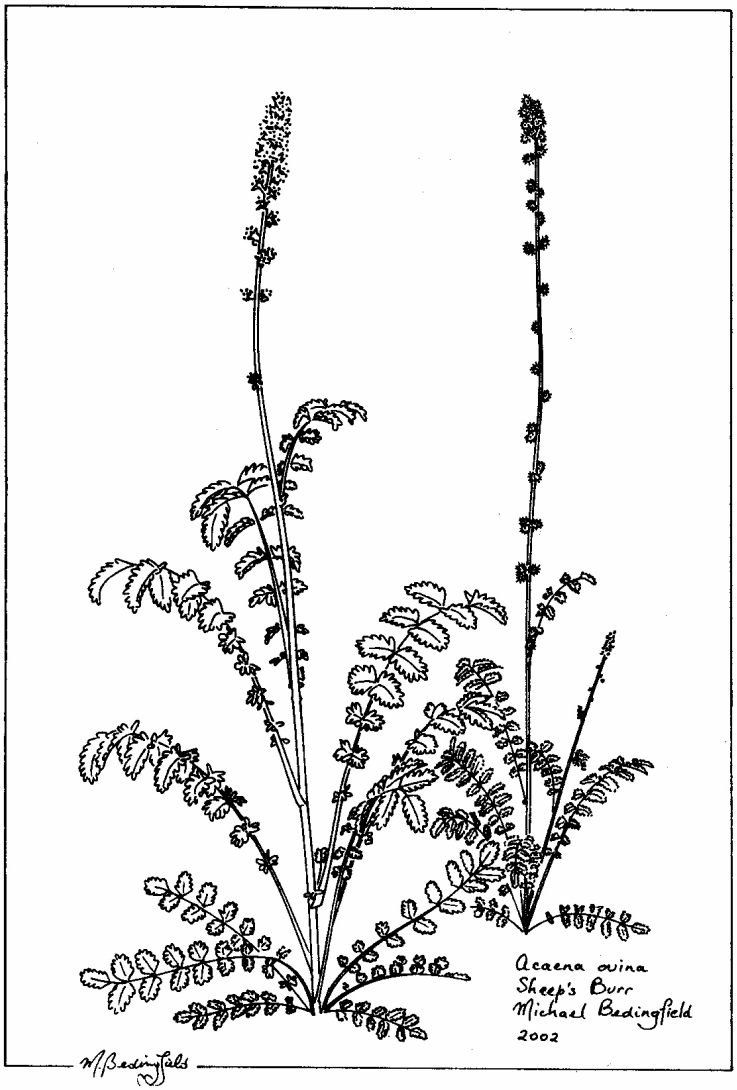
Michael Bedingfield

What is a weed? Some people say it is a plant growing in the wrong place, or one that's not native. To others it is simply a plant they don't like. In one of Charles Shultz's old *Peanuts* cartoons, Peppermint Patty is feeling miserable, and she describes herself as a weed, "a poor ugly weed trying to push her way up through the sidewalk of life". Her friend, Marcie, points out that she has used a good metaphor, and says that weeds can tolerate a variety of environmental conditions and have the ability to exploit disturbed terrain. For further clarification she adds that a weed "can roll with the punches". Patty recognises this ability in herself too, and her confidence is restored.

The botanical name for sheep' s burr is *Acaena ovina. Acaena* means 'thorn' in Greek, and relates to the small ovoid fruit, which has sharp prickles. And *ovina* comes from the Latin for 'sheep', referring to the burr's affinity for sheep's wool. Sheep's burr clings not only to sheep, but also to other animals' fur, as well as to socks, trousers and shoelaces. Consequently, the plant is widely distributed.

As a result of removing many of these burrs at home after a grassland walk, an occasional specimen has sprung up in my lawn. To avoid a potential problem I dug them out. The burrs are about five to seven millimetres long, and have needle sharp prickles all over them, each spike with backward growing hairs on the end, hence their ability to cling to things. They can be painful when being removed from clothing, as the spines are needle sharp and can penetrate the skin. So, not many people are endeared to this plant. It grows in a variety of habitats within a range of grassy ecosystems - open forests, woodlands and grasslands. It occurs in seasonally damp areas as well as drier places. While it can be found in good native areas, it does better in areas that have some disturbance, and is a natural colonizer. Sheep's burr, despite its native status, has some weedy habits.

With spring growth, the perennial rosette is refreshed with new, rich green leaves. These leaves have hairs on their underside, and are pinnate, i.e. with a number of small leaflets growing in pairs along a central stem. The leaflets are lobed, giving the plant a fern-like appearance. The flower heads rise up elegantly on slender stems from the centre of the rosette, making a quite attractive plant. The flowers are tiny, have no petals, are greenish, white or purple, and are spread along the stem. At the early stage of growth the flowers are closely grouped toward the top of the stem of around 30 or 40cm in length. As the warm weather advances and the fruits mature, the stem stretches taller, up to about 60cm, and the fruits are more widely spaced than the flowers. When mature, the fruits are ready to do their job of clinging to everyone and everything, and the once attractive plant becomes a minor nuisance.



Sheep's burr is common locally, and occurs elsewhere on the Southern Tablelands and the NSW slopes, as well as in all other states, except NT. Please refer to the drawings. The plant in early flower is shown in the foreground at half normal size. In the background at quarter size a taller plant shown as it is later in the season, with the mature fruits present. This is *Acaena ovina* – a seasonally attractive plant with strong survival resilience, but with a prickly habit, requiring a degree of tolerance by nature lovers in many parts of Australia.

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Friends of Grasslands Newsletter

Do you want to subscribe to the newsletter? It comes out six times a year, and you can obtain it by joining FOG. 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 or parkcare group, or actively interested in grassland and woodland 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 and woodlands, plant identification skills, 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, why not encourage friends to join, or make a gift of membership to someone else? We will also send a 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 Kim Pullen, Geoff Hope, Janet Russell or Geoff Robertson. Contact details are given in the box above. We look forward to hearing from you.

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