TO CONTENTS

More than just the odd tree

Report on incentives and barriers to rural woodland conservation, using grassy White Box woodlands as a model

Jane Elix & Judy Lambert – Community Solutions

Research Report 1/98

National Research and Development Program on Rehabilitation, Management and Conservation of Remnant Vegetation

Land & Water Resources Research & Development Corporation

Bushcare

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Natural Heritage Trust

A better environment for Australia in the 21st Century

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Preface

Clearing of native vegetation from much of Australia's prime agricultural land has caused the widespread fragmentation of natural ecosystems, reducing their viability and threatening maintenance of native flora and fauna and the ecological processes upon which productive rural landscapes depend. The degradation of ecosystem processes in the agricultural zone is the result of a particular suite of ecological, economic, social and institutional circumstances. These must be understood before effective policies and programs to combat degradation can be established. Recognising this, the Land and Water Resources Research and Development Corporation (LWRRDC) funded a review entitled *Remnant Vegetation in the Rural Landscape:* a consultancy report which highlighted

- the difficulty in planning and conducting essential long-term ecological research due to the annual funding cycle of existing programs, and
- the lack of an adequate understanding of the socio-economic factors which influence land managers' decisions regarding remnant vegetation.

In response to the findings of the review, Environment Australia and LWRRDC joined together to establish a national program of research and development on the rehabilitation, management and conservation of remnant native vegetation. The program, which commenced in 1994, aims to assist government agencies, community groups and landholders to better manage and protect remnant native vegetation through application of improved knowledge and understanding gained from research. The program has a strong emphasis on practical outcomes in managing remnant native vegetation and promotes the development of effective links between vegetation managers and researchers.

The program has two main themes: ecological research and socioeconomic research. A range of projects was funded in 1994 to examine different aspects of the ecology of native vegetation, and develop practical methods for better management by individual landholders. A number of projects, primarily based in the extensively cleared and highly degraded woodland ecosystems, identify the key processes by which different types of disturbance influence the long term maintenance and conservation of remnant native vegetation. The projects develop and demonstrate practical measures to reconstruct, rehabilitate or manage remnant vegetation in highly degraded or altered landscapes.

In addition to developing a broadly-based ecological understanding, it is also important to understand the range of socio-economic issues which influence the protection and sustainable management of remnant native vegetation. Projects funded under this component range from identifying the market and non-market values of, and the attitudes of rural landholders to, remnant vegetation. Projects also focus on the development of improved legislation, incentives and effective mechanisms/systems that would assist landholders to retain native vegetation on private land. The range of projects contribute significantly to an understanding of the socio-economic issues influencing the protection and management of remnant native vegetation.

The Research and Development program, part funded by Environment Australia under Bushcare, is already providing a valuable information base on the ecological, economic and social values of remnant vegetation. It is highlighting the importance of ensuring that off-reserve nature conservation measures are supported by private landholders and that economic and ecological values are included in the decision making process. The series of papers arising from this program is aimed at ensuring widespread dissemination of the research results in the expectation that the knowledge gained from research and development investment will lead to improved management of native vegetation and, therefore, sustainable land management and the conservation of biodiversity. This paper brings

together the views of private landholders and public land managers responsible for the management of grassy White Box woodland remnants to define incentives and barriers to the increased conservation of those remnants. Through extensive consultation with relevant stakeholders, the project identifies practical measures which can be implemented across land of different tenures.

For more information about the research and development program please contact LWRRDC or Environment Australia. For information about assistance available under Bushcare for management of remnant vegetation please contact Environment Australia.

Phil Price LWRRDC
Andrew Campbell Environment Australia

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Executive summary

Background

Most of our Eucalypt woodlands occur in areas of greatest agricultural productivity and, as a result, these woodlands have become extremely fragmented. The State of the Environment report states that nearly 90% of Australia's temperate woodlands have been cleared. It is also in these areas that the greatest impacts of land degradation on production are being experienced – land degradation which has been closely linked to loss of trees and other deep-rooted species.

Yet these woodland areas have not received the attention given to tall eucalypt forests on the eastern seaboard or in Western Australia's south-west. Nor do they have the charismatic image of the arid and semi-arid areas of the 'great Outback'.

Box woodlands are one of the most poorly conserved ecosystems in Australia. Scientists Suzanne Prober and Kevin Thiele estimate that as little as 0.01% of grassy White Box woodlands remain in a relatively intact condition. These intact remnants, and others in a condition from which the ecological community might be regenerated, occur largely in small, scattered patches along the lower western slopes of the Great Dividing Range from southern to northern New South Wales and in a small number of locations in north-eastern Victoria.

Developing incentives to ensure greater conservation of our woodlands is an essential aspect not only of conserving the rich diversity of species and ecosystems for which Australia is recognised globally, but also of maintaining agricultural production.

This project was coordinated by Community Solutions – a consultancy partnership between Ms Jane Elix and Dr Judy Lambert, both of whom have a long standing interest and involvement in remnant vegetation protection and ecological sustainability.

In drawing together the Project Team, Community Solutions felt that there were distinct benefits to be derived from involving

- an academic research institution with expertise in remnant vegetation ecology (Charles Sturt University)
- a major non-government conservation organisation, (World Wide Fund for Nature), and
- a peak farmer organisation (New South Wales Farmers' Association).

The project

The towns and surrounding districts of Wagga Wagga, Bathurst/Orange/Cowra and Tamworth were chosen as the centres for the field work. Significant remnants of grassy White Box woodlands were chosen for study and their conservation status, ownership and management regimes were identified.

Both remnants in relatively intact condition and those in which the ecological community might be restored with altered management were included in order to provide a broader perspective on incentives and barriers to conservation management.

An important aspect of this project was to increase awareness of the significance of these sometimes undervalued woodland communities and to develop a sense of pride and ownership in their retention and proper management.

Stakeholders were involved in a variety of ways throughout the project including through

- individual interviews
- completing a questionnaire
- participation in a follow-up forum
- receipt of written information, in particular the grassy White Box woodland Updates
- media information distribution
- participation in field days

- participation in peer review and other related workshops
- individual contact with researchers and others working in the area
- reporting to LWRRDC/Environment Australia.

Project outcomes

Mapping

All of the sites selected for study within this project, and those additional sites identified by participants in the project, fell within the area predicted by Prober (1996) to contain the remaining grassy White Box woodlands.

Only one-fifth of all the sites considered were considered by the owners or managers to be in either 'very good' or 'good' condition. This may relate to various aspects of past management, but may well reflect the fact that more than two-thirds (68%) of areas identified by respondents are currently being grazed by stock without any particular management aimed at conserving the native species.

Barriers to conservation

The majority of those participating in the project were interested in protecting the remaining remnants, with some expressing surprise that grassy White Box woodlands is in fact a disappearing ecological community.

The majority of those interviewed or responding to questionnaires identified the key barriers as being

- financial constraints
- lack of knowledge or awareness of the value of grassy White Box woodlands
- difficulties in changing already established attitudes to rural management.

The issues involved are complex, with many landholders failing to recognise the direct links between sustainable agricultural production and retention of threatened remnant vegetation. As a result, even where there are positive attitudes to remnant vegetation, those attitudes often do not translate into action.

However, while private landholders were keen to see the development of incentives which assisted in recognition of grassy White Box woodlands and in providing sound management advice based on ecological principles, the levels of awareness and the identification of mechanisms appropriate to public land were generally less well developed.

Since some of the most intact grassy White Box woodland remnants occur on public land, either in cemeteries or roadside reserves, and since a landscape approach to vegetation management is important, mechanisms for conserving those remnants on public land require urgent attention.

Incentives for conservation

The types of incentives raised and discussed by participants in this project fell under the following headings

- Financial incentives
- Provision of technical information and advice
- Property-based incentives
- Legislative protection
- Working in the local community.

The Project Team has identified a need for a package of initiatives, which together form a set of tools from which landholders and land managers can choose those most appropriate to their circumstances.

Recommendations regarding private land

For those managing private land, a specific package of measures (tool kit) has been developed, which includes

1. Provision of practical information and advice as to the importance of grassy White Box woodlands and other woodland remnants and

the most appropriate management for their future conservation through

- the development of a simple kit, based on interviews with key landholders and land managers, and
- establishment of government sponsored programs in which rural producers with a strong and demonstrated interest in, and commitment to, conservation farming, receive financial and administrative support to provide on-the-job learning about remnant vegetation management and rehabilitation in their own communities.

