

The Austral Bugle

Newsletter of the Southern Tablelands Grassy Ecosystems Conservation Management Network.

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Southern Tablelands Grassy Ecosystems Conservation Management Network

Welcome to the second issue of *The Austral Bugle*. This issue includes articles about various new initiatives in the world of conservation of grassy ecosystems, including the launch of the Monaro Grasslands CMN, which is the sister-CMN to the Southern Tablelands Grassy Ecosystems CMN. To echo the article, *The Austral Bugle* congratulates David Eddy coordinator of the MGCMN, the Monaro Grassland Advisory Committee and WWF and wishes every success to the new network.

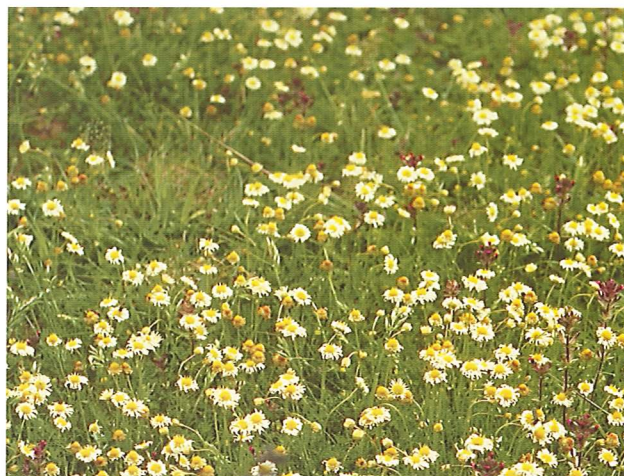
An article by Friends of Grasslands President Geoff Robertson describes the newly released *Planning Framework for Natural Ecosystems of the ACT and NSW Southern Tablelands*, a resource document that has a major focus on the conservation of grassy ecosystems.

Jenny Bounds, prominent member of Canberra Ornithologists Group, has contributed an article about conservation of woodland birds and there is an article about the endangered Grassland Earless Dragon by James Dawson of the NPWS Threatened Species Unit. We also present an article about restoring Kangaroo Grass, by Ian Cole, the second in a series.

We are particularly grateful to David Watson and Max and Joan Limon, from the Bungendore and Taylors Creek areas respectively, who have contributed material to give a landholder perspective to the management of grassy ecosystems.

I hope you find this edition of *The Austral Bugle* both informative and useful.

Editorial by Rainer Rehwinkel
CMN Coordinator



Mapping the Monaro and South West Slopes

By Rainer Rehwinkel and Steve Priday

The NSW National Parks and Wildlife Service is currently involved in two mapping projects in the region.

In collaboration with the South East Catchment Management Board, and with funding from the NSW State Government, one of the projects is mapping the grasslands on the Monaro. This project, managed by Rainer Rehwinkel, will use a combination of field data that is currently being collected, and an analysis of a series of satellite images to map the region's native grasslands.

The Monaro map will also show areas occupied by open grassy woodlands, introduced pastures, crops and weeds.

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Launch of the Monaro Grassland Conservation Management Network

The Monaro Grassland Conservation Management Network was launched on 2 April by Councillor Pam Green, Chair of the South East Catchment Management Board. This is a project initiated by World Wide Fund For Nature (WWF) and the Monaro Grasslands Advisory Committee (MGAC). This happy occasion took place most fittingly at *Happy Valley* near Adaminaby, the family home of Neville Locker. *Happy Valley* supports several significant Natural Temperate Grassland areas.

The launch was attended by key figures who have, and continue to, contribute to the development of Conservation Management Networks (CMNs) within the Southern Tablelands and Monaro.

This new addition to the suite of CMNs being established across NSW will bring recognition and conservation management to the endangered Natural Temperate Grassland community of the Monaro.

Natural Temperate Grasslands have undergone serious declines in area and condition throughout south-eastern Australia as a result of settlement and development. The Monaro however retains large areas of native grassland of substantial conservation value.

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The Launch of the Monaro Grasslands CMN at Happy Valley, near Adaminaby



Drought Reflections by David Watson of Millpost near Bungendore NSW, March 2003

"Our land has been under great stress. Pasture has withered, dams have dried up, sheep have lost weight. We have all endured the worry of a really prolonged drought. Fires to our west have heightened the anxiety."

Nonetheless there have been some positives. I like to think various Landcare related practices have helped us through. In spring our lambing was over 90%. Virtually all of these lambs survived and are now doing well. The wool clip was OK with average tensile strength. We have had no wind erosion and so far, fingers crossed, very little sheet erosion. We managed to avoid full hand feeding of stock.

We did supplementary feed ewes pre-lambing with oats and this was resumed either side of weaning for a while. By and large our native pastures carried the stock over the summer. A carry over of dry feed from last summer helped. All stock had access to home made McCosner brew to help utilise this dry feed.

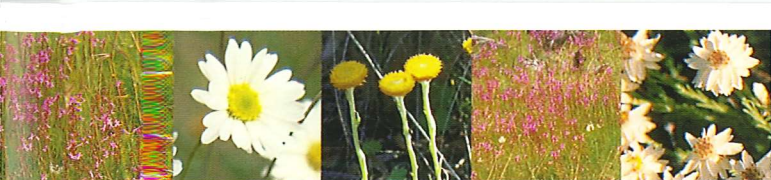
When things got really tight in January and February we opened some gates into conservation areas. These areas were closed off to grazing 15 and 20 years ago. The trees and shrubs within were big enough to withstand short term grazing.

I was grateful that we had made these areas extensive enough to contain worthwhile grazing. In addition, we lopped willows and pruned poplars for emergency fodder. The ewes and lambs came running for the green leaf. Lately I have been carting these branches to spots where I want more trees. By stacking the branches in a criss-cross fashion an effective stock-proof tree-guard is soon built up.

I have noticed since the rain the rate of recovery of introduced pasture is directly proportional to the extent of rest we were able to provide that pasture over summer by concentrating the stock on the hilly native grass country. Recently the rest has been made possible by selling a lot of sheep in February.

Our trees and shelterbelts have provided shelter from desiccating winds, shade for stock and emergency fodder. In addition the greenery has kept up our morale. At no stage did Millpost feel as scorched as 1982, although the number of dry dams suggested the rainfall deficit was just as extreme this time round.

"Drought reflections" was originally written for circulation to the Bungendore Community Landcare Group Inc.



Monaro Grassland Conservation Management Network

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Since 1996 WWF Australia has worked in collaboration with MGAC and with private and public land managers to raise the profile and community understanding and appreciation of this threatened ecosystem.

