News of Friends of Grasslands

Supporting native grassy ecosystems

March-April 2002

MARCH-APRIL 2002 PROGRAM

Saturday 2 March - Visit to Bega Swamp. We'll meet outside the Nimmitabel General Store (main street in Nimmitabel) at 10.15am on Saturday morning. Anyone who would like to stay at Geoff's and Margaret's just outside Nimmitabel on either the Friday or Saturday nights is welcome - please get in touch with Margaret to make arrangements. (Weather permitting, we may also camp on the Saturday night and look for *Grevillea acanthifolia*.)

Workshop 6-7 April: Learning from a landscape walk: what is happening on the soil surface. David Tongway will lead this workshop, which will describe Landscape Function Analysis. While rigorous, landscape analysis is easy to apply and should appeal to professional ecologists and to enthusiastic amateurs wanting to have another dimension of knowledge open to them. The workshop will be held at Garuwanga, a property near Nimmitabel. It will commence at 8:30am on the Saturday and finishes at lunchtime Sunday. A more detailed description of the workshop appears on page 7. The only costs will be for basic catering, $15 per person. Contact Geoff (6241 4065) regarding inquiries and registration.

Saturday 27 April - PNG alpine grasslands, 2pm Mugga-Mugga. Come and see Geoff Hope's slides of PNG alpine grasslands, with some species in common with our own alpine areas. However, date may change to accommodate New England trip.

Late April/Early May - FOG Trip to New England

Wal Whalley will show FOG the grasslands and grassy woodlands of New England over a Friday, Saturday and Sunday. The broad plan is to hold a discussion/workshop on the Friday morning on what is happening in New England, the Southern Tablelands and elsewhere. On Friday afternoon we attend the launching of *Grasses of New South Wales* by D.J.B. Wheeler, S.W.L. Jacobs and R.D.B. Whalley, 3rd Edition. On Saturday and Sunday we will visit a number of grassland sites. The key sites would be on Saturday so that they can be promoted locally. We will fit in a BBQ somewhere.

Wal tells us that *Grasses of New South Wales* is still black and white with the same distinctive cover and lots of line drawings. Introductory material and nomenclature are updated, species descriptions added and Glossary expanded and improved. It has a more compact font and 446 pages (313 previously). For durability as a field guide, it has laminated covers and wire loop binding. Anticipated cost is around $30.

Wal says there are several places on campus and in Armidale and others on private property or TSRs close to town that are worth looking at. He hopes that Surrey Jacobs, Jeremy Bruhl and Dorothy Wheeler may join us for some of the field trips, together with some post-graduate and ex-post-graduate students.

We are looking for accommodation at the cheaper end of the market with possibly cooking facilities to keep costs down. We plan to travel there and back by car, but plane travel may be more appropriate for some. If interested contact Margaret soon.

MEMBERSHIP RENEWAL
Please send in your renewal for 2002 if you haven't done so already.

Saturday 9 March ACT Field Naturalists are inviting FOG members to their **Walk with Michael Mulvaney.** Meet 2pm at the summit of Red Hill. Red Hill is a key sight-seeing and wildlife corridor. We will see the pre-Christmas fire impacts, especially on 'Heritage plantings' and some interesting regeneration of threatened species occurring. Red Hill and environs mirror several aspects of the history of Canberra's reserves and open spaces showing a range of habitats, land usage and plant communities.

MEMBERS, NEWSLETTER, PROGRAM

This is an extract from Margaret Ning's report at the AGM.

Membership

At 31 December, we had 159 membership (150 a year earlier) representing 197 members (177) after counting families as two members. Memberships included 12 corporate and thirteen concessions.

As we move through the year 2002, we have received about 110 renewals and a handful of new members. Those red dots on the last newsletter certainly elicited a speedy response from many members, and I would like to thank all of you who have already renewed for making my duties as membership officer easier. Inevitably, that still leaves a few outstanding renewals, and I am girding my loins in preparation for the next stage in which I shall approach those still outstanding ones to ascertain whether they really have decided to move on, or whether they are just a tad pressed for time. Generally, members welcome my reminder but if you have decided not to renew and do not want to be bothered, perhaps you could send me a brief email: margaretning@primus.com.au. By the way, I've lost track of a few email addresses over the last few months as ISPs have crumbled and failed, so if you think this includes you, could you please send me your new email address so I can really get my records up to date.

Activities

It's managed to be a busy year and our most successful activities have proved to be our trips away to the Coast in late August and to Hay in early September 2001. In fact, the story for the year is that our 'out of town' activities have attracted more members than our more local ones. Maybe we've done the local spots to death? Anyway, thanks to the experts who have led activities this year and to members for their support for the activities as I think we always manage to get a pretty good turnout considering our size.

Newsletter

It's been a busy year for the newsletter but we have managed to get all six issues out on time. Most of the time, there seems to be no shortage of things to put in it, although I have minor panics from time to time. In fact the last couple of issues have had to be expanded by a couple of pages to fit everything in. I would like to thank members who have contributed articles over the last year, those who have passed on articles or snippets to be reproduced in the newsletter and to those who slip us copies of their photos to go in it. I owe Jean Geue a special mention here.

NEWS ROUNDUP

Annual General Meeting

Twenty-six people attended the AGM held on 23 February followed by the barbeque at Mugga. The meeting kept to its timetable, nevertheless there were informative reports and good discussion of future directions and activities. Extracts from the President's and other reports appear on pages 1 and 10. In other reports, Alan Ford as Treasurer reported that FOG was in a sound financial position and David Eddy on Cooma Common project flagged the likelihood of obtaining weed funding.

Naarilla Hirsch did not re-stand for the Committee and the meeting passed a vote of thanks to her for her many years of service on the executive and in recent years as FOG Secretary. The meeting also thanked Benjamin Whitworth for his recent work as acting Secretary. FOG welcomes Ros Wallace as its new Secretary. Apart from Naarilla, the elections saw the old committee come back on board with additions of Warren Ganter and Susan Winder as well as Ros. A good start to a promising year.

Restoring native vegetation workshop

Thirty-one people attended the FOG weekend workshop "Restoring Native Vegetation to the Landscape" with presentations by Geoff Robertson, David Tongway, Roger Farrow and Warren Ganter. Copies of Geoff's presentation are available on request. Apart from the indoor sessions, each of the presenters led an outdoor sessions which provided a practical illustration of his talk. An additional outdoor session was given by Margaret Ning and Benjamin Whitworth on plant identification and survey techniques. Bernadette O'Leary chaired the indoor sessions and her report appears on page 7. Most people camped for the weekend and, given the variability in weather, the weather was excellent.

FOG submissions

Even though we have just passed through the holiday season, it was a busy one. Three submissions were submitted. The first on the draft *Management Kit for Grassy Ecosystems,* the second on the draft *Management Conservation Guidelines for Conder 4A,* and the third on the draft *Recovery Plan for Natural Temperate Grassland of the Southern Tablelands.* Each was a comment on work in progress, and given the complexity of each submission and lack of space no attempt is made here to summarise them. However, copies of the submissions are available from Geoff Robertson.

In addition, Geoff provided Simon Corbell's Office with an extensive briefing on grassy ecosystem issues on 15 January. On 7 February, a number of FOG and Conservation Council members met with PALM and Environment ACT to exchange information and follow-up on FOG's submission on Lawson mentioned in the previous newsletter.

In this issue:

In next issue:

Badja Swamp Nature Reserve

Alan Ford

FOG went to Badja Swamp on a fine Saturday 26 January. Sixteen people attended. Two roadside stops along the way occupied our time, the first yielding a Copper-wire Daisy *(Podolepis* sp) as well as a little *Caesia*, among other things. The second was the Stylidium grassland, no trigger plants but plenty of other things to keep us interested. We even met the present owners, who were only too pleased to see our enthusiasm.

The truly remarkable thing about the Swamp was that no one saw a snake. We entered from the road into the creek line that wound its way around the hill to the main swamp. A very imposing greenhood orchid (huge would be a better word), *Pterostylus furcata*, and a tall *Baekia* shrub in flower were the first things to meet the eye. We gave up with the Juncus, as it seemed a different species was encountered every 100 metres or so. Evidence of pigs and sighting of numerous cattle couldn't even dampen our spirits.