2. Provision of financial and 'in kind' incentives for integrated management which includes a strong ecological component aimed at conserving remnant native vegetation. Rural financial assistance, whether from local, State or Commonwealth government, should be made contingent upon the development of whole property management plans which include ecologically strategic retention and rehabilitation of remnant vegetation. Both taxation rebates and local government rate rebates which are subsidised by State and/or Commonwealth government have a role to play in this area. Also important is the integration of farm management plans with broader regional vegetation management plans being developed in the draft New South Wales native vegetation conservation legislation.
3. Provision of fencing subsidies, contingent upon entry into management agreements which commit to management for conservation purposes.
4. Development, by State and Commonwealth governments, of a 'stewardship' scheme.

Recommendations regarding Voluntary Conservation Agreements

Voluntary Conservation Agreements available under the New South Wales National Parks and Wildlife Act should, and to some extent do, offer a mechanism for secure management of grassy White Box woodland remnants of high conservation value. However, a number of perceived problems with the Agreements limit their application.

Based on feedback received during this project, it is recommended that

- the terms of Voluntary Conservation Agreements which enable the Minister to vary an Agreement at any time be reviewed to remove uncertainties about possible Ministerial intervention in ongoing management of private properties;
- additional personnel and resources be made available to the New South Wales National Parks and Wildlife Service to enable faster processing of enquiries about and applications for, Voluntary Conservation Agreements;
- the New South Wales Government explore the option of establishing an independent, community-based Trust to promote and administer Voluntary Conservation Agreements (based on the experience of Victoria's Trust for Nature and given quite high levels of scepticism among participants in this project about Voluntary Conservation Agreements).

Recommendations regarding public land

Many of the grassy White Box woodlands sites of high conservation value are on public land, either in small local cemeteries or on road or railway reserves.

Given that knowledge of those sites and awareness of their value appears less well developed than for sites on private land, it is recommended that local governments, Rural Lands Protection Boards and the Roads and Traffic Authority be encouraged to undertake comprehensive mapping of their remaining remnant vegetation, with a view to managing remaining areas of relatively intact grassy White Box woodlands primarily for nature conservation.

State and local governments should also work with interested local residents to develop, maintain and promote important grassy White Box sites as local heritage attractions.

Recommendations regarding the role of governments

The issues surrounding conservation of grassy White Box woodlands present a microcosm of the broader issues surrounding the conservation and management of remnant woodlands across the Australian rural landscape. The issues highlighted within this project provide some significant indicators in priority setting for major vegetation programs such as the Commonwealth's Bushcare programme. The need to bring together public and private land management in ways which will protect the remaining remnants on a landscape scale, and the need for support by the Commonwealth and State governments for local government provision of incentives and provision of sound management advice, not only to private landholders but also to public land managers, cannot be over-emphasised.

The Commonwealth has a role to play in ensuring that regional strategies do, indeed, address conservation issues at a landscape level.

Working with State agencies, the Commonwealth can also ensure provision of compatible and up-to-date information which is relevant at the regional and local levels.

In conclusion

This project has focused specifically on grassy White Box woodland because of its scarcity and the extent to which it has disappeared or been degraded through competition with other rural land uses. However, much of what comes out of this project is applicable to other forms of remnant vegetation, and in particular other Box woodlands. Grassy White Box woodlands can be used to build awareness of the plight of remnant woodlands, the loss of woodland trees and their equally important understorey communities. That awareness can then provide a focus for expanding targeted actions in rural communities for vegetation management on a landscape scale.

1. Project background

1.1 Why grassy White Box woodlands?

> "White Box trees remain abundantly scattered throughout the landscape, [but] tree regeneration is limited and the native understorey community is very rare, either due to complete clearing for cropping, replacement by improving pasture, or altered floristic composition and weed invasion caused by livestock grazing" (Prober and Thiele, 1993a).

Box woodlands are one of the most poorly conserved ecosystems in Australia (Specht, 1975; Benson, 1991). The grassy White Box woodlands which remain in relatively intact condition, or in a condition from which the ecological community might be regenerated, occur largely in small, scattered patches along the lower western slopes of the Great Dividing Range from southern to northern New South Wales and in a small number of locations in north-eastern Victoria.

As Prober & Thiele (1993b) observe, "The grassy White Box woodlands are extremely poorly reserved. The few reserves[1] that do contain grassy White Box woodlands were gazetted long after modifications had already occurred".

Because of its preference for better soils in areas of major agricultural production, the grassy White Box woodlands community is at greater risk than some of the other temperate woodland communities. That scarcity itself provides a focus for action. However, most of the outcomes developed in this project are equally applicable to other remnant woodland communities across temperate Australia – in particular all of the Box and Ironbark communities which are in deep decline.[2]

1.2 Project objectives

Funded by a grant from the Land and Water Resources Research & Development Corporation (LWRRDC) and Environment Australia, the project had the following objectives.

1. Building on existing information on the locations and conservation status of grassy White Box woodland remnants in New South Wales to identify, through stakeholder consultation
   - incentives likely to lead to conservation of those remnants
   - the general costs to government of such initiatives, and
   - barriers to such conservation.
2. Bringing together academic research, a major non-government conservation organisation and a peak farmer organisation to work closely with rural landholders in a collaborative project to expand community understanding of the issues involved.
3. Examining the place of on-farm Conservation Agreements in remnant vegetation retention and management.
4. Providing an initial assessment of costs to government(s) of implementing incentives necessary to increase conservation of grassy White Box woodland remnants.
5. Developing a model for on-farm conservation of remnant vegetation, using grassy White Box woodlands as a case study.

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1 After extensive survey and investigation, Prober & Thiele identify as the only exceptions an intact remnant in the Wongarbon Nature Reserve (south-east of Dubbo) and examples in the Snowy River National Park in north-eastern Victoria.

2 As several speakers at the Victorian National Parks Association conference on Box and Ironbark woodland conservation identify (Victorian Naturalist, Volume 110, Number 1).

1.3 Context

For more than a decade, concerns about land degradation and decline in native vegetation have been widely recognised. However, competition between pressures for increased agricultural production and the retention of native vegetation remains the most significant threat to our woodlands (State of the Environment Advisory Council, 1996). As the State of Environment report acknowledges, agriculture and its effects through "land clearing, fertiliser use, tillage, changes to water flows, pollution from pesticides and herbicides" produce significant direct pressures on the state of our land resources. Clearing for urban development, harvesting for firewood and, to a lesser extent, cutting for fencing materials have also contributed.

Most of our Eucalypt woodlands occur in areas of greatest agricultural productivity[3] and as a result, these woodlands have become extremely fragmented. The State of the Environment report states that nearly 90% of Australia's temperate woodlands have been cleared. It is also in these areas that the greatest impacts of land degradation on production are being experienced – land degradation which has been closely linked to loss of trees and other deep-rooted species.

Yet these woodland areas have not received the attention given to tall Eucalypt forests on the eastern seaboard or in Western Australia's south-west. Nor do they have the charismatic image of the arid and semi-arid areas of the 'great Outback'.

Developing incentives to ensure greater conservation of our woodlands is therefore an essential aspect, not only of conserving the rich diversity of species and ecosystems for which Australia is recognised globally, but of maintaining agricultural production.

1.4 Benefits of collaborative work

This project was coordinated by Community Solutions – a consultancy partnership between Ms Jane Elix and Dr Judy Lambert, both of whom have a long standing interest and involvement in remnant vegetation protection and ecological sustainability.

In drawing together the Project Team, Community Solutions felt that there were distinct benefits to be derived from involving

- an academic research institution with expertise in remnant vegetation ecology (Charles Sturt University)
- a major non-government conservation organisation (World Wide Fund for Nature); and
- a peak farmer organisation (New South Wales Farmers' Association).

Bringing these diverse interests together with private landholders and those with responsibilities for public land management was considered to be of fundamental importance to the project in that it built on

- a diversity of skills and perspectives among the Project Team partners
- information exchange between key stakeholders and the sense of joint ownership of the outcomes resulting from this exchange
- the ability of Project Team partners to form strategic alliances to conduct follow-up work designed to ensure adoption of outcomes from the project.

3 As has long been identified (Hall, Johnston & Chippendale, 1975; and others), White Box (*Eucalyptus albens*) Woodlands are generally found on "gentle slopes and plains, in broad shallow valleys and, occasionally, on the lower slopes of hills and mountains….White Box… prefers at least moderately fertile soils which do not become waterlogged". Occurring between 27 and 37°S and at altitudes between 500 and 1500ft, in the west of the Great Dividing Range, these are soils preferred for cropping and grazing.