With funding support from the NSW Environmental Trust and the South East Catchment Management Board, the Monaro Grassland CMN will be locally managed and will provide a support group and newsletter, the *Monaro Grassland Mail*, for members to benefit from the knowledge, enthusiasm and support of each other. As a recognised group, this CMN and its members will be in a better position to improve the status of native grasslands in the region and to attract funding to help in this process. All managers of native grassland in the Monaro region are invited to become members of the CMN and to contribute to its growth and success. Members are invited to contribute to the newsletter with articles on management and appreciation of the native grassland on their properties.

Members of the Monaro Grassland CMN will also have access to the Southern Tablelands Grassy Ecosystems Conservation Management Network under the close collaboration between the two networks.

The *Austral Bugle* heartily congratulates David Eddy, the Monaro Grassland Advisory Committee and WWF, and wishes every success to the Monaro Grasslands Conservation Management Network.

For more information on the Monaro Grasslands Conservation Management Network, please contact David Eddy, by phoning him on. 6242 8484, or by email on deddy@wwf.org.au



Mapping the Monaro & SWS Slopes

Continued from p.1

Up to around 150 years ago, the South West Slopes of New South Wales was covered by vast areas of grassy woodlands. Woodland birds, including such modern-day rarities as the Bush Stone Curlew, Regent Honeyeater and Hooded Robin, occurred across the landscape in considerably larger numbers than they do today. Bilbies, now long-gone, were also found on the South West Slopes. However, more native vegetation has been cleared from this region than any other in the state. The extensive loss of the woodland communities has not only resulted in a decline in biodiversity but has also caused major environmental problems such as salinisation and erosion.

As part of the New South Wales Biodiversity Strategy, the National Parks and Wildlife Service is undertaking surveys and mapping to assess the conservation status of woodland communities in this region. Maps showing predictions of the distribution of the communities prior to clearing will be produced as part of the work. The current distribution of native vegetation will be estimated using a technique involving the interpretation of satellite imagery. The technique helps to identify areas containing native ground cover but no trees.

So far the work has confirmed that all woodland types, including White Box-Yellow Box-Blakely's Red Gum Woodlands and Grey Box Woodlands are indeed in a perilous state. However, some excellent examples of these woodland communities remain in travelling stock reserves and routes, cemeteries, roadsides and on private property. There is already community involvement in programs aimed at protecting these remnants and revegetating degraded remnants. Some species of fauna, including threatened species such as the Grey-crowned Babbler and Squirrel Glider, can still be found in many parts of the region. Much work needs to be done to ensure that this remains the case.



Conservation Planning in the Southern Tablelands

By Geoff Robertson

Introduction

On 31 March, Jon Stanhope, ACT Chief Minister and Minister for Environment, launched *A Planning Framework for Natural Ecosystems of the ACT and NSW Southern Tablelands*. The author of the *Planning Framework* rightly says that it provides a powerful tool to plan for conservation and sustainable urban and rural development in the region. The genesis of the *Planning Framework* was in 1995 with the establishment of a working group comprising representatives from ACT, NSW, local and Commonwealth governments, and from the Housing Industry Association (HIA) (ACT and NSW Southern Region). This group was established in response to the need for a more strategic approach to conservation in the ACT region, and for greater certainty in planning for future development of Canberra and surrounding communities. Over the years the group sought NHT funding to undertake various projects, including surveys for threatened fauna and satellite vegetation mapping. The *Planning Framework* report was prepared by Martin Fallding, under the direction of NSW NPWS, Environment ACT, Planning NSW and HIA.

Area in scope

The *Planning Framework* applies to the ACT and the local government areas of Yass, Gunning, Mulwaree, Goulburn, Yarrowlumla, Queanbeyan, and the northern part of Cooma-Monaro, with a total area of 1.7 million hectares and a population of 391,000.

Broad vegetation types

The *Planning Framework* describes ten categories of vegetation (see Table 1).

The percentage figures in this table refer to areas of all quality types, so for example, while about 9% of pre-1750 grassland remains, very little of this is of high quality. Two colour maps are included in the document that show the distribution of the vegetation types. Map 1 shows the modelled native vegetation as it was pre-1750, and Map 2 shows the extant native vegetation. Map 3 shows Regional Ecological Planning Settings. It identifies areas known to be of high conservation value, areas predicted to be of high conservation value, and areas known to have low conservation value (although even these areas may contain habitat for threatened species).

Important biodiversity facts

The *Planning Framework* contains much other biodiversity information that needs to be taken into account in planning. Some examples follow. The area has over 1,200 native plant species, including 64 flora species of regional conservation importance. Ninety two fauna species are identified as of regional conservation importance, because of their rarity, threats, limited distribution, or other ecological characteristics.

Table 1. Broad vegetation types described in the Planning Framework

	% of region in 1750	% of region now	% of 1750 level retained
Native grassland	11	1	9
Grassland- woodland mosaic	11	3	27
Box gum woodland	23	9	39
Dry forest	38	21	55
Wet forest	14	12	86
Riparian forest	1	0.5	50
Heathland-shrubland -herbfield-rock	1	1	100
Waterbodies-wetlands	1	1	100
Secondary grassland	Nil	approx. 40	n.a.
Other	Nil	approx. 40	n.a.

Tuggeranong Lignum and Ginninderra Peppercress do not exist outside of the region covered by the *Planning Framework*, while the Tarengo Leek Orchid has only a very limited occurrence elsewhere. A decline in bird species has been observed to occur and now 40 woodland bird species are considered to be in serious decline. It is estimated that six out of every ten environmental weeds are garden escapees. Thirteen species are believed to have become extinct within the area, including Trout Cod, Southern Swamp Frog, Plains-wanderer, Brolga, Australian Bustard and New Holland Mouse. Several threatened species (including Button Wrinklewort, Small Purple-pea, Striped Legless Lizard, Grassland Earless Dragon, Perunga Grasshopper, and Golden Sun Moth) occur within Canberra's urban areas.

Species information

An important element of the *Planning Framework* is the linking of data on vegetation types with threatened species habitat. A table in the *Planning Framework* includes some information on listed threatened species (see below). Apart from the 84 species listed as threatened, the *Planning Framework* mentions that there are a further 72 species of 'conservation importance'.

Table 2. Numbers of taxa found within the *Planning Framework's* region

	Native species	Listed as threatened
Plants	>1,200	30
Invertebrates	?	2
Amphibians	25	6
Reptiles	58	5
Birds	279	24
Mammals	54	17
Fish	?	5
TOTAL	Unavailable	84

Threatened species mapping

The document has a number of maps showing the known locations and modelled ranges of threatened species (ie where the species are likely to be found).



