Woodland Wanderings

Newsletter of the Grassy Box Woodlands Conservation Management Network

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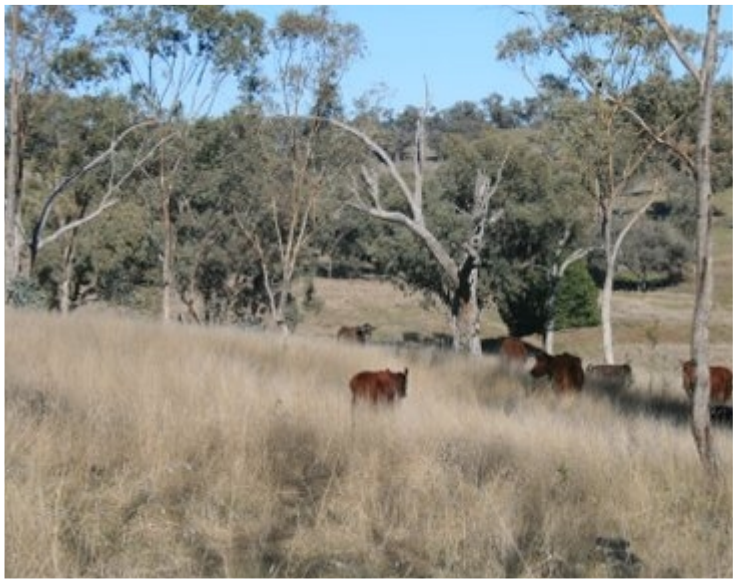
Cross Property Biodiversity Conservation Planning

CiL CPBP Management Team

The Australian Government has funded Communities in Landscapes to work with groups of landholders to develop cross property biodiversity conservation plans to help increase landscape-scale conservation.

The Communities in Landscapes (CiL) project has targeted woodlands and derived native grasslands, focussing on two local landscapes in each of the Murrumbidgee, Lachlan, and Central West Catchments.

The plans will promote biodiversity conservation on ten or more working properties within a framework that considers the biodiversity assets of each property in the context of the broader landscape. Property-specific goals will be tailored to enhance biodiversity, while meeting production and other landholder goals.



Planning Process

In each selected local landscape, landholders, and Communities in Landscapes will together:

- Audit biodiversity assets to develop context and understanding;
- Identify opportunities to enhance and expand habitat, and build connectivity across the landscape for plants and animals;
- Access relevant information and training to design and implement the plan;
- Identify farm management tools and infrastructure required to implement the plan; and
- Identify opportunities for ongoing partnerships with landholders through groups such as Landcare and the GBW CMN.

Information Sessions

A range of information sessions are available, including:

- Paddock Plants;
- Grazing management (Regenerative Grazing for Grasslands, Evergraze, PROGraze, PROFarm);
- Property and paddock planning sessions (Landscan, Bioscapes);
- Soil Carbon workshops;
- Biodiversity field days and baseline surveys;
- Biodiversity and connectivity planning workshops;
- Monitoring of landscape function; and
- Monitoring condition of woodlands.

Funding Opportunities for Participants in the Cross Property Biodiversity Planning

Up to $75, 000 is available to commence implementation of each landscape plan. CiL funding will contribute to actions that:

- Improve the condition and protection of remnant vegetation;
- Expand or buffer existing remnants;
- Enhance connections between remnants; and
- Improve biodiversity and ecosystem functionality of adjacent pastures and crop land.

Specific activities that will contribute to these outcomes include:

- Fencing of remnant vegetation (including small areas of diverse grassland as well as timbered areas);
- Planting of indigenous species to link remnant vegetation;
- Protection of existing paddock trees;
- Planting of scattered paddock trees, groves of trees and shrubs;
- Priority co-ordinated weed or pest control programs;
- Enhancement of remnant vegetation;
- Infill planting of trees, shrubs, grasses and herbs;
- Native grass harvest and re-sowing to new areas;
- Expansion and buffering of remnants;
- Provision of nest boxes;
- Other training as agreed and identified in the plan;
- Fencing areas to trial regenerative management practices; and
- Fencing of small areas to create structural diversity in the grass layer

Finalised plans can provide a blueprint for future action or for groups to seek funds from other sources in future.

Communities in Landscapes - Making Connections

Toni McLeish editor www.gbwcmn.net.au http://cil.landcarensw.org.au

The Communities in Landscapes (CiL) project team, through your Community Woodland officers, have been connecting people during 2010, running many events that add to our knowledge when trying to integrate conservation in productive systems. These include field days such as "Paddock Plant Identification" days in Box-Gum Grassy Woodlands (BGGW) landscapes,"Habitat and Connectivity" and the "Ecology of BGGW".

Training in topics such as "Seed Collection and Storage for Professionals", "Cultural Assessment of BGGW", "Identification and Assessment of BGGW" and "Restoring Landscape Connections in BGGW" have been well attended and will continue to be offered in 2011. If you would like to attend day on any of these topics please contact me on 02 6229 7119. Additionally we will be offering BGGW events on frog habitat, woodland birds, site management and monitoring.

Presentation to school classes by Threatened Species Officers (DECCW) in the Wagga Wagga and Orange areas on threatened species day September 7th, enthused young children and introduced them to the concept of "threatened species". The mother of one of the children involved, relayed this story to me: "When walking down the front path two young boys saw a slug and one brother went to tread on it, only to be stopped by his younger brother who said "Be careful it might be endangered"."

In recognition of the crucial role linear roadside reserves play in providing landscape connections for Box-Gum Grassy Woodlands, a workshop attended by 80 people, was held in Canberra with speakers from Northern NSW to Victoria. I have tried to become "with it" and create youtubes of presentations that I think the CMN members would enjoy so this will be the first of many. Abstracts and links to "On The Road Again - Linear Reserves" presentation youtubes can be found at www.gbwcmn.net.au.

The CiL team is looking forward to working with the Cross Property Biodiversity Planning particpiants, excited that land managers are keen to be involved in thinking beyond their property boundary and willing to consider the needs of woodland species.

I hope to catch up with many of you in the New Year as Cil roles out further activities. In the mean time I hope you enjoy the newsletter!

A Framework for Improving Habitat on the Farm - some basic principles

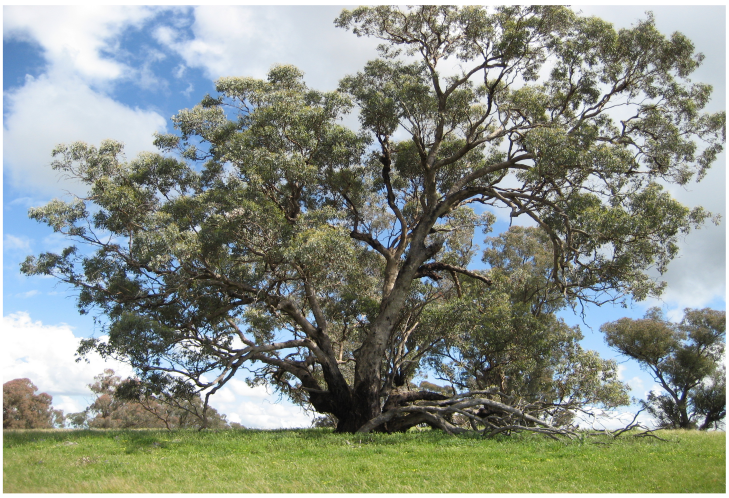
Susan Jackson DECCW

Key goals of cross-property biodiversity conservation planning are to improve habitat and improve connectivity between habitat patches.

Providing a range of habitat types is also important, as different plants and animals have different needs and may have a different tolerance to disturbance. Some species thrive in open grazed paddocks, while others cannot live, or even move readily through these areas. The overall success of a plant or animal in the landscape depends on:

- What comprises habitat for that species;
- How much of that habitat remains in the landscape;
- How far the species is able to move or disperse through non-habitat;
- How the remaining habitat is distributed across the landscape.

Habitat? For this small spider, a couple of Showy Copper-wire Daisies (Podolepis jaceoides) are home. Photo taken at Milo Road, near Murringo, NSW. Photos by Susan Jackson.