Around the corner into the main swamp proper, the plain of Poa was a central element surrounded by little patches of beauty, such as Fairies Aprons (*Utricularia dichotoma),* to say nothing of the tiny swamp plants, the *Cotula* for one as well as the native relative of the dreaded St Johns Wort, *Hypericum japonicum.*

Jackie Miles' botanical skills were much in evidence and FOG must thank her for the day.

Danjelong Reserve Expedition

Jackie Miles

In something of a departure from usual practice, on the Sunday of the Australia Day weekend, FOG went rock-hopping down the Numeralla River into Danjelong Nature Reserve. This is a relatively new reserve which came out of the Eden Regional Forest Agreement, formerly a bit of Vacant Crown Land. It is a difficult bit of land to get around in, consisting of steep slopes with lots of big granite boulders outcropping, liberally clothed with low dense scrub of *Allocasuarina nana* and *Kunzea* sp. C ("Badja carpet" to the horticulturalists among us). The trees were mostly Candlebark (*Eucalyptus rubida*), with occasional *E. viminalis, E. dives* and *E. pauciflora.*

The river carried a dense riparian scrub of various *Leptospermums* and *Micrantheum hexandrum,* and a few other shrubs. Between the riparian scrub and the nana scrub there was a narrow belt of mostly open rock, along which we made our way, having to resort to scrub-bashing from time to time. Margaret did one major scrub-bashing effort when she got seduced into leaving the river by a path that looked like it "went". The rest of us got quite a good breather while we waited for her to make her way back to somewhere more sensible. However, her labours were not in vain, because she came back clutching a specimen of the only rare plant for the day, a shrub called *Dillwynia glaucula.* At least, that is what it seems likely to be, although not having any flowers or pods, the ID isn't definite. This species is listed as endangered on the NSW Threatened Species Conservation Act. It has been previously recorded from somewhere around Numeralla, as well as Michelago, and Windellama, east of Goulburn. Hopefully this is a new record.

Grasses and forbs were pretty thin on the ground, although we did manage to amass a fair species list by the end of the day (50 odd trees and shrubs and 80 odd herbaceous things). Most of the non-shrub things were growing in little patches of sand or mud along the river.

The river has some terrific swimming holes, which only Dierk had the sense to avail himself of. A middling speccy water-

fall was chosen as the morning tea spot, and there was a little bit of natural attrition at that point, but four of us made it another half km or so downstream. There was a bit of interest in launching another assault on the reserve later, perhaps tackling the ridge tops next time, in the hope that the scrub might be thinner along these. Something for a cooler time of year perhaps.

Helen Ryan resigns

Helen Ryan recently has resigned as the Grassy Ecosystem Network (South-East Australian) Coordinator and has sensibly chosen "to live in the country". FOG wishes to thank Helen for her efforts in conservation of grassy ecosystems, particularly the support she gave to FOG on a number of occasions, and her efforts to attend FOG activities. We will certainly miss her readiness to pick up important matters, her effectiveness and great smile. Helen, please keep in touch.

New Grassy Network appointment

Donna Boyle has been appointed as the new Grassy Ecosystems Network (SE Australian) Coordinator. The position is full-time and located in Melbourne. This is a Bushcare position and Donna is employed through the Victorian National Parks Association. The aim of the position is to promote the development of strategic and collaborative initiatives for the conservation and management of grassy ecosystems throughout south-eastern Australia and requires liaison with rural and urban community groups, government agencies, industry bodies, non-government organisations and research institutions.

Donna describes the position as challenging "and in my first few days I am a little overwhelmed with the scale, the issues, and, above all, the importance of native grasslands".

She stated to FOG "I am on a steep learning curve as I have not worked in this field (pardon the pun) before. Previously, the Department Natural Resources and Environment (NRE) employed me as team leader for Pest Plants and Animals (PPA) in Geelong, Victoria. I have had six years experience in PPA with a particular focus on rabbits and Serrated Tussock. The Serrated Tussock program, delivered by NRE, has been recognised as one of the best weed control models in the State with its combination of extension and compliance supported by the local community.

It was while working on Serrated Tussock that I came across native grasslands. Many remnant grasslands were on rocky barriers in amongst crops or improved pastures and this was also where the Serrated Tussock was found. Although we wanted the Serrated Tussock controlled we did not want the native grasslands destroyed. We found it very difficult locating management options for landholders.

VOLUNTEER OPPORTUNITY

Rainer Rehwinkel, NSW NPWS Threatened Species Officer, has an opportunity for a volunteer to undertake some work at the Queanbeyan NPWS Office. He has a collection of plant specimens collected from grassy ecosystem sites over the previous six years that need labelling and preparation for safekeeping. The work would involve a minimum of a couple of hours a week - or whatever you feel you could contribute. If you are interested in this opportunity, please call Rainer on (02) 6298 9745, or email him on: rainer.rehwinkel@npws.nsw.gov.au

On a personal note, I have spent a lot of time in the bush with my partner photographing native orchids but it is only recently that we have 'discovered' grasslands. It is a totally different landscape and needs to be appreciated as such. Grasslands' beauty lies at the diminutive level and it is here that they take your breath away. Their colours, textures, and diversity are unsurpassable.

I hope this position will give me the opportunity to see more and learn more about these delicate ecosystems and also catch up with members of the FOG in the near future to discuss the future opportunities for native grasslands." We look forward to working with you Donna.

Watson Woodland

Stacey Lucas (Chronicle 19 February) reports it is now official - up to 20 hectares of North Watson Woodland will be saved from development and rezoned as urban open space. In announcing this, Simon Corbell stated that this decision meets a pre-election promise by the Labor Party.

Australia Day Address
Alan Ford

In his Australia Day Address Dr Tim Flannery argued that: "For Australians, the land has a special significance. That's because our country is so very different from any other. Australia has remained almost unique in its stability. Its biodiversity increased in relative peace and isolation over the eons, until today we rank eighth on the planet in the richness of our natural wonders. And because of that stability many species became very specialised, confined perhaps to just a few square kilometres, making them vulnerable to future changes."

He then indicated that "Our European heritage left us appallingly equipped to survive, long-term, in this country. For a start it left many colonial Australians unable to see the subtle beauty and biological richness of the land, and what they could not understand they strove to destroy as alien and useless. For most of the last two centuries we have believed that we could remake the continent in the image of Europe.

He felt that "despite all this, there are signs that things are changing for the better. Today, as the Australian environment subtly teaches those who listen to it, Australians are undergoing a radical reassessment of their relationship with the land, particularly when it comes to the basics like food, water and fire."

However he is clear that "What's needed now is a change in consumption patterns by city-dwellers to provide a market for sustainably produced products. As the 'buy Australian' campaigns and the advertising of many products as 'environmentally friendly' shows, there is a great desire among Australians to preserve their environment. Yet still much damage continues, in part because urban-dwellers need to become well informed about what environmental sustainability really means, and how they need to alter their patterns of consumption in order to achieve it."

He also argues that "The way we use water is also slowly changing in response to Australia's unique environment. Because of our continent's great rainfall variability, Sydneysiders need eight to ten times the water storage of the inhabitants of New York or London - that's around three Olympic-sized swimming pools' worth per person. The economic and environmental costs of this are stupendous, and they are forcing us into new ways of thinking about water, as plans for more dams are shelved and water is re-priced. This shift has the power to alter our urban landscapes - for the beloved Europe-green lawn, English rose and London plane tree are all thirsty drinkers."

His final statement on this part of the discussion is only too true. "Nothing seems to rouse the passions of some Australians so much as disparaging roses, lawns, plane trees and the like. Yet I really do think that they are a blot on the landscape. I used to

joke that I'd shout beer all round at my local pub the day someone brought me a plane tree leaf that an insect had actually taken a bite out of. The fact is, that as far as Australian wildlife goes, plane trees are so useless that they might as well be made of concrete. Australia is home to 25,000 species of plants, as opposed to Europe's 6,000 or 7,000. Surely amongst that lot we can find suitable species that will provide shade, and food for butterflies and native birds as well. To be honest, there is another reason I dislike many introduced plants. If gardens are a kind of window on the mind, I see in our public spaces a passion for the European environment that indicates that we are still, at heart, uncomfortable in our own land. If we can see no beauty in Australian natives, but instead need to be cosseted in pockets of European greenery, can we really count ourselves as having a truly sustainable, future adapted to Australian conditions?"