*Hooded Robin -
photo by Helen Fallow*

Landscape units

An exciting element of the *Planning Framework* is the division of the region into eighteen landscape units which 'represent areas within the region having similar ecological, social, economic and administrative characteristics'. For each landscape unit there is a description of the area, the vegetation communities, known threatened and important species and endangered ecological communities, land uses, endemic features and planning and management issues.

Taking the next steps

The *Planning Framework* outlines the issues that need to be addressed to take the framework forward. It provides a draft indicative example of landscape unit guidelines for the Yass Landscape Unit. The maps and data that enable stakeholders to undertake more detailed area analysis are available from NPWS.



FOG believes the assembly of this information and maps represents a major step forward. As the *Planning Framework* points out with many examples it may be used by many agency, natural resource management, industry and community users who are natural players in the region.

Friends of Grasslands

With some 150 members, Friends of Grasslands (FOG) is a community group that promotes the conservation of grassy ecosystems. FOG has a major educational focus, and conducts regular field trips, seminars and slide presentations.

To find out about FOG's planned events, please write to:
Friends of Grasslands PO Box 987,
Civic Square ACT 2608



Landholder Profile

Max and Joan Limon own *Sunnybrook* at Taylors Creek, Tarago on the eastern side of Lake George. The Taylors Creek area is an open, rolling landscape of native grasslands and pastures, with remnant Snow Gum and

Blakely's Red Gum woodlands on some of the hills. Some of the lower areas are now occupied by introduced pastures. Dry forests of Broad-leafed Peppermints and Brittle Gums are found on the steeper slopes to the north and east. This landscape probably hasn't changed too much since the earliest days of settlement, though it is thought that there were more areas of Snow Gum woodlands.

Taylors Creek is now mainly a wool and cattle growing area. Many of the landholders rely extensively on the native pastures of the area.

A Landcare group has developed in the region. Max and Joan and their neighbours are very active Landcarers, and many successful projects have been undertaken over the years. For example, Max and Joan have been fencing off remnants of Snow Gum Woodland and Native Grassland at Sunnybrook, and some of their neighbours have also done the same with their remnants.

The Taylors Creek Landcare Group has run several field days at which Rainer Rehwinkel, Coordinator of the Southern Tablelands Grassy Ecosystem CMN spoke to landholders and children from Tarago Primary School about native grassland conservation. Rainer has also completed several surveys of remnants in the Taylors Creek area.

Joan of *Sunnybrook* states that the dominant feature of the Taylors Creek landscape is the westerly winds that pick up velocity as they pass over the expanse of Lake George. This wind has a marked effect on the landscape - particularly in winter when the winds are often icy. A wind monitor has been set up by scientists from CSIRO to assess the area's potential for generating wind energy with wind turbines.

The Limons see the possibility of wind power production as complementing the native grasslands on the steeper ridges. Initial plans to plant trees on the ridges have been modified. The grasslands will now be left as they are with wind breaks being planted strategically on the lower slopes.

Evidence of this strong feature of the climate is the gnarled shape of the ancient Snow Gums, bent double by the wind. The Snow Gums, which are scattered through parts of the grassland, are the only native tree to survive on *Sunnybrook*. Max and Joan have fenced off remnants to enable natural regeneration as well as planting tubestock to rehabilitate these areas of land to improve the habitat for native fauna.

A family of beautiful Flame Robins can be seen in one of the remnants. Joan said that she and Max are now more aware of the natural values at *Sunnybrook*, and are looking at ways to work with them. This is reflected in the way Max and Joan have recently focussed on planting native species in their windbreaks, where Max's father planted exotic species exclusively. However, Max's father did recognise the value of the native grass pastures, particularly on the steeper stony country. According to Max, he recognised their ability to "hang on" to the soil and persist through times of drought. *Continued on p.13*

What is biodiversity?

The National Strategy for the Conservation of Australia's Biological Diversity defines biodiversity as: "The variety of life forms: the different plants, animals and microorganisms, the genes they contain, and the ecosystems they form. It is usually considered at three levels: genetic diversity, species diversity and ecosystem diversity".



The most common way to think about biodiversity is at the level of species. To illustrate **species diversity**, lowland grassy ecosystems in south-eastern NSW, including Box-Gum Woodlands, Snow Gum Woodlands and Natural Temperate Grasslands, contain well over 600 plant species. The total does not convey an idea of how many animal species are found in this region. It is certain that nobody really knows how many fauna species there are, as new invertebrates are still being described, and many will probably remain undescribed. In addition, most people are aware of the astronomical figures often quoted for, say, the number of species of microbes that are found in a teaspoon of soil.

This bias towards smaller organisms is also evident amongst the plants in the region's grassy ecosystems. Approximately 73% of the plant species are herbaceous - grasses, rushes, sedges, lilies, orchids, ferns and forbs. They generally grow to under a metre tall. Of the remaining woody species (trees and shrubs), 31% are sub-shrubs that grow under 30 cm tall.

Ecologists often talk about species richness. This is a fundamental concept of biodiversity. Grassy ecosystems are generally accepted as being particularly species rich. In a study of grassy woodlands in western Victoria, Ian Lunt concluded that, at certain scales, these communities were amongst the richest plant communities in temperate Australia. At the scale of 1m² the diversity in these woodlands was the highest for any terrestrial ecosystem in temperate Australia, and compared with some of the richest ecosystems in the world. *Continued p.8*

Plant Profile

Tarengo Leek Orchid - *Prasophyllum petilum*

Although the Tarengo Leek Orchid does not quite fit the Oxford Dictionary description of either a leek - "a culinary herb with cylindrical bulb" - nor a typical orchid "of fantastic shape & brilliant colour", it is however, in its own right, quite a significant plant.

Currently known from only three natural populations, the Tarengo Leek Orchid is listed as endangered on the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*, on the *NSW Threatened Species Conservation Act 1995*, and on the *ACT Nature Conservation Act 1980*.

An inhabitant of the fertile soils of the once extensive grassy ecosystems of the Southern Tablelands and the ACT, this orchid, along with numerous other grassy ecosystem species, is now at risk of extinction.

For over the past 150 years, modifications for agriculture and urban development have progressively reduced this natural ecosystem to fragmented patches.

Known from only one site for many years, the Tarengo Leek Orchid was formally described by David Jones, renowned orchid specialist, in 1991 as a new species, *Prasophyllum petilum*. It was subsequently discovered at two additional sites in the Boorowa and Captains Flat regions. The population at Boorowa is very large - up to 130,000 plants have been recorded in some years! But most of this population is confined to a one hectare area.

The Tarengo Leek Orchid is a small ground orchid, only conspicuous in spring or early summer (October to December) when it is in flower. During this time, a flowering stalk reaching up to 30cm high breaks through the plant's single, cylindrical leaf. Along the flowering stalk are five to twenty small, cream or pinkish green, very sweetly scented flowers. Shiny green, rounded seed capsules to 4mm long are produced after flowering.