This huge eucalyptus tree (over150 years old) also provides fantastic food and shelter for many organisms. A huge area of bark with crevices and large surface area, lots of smaller branches, foliage and nectar resources. Big old trees offer proportionally many more resources than younger trees while protecting fauna from predation while moving around the landscape. Litter re-cyling too.

Typical farms have small patches of remnant woodland and different elements of habitat provided in nearby areas. Finding a way to mesh these different areas together, so the component patches can function like one larger patch is critical to connect organisms (both plants and animals) across the landscape:

- allowing breeding between different populations, retaining genetic diversity and health;
- allowing dispersal of young;
- allowing seasonal movements to meet needs for food and shelter; and
- enabling recolonisation into an area affected by an adverse events such as a fire. If this is prevented, that patch will become simplified, with fewer species.

Creating a mesh of habitat across the landscape, including highly fertile areas near creeks (which provide food, water and shelter in summer and droughts when they are scarce in the hills) will best allow organisms to cope with reduced amounts of habitat.

A basic approach - look for simple solutions!

Do you have areas that are impractical to graze (too rocky, isolated by a creek) or rarely grazed (laneways, mostly cropped)?

These areas may be good places to consider improving as habitat by planting scattered trees & shrubs, spreading native grass seed etc.

Improve existing habitat patches - aim for minimum 10 ha ideally:

- Enlarge by infill planting to nearby trees and patches;
- Expand and improve shape; and
- Then consider adding other habitat elements (fallen logs, different grasses, wattles etc) and grazing sympathetically.

Concentrate on linking remnants that are no more than 1 km apart

Link patches using the most basic connection:

- Plant as needed to have scattered trees closer than 70m apart;
- Concentrate on protecting and restoring scattered paddock trees over whole paddocks;
- Then add groves of trees, fallen timber, shrubs etc to corridors or paddocks;
- Try and protect rocky areas for both reptiles and plants; and
- A minimum 100m wide corridor with these qualities qualifies as a patch if it is 10 ha in size.

Build intermediate patches if the distance between patches is >1 km:

- Avoid building corridors from good habitat out to small, isolated remnants. Fauna may try to breed in these patches and find there are insufficient resources to successfully rear young, or there is no nearby habitat for their young to disperse to;
- When trying to build links to such patches, try to build multiple links or continuous habitat (scattered trees) to reduce this risk;

Try and increase structural complexity at both a paddock and farm scale:

- Have patchiness in grazing systems – whatever your normal grazing regime (set-stocked, rotational, high density short duration) consider changing it in some areas, or for some periods. Some animals and plants like more bare areas while others like dense tall tussocks; and
- Have clumps and thickets of shrubs and trees Try and include fertile areas – not necessarily "locked up" but carefully managed to protect wildlife.

The north-western edge of Yellow Waterholes TSR, near Young, has a high cover of annual grasses and broad-leaved weeds. This is due to fertiliser-rich dust that is blown onto the site from adjoining crop land. Each time there is a big wind or dust storm, nutrients are blown into remnants like this. This is one reason that habitat patches should be as compact as possible (i.e. square or circular in shape, rather than long and narrow), and a size of 10 hectares is recommended as a minimum, as these edge effects can encroach more than 100 metres into the patch.
Photo by Susan Jackson.

An Evolving Property Plan for Properties "Boona" and "Cains"

Roger Warren & Susan Jackson DECCW

Roger Warren is building habitat and connectivity on his properties "Boona" and "Cains", near Boorowa. Roger's properties total about 1000 ha and have previously been partly cleared, and cropped by his father and then himself. Roger's properties have a mix of improved pastures, native pastures based on weeping grass, wallaby grass, spear grass and common wheat grass, as well as areas with diverse native grassland and woodland.

Sparked by an interest in superb parrots, Roger started habitat enhancement works about 15 years ago, with help from Greening Australia, NPWS, Landcare and the Lachlan CMA. Around 100 ha of the property is now managed in fenced tree and shrub plantings and he also retains fallen timber and dead trees and protects paddock trees in both pastures and crops. His farm provides shelter for many woodland birds, as well as squirrel gliders.

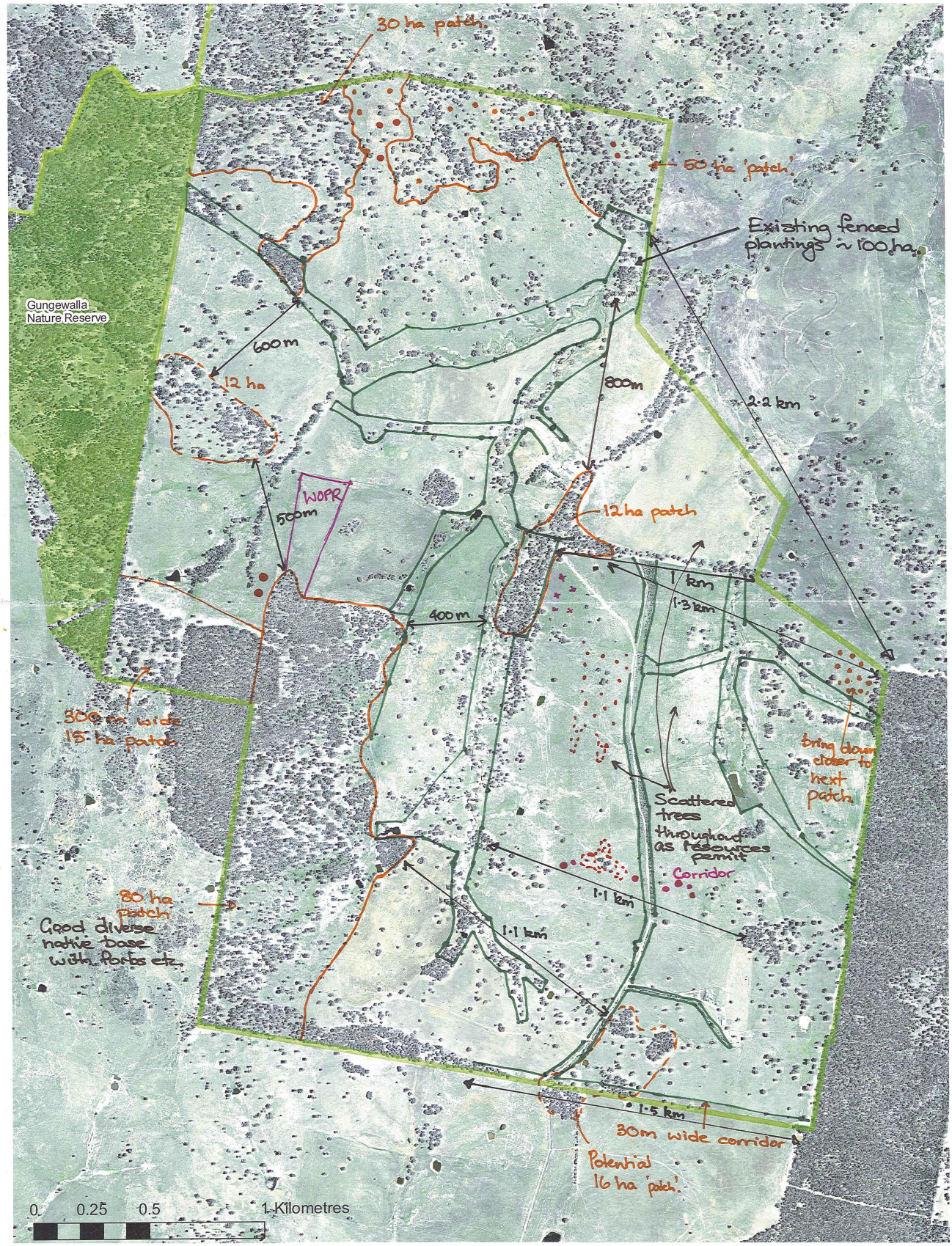
Roger also noted the stable performance of native pastures through the drought and is exploring practices such as pasture cropping and strategic grazing to increase species diversity and perenniality.