His real conclusion is that "the single most important change is the need for all Australians to achieve true environmental sustainability."

TALES FROM A GRASSLAND TRAVELLER, PART II

Geoff Robertson

It took a long time to find the Park headquarters. I had many instances where I spent time trying to suss things out and find my way, the down side of not knowing exactly what you are doing. When I entered the building I felt a little awkward. There was a counter and a pamphlet display and a couple of people in the office busily working. Finally someone said 'can I help you?' I wanted to ask if they had a couple of hours to spare, but I tried to be focused and ask the most appropriate questions. In a little time, there was a great exchange of information (though I was aware I had forgotten some of my questions) and I was being given lots of literature. Unfortunately, the botanist could not be contacted. What did I learn?

I acquired a map of the Comanche Grassland. On the front was the northern section of the Grassland around La Junta and on the back, the section around Springfield. The map brings home both the fact that Americans like to divide the landscape into small even squares and the scattered nature of the grassland network. The northern map covers an area of just under 40 by 40 miles, the southern map 80 by 30 miles. The map is divided into a mile grid resulting in squares of one square mile (640 acres) which is, from what I can gather, the basis for defining property boundaries. There are purple squares at almost regular intervals throughout the map – State land. The green area, representing the National Grassland, is patches of green squares and looks like an island archipelago in an ocean of white (private land) and purple. Sometimes a patch of National Grassland may be a single (or even a half) square mile. Roads are straight and at right angles to each other, and follow the mile gridlines.

The Grassland was acquired voluntarily during the 1930s and hence the patchy nature of the holdings. The managers have a strategy of consolidation, trading smaller portions of scattered holdings to build up more consolidated holdings, probably a slow process. Therefore, for the most part, without a map and careful measuring of miles it is hard to know whether you are seeing the National Park or private land. This brings home the fact that both private land and National Park have similar management.

For the most part, the national park is leased to graziers where there are well-established contracts in place. These contracts stipulate that there must be 60 growing days in each year in which a patch cannot be grazed. I only saw overgrazing in one patch of private land, suggesting that both National Park land and private land were similarly treated.

The management aim was to imitate the natural ecology. In the past, buffalo would stay in one place until they had eaten it out and then move on. Therefore there was natural disturbance and time to recover. It is believed that, in the past, lightning caused fires about every eight years. The aim is to patch burn on an eight-year cycle, but this is hard to achieve in practice. Buffalo disturbance, I think is well illustrated by the following quote from page 360 of *Grasslands*, 'The range of this grass (Buffalo Grass, *Buchloe dactyloides*) is almost synonymous with that of the shortgrass prairie, of which Buffalo Grass is one of the dominant species. The plant is called Buffalo Grass because it apparently sustained the buffalo, which in turn trampled the ground and created conditions favourable for its growth.' Cattle behaviour would seem to have much in common with buffalo and hence be a good substitute for them.

I inquired about the bird-grassland link and was given a copy of *Best Management Practice for Shortgrass Prairie Birds*. This small volume brings the link between grassland and birds out very clearly and is well set out. It covers the behaviour, and food and habitat requirements, for thirteen birds. It also provides information on extension services. It is an excellent example of how to keep landowners onside and doing the right thing. Birds were a common sight on my travels and, apart from the raptors already mentioned, I saw Killdeer (Plover), Morning Dove, Western Kingbird (has a very bright yellow belly), Barn Swallow, Black-billed Magpie, numerous species of sparrows and finches, Brewer's Blackbird and Bronzed Cowbird.

Of all the grasslands I read about, the Comanche Grassland was the only one where a plant list was mentioned - I was given a copy. It contained survey results from four sites in the northern section of the Comanche Grassland, but not sites I visited. It listed 788 plant species and the sites at which they were recorded. It used a '1' for plants recorded at a site, and '0' for those not recorded at a site but known to grow nearby. Only 400 of the 788 species were actually recorded at the four sites. Of the 788 species, 86 species are introduced. Forty nine of the introduced species were in the category 'not at the site but known from nearby.' Of the 788 species, Daisies (Asteraceae) accounted for 142, Peas (Fabaceae) 62, and Grasses (Poaceae) 111. There were no orchid species. The common names are colourful like in Australia.

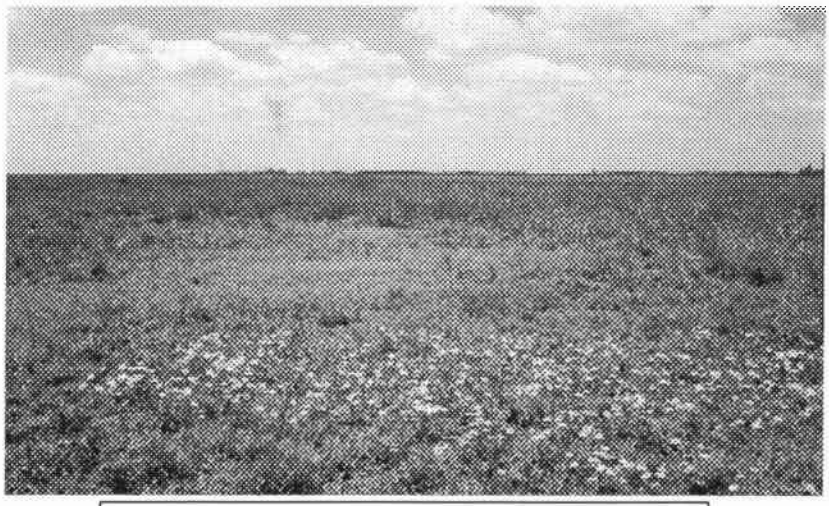
While mentioning plants, there were a number of familiar faces from an Australian perspective. Yuccas were prevalent in the northern section of the Grassland. Cactus was also common. Kentucky Bluegrass also comes from this area, as does Sweet Vernal Grass.

I also received some advice on how to get to other sections of the Comanche Grassland, and where I should go for the remainder of my trip. I also picked up a number of very useful pamphlets not recorded in the bibliography. From that advice I planned to visit the Kiowa and Rita Blanca National Grasslands across the northern areas of Oklahoma, Texas and New Mexico. But I had one

further treat in store that afternoon after picking up a new roll of film.

I drove about 24 miles south of Springfield and in the late afternoon, I found my first Prairie Dog colony. They were not far from the road but when I got out of the car the creatures headed to the northern end of their extensive burrows. As I was getting out of the car, I saw a creature come out of a burrow and fly a little way off – a Burrowing Owl. I could see it looking at me with its big eyes - what a thrill. I had seen a program on these birds just before leaving Washington but I never imagined I would see one.

I crawled through the barb wire fence (all four strands were barbwire) thinking I was getting very skilled at this, and walked among the burrows. For the most part, the Prairie Dogs were a long way off, but little heads occasionally popped out of the burrows and screeched – no doubt some sort of warning signal. I was in paradise, but no more owls. I thought these creatures were very destructive because their holes scarred the landscape and the vegetation cover no doubt gets greatly reduced. Enough sight seeing for one day.



Rita Blanca Grassland: Short and mid-size grasses in background with wildflower display in foreground.

At the motel, seven guys had knocked off for the day and were sitting around drinking a few stubbies. They asked me to join them with, 'there's plenty of beer here'. When I joined them I told them I was under doctor's orders not to drink. Two hours and 35 stubbies later, the party broke up. It had been a good exchange of information and long stories. One of the participants had spent part of his teenage years in Australia. I learned two things: land holders are free to get rid of Prairie Dogs on their land, but Prairie Dogs are protected on the Grassland, and buffaloes (like kangaroos) are largely fat and cholesterol free.

Tuesday promised to be a long day. About 20 miles south of Springfield I turned west off Highway 287/385 and then travelled west 20 miles along a dirt road to Carrizo Canyon. Again I arrived near the edge of the canyon at the picnic area where there was a stunning display of wildflowers. I went for a short walk in the small narrow canyon dominated by a creek. I saw some excellent Indian carvings. I did not spend too much time there because I had a big day ahead. Next I headed further west on a twelve mile loop, driving mostly through private land in the Brushy Canyon area, largely along the Cottonwood and Carrizo Creeks (which would be called rivers here). The scenery and grasslands changed constantly, and were just superb.