In 1999 a national recovery program was established for the Tarengo Leek Orchid. This involved the appointment of a Recovery Team made up of scientists and representatives from the public authorities that implement management actions at the known sites. A Draft National Recovery Plan has been prepared. The plan was placed on public exhibition earlier this year. The plan considers the conservation requirements of the species across its known range. It identifies the actions to be taken to ensure the long-term viability of the Tarengo Leek Orchid in nature and the parties that will carry these out.

In 1994 the ACT Government adopted *Action Plan for No 4 for Prasophyllum petilum*. The ongoing implementation of this action plan will meet the management requirements for the ACT population of Tarengo Leek Orchid under the *ACT Nature Conservation Act*.

Survey for additional occurrences of the Tarengo Leek Orchid is a key recovery action. To aid in the identification of possible populations occurring in grassy ecosystem remnants on private land a 'Have you seen this plant?' brochure has been produced. This has been provided as an insert to this edition of *The Austral Bugle*.



The Tarengo Leek Orchid



The Tarengo Leek Orchid



Habitat of Tarengo Leek Orchid at Boorowa photo from NPWS collection

If you think you have seen this orchid in your remnant or you would like more information, please find contact details on the back of the pamphlet.

What is biodiversity?

Continued from p.6

Species richness is often expressed at the site level. Some grassland and woodland sites are extraordinarily species rich. At my last count, the 25 ha Turallo Nature Reserve near Bungendore has recorded 130 native plant species. The Kenmore Dam woodland at Goulburn, arguably the most diverse Box-Gum Woodland remnant in the Southern Tablelands, has over 100 native species, recorded during only two site visits. Characteristically, more species are continually being recorded at previously visited sites. I continue to find several new species every year during my regular monitoring at Turallo.

Species are not evenly distributed across the region. While some species such as the Common Everlasting (*Chrysocephalum apiculatum*) are widespread, many species are confined to particular parts of the region. For example, there is a range of distinctive grassland forbs found only in the cooler, southern parts of the region centred on the Monaro. Another distinctive set of species is restricted to the north-eastern parts of the Southern Tablelands. The South Western Slopes have another set of species unique to that region. This phenomenon is related to another level of biodiversity, namely **ecosystem diversity**.

When we speak of grassy ecosystems, we are actually referring to a collection of plant communities.

A community is defined in a popular ecology textbook as "the species that occur together in space and time". Broadly, grassy ecosystems are composed of Box-Gum Woodlands, Snow Gum Woodlands, Natural Temperate Grasslands, Montane Grasslands, and so on. Further, each of these broad community groups can be divided into finer categories.

The Comprehensive Regional Assessment conducted in 2000 by the NPWS sub-divided the loosely-termed Box-Gum Woodlands into 9 sub-classes, and there are 8 sub-classes of lowland Snow Gum woodlands and related communities. Natural Temperate Grasslands have been divided by various authors into a number of differently defined sub-classes. Each plant community is a distinct entity, with its own assemblage of plants, as well as fauna and micro-organisms, and there is a large diversity of these assemblages.

Genetic diversity is often expressed in a way that is easy to see within some plants of our grassy ecosystems. Some plant species have a broad distribution and show little, if any, variability across their ranges. More often than not, however, plants exhibit tremendous variability across their ranges. This is an outward expression of genetic diversity. A particularly good example locally is



the Hoary Sunray (*Leucochrysum albicans*), which exhibits a great deal of variability in its habitat preferences, habit, leaf-form and flower colour. The widespread Common Everlasting is so variable that up to three distinct forms of this species may occur together at some sites, and as many as 7 distinct forms may exist within the region. Many other plant and animal species show similar degrees of diversity across their ranges.

It is, of course, the genetic diversity in populations of plants and all other organisms that is essential to the process of evolution. Evolution of new forms results from the selection of genes, and the characters that they express, that are particularly suited to environmental conditions prevalent at particular times or places. Should this process be followed by a variety of mechanisms, especially isolation from the neighbouring population, these new forms may develop into new species.

Genetic diversity has been exploited by humans for a wide variety of purposes, including the breeding of crop plant varieties, domestic animal breeds, horticultural specimens, and even salt-tolerant eucalypts for rehabilitation projects.

We have seen how biodiversity varies between sites across a region. At a grassland site on the Monaro it will be possible to see many plant species - an expression of species diversity - growing together forming a particular plant community. One hundred kilometres to the north, in a grassland site in the Canberra region, some of the species encountered will be the same as those on the Monaro, others will be different. The Canberra site will contain a different community to that on the Monaro, one of several others - this is ecosystem diversity. Some of the plants in the Canberra site will be the same species, but will exhibit subtle or even major differences to those on the Monaro - this is an expression of genetic diversity. Almost every remnant site in the region will exhibit these subtle differences. Each site is unique.

This is an extract of
The role of in situ conservation in landscape
rehabilitation by *Rainer Rehwinkel*, presented at the
Landscape Rehabilitation – approaches and techniques
workshop hosted by the Australian Network for Plant
Conservation at Yass NSW, February 2003.

A new initiative for private land conservation: The Nature Conservation Trust of NSW



What is the Nature Conservation Trust?

The Nature Conservation Trust is a positive community-based alternative for private landholders and donors wanting to protect the conservation values of private land. The Trust seeks to work with the rural sector towards more sustainable land management and harness the real estate market to further conservation.

The Trust, created by the *Nature Conservation Act 2001*, is the result of a landmark partnership between the World Wide Fund for Nature, the NSW Farmer's Association, the Nature Conservation Council, Greening Australia and the NSW Government.

Why is conservation on private land important?

Management of private land for conservation is vitally important. Approximately 75% of the NSW landscape is owned or managed privately. In NSW 6.7 % of the land is in public reserves. However, historically, national parks have been restricted to land that was deemed unsuitable for intensive agricultural use.

The majority of our poorly reserved and endangered vegetation communities, including grassy ecosystems, occur as remnants on private land in agricultural areas - coastal valleys, tablelands, inland slopes and plains. While public reserves may be established over some important sites, landscape-wide conservation can only be realised through property agreements and other partnership arrangements with landholders. In agricultural regions the patches of native bush and grassland still left are the building blocks for restoring landscapes.

There has been a growing movement towards implementing conservation programs on private land. However many of these programs rely on short term funding and the efforts of highly motivated individuals. Over time, gains that have been made risk being eroded as land ownership and management changes.

The Trust's ability to negotiate permanent protection through covenants provides a clear mechanism to proactively address the permanent conservation and appropriate management of vitally important habitat for threatened species on land that is unlikely to be reserved as and managed under other NSW Government programs.