2. Project outline and methodology

2.1 Selection of focus areas

In determining the locations which should form the focus of field work for this project, the partners in Community Solutions sought input from

- a literature review
- perusal of Royal Botanic Gardens database of *Eucalyptus albens* locations
- discussions with research scientists Suzanne Prober and Kevin Thiele, and others working in remnant ecology
- the other members of the Project Team.

It was agreed that the locations chosen should

- have significant remaining grassy White Box woodland remnants within a reasonable distance
- provide an opportunity to visit key sites
- provide an opportunity to meet with landholders and public land managers who might be responsible for managing grassy White Box woodland remnants in the area.

Towns which enabled ready access to a diversity of public land managers while at the same time being within reasonable travelling distance from grassy White Box woodland remnants were judged to be

- Wagga Wagga
- Bathurst/Orange/Cowra
- Tamworth.

These three locations, and the districts surrounding each, were therefore chosen as a focus for field work.

2.2 Identifying significant remnants: conservation status, ownership and management

Criteria for assessment

The Project Team sought to include in the project a representative sample of remaining grassy White Box woodlands, both on rural properties and on public lands having a range of different tenures.

Both remnants in relatively intact condition and those in which the ecological community might be restored with altered management were included in order to provide a broader perspective on incentives and barriers to conservation management.

In determining the conservation status/condition of grassy White Box woodland remnants, Community Solutions was keen to ensure that the criteria used enabled landholders and managers to determine the status themselves, since a significant part of increasing conservation activity is believed to lie in 'learning by doing'.

Participants were asked to determine the conservation status of their remnants as being

- very good (scattered White Box trees, with many different native grasses, herbs and wildflowers in the understorey)
- good (scattered White Box trees, with several different grasses, herbs and wildflowers in the understorey)
- fair (scattered White Box trees, with only a few different grasses, herbs and wildflowers in the understorey), or
- poor (scattered White Box trees with introduced pasture and/or weeds).

In discussion with other members of the Project Team, it was agreed that these categories, whilst somewhat subjective, were useful in having the landholder/manager define the present condition of White Box remnants. The categories used were also readily equated with those used by David

Goldney and associates in rating and mapping remnant woodlands in the Central West of New South Wales. In that work Goldney et al (1993) have used 5 ratings

- Sustainability Index 1
  Pristine condition
- Sustainability Index 2
  Near pristine – some disturbance
- Sustainability Index 3
  Some conservation value – disturbance evident, some regeneration
- Sustainability Index 4
  Degraded – usually trending to Sustainability Index 5
- Sustainability Index 5
  Severely degraded – no regeneration, advanced *Eucalyptus* dieback.

Prober and Thiele have focused their work on areas described by Goldney et al as being Sustainability Index 1, while in the present work Project Team members agreed that

- Sustainability Index 1 generally equates with Very Good condition
- Sustainability Index 2 with Good condition
- Sustainability Index 3 with Fair condition, and
- Sustainability Index 4 and 5 with Poor condition.

Mapping

Detailed mapping of the remaining White Box remnants across New South Wales is a project requiring time and resources far beyond those available to this project. This project identified other mapping projects which might encompass grassy White Box woodlands, and related the work done in this project to previous predictive mapping 'envelopes' developed by Prober (1996).

As described in 1996, Prober used the Bioclimatic Prediction System (BIOCLIM, Nix 1986, Busby 1991 – see Prober for references) to predict the distribution of *Eucalyptus albens* (White Box).

In that work, twelve climatic indices (representing annual and seasonal means and extremes for temperature and precipitation) were estimated for 120 records of *E. albens* from across its range. The data were used to derive a climatic profile for *E. albens,* using each climatic parameter. The same climatic variables were predicted over a grid system (with a resolution of 0.025 degrees latitude and longitude, or approximately 2.5 km) across south-eastern Australia, using latitude, longitude and elevation predicted from a continental Digital Elevation Model. All grid points falling within the climatic profile of *E. albens* were then extracted, giving a predicted distribution of the species based on climatic factors. The grid points with a 5–95% probability of falling within this envelope were chosen by Prober to represent the main distribution of the White Box woodlands.

Brian Stone (Environmental Studies Unit, Charles Sturt University) imported these grid points into the GENASYS Geographic Information System (using UNIX software) to generate a grid cell coverage map of the predicted distribution of grassy White Box woodlands. Sites visited, and those about which reliable location advice was received throughout this project, were then plotted on this grid system using latitudes and longitudes taken from 1:25,000 or 1:100,000 topographical maps.

2.3 Stakeholder involvement

As indicated by Young et al (1996), based on extensive work by previous researchers, "ownership" of conservation initiatives is an important part of their success. Only when people have been involved in, and understand the importance of, rural nature conservation initiatives are they likely to participate in implementing them.

An important aspect of this project was to increase awareness of the significance of these sometimes undervalued woodland communities and to develop a sense of pride and ownership in their retention and proper management.

Stakeholders were involved in a variety of ways throughout the project including through

- individual interviews
- completing a questionnaire
- participation in a follow-up forum
- receipt of written information, in particular the Grassy White Box Woodland Updates
- media information distribution
- participation in field days
- participation in peer review and other related workshops
- individual contact with researchers and others working in the area
- reporting to LWRRDC/Environment Australia.

Individual interviews

Recruitment

Throughout this project, Community Solutions sought to involve as diverse a group of landholders and land managers as possible.

Whilst time and resources available for personal interaction with individual land owners and managers was limited, every effort was made to include among interviewees the diversity of owners and managers who might have responsibility for on-ground management of remnants of grassy White Box woodlands.

This was achieved through direct contact with various government agencies, local governments, non-government community conservation groups, local research scientists and others in the community who might have an interest in grassy White Box woodlands management, as well as with private landholders who might have White Box remnants on their properties.

Through telephone networking in the communities around Wagga Wagga, Bathurst/Orange and Tamworth, 10 land owners or managers having significant stands of White Box woodland in fair to very good condition were identified in each area. Each was sent preliminary information about the project, previous work on grassy White Box woodlands and an invitation to participate in the project. Promotion of the project and calls for people interested in participating were also made through articles published in both the New South Wales Farmers' Association magazine 'New South Wales Farmer' and the World Wide Fund for Nature's 'Wildlife News'.

All those expressing interest in the project were asked about possible locations of relatively intact remnants of grassy White Box woodlands. Contacts were entered in a database maintained by Community Solutions (see Appendix 1) and were included in all follow-up aspects of the project.

Conducting the interviews

Appointments were made to visit those in each location willing to take part in interviews. During an informal interview lasting between 30 and 90 minutes, participants were encouraged to discuss their remaining grassy White Box woodlands areas, current use and management of them, opportunities and barriers to protection of these areas, and the ways in which these grassy White Box woodland remnants might be further conserved through more formal arrangements.

Outcomes of the interview, conducted by one of the partners in Community Solutions, were recorded through extensive note-taking by the other partner.

Several of the interviews involved more than one participant, with couples managing a family farm or small groups of neighbouring farmers coming together.

Those being interviewed were encouraged to provide opportunities to visit and photograph relevant sites, with several taking up that opportunity to discuss sites on their own properties or public land for which they had some management responsibilities.

A total of 29 grassy White Box woodlands sites were visited. These included public lands

managed by a range of different agencies and private rural properties. Nine of the sites visited are on the south-west slopes, 11 in the central-west and 9 in the north-west.

Questionnaires

At the conclusion of each interview, each participant was asked to complete a short questionnaire (see Appendix 2) and to return it to Community Solutions using the stamped, addressed envelope provided. Because of participation by more than one person in some interviews, the number of questionnaires returned exceeds the number of sites visited.

Forty two of the 59 questionnaires distributed to those contacted during the initial round of site visits and interviews were returned. Respondents were identified as follows (Table 1).

Follow-up forums

Outcomes of the initial site visits, individual interviews and questionnaire responses were collated and key issues emerging presented in the form of a short issues paper prepared by the Project Team. This paper, together with an invitation to participate in one of a series of follow-up forums, was sent to all contacts contained in the project database.

The forums were held in Tamworth, Orange and Wagga Wagga approximately 6 months after the initial visits. Key contacts identified during the initial visits or through subsequent interactions with members of the local communities were contacted individually and encouraged to attend these forums. During the recruiting process, emphasis was placed on recruiting a mix of stakeholders, primarily both private landholders and public land managers from a diversity of relevant agencies.