Then I largely retraced my steps before turning south to Picture Canyon. In this case, I drove into the canyon where the carved landscapes were outstanding. I had not intended to stay long in this area but my short walk got a bit extended as I wandered from one landscape spectacle and one grassland mosaic to another. The wildflowers, cactus, and grasses, including Poa grasses, were superb (I am overusing that word). It is hard to pick the best area I visited, but this may have been it!

Then I zigzagged north and east to rejoin the highway at Campo. Along the way, there were examples of short and mixed prairie grassland. I stopped to take a closer look at Sagebush country. What was becoming apparent is that the Buffalo Grass grew on mud flats, while the taller Little Bluestem (*Andropogan scoparis*) and Blue Grama (*Boeteloua gracilis*) grasses like the better drained soils. However the Sagebush took over on the really sandy soils. At Campo, I was nearly tempted to travel east to see a colony of Lesser Prairie Chickens, however, I decided that was just too much. Next time! Now it was some nine miles south to the Oklahoma border and goodbye to Comanche Grassland, although at this time I had not decided what my return route would be.

From Campo to Boise, the landscape was still grassland, as it would be for much of the remainder of the trip. A wrong turn in Boise cost a little time. I was heading for Clayton in New Mexico but I decided to take 385 South and 296 East. This would take a little longer but I would be travelling through the Rita Blanca National Grassland and through part of Texas - another State to tick off my list of States visited. I had seen the map for this Grassland and it was much more fragmented than Comanche and so it was never possible to tell whether one was in the Grassland or not. Nevertheless, I stopped a couple of times to check out the vegetation, and was never disappointed. This included stopping at another Prairie Dog site.

At Clayton I found the headquarters for the Kiowa and Rita Blanca National Grasslands only after some effort. Again, a little nervousness gave way to a very useful discussion on grasslands. Two topics I had failed to inquire about the previous day, restoration and weeds, were high on my agenda.

In my travels, I did not seem to encounter weeds, although I would not know what was native and what was not. Weeds did not seem to get a mention in any of the literature. According to the managers i n Clayton, weeds were considered 'a problem, particularly Canadian Thistle, which had become established in some 20 acres of the National Park.' Consideration was being given on how best to get rid of it. This was a contrast to the situation here where many resources go into weed control. Similarly, there was no mention anywhere of feral animal control. I was, and still am, puzzled by the lack of a weed problem.

We talked a little about land swapping to bring about greater consolidation and restoration. After having read so much about the US restoring grasslands, I was surprised to hear that if any area has been acquired and it has been run down or cropped, it is simply resown with local native grass seed. The wildflowers were expected to establish themselves without any assistance.

Management arrangements, involving tight contracts with neighbouring land holders, seem to work very well. In fact, areas which had been locked up and not grazed for thirty years, seem to do poorly. There you have it, I thought, excellence without effort. I also picked up some more literature including the *USDA Forest Service Strategic Plan.*

The next part of the trip was problematic. The next good grassland, the western section of Kiowa, was a long distance away but I was

promised some fine scenery along the way. So I travelled west from Clayton to Springer and then south to Wagon Mound, a distance of about 110 miles. The area west of Clayton was amazing with fields of yellow daisies everywhere. Unfortunately I had run out of film in Rita Blanca and in my rush to leave Clayton had failed to acquire more. Also, I forgot to visit the museum at the grassland headquarters. Silly me! What this part of the trip illustrated to me was that land holders in this area have learned to live with native grasses and make the most of them. Fields of wildflowers were in private hands. As I got closer to Springer, the Rockies again emerged on the horizon. Wagon Mound was almost a ghost town and the motel, if one could call it that, was not appealing, but it was late and many miles to the next one.

I had been promised spectacular country between Wagon Mound and Roy and I was not disappointed. The main attraction was travelling through the Canadian River Canyon. There were some very impressive landscapes and changing vegetation. Previous unseen wildflowers emerged. The most impressive was a member of the Figwort Family, Wyoming Indian Paintbrush (*Castilleja linariaefolia*). I stopped at Roy for breakfast. Roy is another almost-ghost town. As I walked into the local diner, nine sets of eyes looked me up and down. I tried to eavesdrop, and heard a thing or two of interest.

Many areas I had travelled through were remote, which was nice because there was little traffic. But these were areas that had been left behind, much like parts of rural Australia. Another thing that intrigued me is that I never saw anything but white faces after leaving Pueblo.

From Roy I travelled to a location called Mills, and then west into the Kiowa Grassland. If I had come all this way just to see this I would have been disappointed, although it was not without interest. Certainly the drives on the previous afternoon and during the morning had been tremendous. It was mid morning as I wandered around various parts of Kiowa.

This was the last grassland site and it was time to reflect a little. I felt I now had a broad understanding of the history of the prairies, the vegetation patterns, the flora and fauna, and the evolution of the National Grasslands and their management. The focus on grazing, recreation, birding and cultural and ecological conservation was now put into context. The Forest Service strategic plan did, however, provide a better articulation of the ecological objectives and management. The voluntary groups, where they existed, had a wildlife and not vegetation focus. There was no FOG in the US.

I now had many miles to travel but I decided to stop at interesting places along the way. I returned to Springer and then headed north. I stopped at the Maxwell National Wildlife Refuge, which was one of the many wildlife refuges dotted across the US. There I found a book on weeds, a very slim volume. The managers of the refuge were not particularly interested in native vegetation. I saw another colony of Prairie Dogs there and a Plover with chicks. Then it was back on the highway again.

The New Mexico/Colorado border crosses a small mountain range with much fine scenery. As I drove, I continued to see taller grasses, in areas remote from the National Grasslands. This was a reminder that many farmers in the area rely on native grasses and the better off had not walked off their farms in the 1930s. Then it was north to Trinidad and then Walsenburg where I stopped, ate, washed the car, and did a little shopping before driving to Colorado Springs via Pueblo. I had planned to stop at Colorado Springs and have a look around before dropping the car off at Denver International Airport early the next afternoon. I drove around Colorado Springs getting my bearings and saw many parts of this wealthy and modern city. I found a motel room but was a little concerned because it was run by the owner of a military store, which had the most incredible array of old and new weapons and military clothing. Ammunition was lying everywhere. I pointed to the hand guns and asked how hard it was to buy these. He said that all one had to do was to fill in a few papers and one could walk out with one. He considered Australia's gun laws were going the wrong way. He assured me that only honest citizens buy weapons, as the criminals have other ways of getting them (stealing them from honest citizens maybe – but then this was America).

Next morning I was on my way travelling on the Western side of Colorado Springs to get impressions of the foothills of the Rockies. On a narrow winding sealed road my front tyre hit the side of an obscured rock. While I thought I was being very focussed and driving carefully, I must have had a minor lapse of concentration. When I got out to change the tyre, I saw there was a large hole in it, but I also noticed that the tyre behind it also had been sliced. It took a little time to get help but finally I hailed down a car and a young woman gave me her phone to call the rental company. While waiting for them to turn up – it took two hours – I was able to sight my third lizard and a pair of humming birds which were as big as my small finger. I was given a red Pontiac sports car and was in business, but now very late.

I had planned to visit the Garden of the Gods and still did so but had to restrict my time there to under an hour. It has a most excellent visitor information centre with many displays and samples of the grasses and wildflowers growing in its gardens. It had an impressive display of scats encased in clear plastic – preserved for eternity. The Gardens themselves with their huge natural rocks and walkways are amazing. The backdrop again is the Rockie Mountains.

Then it was a long drive to Denver and the airport. When I handed over the car, I calculated that I had done 1100 miles in the five days.

As I said at the beginning, this article is a series of impressions with some intellectual odyssey and travelogue thrown in for good measure. There may have been many important things I missed or did not observe. But the impact of the reading, observation, discussion and travel has left me with a changed perspective and perhaps a more holistic one to grassland ecology.