The Trust looks forward to a future where private land managers are recognised as making a major contribution to conservation.

How does the Trust work?

The Trust is empowered to negotiate long-term conservation outcomes on private land through voluntary agreements and covenants on title. The covenants and agreements restrict the type and amount of development on the site and provide for a tailored management plan that is updated and monitored regularly.

Initially the Trust has secured seed funding to operate a Revolving Land Fund Program to purchase property with conservation values,

place a covenant on the land and then re-sell to a sympathetic buyer. Covenants will permanently protect the land from clearing, subdivision or other threatening activities. Management plans will be prepared to assist the new owner to meet covenant requirements. Proceeds from the re-sale of properties are returned to the fund for future acquisitions. We are interested in hearing about blocks of land that might be suitable for purchase under this program.

The Trust purchases land with significant environmental values such as threatened species or endangered ecological communities. Sites with wetlands, potential for maintaining ecological viability and integrity and ecosystems that are under-reserved within the public reserve system are also candidates for purchase. The Trust also considers other matters in deciding on the appropriateness of land for acquisition, including resale potential and likely management costs.

The Trust recognises the significant potential to work with existing private landholders and is keen to establish a Covenanting Program to complement the Revolving Land Fund Program. The Trust recognises that it must be able to provide a commitment to ongoing monitoring and support of the managers of covenanted properties. This could be linked to Conservation Management Networks where they exist. Securing funding to establish and maintain a Covenanting Program is a priority for the Trust.

How is the Trust funded?

The Trust is in a start up phase and relies on the significant unpaid contribution of Board members. Funding from the NSW and Commonwealth governments has been negotiated to operate a Revolving Land Fund.

The Trust's long-term intent is to expand the Revolving Fund and establish a Covenanting Program. To achieve this it will be necessary to develop a wide range of income sources, including donations, bequests and fee-for-service programs.

The Board

The board of eight independent members and one member from both the NPWS and the Department of Sustainable Natural Resources (DSNR) formerly Land and Water Conservation (DLWC) brings together a wide range of appropriate expertise and is also representative of the state's diverse regions. Board members are: Dianne Bentley (North West), Tim Hughes (Sydney), Russell Dunn (South West Slopes), Brian Binning (Central West), Robert Rosen (Far North Coast), Andrew Smith (Northern Tablelands), Jay Stowe (Far South Coast), Julie Woodroffe (North Coast), Chris Perkins (NPWS) and Gul Izmir (DSNR).

For more information or to express interest in
selling or purchasing property contact
Philippa Walsh, Executive Officer

Nature Conservation Trust NSW PO Box 226, Jannali NSW 2226
Ph. 02 9528 0028, Fax 02 9528 0029, info@naturetrust.org.au

Restoring a Kangaroo Grass understorey

by Ian Cole

Ian Cole is a Terrestrial Ecologist, based at CNR, DSNR, Cowra, NSW. Phone (02) 63421811 or email icole@dlwc.nsw.gov.au

In the first issue of *The Austral Bugle*, Ian discussed sowing and managing Kangaroo Grass (*Themeda australis*). In this issue we complete the article with information on harvesting.

Whilst scattered box trees are a relatively common sight across the wheat sheep belt, the diverse plant communities that used to live beneath them have long since gone, replaced with a few agricultural species, weeds and hardy native plants. Animal species that depended on the original plant species for habitat are also largely absent.

These original grass-dominated understoreys are therefore extremely important because they largely determine the aesthetic and conservation value of these communities. In the original plant communities these grasses exerted a powerful influence over other plant species, at some times suppressing species and at others allowing them to recruit, producing distinctive and diverse plant communities. Restoration of these communities therefore must include strategies that will ensure the re-establishment of the original grassy understorey species. If this can be accomplished, other species may be reintroduced at a later stage to restore to the vegetation a structure, function and habitat value somewhat more like the original.

Surprisingly therefore, whilst the conditions necessary for the regeneration of the dominant eucalypt component of some of these communities has been well studied, little work has been done on restoring their grassy understorey. Fencing off areas, whilst successful in allowing regeneration of tree and shrub species does not necessarily result in regeneration of the original grass species and a more interventionist approach of introducing seed onto the site may be needed in some situations.

Kangaroo Grass was one of the more widespread grassy ground-layer dominants. This resilient grass is well adapted to the variable Australian climate, as it can utilise rainfall and soil nutrients efficiently. Its roots enhance soil health and structure by binding and aggregating soil particles, increasing soil porosity, cycling nutrients, increasing soil organic matter and supporting a large number of soil organisms.

Kangaroo Grass seed comprises a dark brown caryopsis tightly enclosed by 2 glumes. At one end of this 'seed' is a sharp pointed callus while at the other is a long bent awn. Under natural conditions the awn moves the seed along the ground until it finds a crack or stone. A dormancy period between 2-24 months prevents most seed from germinating immediately and most seed will germinate the following spring as soil temperatures rise to 20°-25°C.

Harvesting seed

While seed yield per hectare is low, seed is relatively easy to harvest on a small scale. Readiness for harvest is indicated by a colour change in the plant from a dark greenish-black to a dark greenish-red colour. When ripe, seed is shed quickly from the plant and in hot dry windy weather nearly all seed will be lost within a week. By the time the plant has turned red most of the seed has been shed. On the small scale, reasonable amounts of seed can be harvested by cutting and tying seed heads into sheaves and hanging them upside down over a plastic sheet. After about a week nearly all of the seed will have fallen out, together with a bit of chaffy material, to produce a relatively concentrated seed product, which is easily stored. It is best not to remove too much trash, as this material will prevent the awns from tangling and matting the seed together. A more innovative method involves dragging a sheet of hessian material over the ripe seedheads. Ripe seed lodges in the hessian, which can then be cut into appropriate sized pieces for sowing.

Seed-hay can be harvested from moderately large areas using a whipper-snipper and raking and packing stems into wool bales. On flatter ground, mowers and balers make harvesting easier work but with all seed-hay methods, seed loss in hot windy weather can be relatively high. Because the seed content of seed-hay is relatively low, a large amount of product has to be dried and stored. It is probably more cost-effective to spread this product directly onto the site to be sown after harvest. This allows the seed to fall and find suitable microsites using natural mechanisms. If direct spreading is envisaged it is not necessary to dry the seed-hay and a forage harvester may be more efficient in harvesting seed.

The most convenient way of harvesting Kangaroo Grass seed is to use a brush harvester such as the 'Grass Hopper'. In a reasonable season this machine is capable of harvesting up to 100kg of high quality seed-floret material per hour. Seed floret material is a more concentrated product than seed-hay and is easily dried and stored. The floret material bulks out the awned seed, preventing tangling and is easily spread out at sowing time.