The numbers participating and sectors represented in each of the forums are shown in Table 2.

Each six-hour forum consisted of facilitated plenary and small group discussions in which participants were encouraged to explore key issues emerging from earlier parts of the project and to indicate preferred directions for the conservation of grassy White Box woodlands. Reporting back from the small working groups was provided both on standardised recording sheets and as short presentations during which one of the partners in Community Solutions took extensive notes.

Table 1: Grassy White Box woodlands questionnaire respondents

	Wagga Wagga	Bathurst/Orange	Tamworth
Farmers/graziers	6	4	7
Government officers	3	2	2
Local government staff	2	2	2
Academics	1	–	1
Conservation non-government organisations	–	1	2
Other	2	1	3
*Totals**	*14 (23)*	*10 (15)*	*17 (21)*

*One respondent failed to complete the section of the questionnaire providing demographic information.

( ) Numbers in brackets are the numbers of questionnaires distributed

Outcomes of these questionnaires have been analysed through queries developed using a Microsoft Access database. Although the numbers involved are small, the results obtained provide some clear trends which help to strengthen qualitative information obtained at interview.

Distribution of written information

Because of expressed interest in the project and the need to keep people interested and to stimulate involvement, Community Solutions produced a short desk-top published newsletter at regular intervals throughout the project. The first issue of this newsletter was distributed to approximately 150 people on the database as at end August 1996. Copies were also made available to other LWRRDC/Environment Australia remnant vegetation grant recipients, in support of a presentation to the annual program coordination meeting in Bendigo (approximately 30 participants). Those participating in a one-day 'Remnant Vegetation in the Central West' workshop sponsored by 'Save the Bush Central West' and held in Orange in September 1996 (approximately 90 participants; see Wakefield, 1996) also received copies of the newsletter in support of a poster and presentation at that workshop.

The second issue of the project newsletter was made available at the CSIRO hosted workshop 'Temperate woodlands in Australia', held in Braidwood from 4–6 December 1996. Copies of the second, third and fourth issues of the project newsletter have been sent to an expanding database, which at the conclusion of the project contained more than 300 people (see Appendix 1).

Both the New South Wales Farmers' Association and the World Wide Fund for Nature presented articles about the project in their regular publications. The Community Biodiversity Network also published an article about the project (Community Biodiversity Network, July 1996) and has expressed interest in doing a follow-up article. Whilst somewhat sceptical about the likely implications of the project for their future access to remaining grassy White Box woodlands sites, the New South Wales Apiarists Association were active participants in the process and published an article in their magazine, 'The Australasian Beekeeper' (April 1997).

Media information distribution

Since the initial site visits and interviews, one of the partners in Community Solutions has completed an initial interview with documentary film-maker Rae Fry, who was developing a proposal for a program on woodland conservation. Referred to Community Solutions by Environment Australia Biodiversity Group staff member John Lumb, Ms Fry expressed interest in obtaining additional information about the project and its participants for possible use in the documentary. Any progress in this direction will be referred to Environment Australia and LWRRDC for approval prior to proceeding. More recently, Soil and Water Conservation Association New South Wales Officer, Val Porter and Kestrel Films have also contacted Project Team members, with a view to using material from the project in an educational program being conducted by the Association.

Table 2: Participants in follow-up forums

	Wagga Wagga	Bathurst/Orange	Tamworth
Farmers/graziers	8	12	6
Government officers	4	8	5
Local government staff	2	3	1
Academics	2	5	1
Conservation non-government organisations	5	10	4
Other	1	7	6
Totals	*21*	*45*	*23*

As a result of media interviews conducted as one aspect of the LWRRDC peer review workshop, the partners in Community Solutions were also approached for interviews with ABC rural radio from the various regional centres which formed a focus of the work.

As a result of hearing some of the ABC interviews, the ABC's 7:30 Report did a feature story on grassy White Box woodlands on 21 February 1997. The story focused on the work of landholders in protecting grassy White Box woodlands and the economic benefits that result. Project Team members, David Goldney and his team from Charles Sturt University and Jamie Pittock from World Wide Fund for Nature, were interviewed as part of the program. Community Solutions worked closely with the researchers in the lead-up to the program.

In the month leading up to the follow-up forums, the Public Relations Unit at New South Wales Farmers' Association produced a segment promoting the project and the forums. This segment went to air in their regular weekly program on rural commercial radio across the State.

Participation in field days

A poster presentation was also included in the Charles Sturt University's Environmental Studies Unit display at Enviro 1997, held in Mudgee in March. The display attracted considerable interest among the approximately 1500 people attending. That poster was also displayed at the national conference of the Australian Network for Plant Conservation, held in Coffs Harbour in June 1997, the focus of that conference being on sharing the vision for plant conservation.

Participation in peer review and other related workshops

As a member of the Project Team, Dr Judy Lambert also participated in and presented papers to

- a one-day conference on 'Remnant vegetation in the Central West: Winning the Battles but Losing the War?', held in Orange in September 1996. Organised by Charles Sturt University's Environmental Studies Unit, this conference was part of the Central West Save the Bush program (see Wakefield, 1996), and
- a two-day workshop on 'Temperate woodlands in Australia: Biology, conservation, management and restoration'. This workshop, held in Braidwood, was sponsored by LWRRDC, and brought together ecologists, land managers and others with an interest in developing mechanisms for better managing Australia's temperate woodlands. Arising out of this workshop, Hobbs & Yates (CSIRO Wildlife & Ecology, Perth) are editing a book for publication as part of an ongoing vegetation management series published by Surrey Beatty. Work presented from the grassy White Box woodlands project will form the basis of one chapter in that publication (Lambert, Elix & Binning, in preparation).

Individual contact with researchers and other working in the area

Throughout the course of this project, participants in the Project Team have become aware of a range of related activities, some focused on grassy White Box woodlands, others more broadly on remnant woodlands and yet others across the whole diversity of remnant vegetation in the rural landscape. Where possible, individual contact was made with those carrying out these activities and they have been kept informed of the progress on this project through the grassy White Box woodlands updates.

Research scientists Suzanne Prober and Kevin Thiele, who initiated much of the work focusing on grassy White Box woodlands, are continuing to develop new initiatives. They are currently interacting with New South Wales National Parks and Wildlife Service in a bid to secure Natural Heritage Trust funding to develop a Protected Area Network of grassy White Box woodlands sites of high conservation value, with Community

Solutions having been given the opportunity to make input to the development of that proposal.

Researcher Phillipa Walsh, working with the New South Wales Natural Environment Panel based at the New South Wales Nature Conservation Council, has also been developing a database of significant grassy White Box woodlands sites suitable for nomination for listing on the Register of the National Estate. As part of that work, Phillipa and her successor, Kate Harris, have contacted Community Solutions to seek advice as to sites included in this project and to ascertain opinions on the quality of various sites of common interest, in order that the most significant sites might be nominated to the Register.

As a direct result of this project, Community Solutions has been contacted by people living in north-eastern Victoria. That contact has provided information on a site at Lurg, near Benalla, which was being restored under the former Land Environment Assistance Program, and another property at Coonda, also near Benalla, which is being revegetated by a private landholder as part of his commitment to the Land for Wildlife Program.

Both Keith Holmes and his local group of concerned residents at Bodangora in the Wellington district in central New South Wales and Russ Watts from Upper Manilla north of Tamworth have built on information provided by this project to establish local initiatives for the conservation of grassy White Box woodland remnants.

Other publications such as the farmers' guide to trees and bushland on the north-west slopes and plains, being developed by the North-West Catchment Management Committee, provide further information about the plight of temperate woodlands and some of the initiatives which might be taken to further their conservation.
A review of the conservation status of temperate woodlands in Australia, sponsored by the World Wide Fund for Nature, also provides valuable context-setting and other information. The research paper by Hodgkins et al (Hobbs & Yates, in preparation) examining landholder attitudes to the values of remnant bushland in the Central West region of New South Wales, also provides valuable insights into the factors which might be addressed in furthering conservation initiatives for grassy White Box woodlands and other remnant woodlands.

Beyond that, there is an ever-expanding literature relevant to the status and conservation of remnant vegetation across Australia. Perhaps the more pertinent to this project are the current developments surrounding State Environment Planning Policy 46 and remnant vegetation protection in New South Wales. In July 1997, the Department of Land and Water Conservation released for public comment a White Paper providing a proposed model for native vegetation conservation in New South Wales. Throughout this project both World Wide Fund For Nature and the New South Wales Farmers' Association have made ongoing contributions to that process and will continue to do so.