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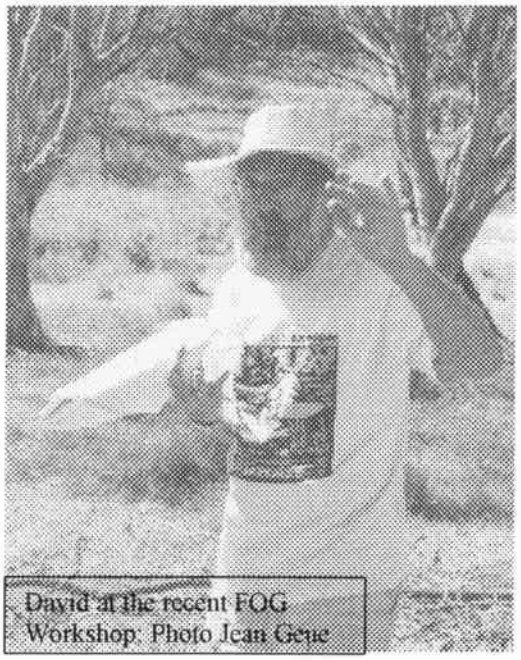
APRIL WEEKEND WORKSHOP: LEARNING FROM A LANDSCAPE WALK

Groundcover Reporter

David Tongway, Division of Wildlife and Ecology CSIRO, has offered to conduct a workshop for Friends of Grasslands on *learning from a landscape walk.* This workshop will describe Landscape Function Analysis (also known as Ecosystem Function Analysis). The approach may be applied rigorously but is easy to apply. The workshop will appeal to professional ecologists wishing to add another analytic tool to their kit, and to enthusiastic amateurs who will have another dimension of knowledge opened to them.

The workshop is normally given on a professional basis and so we are privileged that this will cost FOG nothing. David has used these methods extensively in other parts of Australia, especially in rangelands, and in Indonesia, Spain, Niger, Namibia, USA and South Africa. However, he has never used it in the local area and is keen to try it out on some locals.



David at the recent FOG Workshop. Photo Jean Geue

Landscape Function Analysis provides three components: a conceptual framework, a field methodology, and an interpretative framework. The conceptual framework treats landscapes as systems: defining how landscapes work in terms of sequences of processes regulating the availability of scarce resources. The field methodology uses indicators at landscape and patch scale to provide and structure information to satisfy the needs of the conceptual framework. The interpretational framework provides a process to identify critical thresholds in landscape function and thus provides a function-based state and transition landscape assessment. The approach is quick and simple in the field, is applicable to all grassy ecosystem landscapes and amendable to a wide range of end-users.

If that sounds a little too technical, David's presentation provides a great series of photos and diagrams which explain simply a lot of what we commonly observe happening on the soil's surface. The methods can be easily applied, and explain the interaction of climate, terrain, vegetation structure, surface soil condition, presence of litter, likely impact of rain (absorption/run-off), and cryptogam cover (presence of algae, fungi, lichens, mosses and liverworts).

David will provide copies of the training course manual for people to use and take with them and a copy of the technical manual. Participants would spend time looking at how to stratify the landscape into run-off and run-on zones and practice doing the soil surface indicator assessment. For both these tasks, there will be group of three to four people, exch group will be provided with data sheets. After each, say one-hour session, we will revise what people see. David will have his laptop to show how to enter the data. If anyone else can bring a laptop, that would be helpful. We will print off the sheets with tabulated data and talk about what it means. It will be important we look at a variety of landscapes, some with degradation, and discuss concepts such as resilience, critical thresholds and environmental niches. People should bring a clipboard and pencil. Even if there is rain, with enough umbrellas, we can walk about looking at processes at work.

This workshop will be fascinating. Watching David in the field describing what is happening in a small patch opens up a new and fascinating world. Given our knowledge of plants, the workshop may provide a better understanding of the patterns of vegetation in the landscape and what is happening at those weedy spots. Many FOG members having mastered a good understanding of plants (although there is still a long way to go down this track), are now attempting to relate this to the presence of vertebrates and invertebrates and their behaviour, and the physical structures that exist. This workshop will assist in explaining the overall functioning of natural ecosystems. In time we may imagine FOG members going to a site and using the methodology, amongst others, to describe and classify sites.

The workshop will be held at Garuwanga, on 6-7 April. Garuwanga is a property near Nimmitabel, which provides a number of vegetation communities, terrains, and soil conditions to illustrate Landscape Function Analysis. If you have not been there before, this provides an opportunity to see some beautiful landscapes and an area rich in fauna and flora in autumn.

The workshop will occupy Saturday (kicking off at 8:30am) and Sunday morning. It is suggested that people stay at Garuwanga on Friday and Saturday nights. There will be no cost except for catering - $15 per person. Garuwanga has comfortable but limited facilities. Unfortunately we must limit the numbers so it is first in best dressed. For more details and registration contact Geoff on (02) 6241 4065.

RESTORING NATIVE VEGETATION TO THE LANDSCAPE

Bernadette O'Leary

FOG is grateful to Bernadette in putting together this summary of the recent FOG workshop (19-20 January 2002). Part I covers overall observations and Part II summarises individual sessions.

Part I: Overall Observations

Purpose: to provide an opportunity for members to get together to discuss success to date and future activities, and to learn more about managing grassy ecosystems using Gurawanga as an example.

Summary points from the workshop

- There are significant tensions about grassland conservation, and the priorities for and approaches to, grassland management.

- Tenure, use history, site characteristics, data/information, resources, capacity of land manager and support available are just some of the factors that influence management.
- Data and information are important, as are: what is known; what is not known; what form the data/information is in (eg databases, maps, publications); who owns it; how to get access to it; capacity to interpret and use it. Data should lead to information and through analysis/interpretation to knowledge (and action).
- There is a need to know more about connections within the landscape, eg vegetation and soils, vegetation and insects.
- Thorough planning and a long-term perspective are critical for effective management, including restoration.
- Conservation and good management practice, including better management of weeds and feral animals, needs support.
- Both primary and secondary grasslands are important.
- Volunteer activity needs to be strategic, well supported, trained and resourced.
- Activities of various groups needs to be integrated.
- FOG members need to be more active - and activities need to be well targeted to be efficient and effective. Activity should be within the broader context eg Grassy Box Woodland project, GrassyEcol list server, national grasslands officer, devolved Grassy Ecosystem Grants project.
- There could be functional jobs on the FOG committee to focus activities eg: education officer, intelligence officer, care group coordinator ... There could be geographic sub-groups eg Tallaganda.
- Membership details could identify skills/interests/commitment available.
- There is a need to consider the activities and ideas generated up to now, before deciding what to do next.

Possible target groups:
Hobby farmers; misbehaving landholders; local government (planners and councillors); ACT Park Care; Landcare and other '...care' groups; COG; SGAP; Greening Australia; real estate industry; Rural Land Protection Boards; Australian Institutes of Engineers and Architects and town planners; tertiary institutions (university and vocational); vacant 'crown land' managers.

Some possible future activities:
- Develop and improve species lists for local sites.
- Lobby for resources for R&D - to improve the quality of projects over time.
- Lobby for sufficient time for community level project funding eg via NHT2.
- Continue to gather intelligence on proposals/developments, research, initiatives, opportunities
- Local political analysis (to direct strategies/activities).

Part II. Summary of sessions

Session 1: Why hold this workshop?
- Interests are very broad. Participants had private, professional, land management, community, capacity building, technical, botanical, recreational and other interests.
- Context. There is a need to consider the ideas generated and information gathered up to now, before deciding what to do next.
- There are significant tensions about grasslands. These relate to different perspectives and priorities, eg what constitutes a 'grassland' and the structural elements that need to be there, the place of restoration ecology/methodology, conservation verses development.

Session 2: Background, concepts and terminology
- Sites tell a story. Species' dominance and the mix alter over time. The species present reflect management history, site characteristics such as aspect and location in the landscape, soils and moisture, climate/weather ...
- Information. The broad flora is well known in the region/locally and more understanding is being added all the time. Need to identify the priorities to find out more on target sites.
- There are various ways to work out what plants are on any particular site. Good observation is essential. There has been a lot more available on native pastures than grassland management in the past.

Session 3: Assessing grassy ecosystems
- The management kit being designed by Environment ACT and others to assess grassy ecosystems for protection and management will need to be supported via training/extension, and should be user friendly.
- Site assessment. 'Expert' assistance/support are likely to be required. Needs to be 'objective', but most importantly needs to lead to some sort of management outcome for conservation.
- Data. Reasons for collecting data need to be made very clear (is it for scientific research or only to support management?) because this influences how landholders will go about it. Data should lead to information and through analysis/interpretation to knowledge (and action). Composite scores have limited value unless they are compared to (and comparable with) others.