Roger is participating in cross-property planning to identify further options to improve biodiversity and production outcomes on his land. Options which include planting back of paddock trees at woodland spacings across the balance of his property fo the benefit of production and fauna.

Further Reading

Best, K., McIvor, J., Green, J., MacLeod, N., McIntyre, S. and Martin, T. (2001) *Balancing Conservation and Production. Understanding and Using Landscape Thresholds in Property Planning*. CSIRO. www.cse.csiro.au/publications/2001/balancingbooklet.pdf

***Managing and Conserving Grassy Woodlands*,Edited by: S McIntyre, JG McIvor, KM Heard' CSIRO Sustainable Ecosystems (264 pages) Publisher: CSIRO Publishing 2004**



Guidelines for Connectivity Management and Restoration in Australia. Veronica A.J. Doerr, Erik D. Doerr and Micah J. Davies. CSIRO Sustainable Ecosystems www.environmentalevidence.org/.../ManagementguidelinesSR44.pdf

Doerr, VAJ, Doerr, ED, and Davies, MJ. 2010. Systematic Review #44: *Does structural connectivity facilitate dispersal of native species in Australia's fragmented terrestrial landscapes? Collaboration for Environmental Evidence*: Bangor, UK. (available online at: http://www.environmentalevidence.org/Reviews.htm)

Farms as Sanctuaries for Threatened Reptiles and Frogs on the Central and Southern Tablelands of NSW.

David Hunter DECCW NSW

The Central and Southern Tablelands and South Western Slopes of New South Wales are home to some of Australia's unique reptile and frog species. This includes five reptiles and four frogs that have been listed as threatened at either a State or national level. The reason for their listing is that they have contracted from a large proportion of their pre-European settlement range, and there is now concern that without specific management to protect them, they will continue to decline through to extinction in the near future. In most cases, these declines have occurred due to loss of suitable habitat, but in the case of the frogs, the declines are also the result of a disease caused by infection with a pathogen known as the Amphibian Chytrid Fungus (*Batrachochytrium dendrobatidis*). This pathogen was only recently introduced into the Australian environment, and has caused the rapid decline of over 30 species along the eastern ranges, including several which may be extinct, as they have not been observed in the wild since their initial population crash.

A notable feature of the threatened reptiles and frogs occurring in this region is that they primarily occur on private properties in the rural landscape (see Table 1). This is partly due to the fact that many of our vegetation communities and ecosystems are poorly represented in the national reserve system (e.g. national parks).

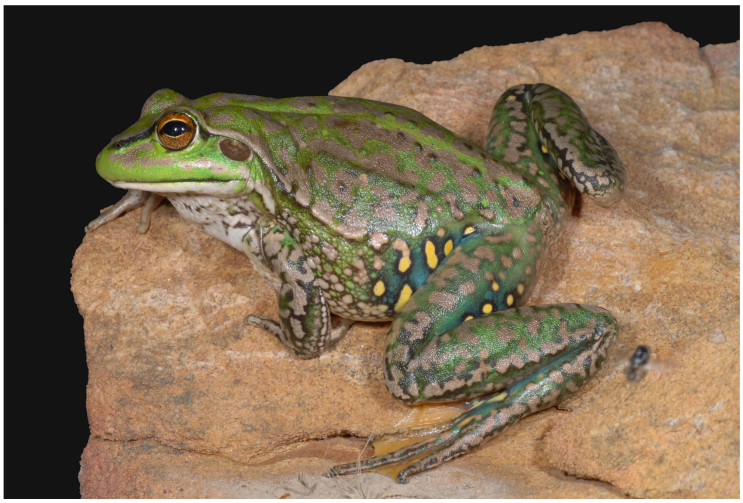


Photo 1. Rediscovered Yellow-spotted Bell Frog found persisting on a farm near Yass. (D. Hunter)

For example, there are only two small nature reserves in NSW with suitable natural temperate grassland habitat for the Grassland Earless Dragon (*Tympanocryptis pinguicolla*). Hence, nearly all this species' distribution is on freehold land, particularly on the sheep and cattle grazing properties of the basalt plains of the Monaro Tablelands.

Common Name	Scientific Name	% Distribution on Private Property	National Listing (EPBC Act)	NSW Listing (TSC Act)
Booroolong Frog	*Litoria booroolongensis*	80	Endangered	Endangered
Green and Golden Bell Frog	*Litoria aurea*	95	Vulnerable	Endangered
Southern Bell Frog	*Litoria raniformis*	No known extant populations	Vulnerable	Endangered
Yellow Spotted Bell Frog	*Litoria castanea*	100	Endangered	Critically Endangered
Grassland Earless Dragon	*Tympanocryptis pinguicolla*	90	Endangered	Endangered
Striped Legless Lizard	*Delma impar*	80	Vulnerable	Vulnerable
Pink-tailed Worm Lizard	*Aprasia parapulchella*	95	Vulnerable	Vulnerable
Rosenberg's Goanna	*Varanus rosenbergi*	80	Not Listed	Vulnerable
Little Whip Snake	Suta flagellum	95	Not Listed	Vulnerable

Table 1. Threatened Reptiles and Frogs on the Central and Southern Tablelands, and the approximated proportion of range on private property.

Similar trends exist for threatened frogs. For the Booroolong Frog (*Litoria booroolongensis*), 12 of the 16 streams where it occurs on the South West Slopes flow through private properties. Moreover, the Yellow Spotted Bell Frog (*Litoria castanea*) (Photo 1) was thought to be extinct, until fisheries officer Luke Pearce discovered a population on a farm near Yass whilst conducting surveys for the endangered Southern Pygmy Perch (*Nannoperca australis*). This large and spectacular frog was once common and well known to farmers across the tablelands, and so its rediscovery offers an opportunity to ensure its persistence and re-establishment across many areas where it previously occurred. Finding threatened species in the rural landscape provides exciting opportunities to combine sustainable farming practises with biodiversity conservation, and highlights the fact that we cannot rely on our national reserve systems for the conservation of our unique species.

Combining Agricultural Production with Biodiversity Conservation

The fact that many of our threatened reptiles and frogs have persisted on land that has been part of a productive landscape for over one hundred years is testimony that the two can go hand in hand. While this has historically occurred coincidentally, if we are to prevent the further decline and possible extinction of these species, it is necessary to become more strategic about ensuring their persistence in the agricultural landscape. An important starting point is gaining an understanding of where the different species occur and their key habitat requirements. This allows for the development and implementation of management practises that should hopefully benefit both the species and the farmer. A good example of this is the habitat requirements of the endangered Grassland Earless Dragon (Photo 2) in areas of sheep and cattle grazing. The dragon requires good native grass structure for refuge from predators such as birds and foxes, and it is also home for the arthropods (e.g. insects and spiders) that this lizard feeds on. A good cover of grasses and forbs will also protect the soil from erosion, and maintain suitable soil structure for the different animals that create the burrows that the lizard uses for shelter, such as wolf spiders and crickets. This can be easily achieved by maintaining native pastures at a minimum height of 10 centimetres. Restricting stock from grazing tussocks below 10cm should also benefit the productivity of the paddock for livestock, as the grass will be able to grow more rapidly when stock has been removed, providing a greater abundance of green pick.

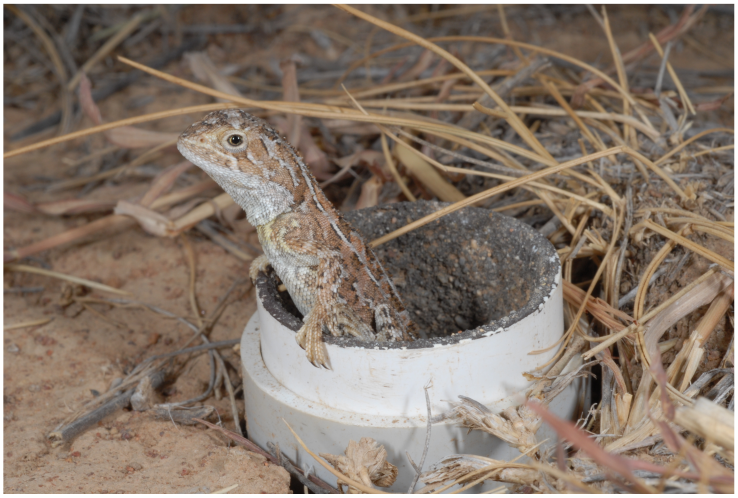


Photo 2. A Grassland Earless Dragon sitting at the entrance of an artificial spider burrow that is used to survey for this species.