Direct heading Kangaroo Grass is moderately successful but results in lower seed germination and damaged awns, limiting the seed's self-planting abilities.

With Kangaroo Grass, producing a pure awned seed product it is not particularly useful as the awns tangle and mat to produce a solid mass of seed that is unable to be teased out for spreading without damaging the awns. Pure Kangaroo Grass seed will be awnless and may even have the callus removed. Removal of the awn and callus has no marked effect on germination.



While removal of the glumes is possible and has the positive effect of reducing dormancy, it is difficult to do without damaging the seed and therefore is not usually attempted. Pure Kangaroo Grass seed, having no natural mechanism to place it in suitable microsites will need to be sown using conventional planting machinery.

Limited amounts of Kangaroo Grass seed are available commercially at prices ranging from \$25 to \$600 per kg depending on the type of product and the amount of viable seed contained per kilogram.

For further information see:

Ian Cole, Iain Dawson, Warren Mortlock, and Susan Winder (2000), FloraBank Guideline 9: Using Native Grass Seed in Revegetation, FloraBank, Canberra.

New Grassland Nature Reserves

In March 2003, the NSW Government announced the gazettal of two native grassland remnants as nature reserves. Now officially named Kuma Nature Reserve and Turallo Nature Reserve, these areas located within the Southern Tablelands contain excellent examples of grassy ecosystems.

Kuma Nature Reserve, previously part of the privately owned property known as Rockview, is located south-east of Cooma on the Nimmitabel road. It contains a good example of the Natural Temperate Grasslands typical of the basalt plains of the Monaro region. The Poa Tussock community on the site is in excellent condition, with good structural qualities that contribute to the diverse reptile fauna found there. Nine reptile species have been recorded on this site, including three threatened species; the endangered Grassland Earless Dragon (*Tympanocryptis pinguicolla*), the vulnerable Striped Legless Lizard (*Delma impar*) and the Little Whip Snake (*Suta flagellum*), also vulnerable. This is of state significance, as none of these threatened reptiles are known from any other reserve in NSW.

Regionally restricted or uncommon plants recorded at Kuma NR include the Silky Swainson-pea (*Swainsona sericea*), the Notched Swainson-pea (*S. monticola*) and the Hoary Sunray (*Leucochrysum albicans*).

Although the site has limited scope for recreation, access for education and research purposes will be encouraged. Community involvement in the management of the reserve has already been engaged. A steering committee has been established and a Plan of Management is in process.

Kuma Nature Reserve



Turallo Nature Reserve

Turallo Nature Reserve is located on the Hoskinstown Road, south of Bungendore. This site has a very high floristic diversity. The grassland is punctuated by huge old Candlebarks (*Eucalyptus rubida*) that provide hollows for nesting birds.

In spring the purple Chocolate Lilies (*Dichopogon fimbriatus*) fill the air with a chocolate aroma. Golden Moth Orchids (*Diuris chryseopsis*) vie with Creamy Candles (*Stackhousia monogyna*), Chamomile Burr-daisies (*Calotis anthemoides*) and Early Nancies (*Wurmbea dioica*). In summer the pretty pink Australian Bindweed (*Convolvulus erubescens*) and the spiky Blue Devil (*Eryngium rostratum*) feature, but the true colour of summer is yellow with Scaly Buttons (*Leptorhynchus squamatus*), Lemon Beautyheads (*Calocephalus citreus*) and Common Everlasting (*Chryscephalum apiculatum*) dominating the show. As autumn turns to winter the colour is russet brown-edged with pink as the Kangaroo Grass (*Themeda australis*) takes on its winter hue.

A third exciting acquisition for the National Parks Estate is an area of land known as 'Mountain Top' in the Tantawangelo forest. This 162ha inholding in the South East Forest National Park was purchased by its last owners, Bob and June Wilkinson, as a strategic location for forest campaign activity during the South East Forest Campaign. Since then the property has been managed for its natural values. The land contains a Basalt Cap Grassland in the upper catchment of Solomons Creek, a major tributary of Tantawangelo Creek.

The Basalt Cap Grassland found here is one of few remaining relatively undisturbed in this area. This Poa Tussock dominated, intermittently boggy grassland is a blaze of colour when the Trigger-plants (*Stylidium graminifolium*) flower. This grassland is the type locality for a previously undescribed orchid species that was first discovered by Rainer Rehwinkel on his initial site visit. This species has since been described and named by CSIRO orchid specialist David Jones, as *Prasophyllum wilkinsoniorum* in honour of Bob and June Wilkinson.

These grassland reserves and their managers at NPWS have been registered on the Southern Tablelands Grassy Ecosystems CMN.

The contact people for these areas are as follows:
Kuma NR - Ranger Steve Wright, Snowy Mountains Region,
Ph: (02) 64505577

Turallo NR - Rangers Susie Jackson & Andrew Moore,
Queanbeyan Region, Ph: (02) 62980310

South East Forest NP - Area Manager Franz Peters,
Far South Coast Region, Ph: (02) 6458 4080



Woodland birds declining in the Canberra region

by Jenny Bounds



Scarlet Robin - photo by Helen Fallow

Over the years, a common comment amongst local birdwatchers has been that some bird species just don't seem to be around in the usual areas or in the numbers one could find them regularly in the past.

We know from research and data collection projects, especially in the last decade, that many woodland bird species are indeed declining in numbers - dramatically in some cases. It has been predicted that half of Australia's native birds in farming and grazing areas could become extinct within 50 years.

The underlying cause for the declines of birds is the loss of suitable habitat. For example, much of the woodland in the south-east of Australia has either been cleared for agriculture, or has become degraded or fragmented. What is left is not sufficient to provide all the food and shelter needed by many woodland birds. It is estimated that less than 5% of the original area of woodland communities is left. In NSW, the White Box Yellow Box Blakely's Red Gum (Box-Gum) Woodland community is listed under legislation as an endangered ecological community, and other woodland ecosystems are listed as endangered under ACT and Victorian legislation.

Some species of birds hang on in low numbers for years in small patches of woodland and then disappear altogether when a drought or unfavourable season comes along. This process has been called the "extinction debt", as final extinction may occur a long time after the land was originally cleared. We seem to be witnessing this in a number of areas locally. For example, the Brown Treecreeper, once common at Mulligan's Flat Nature Reserve in northern Gungahlin (and the leasehold property before it was reserved) has not been recorded there by Canberra Ornithologists Group's surveys for several years. We are really not sure why this has happened, as Mulligans Flat is a large, diverse and high quality woodland reserve.