Session 4: How does grassy ecosystem conservation fit into the broader picture?
- Biodiversity needs to be considered as part of the solution to salinity problems.
- Biodiversity on production lands needs to considered in the context of an ageing rural population, and general access to labour/financial resources.
- There are opportunities for community education through involvement in biodiversity conservation.

Session 5: Landscape functional analysis (David Tongway)
- The focus is good soil as a habitat for plants.
- There is a need to know more about connections within the landscape.
- There are patterns in the landscape - resulting from processes that relate to each other or are sequenced eg run on/run off and resource availability relating to nutrient cycling. Nutrient cycling in grasslands is very important.
- Dysfunctional systems do not recycle or sustain - they leak ie lose vital resources. Functional systems conserve and regulate resources.
- Perennial plants cope best with Australian soil conditions. Australian biota are adapted to 'pulses'.
- Need to understand how soils work.
- Most Australian soils are rehabilitatable through good management.

Session 6: Importance of insects in grasslands (Roger Farrow)
- Insects are stratified (similarly to plants) in vegetation layers: in the soil eg decomposers; at the soil surface eg predators and litter decomposers; and in the vegetation eg sap feeders and leaf chewers.
- There are vast numbers of insects, mostly undescribed and it is hard to decide what to study. Just knowing the species/numbers does not necessarily reveal the system.

- At the site level it is useful to have a reference collection. Sampling provides an idea of species occurrence and density but is *ad hoc* because of the ephemeral nature of insects and their small size.
- Survey methods vary depending on where insects are located:
  - in the soil - sample → lab → dry → extract via funnel/preservative [slow],
  - at the soil surface - pit fall traps [really a measure of activity and of the more omnivorous/predator component], and
  - in vegetation - systematic sweeping with a net [tends to 'under-sample' in thick vegetation and 'over-sample' in more open vegetation].
- Insect survival includes huge mortality at certain stages and can influence sampling.
- The more sampling, the more species found.
- Insect diversity does not correlate with plant species diversity, but it does with plant structure.
- Grassland conservation is important for insect diversity too.
- Threatened insect species tend to be common in their habitats, but the habitat sites are restricted.

Netscaping? No, it Roger Farrow illustrating his insect survey method. Photo:Jean Geue

Session 7: Restoration techniques (Warren Ganter)

- Project planning is the key to good restoration - there needs to be a long-term perspective rather than doing a job and walking away with no follow up.
- Aims need to be sorted out very early on - eg what is the site to look like, what will be its function, what is the timeframe/budget? The job brief can dominate (as can engineers/architects) eg non-local species lists, inappropriate sites.
- Good, thorough site analysis is critical.
- Propagatable material should be collected before the site works.
- DLWC and FloraBank guidelines are useful.
- FOG has a role in developing and improving species lists for local sites.
- Options for restoration are usually in between 'do nothing' and complete restoration. Techniques include: stabilise and remove disturbance (eg fence); weed to advantage natives; collect and cast seed; replant (seedlings, turf). Good planting technology available (eg drills, wetting agents).

Session 8: FOG's recent strategy

- Time for introspection and to gather ideas of ways to move forward eg into restoration.
- Need to support conservation and good management practice.
- Need to better manage weeds and feral animals.
- There are lots of ACT/NSW processes that are more or less useful, but there are questions of how they fit together and whether they will be resourced adequately.
- More money for R&D is important, to improve the quality of projects over time.
- Need sufficient time for project funding. There would be benefit for funders, eg NHT, to better understand the nature of conservation projects.

Session 11: Future directions

Key messages for FOG

- Grassy ecosystems have been neglected and still are. They have not been 'fixed' yet and there is a need to put a case to justify further agency resources.
- Both primary and secondary grasslands are important.
- Hobby farmers are a target - it is important for owners to know what they have before they 'manage' to destroy it.
- There are opportunities to work with others: local government and Landcare groups [pamphlets?], real estate industry on their responsibilities and opportunities, Rural Land Protection Boards re Travelling Stock Reserves/Routes and weed/feral species management.
- Intelligence gathering is important (eg proposals/developments, research,).
- Mapping is important, but needs to be done/interpreted well ie selective use of quality data appropriately presented/qualified.
- There is a need for better local political analysis (to direct strategies/activities). Lots of energies can be lost in battles.
- Volunteer activity needs to be strategic, well supported, trained and resourced.
- There is a need to ensure that data/site information is collected consistently so that the database is useful.
- Need to integrate the activities of various groups.

Whom to target

Groups mentioned above and also: Australian Institutes of Engineers and Architects and town planners, tertiary institutions (university and vocational), council planners and councillors, vacant 'crown land' managers [NPWS is about `to get the data layer'], COG and SGAP, misbehaving landholders, Greening Australia.

Organisational structure

- Committee members do not have to live in Canberra and are welcome from elsewhere in the region.
- Need local members to be more active. There is a small active core group.
- Membership is extending beyond the region - still opportunities for connection and joint activities. FOG could also engage with others eg Park Care, STIPA.
- Activities need to be more targeted to be efficient and effective.
- Need to work out a structure - from the terms of reference/objectives and core activities up.
- Activity needs to recognise the broader context eg Grassy Box Woodland project, GrassyEcol list server, national grasslands officer, devolved Grassy Ecosystem Grants project.
- There could be functional jobs on the committee to focus activities eg: education officer, intelligence officer, care group

coordinator. There could be geographic sub-groups eg Tallaganda.

- Membership details could identify skills/interests/commitment available.

Ray Polglaze and Ros Wallace. Photo: Jean

Comments on this workshop

- Should aim to reach more than the converted, eg to include local landowners. Could use community papers, enticements (eg BBQ, grog), ripple via neighbours, Landcare networks. [This workshop was to sort out FOG ideas.]
- The initial sessions were too short to convey the extent of ideas and could have been broken up a bit. [The information was provided before the meeting and is available to take away. Some issues need to be thought about further and responded to. The idea was to test 'collective wisdom'.]
- The weekend took FOG beyond lists/survey into other useful areas eg soil, insects, restoration.
- There are already ideas for future activities: David Tongway - soils workshop; Geoff Hope PNG talk - alpine grasslands in April; Roger - an insect workshop (and maybe notes on functional classifications).
- There was plenty of leisure time, although there could have been an alternative activity to the trip to the river eg birds, plant identification.
- Presenters did not get to all other activities.
- Format was similar to, but FOG could still learn from, the NSW biodiversity weekends (based on the NPWS Biodiversity Survey Manual). Would provide an opportunity to collect further data.
- Organisational activities could be shared about within FOG eg organising/inviting, catering.
- The weekend was extremely stimulating.

EXTRACT FROM PRESIDENT'S REPORT

The following is an extract from Geoff Robertson's Report to the AGM

Another year has rolled by and we can point to many achievements for Friends of Grasslands and the wider grassy-ecosystem movement.

Newsletter, membership and finance

The newsletter continues to set a high standard providing excellent information and reflection. This requires much research and hard thinking on a host of issues by many people who in one way or another contribute to it. The newsletter at the end of last year was going to 160 members (modestly up on end 2000 and more regionally diverse), many of whom are families or corporate members. That is the newsletter has a wider readership than membership numbers suggest. Last year we also gave away several hundred free newsletters to people who requested a complimentary copy. Financially we are in a healthy position that enables us to keep membership and other costs to members low.

Submissions

FOG made many submissions on broader grassy ecosystem conservation issues such as the national grassland recovery plan, the regional vegetation strategy and the draft grassy site management kit, and on numerous development and conservations proposals in the ACT. Underlying these submissions has been a considered set of objectives, strategies and specific proposals that reflect a broadening in FOG thinking on grassy ecosystem conservation. FOG has been attempting to find acceptance for its views through targeting key individuals, groups and the broader community.

Program

The program has diversified. The extended workshop (field days) on Mulwarree to Monaro, the visits to coastal grasslands and Hay Plain all reflect a greater reaching out. It is important that the program cover the needs of all members, an increasing number of whom live outside the ACT. At the same time there is an enormous amount of work to be done in the ACT.