The Booroolong Frog on the South-Western Slopes is also a good example of threatened species conserved in productive agricultural systems. A study found that the persistence of this frog along streams was most strongly influenced by the abundance of rock crevices within the stream environment.

Photo 3. Mating Booroolong Frogs depositing eggs in a rock crevices. Protecting this species requires ensuring weeds and sediments do not fill the crevices along rocky sections of stream.

Rock crevices are important to the Booroolong Frog, as this is where it lays its eggs (Photo 3). Loss of rock crevices in the agricultural landscape is typically the result of sedimentation from ongoing stream erosion, and the proliferation of weeds such as willows. To assist the conservation of the Booroolong Frog, and increase the general river health, the Murray and Murrumbidgee Catchment Management Authorities have entered into a riparian restoration program with many property owners across the South West Slopes. Much of this program involves weed management and restricting stock access within the riparian zone. Stock are not totally excluded, but rather the riparian zone is treated as a separate paddock that receives strategic grazing to primarily assist with weed management. The re-establishment of native riparian vegetation is the ultimate goal of this program, as this will stabilise the stream banks, and reduce the capacity for weeds to colonise sections of stream that lack vegetation. These actions not only benefit the Boorolong Frog, but improves water quality for domestic stock.

Importance of Habitat Size and Connectivity

The overall decline of a species is typically the result of multiple threatening processes, some of which can be more easily controlled than others. For example,

reducing the rate of habitat loss should be easily achieved; it just requires a willingness on the part of broader society to alter the practises that cause this habitat loss. On the other hand, reducing the impact of threatening processes such as disease or severe drought may be more difficult. However, by reducing the impact of processes we have control over, we will increase the capacity for species to persist in the face of those processes we have limited control over. This is certainly the case for the Grassland Earless Dragon and the Booroolong Frog with respect to predicted increases in drought severity and frequency. Extreme droughts cause these species to greatly decline in numbers and contract in range, as was observed during the drought period from 2002 to 2009. In some areas, these species appear to have become locally extinct.

Avoiding local extinction during drought events relies on the presence of suitable drought refuges, and then scope for the animals to build up in numbers and recolonise areas once favourable rainfall patterns return. This emphasises the importance of habitat size and connectivity for ensuring our threatened species survive predicted climate change patterns in the near future. The greater the extent of habitat occupied by a species, the greater the likelihood that there will be sufficient refuges within that habitat to allow the species to persist during the tough times. For the Booroolong Frog, drought refuge is deeper pools that maintain permanent water, even when the rest of the stream has dried. Suitable habitat connecting these pools will then allow the species to re-establish a strong population that will be fit to face the next challenge. At this stage we do not know what constitutes drought refuge for the Grassland Earless Dragon, but presumably it is areas that retain greater soil moisture. It is likely that this lizard requires suitable habitat over a range of elevations within an area, all connected so that over the course of time the population can shift its position in the landscape in response to annual variation in conditions.

The conservation of threatened species is one component of efforts to achieve a healthy ecosystem across the landscape. The different approaches to achieving this broader objective are complimentary, and typically involve the same on-ground actions: habitat protection and enhancement. Protecting habitat for species such as the Grassland Earless Dragon and the Booroolong Frog has far reaching benefits for many other species and ecosystem processes. Moreover, enhancing ecosystem health in the agricultural landscape should provide benefits to farmers, in particular, providing greater resilience to predicted climate change. Hence, efforts to ensue the persistence of our biodiversity in the agricultural landscape should also assist in maintaining viable agricultural businesses into the future.

Restoration Management of Woodland Ecosystems - *The Importance of Scientific Process.*

Andrew W. Claridge

DECCW, Parks and Wildlife Group, Planning and Assessment Team, Southern Ranges Region, Queanbeyan, NSW.

The Importance of Scientific Process

When it comes to restoration of woodland ecosystems there are many uncertainties. Accordingly, the outcomes of rehabilitation efforts are not always predictable, despite best intentions. In such a circumstance, hindsight is never in short supply and foresight is a rare commodity, proving very frustrating for the practitioner! Too often it can be said that an outcome of a restoration program might have been very different had an alternative path been followed, or a different choice made at a critical moment. Notwithstanding these challenges, in any restoration effort it is essential that a scientific process be followed, if only to ensure that lessons can be better learned and documented along the way and improvements made for next time. That said, what are the key steps or components involved in a scientific process?

The first step in a scientific process is to form an idea or a hypothesis, a term translated from the Greek meaning 'to put under' or 'to suppose'. Put simply, a hypothesis is an idea whose merit requires formal testing, such that is either confirmed or refuted. More often than not, a hypothesis is formed after a period of observation, or generated from past experiences. For example, it could be hypothesised that in a woodland restoration program the successful establishment of native seedlings might depend on whether or not weed control is undertaken at a site prior to planting. This is because many weedy species out-compete native species for vital resources such as nutrients and water. In this case, the null hypothesis or default position is that weeds play no role in whether or not native seedlings successfully establish after planting. Within an experimental framework, this null hypothesis is paired with an alternative hypothesis, that is to say that weeds will indeed affect the successful establishment of native seedlings. Falsifying one or the other hypothesis will depend on the outcome of subsequent experimentation – the second component of the scientific process.

Hypothesis testing typically works by collecting data in an experiment and measuring how statistically probable the data are, assuming the null hypothesis is true. If the data are highly improbable (more often than not defined as a one in 20 event or less), a conclusion can be reached that the null hypothesis is false and that the alternative hypothesis is supported. Conversely, if the data does not contradict the null hypothesis then no conclusion is made. Practically, hypothesis testing involves performing the same experiment on multiple subjects, each of which is considered a replicate sample. The total number of replicates is defined as the sample size. Establishing what a minimum sample size should be in an experiment is often tricky, and will depend on a myriad of factors including how variable the response of the replicates to any given treatment is. Generally however, the greater the sample size, the more precise the measure of effect. In any case it is wise when conducting an experiment to seek early advice from a biostatistician – somebody who has the skills to deal with such challenges. Where such resources are unavailable, consultation with people who have conducted similar experiments previously, or undertaking a review of published literature, can offer alternative insight.

In conducting an experiment it is vital to know that the variables or factors of interest are key to affecting the observed outcome. To better establish this, scientific controls are put in place. Such controls are a core part of the scientific process. In a resultant controlled experiment, two sample groups are thus defined: an experimental (or treatment) group, and a control group. The control group is ostensibly identical to the treatment group, apart from the single variable of interest being tested. In an ideal experiment, individuals or replicates should be randomly assigned to treatment or control groups to avoid bias. Furthermore, it is helpful to have equal sample sizes within treatment and control groups for easier statistical analysis.

A key component of the scientific process is to document the methods that you have used throughout the experiment, to the extent that they could be reconstructed again by you or others. This is critical in situations where the experiment needs to be repeated for further validation of a hypothesis or to build confidence that a key finding is able to be applied elsewhere.

Critical to the scientific process is collaboration, or seeking peer or expert review, as already mentioned above in the case of seeking assistance from a biostatistician.

Ideally this should be done iteratively during a research program, from inception of early ideas to generation of formal hypotheses, through development of a methodology to test those hypotheses, analysis of data from subsequent research and interpretation of findings from that analysis. Key to overall success will be bringing together a team of people that bring different skills and experiences to the table, making for a better overall product. If the skills and experiences of that team are too narrow then the research may have failings or shortcomings, and the application of related findings may be limited. Thus, in a woodland restoration program, a good team may include (but not necessarily be limited to) plant and animal ecologists, soil biologists, horticulturalists, biostatisticians and people with farming backgrounds.