Reporting to LWRRDC

Throughout the project, progress reports have been provided to the funding bodies, LWRRDC and Environment Australia. Initial progress reporting was by way of a short presentation to a peer review workshop conducted as part of the national R&D program on rehabilitation, management and conservation of remnant vegetation, held in Bendigo, Victoria in September 1996 (see Price & Tracy, 1996). Participants in that workshop provided useful feedback on outcomes of the initial site visits and preliminary analysis of questionnaires and assisted in shaping the emphasis of follow-up forums.

That report was followed by submission of a written milestone report in December 1996, on which Program Manager Phil Price from LWRRDC and his peers in the co-funding organisation, Environment Australia's Biodiversity Group, provided useful comment.

3. Project outcomes

3.1 Grassy White Box woodlands identification and mapping

As shown on the map which follows, all of the sites selected for study within this project, and those additional sites identified by participants in the project, fell within the area predicted by Prober (1996) to contain the remaining grassy White Box woodlands.

The apparent concentration of sites in the south-west, central-west and north-west slopes is an artefact of the method used, these being the locations visited. Additional sites identified during consultative forums and through direct contact with people in local communities during the project, suggests that small pockets of grassy White Box woodlands (in varying ecological condition) do exist along the western slopes, from south of the Victorian border to the far north of New South Wales.

Among those responding to the questionnaire, 64% had grassy White Box woodland remnants on properties for which they have management responsibility.

Only 6% described their remaining grassy White Box woodlands as being in “very good” condition, with a further 13% describing their grassy White Box woodland remnants as being in “good” condition. Almost one-third (29%) of participants reported remnants which are in “fair” condition and a further 19% described their remnants as “poor”. A further one-third of all respondents described their White Box remnants as varied in condition or of mixed quality. While the assessments of quality were clearly reliant on the landholder/manager’s ability to identify whether understorey species were native or introduced, and are subject to variability between individuals, they provide at least some measure of condition.

Perhaps most significant among the observations is the relatively small proportion of grassy White Box woodland remnants assessed as being in either ‘very good’ or ‘good’ condition, these together being only one-fifth of all sites considered. This may relate to various aspects of past management, but may well reflect the fact that more than two-thirds (68%) of areas identified by respondents are currently being grazed by stock without any particular management aimed at conserving the native species.

3.2 Incentives for conservation

Overview

The majority of those participating in the project were interested in protecting the remaining remnants, with some expressing surprise that grassy White Box woodlands is in fact a disappearing ecological community. In the north-west, in particular, participants frequently commented that there are still plenty of White Box trees around, while in a small group discussion in the south-west those present commented that White Box is a less attractive plant community than are tall forests or other types of vegetation and that they are therefore less likely to be a focus of conservation attention.

In discussing barriers to greater conservation of grassy White Box woodlands, the majority of those interviewed or responding to questionnaires identified as the key factors

- financial constraints
- lack of knowledge or awareness of the value of grassy White Box woodlands
- difficulties in changing already established attitudes to rural management.

As Hodgkins et al (in press) have identified, the issues involved are complex, with many landholders failing to recognise the direct links between sustainable agricultural production and retention of threatened remnant vegetation. As a result, even where there are positive attitudes to remnant vegetation, those attitudes often do not translate into action. The results of a recently

published Western Australian survey by Jenkins (1996) suggest that the shift from awareness to action is to a significant extent financially driven, but that when land degradation and the effects of rising watertables associated with vegetation loss become apparent, action follows more quickly.

The feedback received in this project relating to the conservation of grassy White Box woodlands is generally closely aligned with the findings in other studies relating to the conservation of threatened ecological communities in rural landscapes. Coates (1987), in her survey of landholders in the Western Australian wheatbelt, found that "fencing subsidies, the supply of low cost trees, tax concessions, extension work by government departments, relief from local government rates, worker schemes and low interest loans" were the preferred incentives. Much of Coates' work has been reaffirmed in recent findings by Jenkins (1996). In her study in the Western Australian wheatbelt, Jenkins found that over 70% of farmers listed "better financial assistance for fencing and replanting" as desirable. Among respondents in Jenkins' study, "83% said that they thought that the government should provide some sort of financial assistance for fencing bushland."

Gilfedder & Kirkpatrick, in their survey of landholder attitudes towards the conservation of lowland grasslands in Tasmania, found that respondents were generally not favourably disposed towards conservation covenants because of the constraints they might place on property management. They found mixed reactions to both tax deductibility and rate rebates, with "The biggest single identified incentive that landholders recognized [being] the provision of money for fencing materials". In that survey, advice on management issues was also a major form of assistance seen as desirable.

However, while private landholders were keen to see the development of incentives which assisted in recognition of grassy White Box woodlands and in providing sound management advice based on ecological principles, the levels of awareness and the identification of mechanisms appropriate to public land were generally less well developed.

Since some of the most intact grassy White Box woodland remnants occur on public land, either in cemeteries or roadside reserves, and since a landscape approach to vegetation management is important, mechanisms for conserving those remnants on public land appear to require greater attention.

The types of incentives raised and discussed by participants in this project fall under the following headings

- financial incentives
- provision of technical information and advice
- property-based incentives
- legislative protection
- working in the local community.

Financial incentives

Grants and subsidies

Asked about the types of incentives which might encourage conservation of remnant grassy White Box woodlands, initial contacts generally favoured grants or subsidies for the cost of fencing materials. Few of those interviewed were interested in "direct handouts" for conservation work. Rather, they identified opportunities for cooperative effort, with governments providing funding for materials and the landholder providing labour. Good examples of such cooperative efforts are already apparent on some private properties, especially where Landcare groups have been the focus for funding applications.

Participants in the follow-up forums again identified financial incentives as an essential aspect of initiatives to conserve grassy White Box woodlands or other remnant vegetation.

Subsidies to fence out remnants in return for entry into a management agreement to maximise the conservation value of selected remnants was

consistently seen as a good mechanism for providing financial support. However, the nature of, and administrative arrangements for, such conservation agreements will play a critical role in their uptake. A scheme in which priorities are set through a transparent process which includes consultation with landholders was identified as a preferred approach. Private landholders favour such a scheme because it enables them to play an active role and to contribute to the process through input to planning and through the provision of labour.

Asked about whether fencing out of small remnants which remain on both public and private land is likely to contribute significantly to grassy White Box woodlands conservation, given the external pressures on such areas, most forum participants stressed the educational and motivational aspects of fencing schemes as almost as important as the immediate conservation benefits. When challenged as to whether allocating the same amount of funding to fencing out and management of the few remaining larger areas of grassy White Box woodlands might achieve a better conservation result, most still favoured an on-property fencing subsidy scheme because of the "ownership" and participation likely to result. Concerns about the ongoing management of larger tracts of public land reinforced this view.

Local government rate concessions

At interview, many of the private landholders also expressed an interest in gaining some form of rating concession for those areas set aside for conservation purposes. While several local government representatives expressed concerns that local governments could probably not bear the costs of such concessions, at least one local government staff member noted that because the areas involved are small, it may be feasible. Others were interested in such rate concession schemes, so long as local government could receive financial support from other levels of government.

Within the follow-up forums, both tax and local government rate rebates received considerable support as other possible financial incentives, although views on these varied within groups in each of the forums. As in the initial interviews, rate rebates were generally seen as being relevant only so long as local councils received reimbursement from other levels of government, preferably the Commonwealth. In some instances, concerns were also expressed that local governments may not have the skills and resources necessary to properly administer a rebate scheme designed to achieve increased conservation management. This may be overcome when regional vegetation assessments are conducted and Regional Vegetation Management Plans established as part of the process associated with the introduction of a new Native Vegetation Management Act for New South Wales. However, provision of adequate advice to local governments will be dependent upon the level of both ecological and communication expertise associated with the Regional Vegetation Management Committees and the proposed Native Vegetation Advisory Council.

Tax concessions

While tax rebates were also seen as very relevant, many on rural properties expressed concerns that in the absence of a taxable income, these are of little return to landholders who might want to take conservation initiatives but are unable to do so for financial reasons. Tax credits, raised as an alternative through which producers defer their tax deductions based on expenditure for remnant vegetation conservation to a year in which they have a taxable income, were generally treated with some suspicion by forum participants because of uncertainty about changing government policies into the future.