Goals, strategies and proposals

FOG thinking continues to broaden and deepen. We reaffirm the strong commitment to threatened species and communities strategies and recognise very real achievements in these areas. However, current approaches suffer from a degree of narrowness, gaps and other deficiencies and fail to deliver complete across-the-board and integrated strategies. We need to develop strategies that will conserve more than the best sites and attempt to conserve large numbers of plant and animal species that are threatened or seriously declining. There is growing evidence that many species are in serious trouble from the loss of vegetation communities. Recent work by Rainer Rehwinkel reaffirms that natural temperate grasslands of the Southern Tablelands are around ½% of their previous area and around 3-4% if one includes lesser quality sites. Reversing the trend implies that we seriously consider restoration.

We need to understand the link between grassy ecosystem communities and biodiversity, and in turn the link between biodiversity and other conservation outcomes such as clean air, water, and global temperature change. That means understanding how well-functioning and diverse grassy ecosystems (or any native vegetation community) encompass biodiversity and safeguard habitat for plants and animals (including invertebrates). Eco-systems are key factors in managing catchments and fighting salinity and weeds. Catchment management strategies emphasise maintaining minimum levels of native vegetation (15 percent of any community) which again implies we must seriously look at restoration.

Restoration will require developing protocols to guide such work, avoiding inappropriate revegetation, and investment in infrastructure that can facilitate teaching the skills and providing appropriate techniques, plant material, and resources. We need more complete understanding of ecosystems, especially the importance of water, soil make-up, nutrients, and the links between plants and animals. We need to get government to redirect and expand resources devoted to conservation. FOG began to address many of these issues at a recent workshop.

We need to change mind-sets, our own included and we have a long way to go. In the last twelve months we have seen the loss of many grassy ecosystem sites. Sadly, many conservationists can rally around the Mogo Incinerator issue, but not around grassy-ecosystem networks. We must therefore start to target our efforts to get a well-explained message across.

Future direction

Many people are involved in FOG and contribute tremendously, but we need to find a way to build our organisation both functionally and regionally. We need to strengthen local, regional, national links and develop international links. We need to take stock of where we are at, consolidate and then move ahead.

We have unfinished business on a number of projects and we need to attend to these.

In the past we have spent much time on the production and conservation balance. As a result many stakeholders are on-board. However, we need to explore other economic and equity issues that may hamper conservation. For example, we may become enraged when someone allows noxious weeds to spread, without understanding that the landholder may not have the ability to meet this challenge - age, disabled, money, family and/or over worked. An issue of great importance is the involvement of Indigenous people in past, present and future grassy ecosystem conservation. We have been very neglectful here but I am optimistic that we can address this matter more

NODDING CHOCOLATE LILY

Michael Bedingfield

The Nodding Chocolate Lily is a member of the family Anthericaceae, which includes the Vanilla Lilies, the Fringe Lily, and the Yellow Rush Lily. Local botanists call it *Dichopogon fimbriatus* but others call it *Arthropodium fimbriatum*.

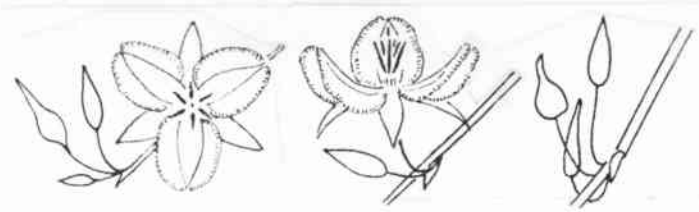
Like other lilies it is perennial and has a tuberous root. In the spring a small tuft of grass-like leaves is produced and flowering generally occurs in November or December in the Canberra area. As the common name suggests, the flowers are chocolate scented (though some people say it is a vanilla scent). They grow on a stem of up to about 40cm tall, are mauve or purple coloured, and individual flowers last only for a single day. These plants prefer a site which is wet in spring and do better when there are good spring rains.

Because they are highly palatable to stock, and their tuberous roots can be crushed by hoofed animals, these plants (and indeed most other lilies) tend to disappear under normal grazing conditions. When a variety of lily species is present it is a good indicator for a site.

The name *Dichopogon* comes from *dichos* (double) and *pogon* (beard), referring to the anthers which have two beard-like appendages; *fimbriatus* means fringed, and refers to the fringes on the margins of the flower petals.

The flowers have three petals (with fringes) and three sepals (without fringes) which can be seen from the drawings. They show the flowers, buds and fruit at normal size, and in the frame, a branch at half size and the full plant at quarter size.

The Nodding Chocolate Lily is a delight to the eye, and if you care to get down close, it will delight the nostrils as well.



Dichopogon fimbriatus
Chocolate Lily (Size: x 1/2, x 1/4)

Michael Bedingfield
1999

DIFFERENT KIND OF SUBURBAN GARDEN

Karin Calley, Arvid Goetesson and Paul Hodgkinson

Introduction

Arvid Goetesson and Karin Calley wanted to live in Central Canberra but surrounded by local species. Paul Hodgkinson wanted to show that it was possible. What happened when they got together is the story of a successful transformation from weedy suburban garden into a diverse little native grassland.

Karin Calley and Arvid Goetesson moved to Canberra in 1999 and bought an ex-government house on a corner block in Ainslie. This being the first piece of Australia they had owned, they launched a challenge to the Australian suburban landscape.

Conservation in the suburbs

Arvid, an immigrant from Sweden, had observed with astonishment that the majority of Australian people seem detached from the continent they inhabit. Arvid views Australian suburbs as degraded areas. The mostly exotic vegetation apart from occasional surviving native species (not typically deliberately cultivated), responsible for the resulting scarcity of native insects, small birds and other native animals do not seem to bother the "settlers". To the contrary, Australians keep cats and other introduced animals as if the intention was to comprehensively cleanse the landscape of the last remnants of local wildlife.

Of those who do have some regard for the native wildlife, many seem to believe that our urban environment has been irreversibly altered and that defending Australia's biodiversity is exclusively a matter of conservation of limited areas that have been set aside for this purpose. Karin and Arvid are of the opinion that we should think differently about our so-called gardens for three reasons. First it is a misconception that our urban areas are neutral zones, as they might in fact be bridgeheads, areas where invasive species such as Chilean Needle Grass and Indian Mynahs take hold and from which they spread. Second, these weedy and rapidly spreading suburbs are areas where new generations of Australians are brought up, thinking that a house should be surrounded by a "garden" and that gardens are lawns containing beds of colourful exotics, surrounded by privet hedges and rose bushes. Many more people will see and begin to internalise the beauty of the local ecosystems with urban revegetation. Third, our small residential blocks are, for most people, the only areas where we have total control over land management. We have to start somewhere, developing techniques that can be implemented in the re-creation of the Australian landscape.

Karin and Arvid suggest that every piece of land should be assisted to support Australian wildlife to the extent that this is compatible with its function. Local species should be the first choice for any public plantings. For example the hill over Parliament house could be covered by Weeping Grass (*Microlaena stipoides*), a beautiful local grass which makes a fine lawn. The term 'nature strip' is a humorous one when most nature strips in the ACT are dead zones for the best part of the year, except perhaps for spring when they come alive with Chilean Needle Grass and Patterson's Curse. All public land and floral plantings could use local species, as appears to be the theme in some of the more recent plantings at the ANU. The most appropriate vegetation for most Canberra residential leases is re-created grassland or grassy woodland. Of course the function (residential block) requires that such re-creation should be managed so that it does not pose a fire hazard, pedestrian hazard or a traffic hazard by obstructing the line of sight and that it does not harbour dangerous animals.

Experimenting

Because what they wanted to achieve has so rarely been done, Arvid and Karin had to experiment. When they moved in, in March 1999, they sawed out the roses and lilacs and pulled out the privet hedge and planted some Australian bushes and trees for screening. Then they hired a rotary hoe and dug up the lawn. Paul Hodgkinson visited for the first time in mid November 1999. He had been talking to Arvid about supplying plugs and seeds for the project. Karin had sown exotic lawn seed over part of the old lawn that had been dug up by the rotary hoe, an act of cowardice that she is still regretting (and weeding). Paul of course reckoned that they should have sown a *Microlaena* lawn instead. Karin had received the impression from other sources that *Microlaena* could only be grown from plugs. Yes, there was much to learn. Paul advised lying cardboard and mulch over the whole block to smother the old lawn and then planting and sowing into it when it had settled.