A Practical Example

Consider the following practical example of a scientific process, as it applies to a program aimed at restoring a degraded woodland ecosystem. One of the major objectives of this notional program is to restore a particular species of eucalypts back into the system, first by propagation of seedlings in a nursery and then out-planting of those seedlings in the field. As part of the program, it is felt that subsequent survivorship of seedlings in the first year of planting-out might be improved by inoculating their roots with the spores of a known mycorrhizal fungal associate. Practically, this is achieved by dipping the roots of the seedlings in a standardised volume of spore slurry as they are being planted. From a biological standpoint there are good reasons to believe that doing this might be beneficial to the seedlings, since mycorrhizal fungi are: (i) generally known to improve the nutritional status of their plant hosts, and (ii) confer drought tolerance to their hosts by virtue of being able to better access water in soils relative to uninoculated roots. That said, many factors might influence whether a seedling survives in the wild once planted-out and mycorrhizal status may not be the most critical of these.

Within the framework of the scientific process then, a starting hypothesis would be something like "does the survivorship of planted-out eucalypt seedlings improve if they are inoculated with a known mycorrhizal fungal associate?" Put another way, the null hypothesis would be that there are no significant differences in the survivorship of mycorrhizal and non-mycorrhizal seedlings. Similarly, the alternative hypothesis would be that there are significant differences. An experiment could then be set up to test these competing hypotheses. First, a batch of seedlings would be propagated under the same nursery conditions for the same period of time. From these, seedlings of similar condition would be randomly allocated to one of two groups: a 'treatment' group where roots were inoculated with a standardised slurry of fungal spores at time of planting-out, and a 'control' group where roots of seedlings remained uninoculated when being planted. Ideally, a large number of seedlings in each of the treatment and control groups would be planted at a range of sites, selected on the basis of being as similar as practicable in key environmental attributes such as soil type, aspect, position in slope and existing vegetation composition. Careful site selection is necessary at this stage to reduce the possibility of observing highly variable responses of the planting-out seedlings due to other factors. Once planted-out, all seedlings would be managed in the same way and monitored over a suitably long enough period of time to establish rates of survivorship. Aside from measuring survival, seedling growth and condition could also be measured over the same timeframe. Differences in survivorship and growth between treatment and control plants could then be statistically analysed to see whether mycorrhizal inoculation makes a difference.

The alternative to following this scientific process would be to simply assume either that mycorrhizal inoculation won't make a difference to seedling success, or alternatively that it will and treat all seedlings with fungal inoculum at time of planting-out. Of course, neither approach answers the above hypothesis and requires a leap of blind faith either way. From a practical point of view, if there is no benefit in inoculating seedlings, it may simply be a waste of time and resources that could otherwise be allocated to other aspects of the restoration program. On the other hand, if inoculation makes a large difference to seedling survivorship, efforts to restore the woodland would be made more efficient, potentially saving time and resources in the long run. The only way to establish the truth is rigorously and objectively test for it.

Recognising the Value of Scientific Process

Ultimately, the key is to recognise under what circumstances the scientific process can be of value, as opposed to being an unnecessary component of what you do (i.e. doing science for science sake). As a rough rule of thumb, adopting scientific process is best when there is uncertainty over the outcome of a certain action. Thinking about it, this applies to most situations when it comes to the restoration of natural ecosystems since there is always something new to learn and hard and fast rules are hard to come by.

Fungi of the South - West Slopes

David Orchard (author and photographer)

Fungi play a vital role in the recycling of nutrients through ecosystems. Many species secure their nutrient requirements by breaking down organic matter. The nutrient matter that is 'locked up' in fallen timber and leaf litter can be released into the soil, improving overall soil nutrition. Fungal fruiting bodies are generally short-lived, and their death can result in the freeing up of nutrients. Some species auto-digest (that is, the fungal organism release an enzyme that causes the fruiting body to decay), whereas others are broken down by insects or other fungi. Some species, especially the truffles, form an important part of the diet of many native mammals.

A microfungus parasitising a macrofungus.

Australia's fungal flora is sadly not well known. The fungus species we do know tend to be those with a negative agricultural impact: the rusts, smuts, moulds and mildews. These are called the microfungi. The macrofungi, on the other hand, tend to be absent from the agricultural landscape. All fungi with easily visible fruiting bodies (the mushrooms, toadstools, puffballs, earth stars, brackets and so on) belong to the macrofungi. It is this latter group that has been neglected; the mycologist A. M. Young estimates that of the (perhaps) 20,000 species of macrofungus found in Australia, only a quarter have been formally described.

The purpose of this article is to introduce a few of the more distinctive species found in the South-west Slopes bioregion of New South Wales. Identification to species level has not always been possible.

Small Dung Buttons (*Poronia erici*)

Many of our macrofungi are saprotrophic, feeding on decaying organic matter. Most saprotrophs are found on rotting wood, but *Poronia erici* is a dung specialist (coprophilic). The individual buttons are generally only a few millimetres in diameter and are most often found on kangaroo scats.

Bird's Nest Fungus (*Cyathus stercoreus*)

Cyathus stercoreus can be seen here growing on cow dung. Like *Poronia erici*, it is chiefly coprophilic, but it can also be found growing on leaf litter. The small seed-like bodies are called peridioles. The peridiole is a spore-carrying body, and is dispersed by rainfall.

Resupinatus cinerascens

Resupinate fungi produce tiny disc-like fruiting bodies on the underside of rotting wood. Fruits of *Resupinatus cinerascens* tend to be less than one centimetre in diameter. Earth Stars *(Geastrum triplex):* There are a number of *Geastrum* species found in the area, almost always growing in deep leaf litter.

***Mycena* sp.**

Mycena is a very large genus of often very small fungi. They can be found growing on rotting wood (as in the above example) or directly on soil. *Mycena* species display considerable variation in colour, from the white of *Mycena pura* to the blue of *M. interrupta* and the rosy pink of *M. kurramulla*. Mycena species are often very difficult to identify.

Pisolithus species are often seen growing out of gravel on roadsides, but can also be found in woodland areas. They can grow singly or in large, crowded clusters. Most species are brown with black mottling and can reach 12cm or more in diameter.

Horse Dung Fungus *(Pisolithus sp.)*

Amanita sp.

Members of the genus *Amanita* (and related genera, including *Agaricus*) are often referred to as 'agarics' or 'true mushrooms.' The name 'true mushroom' refers only to the presence of a cap (pileus) and gills (lamellae), and not to edibility. Many agarics are in fact highly toxic, including the Fly Agaric *Amanita muscaria* and the Death Cap *Amanita phalloides*, both of which have been introduced to Australia. *Amanita* species can be very large, the caps reaching 20cm or more in diameter.

There are hundreds, possibly even thousands, of macrofungus species existing in the South-West Slopes bioregion. In all likelihood there are many undescribed species waiting to be found here. With the emergence of the Fungimap project and the publication of several excellent (though inevitably limited) field guides, there is some hope that we may one day achieve a greater understanding of our unique fungus population.

Wattles – The Heart and Soul of our Woodlands

By Rainer Rehwinkel

(Senior Threatened Species Officer, Biodiversity Conservation Section DECCW Queanbeyan)

"This here's the wattle, the emblem of our land. You can stick it in a bottle, you can hold it in your hand."
Monty Python

Wattles, members of the genus *Acacia*, are a very important part of Australia's flora. Indeed, the Golden Wattle (*Acacia pycnantha*) is Australia's floral emblem. There are nearly 1000 wattle species in Australia, and many of these are found in our grassy woodlands. Woodland wattles range in size from the tiny Ploughshare Wattle (*Acacia gunnii*), which usually grows no taller than 30 cm on the Southern Tablelands, to the stately Blackwood (*A. melanoxylon*) of cool-climate Snow Gum Woodlands. In between are the Silver Wattle (*A. dealbata*), several black or green wattles (*A. mearnsii, A. deanei, A. parramattensis, A. decurrens*), the Kurrawang (*A. doratoxylon*), Hickory (*A. implexa*), Showy Wattle (*A. decora*), Early Wattle (*A. genistifolia*) and the Kangaroo-thorn (*A. paradoxa*), to name some of the more important woodland species.