Provision of information and technical advice

Among those initial contacts who completed questionnaires, help from scientists in identifying grassy White Box woodland remnants and advice

on the best ways of protecting those remnants were less favoured than was direct funding, but each of these were preferred to entry into Conservation Agreements. The strong desire for better practical information about identification and management of remnant Box woodlands is reinforced by the results of a survey conducted by Dr Steve Hamilton of the University of Melbourne's Dookie College (see Price & Tracy, 1996). Jenkins (1996) also found that landholders in the Western Australian wheatbelt thought that information was "inadequate or not readily available" on a number of technical aspects of vegetation management.

Information about identification

The issue of White Box identification brought varied responses from among those interviewed. While some were very confident that White Box is readily distinguished from the most closely related Grey and Yellow Box species, many were less confident about the identification of native understorey.

Information transfer on management

Where private properties are being used for grassy White Box woodlands or other remnant research, there is a strong desire among the landholders to be involved in the research and to be kept informed of research activities and their outcomes. Opportunities for adaptive management based on such interaction were seen to be high, but several of the landholders involved do not feel these opportunities have, until now, been adequately met.

These views were reinforced by those who participated in the follow-up forums, where participants frequently referred to the need for more information about the management of remnant woodlands, and grassy White Box woodlands in particular. While there was a generally held perception that scientists may have relevant technical information, that information is not reaching landholders and managers in a format in which they can use it. Practical, easily accessible information based on real-life experiences is being sought by those who are interested in improving their management of grassy White Box woodlands and other remnants.

In some cases this may be because landholders and managers are unaware of the support which is available through programs such as 'Farming for the Future' and Landcare. However in other cases, it is simply that scientists do not yet have 'an answer' and are thus either failing the expectations of those who seek information or are unwilling to provide 'best bet' information which can be further developed through practical experimentation done in collaboration with the landholder. To the extent possible, scientists should be working with landholders and managers to test 'best bet' approaches to remnant vegetation management across the landscape.

Other landholders with on-ground experience (ie. peers of those seeking the information) are generally viewed as the preferred providers of such information, being able to present the information in easily understood forms and having a high level of credibility among their peers. Participants in the various forums discussed the need to acknowledge the competing demands on landholder time when planning for activities which might increase their participation in conservation initiatives. However, some participants also commented that the availability of time relates directly to the priority which landholders place on these activities as compared with other activities which might take them away from conservation effort.

The challenge for information transfer is to provide technical information in ways which promote awareness of the need for integrated landscape management based on a better understanding of the land and water systems involved. Practical advice is required which builds greater understanding of

- the importance of maintaining whole ecological systems, in which trees, their understorey plant species and the related animals and soil organisms interact for the health of the system

- the links between vegetation retention and protection of drainage systems and water courses
- the links between on and off-farm management of the landscape.

Whilst, as was noted earlier, scientists may not have all the answers, there is sufficient information and knowledge available to work with rural communities to build improved vegetation management systems. Kits such as those recently launched by Charles Sturt University's Environmental Studies Unit and that which is being prepared by the North-west Slopes and Plains Vegetation Committee and the North-West Catchment Management Committee (Reid, in preparation) will assist in achieving this goal.

In discussing the need for greater information on the conservation management of grassy White Box woodlands, almost all participants expressed support for a simple and easily accessible kit which provides information on species identification and relevant aspects of management.

Increasing public awareness

Participants in the initial interviews and in each of the follow-up forums also commented on the lack of awareness in the community of the significance of White Box woodland remnants. While forest remnants might have more public appeal and have been the focus of community conservation campaigns, remnant woodlands have received little public attention, such that many in the community are unaware that the 'patch of bush' in their back paddock or the local cemetery has real conservation significance. This attitude was amply summed up in one forum, by the comment

> "They [the White Box trees] have always been there and they are taken for granted."

Related to this perception is the fact that while White Box trees might be recognised and perhaps even valued by some, few in rural communities recognise either the scarcity or the ecological significance of the associated understorey species.

Property-based incentives

Building on previous work with Young et al (1996), the Project Team members sought to explore the extent to which property-based rights might serve as incentives for the conservation of grassy White Box woodlands. Included in these are the spectrum of covenants and management agreements available through the National Parks and Wildlife Service in New South Wales or under consideration based on experiences in Victoria and elsewhere.

The success of all such programs was seen to be dependent upon adequate resourcing, both financially and in terms of the personnel available to provide information and support to landholders and managers.

While each of the schemes being explored is dependent upon voluntary entry by the landholder, each was perceived, by the landholder, to have a differing level of control associated with it.

Voluntary Conservation Agreements

Administered by the National Parks and Wildlife Service, Voluntary Conservation Agreements are intended to provide permanent protection for the special natural, cultural or scientific values of an area of land. They are joint agreements between a landholder and the Minister for the Environment, with entry into an agreement being entirely voluntary.

Even among the most motivated of private landholders interviewed, there remained a degree of scepticism about possible entry into Voluntary Conservation Agreements for the conservation of remaining grassy White Box woodland remnants. Concerns about the extent to which the National Parks and Wildlife Service or the responsible government minister might gain a controlling influence over property management were often expressed, with the major concern being provision of powers for the responsible minister to change the conditions of an agreement.

Among those who had made initial efforts to enter into such agreements, concerns were expressed

- that they can be entered into only for land which meets certain criteria with respect to conservation significance
- as to the relatively lengthy and complex process which applicants must complete before signing off an a Conservation Agreement, and
- the permanency of Conservation Agreements, once entered into, and the likely implications of this encumbrance on a property's title both for subsequent management and for later resale opportunities.

Despite these concerns, all of which were reiterated by forum participants in each of the locations visited, Voluntary Conservation Agreements were seen as an important property-based conservation mechanism for the small number of landholders who are willing to invest substantial time and resources in conservation initiatives on their properties and who want to ensure that those investments are retained in perpetuity.

However, in general, both the initial interviewees and participants in the follow-up forums were more interested in developing options which retain their autonomy over management of private property.

Stewardship arrangements

As Young et al (1996) identify, effective motivation requires teaching "how" as well as teaching "what" the basic message is, and in rural communities the teaching of what and how is often best achieved through learning by doing. As an alternative to Voluntary Conservation Agreements, stewardship schemes provide a mechanism for achieving this.

As discussed in the follow-up forums, landholders would be encouraged to become part of a 'stewardship' scheme, through which they are paid a small fee in exchange for entering into an agreement to manage critical parts of their own and/or adjoining public land, with an emphasis on conservation rather than production.

When presented with an outline of the 'stewardship' approach, just over half of all initial contacts responding to the questionnaire (53%) felt that such a proposal would work, with 26% feeling it would not work and the remainder being undecided. Both at interview and in the follow-up forums, participants saw such a scheme as being appropriate both to the management of remnants on private property and also as a way of encouraging local involvement in management of public land remnants.

Using grassy White Box woodlands as a starting point, Prober & Thiele and others are developing a 'stewardship' concept of remnant management through which landholders would retain ownership and day-to-day management of the areas, while linking them in some form of 'reserve system' in which participants agreed to various aspects of conservation management.

Prober and Thiele "Protected Area Network" proposal

While not presented in detail to either the initial interviewees or in the subsequent forums, a concept being developed by Prober and Thiele is perhaps on the next rung of a hierarchy of property-based conservation mechanisms applicable to grassy White Box woodland remnants. In their concept, remnant areas of grassy White Box woodlands which are small in size and have a diversity of ownership, but have a high level of ecological integrity, would be linked together within a common, nationally recognised framework. The system being developed by Prober & Thiele would involve protection of individual sites, both on public and private land, through a range of existing mechanisms such as Local Environment Plans, Voluntary Conservation Agreements and other protection categories. All would be linked together through an overarching policy and management structure, currently being termed a Protected Area Network. This Network would represent a new category of 'reserve', administered by the National Parks and Wildlife Service, within which individual landholders retain ownership and management of their remnants.

Of key importance to many of the private landholders, both in individual interviews and in the forums, was the desire to retain grazing access to their remnants at times of high need, such as lambing and shearing times when additional shelter is required. Several of those interviewed were interested in exploring options for altered and flexible management which would enable occasional stocking in ways which might retain both White Box regrowth and conservation or restoration of native understorey. While the proposed Protected Area Network might not meet that need, small remnants of high conservation value might be conserved through the Network, with other remnants being managed through various other 'stewardship' arrangements.