In late December 1999 they covered the whole garden, excluding the small area sown with lawn, in flattened cardboard boxes (acquired from the city Supabarn at no expense), that they watered down. Then came the mulch, commercial shredded garden waste, and the cheapest they could find. For economic reasons they could only spread just enough to keep the cardboard down, with a brick here and there for added weight. They watered it all down again and left it. A little herbicide was used to eliminate the couch grass that emerged through gaps in the cardboard.

Then in January 2000 they decided to take on the 'nature strip' as well. The rotary hoe had baulked at the tough old mat of roots, so cardboard was laid directly over an unmown mess of lawn grass and weeds. January also brought plant identification education and seed collection with Paul.

Planting local species

A wide range of species was harvested including Weeping Grass, the colourful petalous lilies, daises, Wheat Grass (*Elymus scaber*), Redanthered Wallaby Grass (*Joycea pallida*) and Plume Grass (*Dichelachne* sp.). At this time, a quantity of Kangaroo Grass (*Themeda australis*) seed was accidentally sown when threshed straw was thrown as mulch on the garden and the seed was accidentally worked well into the soil by some heavy machinery, which apparently speeded its germination.

During the summer and autumn of 2000 Karin and Arvid were propagating Weeping Grass, Plume Grass, Wheat Grass, Wallaby Grass (*Austrodanthonia* sp.) and Redanther Wallaby Grass plugs from seed collected with Paul. In February-April 2000 some plants were transplanted from development sites into mulch that had been laid in the garden in December 1999 and some into mulch that had been laid in January 2000 on the nature strip. In the winter of 2000 they began planting their home grown plugs into mulch laid in December the year before. In mid October 2000 Karin and Arvid began direct sowing the nature strip with local seed provided by Paul. This included *Austrostipa bigeniculata, Austrodanthonia cuespitosa/rucemosa/setocea, Joycea pallida, Convolvulus erubescens*, and *Bulbine bulbosa*.

During the 2000-2001 summer Karin and Arvid covered the lawn to smother the grass and collected more *Microlaena*. They had obtained enough *Microlaena* seed to attempt to replace the exotic lawn. The covering was removed and seed was raked directly into the surface. This first attempt was a failure as the first seeds to germinate were seed from the old lawn, which promptly took over.

By mid September 2001 and after another round of weeding they were ready to sow the nature strip again, hoping to cover any bare patches and thereby reduce the need for further weeding. Paul provided seed of *Austrodanthonia* spp., *Austrostipa bigeniculata*, *Leptorynchus squamatus*, *Bulbine bulbosa*, *Vittidin ia muelleri*. Seed collected from already established areas of the garden and nature strip was also re-sown into the nature strip. A second attempt at the *Microlaena* lawn was successful - the disastrous first attempt having been poisoned a few times over the preceding months. The *Microlaena* came up strongly, requiring only an occasional weeding before it was well established.

By November of 2001 Arvid and Karin could look out the windows of their wooden cottage, over a meadow of waving plumes and wiry tussocks, flowering daisies, buttons and golden bulbine lillies. An important consideration for a dry area like Canberra: once the plants are established there is of course no need to water them. Even late in the summer, when nearby nature strips are frizzled and mangy, the corner of McColl Street is alive and beautiful and full of butterflies.

Lessons learnt

Due to a combination of opportunity, accident, inexperience and zeal, Karin and Arvid ended up using quite a variety of different techniques of preparation, propagation and weed control on their block and were so able to compare their effectiveness.

Planting local species

There are four main ways of getting the plants into the garden:

- Propagating your own plugs: more economical use of seed and easier to weed but more time consuming to maintain and plant. You can buy seed or collect it yourself. A permit from ACT government to harvest native plants is required for all unleased land (eg CNP and CUPP). For leased land the permission of the land manager or lessor is all that is required. Some plants that are threatened or endangered require special written permission from the Conservator of Flora and Fauna under the *Nature Conservation Act 1980.*
- Direct sowing: a quick method but you need to have more seed and be more certain of your weed elimination. Some species exhibit dormancy mechanisms and/or other requirements needed for successful germination such as light and critical temperatures. Information is available from various published sources or from those that have experience in sowing native grassland plants.
- Transplanting from development sites: a great way to get mature plants in quickly and also to get variety. Most developers will oblige especially if they can claim to have made attempts to salvage some wildlife before obliteration. You often end up with nice surprises, things that you have transplanted without realising it. Equally however, you also often end up importing a lot of weeds that can take a bit of dealing with later.
- Buying plants and plugs from a local source: a good way of obtaining plants if you are unable to harvest seeds and propagate yourself or transplant. Be aware that seed merchants or nurseries are in business to make sales, and profits may take first place to issues of species conservation. Insist on locally collected plants and ask for evidence of local origin, eg seed collection data sheet.

Weeds

It is not going to be possible to eliminate the problem of weeds or the need for weeding but it is likely that the problem could be reduced and simplified.

- Make certain that there are no gaps in your cardboard barrier as many weeds and lawn grasses are strong and will push through any crevice.
- Try to keep the barrier intact when you sow seed so that weed seed that is in the soil (many can last for several years) does not have a chance to come to the surface. Punch holes for your plugs through the barrier but don't scrape it away.
- Wait a good long time before planting and sowing seed to give the mulch time to decompose and to give you an opportunity to catch any weeds that might pop through. These can be poisoned with herbicide, which is better than digging at this stage because it doesn't disrupt the cardboard barrier.
- It might be an idea to start simple. Plant just a couple of easily recognisable species so that you can easily distinguish them from weeds. This reduces the complexities of identification. Make them types with good coverage like Kangaroo Grass and Wallaby Grass. We have noticed that Kangaroo Grass in particular is a great defender of territory and keeps weeds at bay. Also, perhaps stick to grasses in the first sowings. Then you can catch clover and dandelions with a dicot specific herbicide.

Other lessons

- Take time in preparation of the block before planting.
- Plan a strategy, taking into consideration when your grasses germinate, seed and also when weeds germinate and seed.
- Particularly if you are no expert it might be an idea to set up a herbarium of both your local grasses and weeds, at various stages of development.
- If you plan to revegetate the nature strip only sow low grasses. Government regulations require you to keep it lower than 0.5m.

The role of the expert: Karin and Arvid would like to point out that Paul Hodgkinson's assistance has been very important to the success of their project. Paul has provided information on seeding and germination times and propagation requirements, helped to quickly identify native grasses and weeds, provided quantities of seed, not to mention the many hours he has spent in the hot sun helping Karin to remove dandelions, Patterson's Curse, Goose Grass, thistles, clover and Chilean Needle Grass. The assistance of someone knowledgeable and passionate about grasslands certainly makes the task much easier for the novice.

Finally: Don't be put off. It's worth the effort.

The photo shows native grasses in front garden. Those who are interested to see Karin and Arvid's revegetation project can contact them on karinc@bigpond.com or telephone 6247 9219.

FRIENDS OF GRASSLANDS INC Web address: http://www.geocities.com/friendsofgrasslands

Supporting native grassy ecosystems

Address: PO Box 987, Civic Square ACT 2608

Membership/activities inquiries: Please contact Margaret Ning whose details appear below.

Your committee:

Geoff Robertson	President	6241 4065 (h & fax)	margaretning@primus.com.au
Michael Treanor	Vice President	-	micwin@bigpond.com
Ros Wallace	Secretary	-	rwallace@ea.gov.au
Alan Ford	Treasurer	-	alford@cyberone.com.au
Rosemary Blemings	Committee	6258 4724	roseble@tpg.com.au
Di Chambers	Committee	-	di.chambers@abs.gov.au
David Eddy	Committee	6242 8484 (w) 6242 0639 (fax)	deddy@ozemail.com.au
Warren Ganter	Committee	-	warrenganter@bigpond.com
Richard Langdale-smith	Committee	-	langdalesmith@bigpond.com
Kate Nielsen	Committee	6286 8525 (h)	kate.nielsen@abs.gov.au
Margaret Ning	Committee	6252 7374 (w) 6241 4065 (h & fax)	margaretning@primus.com.au margaret.ning@abs.gov.au
Kim Pullen	Committee	6246 4263 (w)	kimp@ento.csiro.au
Benjamin Whitworth	Committee	-	benjamin.whitworth@brs.gov.au
Susan Winder	Committee		susan.winder@ea.gov.au
Dierk von Behrens	Committee	6254 1763 (h)	dierk.von.behrens@immi.gov.au

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, 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 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