Wattles have been much-maligned. They are sometimes grubbed out of pastures because of a perceived pasture-competition effect. They have often been shunned in new plantings because they are mostly short-lived. Wattles have important value in the agricultural landscape, providing shelter for stock, fodder in times of drought, firewood, and in some cases, timber. Wattles also have very important ecological roles, which is what this article focuses on.

Much of the information in this article is supported in, or gleaned from a number of websites (see the reference list, below), which the reader is urged to visit for more information.

Landscape Function

Most wattles are pioneer plants, rapidly colonising disturbed areas from buried seed that has been able to stay dormant in the soil for many years. It is common to see wattles rapidly colonising sites after a bushfire or in areas where the soil has been disturbed. Their role is to grow quickly and live for a relatively short period of time. While they are growing, they improve the soil and site conditions, making way for other plants in the community, such as eucalypts and grasses.

While they are growing, wattles accumulate large amounts of leaf litter, twigs and empty seed pods on the ground beneath their canopies. This accumulation of organic matter assists in preventing soil erosion. When they die, the wattle's hard wood decomposes, adding more organic matter to the soil - in other words sequestering carbon.

Golden Wattle (*Acacia pycnantha*), Australia's floral emblem. This is from an isolated population from the Queanbeyan area (Tralee, NSW). Photo by Rainer Rehwinkel.

Wattle seeds have a particularly hard coat, adapted to remain in the soil until conditions are right for germination. The seeds may lie dormant for decades. The heat from a bushfire, or high summer temperatures, or scarification by wind-blown sand, act to break the seeds' dormancy. This explains why wattles are often seen germinating in exposed sites or after fires. This provides a clue to germinating wattles for your own use: it is necessary to break the seed's dormancy and the best way to do this is by pouring just-boiled water over the seeds and allowing them to soak for a day before planting. Alternatively, you can lightly scarify the seeds between two sheets of sandpaper prior to sowing.

Nutrient and Water Cycling

The cycling of organic material during and after the life of the plant is part of the carbon cycle. Carbon is captured by photosynthesis and stored in living tissues (leaves and sapwood) and dead material (heartwood). When these are no longer required by the living plant,

part of the carbon is returned to the atmosphere as carbon dioxide and part of it is locked up in the soil as soil carbon.

Early Wattle (*Acacia genistifolia*), a prickly shrub, which as its name suggests, flowers very early in the season. This one is at Brooks Hill Reserve, near Bungendore NSW. Photo by Rainer Rehwinkel.

Another important function that wattles have is their role in nitrogen cycling. Like all legumes, they have nodules on their roots that contain nitrogen-fixing bacteria. The bacteria extract atmospheric nitrogen and make this essential nutrient available to the plant. However, there is generally surplus of nitrogen around the base of wattles (and other legumes), which benefits other plants. It is not uncommon to see bright green Weeping Grass (*Microlaena stipoides*) growing vigorously under large wattle trees. The nitrogen that grass accumulates is, in turn, available to build protein in the animals that eat it.

Some wattles also have an association with mycorrhiza, fungi species that extends the plants' root systems. Micorrhyzal fungi have a role in extracting phosphorous for the plant's use. Additionally, some wattles have so-called cluster-roots that grow near the soil surface. These specialised roots enable the plant to capture nutrients from decomposing litter.

Many wattles are arid-adapted. They achieve this through a variety of mechanisms. Many species have phyllodes (not true leaves but flattened leaf-stalks) which, unlike leaves have thicker coatings and fewer stomata (sunken pores), which serve to reduce water loss. Many wattle phyllodes have a waxy or hairy coating, further reducing water loss. So-called pinnate wattles (those with feathery leaves) have the ability to fold their leaves in dry conditions. This also reduces water loss in wattles.

Wattles' roots systems are also adapted to maximise water intake. Species from wetter areas have shallow root systems. Those with shallow cluster-roots are able to benefit from light rainfall events. This feature may enable these species to out-compete other plants in their ecosystems that have deeper root systems. Species from arid areas have both shallow and deep root systems, which enables them to benefit from both light rainfall and deep soil moisture.

Food and shelter

Wattles appear relatively common throughout our landscapes. However, this is often an impression gained from those wattles growing in roadside reserves. To quote Ian Davidson, formerly of Greening Australia at Albury: "we see the landscape through the lens of the roadside". In reality, wattles are uncommon in most grazed pastures. While the foliage of adult wattles is relatively nutrient-poor (though some species are used as fodder in times of drought), the freshly emerged seedlings would be readily eaten by sheep and cattle. Without reserves of nutrients to support them, and no capacity to accumulate them (as eucalypts do with their lignotubers), wattle seedlings appear particularly vulnerable to grazing.

In other ways, wattles are resource rich. They produce masses of flowers, which, though they have no nectar, attract many insects, which in turn provide food for a host of insectivorous birds. The insect pollen vectors are beetles, and the wasps that prey on thrips and mites that feed on the flowers. The pollination by wasps is therefore incidental. Native bees and the Honeybee (*Apis mellifera*)

Green Wattle (or Black Wattle) (Acacia mearnsii) in bud, showing its feathery (pinnate) leaves. Taken at Mt Ainslie Reserve, ACT, by Rainer Rehwinkel.

collect the pollen of wattles, and in the process are pollen vectors as well. Wattle pollen is high in protein.
The flowers are followed by pods, which contain highly nutritious seeds. These are sought after by many animal species. The vulnerable Superb Parrot (*Polytelis swainsonii*) is particularly fond of wattle seeds, as is the Common Bronzewing Pigeon (*Phaps chalcoptera*).

Ants are particularly fond of wattle seeds, though they do not eat the seed, but rather a fleshy attachment to the seed (known as an aril or funicle). This is an adaptation by the wattle to get the ants to carry the seeds off and away from the parent plants: the ants carry the seeds off to their nest, where they nip off the arils and discard the seeds. In so doing, the ants are effectively placing a buried seed store out of harm's way for the wattles to emerge at the next fire, or after erosion has exposed the seed-store years later.

Some wattles have bright red arils, which are designed to attract birds. In these species, the seed hangs onto the open pods by this attachment. The birds digest the aril and the hard-coated seeds pass through their guts, after which they germinate, once again, away from the parent plant.

Wattles have nectar glands, either on or near their leaves and phyllodes. These glands attract nectar-eating insects and occasionally, birds. Birds may cross-pollinate plants if they collect the nectar from phyllodes close to flowers.

Many wattles produce gum which is an important winter food resource for possums, particularly the Sugar Glider (*Petaurus breviceps*). An absence of wattles is thought to result in increased beetle attacks on eucalypts, as these are also a major food source of the Sugar Glider. Thus elimination of wattles from the landscape may be one of the many interacting causes of eucalypt dieback. Other possum species that are known to feed on wattle gum include the Feathertial Glider (*Acrobates pygmaeus*), and the Leadbeater's Possum (*Gymnobelideus leadbeateri*) of the tall wet forests.

The foliage, bark, wood and twigs of wattles are hosts to many insect species, some of which are confined to particular *Acacia* species. For example, alone in one family of thrips, there are 30 genera containing 250 species, and all are confined to the wattle genus in Australia. These thrips produce either galls, or other "domiciles" (for example, glued-together phyllodes) within which they live out their lives, feeding on the tissue of their wattle hosts. The wattle galls in turn are eaten by some birds, for example the Little Corella (*Cacatua sanguinea*). Cockatoos are also particularly fond of the large grubs of longicorn beetles that bore into wattle wood.

Wattles are favoured as habitat by birds, particularly small insectivores. Two small woodland bird species, the

Silver Wattle (*Acacia dealbata*), a tall shrub or small tree found in grasslands and grassy woodlands is one of the more showy of the wattles. Photo taken at Turallo Nature Reserve, near Bungendore, NSW, by Rainer Rehwinkel.