Some participants in the forums expressed a view that, in order to be effective, voluntary schemes in which landholders have substantial flexibility in stocking and other management arrangements, would require monitoring to ensure compliance with conditions of a funding agreement. Concerns were then expressed that such monitoring might bring with it high administrative costs and possibly unwanted intrusion in accessing participating properties. However, it would seem that Property Agreements proposed within the planned New South Wales Native Vegetation Management Act could readily accommodate stewardship agreements, provided the Agreements remain subject to some form of random audit.

Stewardship on public land

Because of the significance of Travelling Stock Routes and Reserves as grassy White Box woodland remnants, and the observation that these reserves are, in many cases, no longer required regularly for stock movements, Rural Lands Protection Boards clearly have a role to play in conserving remaining grassy White Box woodlands. In areas where Travelling Stock Routes and Reserves are in lower demand than in the past, some Travelling Stock Routes and Reserves are now being managed for lighter stocking, with a view to allowing both tree and understorey regeneration. This approach is worthy of greater profile and support across the community.

Stewardship agreements entered into between landholders or other parties with an interest in conservation of natural resources and the agencies responsible for areas of public land, might provide a basis on which to develop agreements for those areas where they are not placed under legal constraints. Morton and his colleagues (Morton et al, 1995) have also proposed similar mechanisms for ecological and landscape management in the arid and semi-arid regions of Australia.

Land for Wildlife and Wildlife Refuges

Whilst a Land for Wildlife scheme similar to that run in Victoria did not form part of the initial consultation with landholders, the concept was tested with participants in the follow-up forums because the scheme was, by then, under consideration in New South Wales (see Prescott & Associates, April 1996).

Victoria's Land for Wildlife scheme has operated since the early 1980s as a scheme in which landholders interested in wildlife management in their land can register that interest. Having registered as participants in the Land for Wildlife scheme, they then receive property signage, regular newsletters and management notes, and the opportunity to participate in field days and other activities in support of their work.

Many participants in the forums were not familiar with the Land for Wildlife scheme. However, among those familiar with the scheme, it had widespread acceptance and was seen as relevant to the conservation of grassy White Box woodlands as an important wildlife habitat. Newsletters and other information and on-property support provided through the scheme were seen as able to assist in developing sound conservation management and to increase landholder participation. A small number of participants in the various follow-up forums expressed concerns that programs such as Land for Wildlife are entirely voluntary and this

provides no measure of future security for conservation initiatives taken by a committed current owner. However, for most participants, this flexibility was seen as an advantage, encouraging participation and the building of skills and knowledge about conservation management.

By contrast, the Wildlife Refuge scheme which has operated in New South Wales for more than two decades was seen as being of little benefit. Few participants in the follow-up forums were aware of the scheme. Among those who knew of its existence, doubts were expressed as to the level of resourcing committed to it, the difficulties of entry to the scheme and its relevance to the conservation of grassy White Box woodlands or other habitat remnants.

One of the few advantages associated with Wildlife Refuges is that they apply to public as well as private land. Since significant remnants of grassy White Box woodlands occur on public land, this is seen as an important factor.

Some participants expressed concerns that both the Land for Wildlife and Wildlife Refuge schemes place too strong an emphasis on 'wildlife', leaving little opportunity to further educate landholders and the wider community about the importance of habitat and, in particular, the understorey species which go to make up a healthy ecological community.

Legislative protection

The need for an underpinning regulatory safety-net in any package of incentives to conserve biodiversity was explored in some detail by Young et al (1996). They concluded that "other mechanisms rely on a substantial underpinning of government regulation for their effective implementation" and that where possible such regulation should be precautionary.[4] They also identify the risk of irreversible loss as a key indicator of the need for a regulatory component in any incentive package – a risk which is particularly relevant for an ecological community as much at risk as is grassy White Box woodlands.

Initial reactions to the introduction of native vegetation protection legislation in South Australia some 15 years ago, and the more recent experiences associated with State Environmental Planning Policy No. 46 (SEPP46: Protection and Management of Native Vegetation, August 1995), both indicate that private landholders react adversely to stringent controls on their property management. However, as Minister Wotton (cited in Department of Land and Water Conservation Issues and Options paper, Feb 1996) identifies "a voluntary approach alone is unsuccessful" in conserving valuable native vegetation.

Working in the local community

Opportunities for landholders and others to work together to conserve areas on private and public land were identified as important by some of those interviewed. Both the Mangoplah Landcare group in the south-west and local producers in the north-west reported sound experiences of such work.

There is clearly goodwill towards conservation management of important remnants among those involved in this project. This is reflected in the fact that almost half (43%) of all questionnaire respondents indicated that as local landholders they see it as a good idea to have landholders take responsibility for and manage adjoining areas of public land which have conservation significance.

4 It is important to ensure, however, that legislation does not actively work against native vegetation protection. When discussing conservation management on public lands, concerns were often expressed that forthcoming changes to the NSW Bush Fires Act may have recently placed responsibilities on landholders and land managers which encourage frequent burning of bushland areas to reduce fire hazards. Although other provisions being considered enable landholders not to undertake hazard reduction burning where it will impact on environmental values, not yet demonstrated, there is widespread concern among those who have adopted a conservation ethic that this will have serious adverse effects on both White Box regeneration and the survival of understorey species

Government funded programs

Of concern to several of those interviewed was the discontinuation of the Commonwealth funded Local Environment Assistance Program (LEAP), which landholders and local communities have used to good effect to fence out, restore and manage grassy White Box woodlands areas on both public and private land. Among those involved, the LEAP scheme was seen not only to provide strong financial multiplier effects, but also to assist in integrating young people into rural communities and to strengthen the sense of community ownership and goodwill towards these important vegetation remnants.

Within the various follow-up forums, views as to the success of such programs varied, the support apparently relating in significant part to the careful selection of suitable trainees and coordinators and the development of a commitment to the project between those two parties.

Training for local groups

Provision of training to assist working in groups was also identified as useful in increasing conservation work within some rural communities, although participants in the various forums were generally of the view that such training is only useful where the group identifies the need and seeks support. Such training might include issues relating to group dynamics, communications, goal setting and strategic planning, administrative and facilitation skills building.

Most participants in the forums identified the need for time, money and motivation as the key barriers to greater involvement in local community groups working for the conservation of remnant vegetation. However, provision of leadership by people respected in the community was also seen as an important aspect of successful group work towards conservation of remnants.

The employment of paid facilitators, who can significantly increase the efficiency of use of individual and group time, was seen as important in building and maintaining group participation. Although group work was generally identified as important in conserving remnants on public land, several of the participants in the follow-up forums identified a strong need to reach out to those landholders who prefer to maintain their independence and to operate outside of a group, since this is where many private landholders in the rural sector prefer to be, especially with regard to the management of their own properties.

4. Preferred model for grassy White Box woodland conservation

Having completed this project, it is the aim of the Project Team that the work should contribute to

- raising awareness of the plight of grassy White Box woodlands on the western slopes of New South Wales
- arresting the decline in grassy White Box woodlands and related woodlands and to increase the number of remnants in good ecological condition, and
- providing landholder communities with the capacity to recognise a healthy woodland landscape, which includes optimal placement and retention of woodland trees.

This project has focused specifically on grassy White Box woodlands because of its scarcity and the extent to which it has disappeared or been degraded through competition with other rural land uses. However, much of what comes out of this project is applicable to other forms of remnant vegetation, and in particular other Box woodlands. Grassy White Box woodlands can be used to build awareness of the plight of remnant woodlands, the loss of woodland trees and their equally important understorey communities. That awareness can then provide a focus for expanding targeted actions in rural communities for vegetation management on a landscape scale.

In striving to meet the goals outlined above, the Project Team has identified a need for a package of initiatives, which together form a set of tools from which landholders and land managers can choose those most appropriate to their circumstances. The toolkit will clearly need to include

- programs which provide a mechanism for 'leading edge' rural producers to serve as project leaders in the provision of peer group education about the significance of grassy White Box woodlands and other woodland remnants in the rural landscape
- mechanisms for defining priority areas for action, these priorities being identified in terms of sites, methods of conservation, management issues to be addressed and participants to receive support
- tools to assist in assessment of remnants for retention, rehabilitation needs and opportunities and the creation of reconstructed landscapes where existing remnants are inadequate to ensure ecological sustainability
- the building of links between financial returns to rural producers and conservation management
- fencing subsidies, as the preferred mechanism for protecting those remnants which are assessed as having a high priority for conservation
- the adoption of a group focus, recognising that group activities are more cost-effective and can more readily address landscape perspectives which are ecologically important.