Since 1996, the Canberra Ornithologists Group has been undertaking systematic monitoring of bird species at a number of Grassy Woodland sites in the ACT, in nature parks and reserves and on leasehold properties.

In addition, records have been collected by the Group over many years in all kinds of habitats across the Canberra region in both the ACT and NSW. Data are currently being collected at more than 100 sites in the region by COG volunteers. These data are provided to government and other organisations like CSIRO, Greening Australia and Birds Australia for research purposes.

Long-term COG datasets show there are a number of bird species declining in the Canberra region, even some which in the past we have thought of as numerous or common. Some of these are: White-winged Triller (*Lalage tricolor*), Scarlet Robin (*Petroica multicolor*), Flame Robin (*P.phoenicea*), Red-capped Robin (*P.goodenovii*), Hooded Robin (*Melanodryas cucullata*), Jacky Winter (*Microeca leucophaea*), Crested Shrike-tit (*Falcunculus frontatus*), Southern Whiteface (*Aphelopcephala leucopsis*), Varied Sittella (*daphneositta chrysoptera*), Brown Treecreeper (*Climacteris picumnus*), White-fronted Chat (*Ephthianura albifrons*), Dusky Woodswallow (*Artamus cyanopterus*) and Diamond Firetail (*Stagonopleura guttata*).

The Hooded Robin, Brown Treecreeper and Diamond Firetail, listed under the NSW threatened species legislation, are particularly in peril. These species take food from the ground and need quite large areas to survive. The Brown Treecreeper utilises trees, both living and dead for food and to breed as they nest in tree hollows. The collecting of dead and fallen timber for firewood has probably contributed to the decline.

COG is intending to nominate eleven more species of birds as threatened under ACT endangered species legislation. A submission on the Diamond Firetail has been completed and others will follow. The list includes two of our red-breasted robins, which many people will be familiar with in the local nature parks and open areas, the Scarlet Robin and the Flame Robin. Flame Robins come down from the higher country in the winter and often aggregate in flocks in open fields and paddocks, although large flocks are now rare. Scarlet Robins tend to prefer more wooded areas and are usually found in pairs. Local declines of these two species are in the order of more than 50% over the past couple of decades. The beautiful Diamond Firetail, a colourful finch, is also showing declines of similar magnitude.



Brown Treecreeper - photo by Helen Fallow

COG works closely with ACT government authorities which have responsibility for Action Plans for bird species listed as threatened in the ACT, and is in partnership with Environment ACT to set up long term monitoring programs for those threatened species. COG also works in partnership with other entities like Greening Australia to monitor bird species in re-vegetation projects in the region. Birds are used as indicators of the success of these kinds of on-ground projects in enhancing biodiversity.

As part of community awareness-raising initiatives, COG has produced a pamphlet on declining bird species and distributed this to rural lessees in the ACT, to organisations like Greening Australia and Environment ACT that work on-ground with the rural community, and to local shire councils.

Initiatives like these aim to:

- better inform the custodians of the land;
- encourage them to preserve and protect any remaining woodland remnants and habitats for birds; and
- encourage land custodians to undertake re-vegetation projects, which can assist in controlling erosion, salinity and other environmental problems, as well having benefits for birds.

COG hosted a public seminar on 22 March 2003 on a theme of woodlands and declining birds, in association with a meeting of bird interest groups from around NSW.

Jenny Bounds is a former President, now Committee Member of Canberra Ornithologists Group. She has had a life-long interest in birds, is involved in various bird study and conservation related work and coordinates the Group's Woodland Bird Monitoring project. Canberra Ornithologists Group is dedicated to the study and conservation of native birds and their habitats. For enquiries about the pamphlet *Caring for Woodland Birds*, phone the author on 02 6288 7802 after hours.

Landholder Profile

continued from p.6



Revegetation area and seed bank at Sunnybrook

During surveys of the *Sunnybrook* grasslands by Rainer Rehwinkel, Max and Joan were very pleased to find an impressive diversity of species of grasses and forbs. These have persisted despite the pressure of continual grazing since the early 1800's and a severe rabbit plague in the mid 1900's. Some of the special "finds" include the Nodding Chocloate Lily, Fringed-lilies and an Australian Anchor Plant. Masses of Yellow Buttons, patches of Bluebells, a few tiny pink Convolvulus and even an Austral Bugle were seen flowering this May.

Max and Joan's property is composed mainly of native pastures including in areas where drought has been progressively favouring native grasses in previously improved pastures. Max says that during this record-breaking drought, a flush of clovers brought on by substantial rain in February has since shrivelled up. However, his native grasses are persisting and are flourishing in those fenced-off remnant areas.

Max cautioned that while he values his native grass pastures, they need to be managed for invasion of Serrated Tussock if this noxious weed is present in the area. His experience is that Serrated Tussock seed can persist in the soil for up to 20 years.

Joan is keen to learn more about the diversity of the plants - she regularly writes a short piece about nature in the Taylors Creek Landcare Newsletter.

Joan is a keen gardener and has established a wonderful garden in her house block. It is therefore no surprise that she appreciates the beauty of the grassland flora in her paddocks, especially in spring when everything is flowering. While Max primarily sees the value of the native grasses for his stock, he too expressed an appreciation of the colour and diversity of his pastures.

For more information on this article, please contact the CMN Coordinator

Old growth Snow Gum in remnant at Sunnybrook



The Grassland Earless Dragon - a cryptic critter of Natural Temperate Grasslands

When you think of dragons, what picture do you get? Do you envisage gigantic, scaly, winged beasts roaming the skies, spouting fire from their nostrils and devouring small villages for lunch? Well here's a different type of dragon, much smaller, but no less interesting.

The Grassland Earless Dragon (*Tympanocryptis pinguicolla*) is a small lizard, adults growing to 15 centimetres in total length, with head and body length rarely exceeding 6.5 centimetres. The red-brown colour of the back is broken up by three white lines that run along the body from behind the head, which in turn separate irregular lighter brown cross patterns. This intricate combination of colour and pattern provides excellent camouflage.

The Grassland Earless Dragon lives in Natural Temperate Grasslands. To date the species has not been found in woodland or forest habitats. Low growing, open-structured grasslands dominated by wallaby grasses (*Austrodanthonia spp.*) appear to be favoured by these lizards, although they also live in open spear grass (*Austrostipa spp.*) and sometimes Kangaroo Grass (*Themeda australis*) habitat. These areas have grass tussocks separated by small patches of open or bare ground, which enables the dragon to climb up to a vantage point in a tussock and wait for prey, usually ants, beetles, spiders and bugs. The inter-tussock spaces also allow for 'sun basking', a daily requirement for many reptiles.