Yellow Thornbill (*Acanthiza nana*) and Brown Thornbill (*A. pusilla*), are especially fond of wattles. They rarely occur in patches of woodland without wattles. The bushy nature of wattles makes them particularly attractive as nest sites for many small birds, for example the Double-barred Finch (*Taeniopygia bichenovii*), Superb Fairy-wren (*Malurus cyaneus*) and Grey Fantail (*Rhipidura fuliginosa*). Some prickly species, for example the Kangaroo-thorn, are particularly favoured as nesting sites.

Interestingly, it seems that wattles, particularly the pinnate species such as Silver Wattle (*A. dealbata*), Dean's Wattle (*A. deanei*) and Green Wattle (*A. mearnsii*), have a role in the control of the problem of Noisy Miner (*Manorina melanocephala*) dominance in bush remnants. Noisy Miners often create large colonies in remnants, especially those that are small, isolated and/or lack an understorey. When miners are dominant, they tend to drive out most of the other small bush birds. Studies have indicated that planting a high cover of wattles, particularly the pinnate species, and if creating new plantings, limiting the overstorey to about 80% eucalypts, can have a deterrent effect on miners and will

increase populations of other small birds. Clearly this is not a solution to be advocated in woodland remnants with an intact grassy and forb-rich groundlayers, but would be recommended where a tree canopy remains and the groundlayer is severely degraded.

The material, above, highlights the many and interesting roles wattles have in our landscape. It is thought that wattles have been on our continent since its break-up from Gondwanaland about 60 million years ago. It is not a surprise to realise that there are so many ecological interactions that have developed in that time. Our Australian emblem has been much maligned and neglected. It is time bring them back into our woodland landscapes.

Acknowledgments

This is an adaptation of an presentation delivered at the "There's a hole in the landscape. Wattle fix it?" workshop, 1 September 2010, A Lachlan CMA Focus Landscapes Event. I acknowledge Mikla Lewis from the Lachlan CMA for giving me the impetus to write this article.

Reference websites

Below are the websites from which much of the above information has been compiled. The reader is urged to visit these sites – there is so much more information on wattles out there.

http://plantnet.rbgsyd.nsw.gov.au/PlantNet/wattle/ecol.html
http://anpsa.org.au/aca-feat.html
http://www.ento.csiro.au/thysanoptera/Symposium/Section8/43-Morris-Mound.pdf
http://www.une.edu.au/ers/staff-profile-doc-folders/steve-debus/debus-n-miner.pdf
http://www.understorey-network.org.au/newsletters/Newsletter36.pdf
http://www.worldwidewattle.com/socgroups/
http://www.anbg.gov.au/acacia/

Boree (*Acacia pendula*), a small tree found either in woodland formations or as isolated trees in grassland in Western NSW. This photo by Rainer Rehwinkel is from the Bland Creek area, NSW.

Greening Australia's Florabank & Box-Gum Grassy Woodlands

Penny Atkinson, Florabank Manager

Email general@florabank.org.au Phone 02 6202 1600

Greening Australia's Florabank is dedicated to increasing the availability of native seed for restoration projects around Australia. Florabank is a partner in the Communities in Landscapes project which is integrating conservation and production in Box-Gum Woodlands. To help people who look after Box-Gum Woodlands, Florabank is providing introductory training in seed collection for Box-Gum Woodland Species, and Fact Sheets about Box-Gum Woodland species, as well as other tools and resources on our website. Also as part of the Communities in Landscapes project, Florabank has also provided three professional development training courses for people already experienced at collecting seed, and will be developing six Seed Supply Strategies for Box-Gum Woodlands during 2011.

If you're interested in Box-Gum Grassy Woodlands and their restoration and conservation, then take a look at the Florabank website, particularly at the Communities in Landscapes pages http://www.florabank.org.au/default.asp?V_DOC_ID=1040.

Florabank Introductory Seed Collection Training in Box-Gum Grassy Woodland

In autumn 2011, Greening Australia's Florabank and Communities in Landscapes will be offering

FREE one-day workshops on

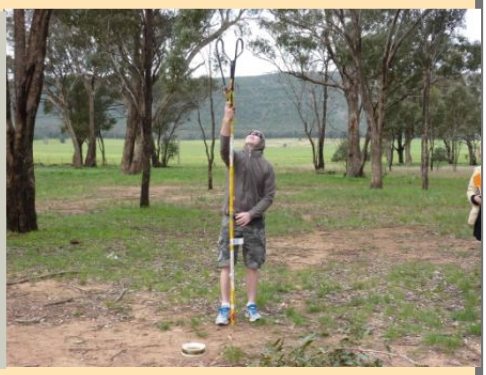
"Native Seed Collecting in Box-Gum Grassy Woodlands",
perfect for beginners and those with just a little experience.

9:00am – 3:00pm

Lunch provided

The workshops are being planned for Wagga Wagga, Yass, Wellington, Bathurst, Parkes and Young/Grenfell, but the dates and locations are still to be confirmed.
For more information, to express your interest or to book place contact your CWO's:

Murrumbidgee Catchment - Kimberley Beattie
kbeattie@landcarensw.org.au 0457 953 777
Lachlan Catchment - Kristy Lawrie
k lawrie@landcarensw.org.au 0457 953 778
Central West Catchment - Maryanne Smith
msmith@landcarensw.org.au 0457 953 779
Or visit our websites:
http://cil.landcarensw.org.au/
http://www.florabank.org.au/



If you're interested in attending, it would help us if you contact us now to express your interest so that we can get an idea of likely numbers and preferred dates. We had to postpone some workshops in November/December because we didn't get enough people booked in by the cut-off date, and we don't want that to happen again.

Florabank Fact Sheets on Box-Gum Grassy Woodland Species

Florabank's Species Navigator Fact Sheets bring together a range of ecological and taxonomic information about species. They are designed to make it easier for people to find out whether a species is suitable for their site, and how best to collect seed, propagate and establish it. To assist people who are learning about or working to restore Box-Gum Grassy Woodland, now 42 Florabank Species Navigator Fact Sheets for Box-Gum Grassy Woodland species are easily accessible from the list at the end of this web-page www.florabank.org.au/default.asp?V_DOC_ID=1043.

As a partner in the Communities in Landscapes project, Greening Australia's Florabank is providing information about Box-Gum Grassy Woodland species that can be used by people interested finding out more about, or restoring Box-Gum Grassy Woodland habitat. As part of the Communities in Landscapes project 40 additional Box-gum Grassy Woodland species will be added to the Florabank Species Navigator in 2011, bringing the total of Box-Gum Woodland species to 82, thanks to funding from the Australian Government's Caring for our Country.

The existing 42 Species Navigator Fact Sheets can be downloaded and printed from the Florabank website following this link: http://www.florabank.org.au/default.asp?V_DOC_ID=1043. Fact Sheets currently available for the Box-Gum Grassy Woodland Species are listed on the opposite page.Some of the Fact Sheets will also be printed and distributed to people attending Communities in Landscapes events.

About Florabank's Species Navigator

Florabank's Species Navigator www.florabank.org.au/default.asp?V_DOC_ID=924 is an online information tool for people interested in restoring native plant communities. It is an interactive key, with a set of fact sheets for each of the species in the key. You can also use the Species Navigator as an interactive key by following the instructions on the Species Navigator web page, and use the other associated tools on that page such as:

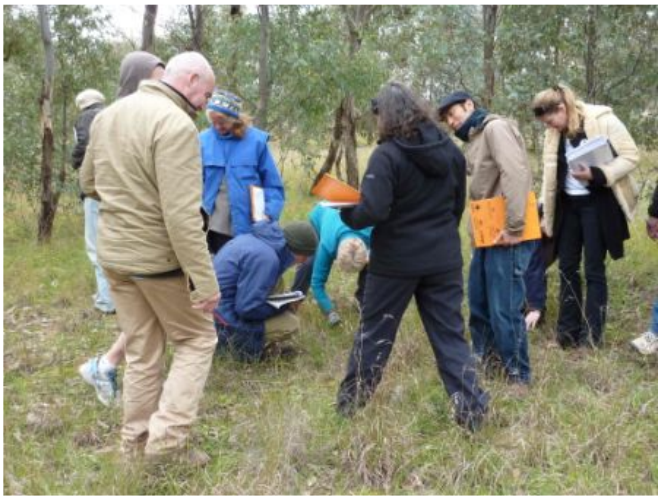
- Florabank's Site Description Tool:

This spreadsheet and information resource helps people to properly describe their restoration site so that they can get the best revegetation outcomes and get the most out of the Species Navigator; and

- Florabank's Seed Collection Advisor:

This interactive online tool assists seed collectors to collect from the right number and configuration of plants to obtain a good quality seed collection for the target species in their specific landscape context.

Florabank's Species Navigator, Site Description Tool and Seed Collection Advisor were developed by Greening Australia's Florabank in 2007-2008 in partnership with CSIRO's Australian Tree Seed Centre and with funding from the Australian Government's Natural Heritage Trust.



Florabank Professional Development Seed Collector training in Box-Gum Grassy Woodland

When you're looking for seed to restore your Box-Gum Grassy Woodland, ask your seed suppliers or collectors if they have done Florabank Training. Florabank-Trained Collectors have the skills needed to get the best outcomes from the seed they supply.

There are now 48 more trained seed collectors in Box-Gum Grassy Woodland areas, because Greening Australia's Florabank delivered three Florabank Professional Development training courses for seed collectors as part of the Communities in Landscapes project. The four-day courses were held in Orange, Wellington and Young during 2010 and 48 seed collectors were trained. The Florabank Professional Development Training course was developed in partnership with CSIRO's Australian Tree Seed Centre and designed for people who already have some experience seed collecting. The people who attended included professional seed collectors, nursery staff, NRM staff, Landcare and other community group volunteers who coordinated seed collection, seedbanks or nurseries, NGO staff, landholders interested in harvesting native seed as part of their enterprise, and TAFE lecturers.

We had great feedback from the three courses people really enjoyed mixing with others who were passionate about seeds and said things like:
"Thanks for the best training course I've ever done";
"I thoroughly enjoyed the learning, the presenters and the venue!";
"I will be able to assist staff already involved in seed collection in our organisation and input further ideas to improve our systems";
"More seed collector contractors should attend";
"Excellent opportunity and course. Thank You! "; and
"Our nursery hand said the class was great!"

From my point of view as Florabank manager, the best thing is that over 90% of people told us that they will change their workplace practices after the training courses as a result of what they learnt (the others already followed the correct practices or were adding new seed collection skills to their current work in native nurseries or restoration). Overall, people said that they learnt a lot and that the course was valuable to them. The topics people got the most out of included understanding seed

Fact Sheets are currently available for the following Box-Gum Grassy Woodland Species:

Acacia acinacea	*Casuarina cunninghamiana*	*Eucalyptus sideroxylon*
Acacia dealbata	*Daviesia genistifolia*	*Eucalyptus viminalis*
Acacia implexa	*Daviesia mimosoides*	*Goodenia rotundifolia*
Acacia melanoxylon	*Dodonaea viscosa*	*Hakea microcarpa*
Acacia rubida	*Dillwynia sericea*	*Hardenbergia violacea*
Allocasuarina littoralis	*Eucalyptus bicostata*	*Leptospermum polygalifolium*
Allocasuarina luehmannii	*Eucalyptus blakelyi*	*Leucochrysum albicans*
Allocasuarina verticillata	*Eucalyptus bridgesiana*	*Lomandra longifolia*
Austrodanthonia caespitosa	*Eucalyptus camaldulensis*	*Microlaena stipoides*
Austrodanthonia setacea	*Eucalyptus macrorhyncha*	*Poa labillardieri*
Brachychiton populneus	*Eucalyptus mannifera*	*Poa siberiana*
Bursaria spinosa	*Eucalyptus melliodora*	*Themeda triandra (australis)*
Callitris endlicherii	*Eucalyptus pauciflora*	*Vittadinia cuneata*
Callitris glaucophylla	*Eucalyptus polyanthemos*	*Xerochrysum viscosum*

provenance (sourcing seeds appropriately to suit the planting site), how to collect seed of good genetic quality, seed handling and storage to maximize seed viability and longevity, and seed production areas.

As a result of these three Florabank training courses in Box-Gum Grassy Woodland CMA Regions, there are now 48 more people from across the Box-Gum Grassy Woodland distribution with the ability to collect good quality seed to restore Box-Gum Grassy Woodlands. This should make a difference! These 48 people can influence conservation outcomes through their work talking to, teaching, and/or supplying seed and plants to landholders, seed buyers, volunteers, other NRM professionals, and the public. This will assist Communities in Landscapes to meet our project outcomes towards increasing native habitat, and increasing the knowledge and skills of land managers.

Extension to Communities in Landscapes Community Small Grants Scheme

The Communities in Landscapes (CIL) Community Small Grants Scheme is funded under the Australian Government's Caring for Our Country initiative.This initiative aims to assist community groups, schools and groups of landmanagers to achieve biodiversity outcomes by funding a range of initiatives which will improve the condition of critically endangered White Box, YellowBox and Blakely's Red Gum Woodlands, collectively referred to as Box-Gum Grassy Woodlands.

What sort of assistance is available?

The CIL Community Small Grants Scheme will provide funding of up to $3000 inclusive of GST to suitable projects within the Central West, Lachlan or Murrumbidgee catchments where improvement in the condition, capacity or understanding of Box Gum Grassy Woodlands can be demonstrated.

Examples of suitable projects include:

- Construction and installation of nesting boxes for habitat in box-gum grassy woodland devoid of hollows;
- BGGW photographic exhibition of people living in BGGW to raise awareness of your local natural communities;
- Local exhibition of community interactions with BGGW historically;
- Resources on BGGW management and species to be available in your local library;
- BGGW educational plantings in school grounds or community parks;
- Production of educational resources on a local iconic BGGW species;
- Musical event in a BGGW to connect people with their local environment;

Community Woodland Officers in your catchment are available to provide technical assistance to successful applicants. Application forms and further information is available on the Communties in Landscaped website. http://cil.landcarensw.org.au/smallgrants or phone CWO Kristy Lawrie on 0457 953 778.

Applications close January 29th 2011 and projects must be completed by July 31st 2011

Inside this Issue

This Woodland Wanderings newsletter was edited by Toni McLeish (GBW CMN) and Rainer Rehwinkel (DECCW) and was produced with funding from the Australian Government Caring For Our Country program. The views expressed in this publication do not necessarily represent those of either the Department of Environment and Climate Change & Water or the Department SustainabilityEnviroment Water Population and Communities. While every effort has been made to ensure that the information in this newsletter is accurate at the time of printing, neither the DECCW nor SEWPC can accept responsibility for any errors or omissions.

Making contact Grassy Box Woodland CMN
Network Coordinator c/oToni McLeish
PO Box 733 Queanbeyan NSW 2620
Phone: 02 62297119
toni.mcleish@environment.nsw.gov.au

Article deadlines for Woodland Wanderings:
Autumn 2011 March 31st Spring 2011 July 31st
Printed on Recycled Paper
Union Offset Printers are accredited FSC/PEFC print suppliers

Useful Resources

Eucalyptus identification
http://www.publish.csiro.au/samples/euclid/index.htm
Climate Change
http://www.environment.nsw.gov.au/climatechange/understanding.htm
Grassy Box woodland Conservation Management Network
www.gbwcmn.net.au
Threatened Species
www.threatenedspecies.environment.nsw.gov.au
Grassy Ecosystem Images
http://www.flickr.com/photos/nswgrassyecosystems/sets/

Contact your Community Woodland officer:

Maryanne	**0457 953779**
Kristy	**0457 953 778**
Kimberley	**0457 953777**

Opportunities

Training:

- Identify & protect Aboriginal cultural values
- Identification, management & propagation of targeted threatened flora species
- Adaptive management & monitoring

Workshops:

- Identification, management & propagation of targeted threatened flora species
- Seed collection, supply & production
- Landscan Farm Planning
- Frog awareness

Get Involved in:

Field days:

- Paddock Plant Field Days
- Threatened species habitat
- Woodland succession

Forming a BGGW manager support group

- Conservation agreements
- Best management practice
- Weed Management in conservation areas

Trialling the computer-based monitoring