Within these areas, the dragons shelter in a variety of sites. One of the most commonly used hiding spots is in the burrows of wolf spiders and crickets. They also shelter under partially embedded surface rocks and in grass tussocks. They lay at least 5 eggs in spring and early summer in shallow scraped nests or in spider burrows, which are then back-filled. The young hatch in summer and autumn.

The Natural Temperate Grassland habitat is recognised as an endangered ecological community on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The dragon itself is also listed as Endangered on the EPBC Act, as well as under various State and Territory legislations, including the NSW *Threatened Species Conservation Act 1995*. The distribution of the species is now very patchy and localised, with the only known populations in NSW being just south of Queanbeyan and on the Monaro Plains between Cooma and Bombala. Populations are also known in the ACT, and this species was recently

discovered in the Darling Downs region of south-eastern Queensland, but appears to be extinct in Victoria.

The main threat to the continued existence of the Grassland Earless Dragon is the loss and fragmentation of habitat caused by urban, rural residential, industrial or agricultural expansion or intensification. The removal of rocks from grassland paddocks and the ploughing of grasslands can destroy the habitat for these lizards. Similarly, over-grazing, invasion of weeds and inappropriate use of fire are also viewed as threats.

James Dawson is a Recovery Project Officer in the Threatened Species Unit in Queanbeyan. For more information about the recovery of this grassland lizard as well as other grassland fauna please call James on 62989728, or email james.dawson@npws.nsw.gov.au



The Grassland Earless Dragon



Grassland Earless Dragon Habitat

Book reviews

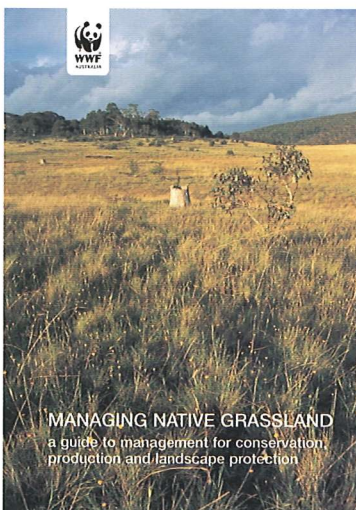
Managing Native Grasslands: a guide to management for conservation, production and landscape protection
by David Eddy WWF Australia July 2002.

WWF Australia has produced this useful and informative booklet as part of its Monaro Remnant Native Grasslands Project with funding from the National Landcare Project of the Natural Heritage Trust Fund.

The booklet provides background information, guidance and encouragement to managers of native grasslands, particularly in the Monaro, but can also be applied to grassland and grassy woodlands throughout the Southern Tablelands and beyond.

It describes what a native grassland is and why native grasslands need conserving. It informs the reader of the processes threatening the remaining grasslands and why we should consider managing native grasslands for their natural values.

Considerable detail is provided on methods for retaining the species diversity within the grassland, using managed grazing and burning techniques. The author introduces the importance of correct timing, intensity and duration for maintaining species integrity by allowing enough time for seed setting and release between burning events and the importance of rotational patch burning. He also touches on weed and feral animal control, soil management and maintaining grassland fauna habitat.



The booklet has been produced for a wide audience including, managers of public land, such as RLPBs Councils, NPWS, and DSNR, for Landcare coordinators and farmers and private landholders managing their native remnants.

A fore-runner in native grassland management, this informative booklet is available from the WWF Australia, Canberra Office. Please contact David Eddy by phone (02) 62428484 or email deddy@wwf.org.au.

The booklet is also available on the internet on: www.wwf.aug.au/publications.

'Managing and conserving grassy woodlands' edited by Sue McIntyre, John McIvor and Katina Heard

In eastern Australia, the grassy eucalypt woodlands have been under severe pressure from agricultural development, with problems of land degradation and species decline being the most severe in the cropping lands of south-eastern Australia. The grassy woodland landscapes in south-eastern Queensland, which feature in this book, are an example of relatively successful coexistence of viable pastoral use and native ecosystems for more than a century. We can learn much from this region and its people, but we cannot afford to be complacent that current management will guarantee sustainability into the future.



Managing and conserving grassy woodlands describes a set of principles that will enable landholders to optimise productivity without compromising ecological sustainability, and at the same time maintain a substantial proportion of the native flora and fauna.

Managing and conserving grassy woodlands is available from CSIRO Publishing. To order, freecall 1800645051 or order through website at www.publish.csiro.au. The cost is \$59.95 (postage \$9.00).

Have Your Say

The Southern Tablelands Grassy Ecosystems CMN is happening - over 260 invitations to join the CMN have been sent out with more to go. The newly registered members include private land owners, government agencies, City and Shire Councils, Landcare groups, scientists, special interest groups like Friends of Grasslands and the Conservation Council of the South Eastern Region and Canberra, and interested non-land-owning individuals.

The next stage will be to appoint a representative committee. If you are interested in participating in this committee, either as an individual or as a representative of a group, please lodge your nomination by writing to the address in the Making Contact box, below.

Scientific Committee Listing

The NSW Scientific Committee has listed *Prasophyllum* sp. Majors Creek as an endangered species under Schedule 1 of the *NSW Threatened Species Conservation Act, 1995*. This orchid grows in grassy montane habitat and is known from a small population at only one location in the Southern Tablelands.

CMN Web page

You can locate the Conservation Management Network web page at:
www.conservation-management-networks.net

Making Contact

Expressions of interest are invited from all persons or groups wishing to be involved by writing to Southern Tablelands Grassy Ecosystems CMN

C/o Rainer Rehwinkel NSW NPWS PO Box 2215
Queanbeyan NSW 2620 Phone: (02) 6298 9745
Email: rainer.rehwinkel@npws.nsw.gov.au

Back copies of *The Austral Bugle* Vol 1/Issue 1 are available. Please contact Rainer Rehwinkel (see Making Contact box, above)

Box-Gum Woodlands Fact Sheet

A fact sheet about the endangered ecological community White Box Yellow Box Blakely's Red Gum Woodland (or Box-Gum Woodland) is available on www.npws.nsw.gov.au/wildlife/thr_profiles/Box-gum_Factsheet.pdf, or call Rainer Rehwinkel NPWS Threatened Species Unit on (02) 6298 9745.

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Stipa National Conference

The Stipa Native Grasses Association is organising its third National Conference to be held in November, 2003. The conference will cover a wide range of native grass issues from livestock grazing to seed production and revegetation.

For more information contact:
Stipa Native Grasses Association
PO Box 500, Gulgong NSW 2852
Email: stipa@stipa.com.au



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The views expressed in this publication do not necessarily represent those of either the NSW National Parks and Wildlife Service or Environment Australia. While every effort has been made to ensure that the information in this newsletter is accurate at the time of printing, neither the NPWS nor EA can accept responsibility for any errors or omissions.

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