Carl Binning from CSIRO has provided some estimates for the costs of various aspects of the package of measures, and has also provided some additional information regarding CSIRO's work in the area of financial incentives. His full report can be found at Appendix 3 but extracts relating to costing are included in this section.

4.1 Specific package of measures (tool kit) for private landholders

For those responsible for managing grassy White Box woodlands on private property, the package of measures should include the following

1. **Provision of practical information and advice** as to the importance of grassy White Box woodlands and other woodland remnants and the most appropriate management for their future conservation.

This might best be achieved through

- the **development of a simple kit** based on interviews with key landholder and land manager interviews. With support from the Land & Water Resources R&D Corporation, or another appropriate funding body, this kit could be developed by the Project Team, using interviews to be conducted with a diversity of participants in the project. The estimated costs of producing and distributing 1000 copies of a print kit alone would be approximately $6000. However, the Project Team is of the view that audio and video materials to complement the print kit would greatly enhance the impact of the materials.
- **establishment of government sponsored programs** in which rural producers with a strong and demonstrated interest in, and commitment to, conservation farming receive financial and administrative support to provide on-the-job learning about remnant vegetation management and rehabilitation. Such a program might most appropriately be developed as a Commonwealth Employment Program, either as a part of the current Green Corps program or elsewhere within rural employment programs.

  Binning estimates that the cost of a coordinating officer to facilitate on-the-job learning might be in the realm of $70–80,000 per annum with additional administrative costs totalling less than $10,000.

2. **Provision of financial and 'in kind' incentives for integrated management** which includes a strong ecological component aimed at conserving remnant native vegetation.

   Based on the recognition that to retain existing native vegetation (especially that which is as at risk as are grassy White Box woodlands) is far more cost-effective than to undertake restorative activities in the future, **rural financial assistance, whether from local, State or Commonwealth government, should be made contingent upon the development of Whole Property Management Plans** which include ecologically strategic retention and rehabilitation of remnant vegetation. Both taxation rebates and local government rate rebates which are subsidised by State and/or Commonwealth government have a role to play in this area.

   Binning and Young (1997) have recommended that "Commonwealth and State governments encourage local governments to provide **rate rebates** for land covered by a management agreement that provides for vegetation conservation.

   Supplementation should be provided in the first 3 years and decrease by 20% each year thereafter. Following this transition, rate rebates should be built into the rating base of local governments by reviewing the basis for land valuation and rating."

   Binning (see Appendix 3) estimates that if 1000 hectares are conserved over four local Shires, the cost may be as little as $2500 per annum per shire.

   Integration of farm management plans with broader Regional Vegetation Management Plans is needed in order to achieve the landscape perspective necessary for ecological sustainability. This might be achieved through the planning schemes currently being developed in the New South Wales Native

Vegetation Conservation legislation. However, in order to achieve ecological sustainability objectives, it will be important that both Regional Vegetation Management Committees and the proposed Native Vegetation Advisory Committee have within their membership sufficient ecological expertise to be effective, together with sufficient landholder representation to ensure 'ownership' of the plans by the local community.

3. **Provision of fencing subsidies,** contingent upon entry into Management Agreements which commit to management for conservation purposes.

   Whilst preliminary advice (Department of Land and Water Conservation, Feb 1996) acknowledges "provision of fencing… as vital to vegetation conservation", no commitment to a fencing subsidy scheme is apparent in subsequent materials received from that Department (Department Land and Water Conservation, April 1997; July 1997). The World Wide Fund for Nature, working with the New South Wales Farmers' Association, the Total Environment Centre and Greening Australia, has developed a quite detailed proposal as to how a remnant vegetation fencing subsidy scheme might operate. Given the high level of importance placed by landholders on the provision of fencing subsidies, not only in this project but also in others in Western Australia (Coates, 1987; Jenkins, 1996) and Tasmania (Gilfedder & Kirkpatrick, 1995), it is important that that proposal receive further attention.

   Binning (see Appendix 3) estimates that conservation of 10,000 hectares would be yielded per $1 million of public funds spent. This is based on 100% assistance and remnants of approximately 25 hectares in size. If remnants are larger than 25 hectares, or less than 100% assistance is provided, the number of hectares conserved per dollar spent will rise. Binning reports that these costs are consistent with fencing assistance currently provided in the Murray Catchment.

   Binning and Young (1997) have suggested that fencing subsidies be tied to the level of commitment of the landholder to a binding management agreement. They have suggested the following steps

   - for non-binding agreement such as a person involved in Land for Wildlife
   - for a fixed term agreement, for example 30 years
   - for an agreement in perpetuity such as for a site that is important for an endangered species

A stepped scale has the advantage of appealing to all landholders through a non-binding "Land for Wildlife" scheme, whilst maintaining a strong incentive to enter a binding agreement (Binning & Young 1997).

4. Development, by State and Commonwealth governments, of a 'stewardship' scheme which encompasses both

   - the Prober & Thiele proposal for establishing a Protected Area Network which differs in designation from any of the existing protected area categories, and
   - a less rigorous but financial incentive-based component akin to that proposed by Morton et al (1995) for the arid pastoral zone.

4.2 Recommendations regarding Voluntary Conservation Agreements

While Voluntary Conservation Agreements available under New South Wales National Parks and Wildlife legislation should, and to some extent do, offer a mechanism for secure management of grassy White Box woodland remnants of high conservation value, perceived problems with the Agreements limit their application.

Based on feedback received during this project, it is recommended that

- the terms of Voluntary Conservation Agreements, which enable the Minister to vary an Agreement at any time, be reviewed to remove uncertainties about possible Ministerial intervention in ongoing management of private properties
- additional personnel and resources be made available to the New South Wales National Parks and Wildlife Service to enable faster processing of inquiries about, and applications for, Voluntary Conservation Agreements
- the New South Wales Government explore the option of establishing an independent, community-based Trust to promote and administer Voluntary Conservation Agreements (based on the experience of Victoria's Trust for Nature and given quite high levels of scepticism among participants in this project about Voluntary Conservation Agreements).

4.3 Recommendations regarding public land

Clearly, the initiatives outlined above have greater relevance to the conservation of grassy White Box woodlands on private land than for those areas on public land. However, as already noted, many of the sites of high conservation value are on public land, either in small local cemeteries or on road or railway reserves.

Given that knowledge of those sites and awareness of their value appears less well developed than for sites on private land, **it is recommended that local governments, Rural Lands Protection Boards and the Roads and Traffic Authority be encouraged to undertake comprehensive mapping of their remaining remnant vegetation,** with a view to managing remaining areas of relatively intact grassy White Box woodlands primarily for nature conservation.[5]

State and local governments should also work with interested local residents to **develop, maintain and promote important Grassy White Box sites as local heritage attractions.**

4.4 Recommendations regarding the role of governments

The issues surrounding conservation of grassy White Box woodlands present a microcosm of the broader issues surrounding the conservation and management of remnant woodlands across the Australian rural landscape. The issues highlighted within this project provide some significant indicators in priority setting for major vegetation programs such as the Commonwealth's Bushcare: the National Vegetation Initiative. The need to bring together public and private land management in ways which will protect the remaining remnants on a landscape scale, and the need for support by the Commonwealth and State governments for local government provision of incentives and provision of sound management advice, not only to private landholders but also to public land managers, cannot be over-emphasised.

The Commonwealth has a role to play in ensuring that regional strategies do, indeed, address conservation issues at a landscape.

Working with State agencies, the Commonwealth can also ensure provision of compatible and up-to-date information which is relevant at the regional and local levels.

5 Some work is already in progress in this regard, with a group of Rural Lands Protection Boards in the central-west of New South Wales nearing completion of a vegetation survey of their lands. The Lockhart Shire Council is also nearing completion of a roadside survey, and the Olympic Highway 2000 project in the south-west of the State is also undertaking an extensive survey of that route. These surveys, and others which might already be in progress, can provide valuable information for inclusion in Regional Vegetation Management planning processes being established under State legislation. Sites of high conservation value should properly be protected either through Local Environment Plans or through the establishment of Voluntary Conservation Agreements. Several might also be appropriate for entry on the Register of the National Estate.

5. References

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6. Appendices

Grassy White Box woodlands project sites

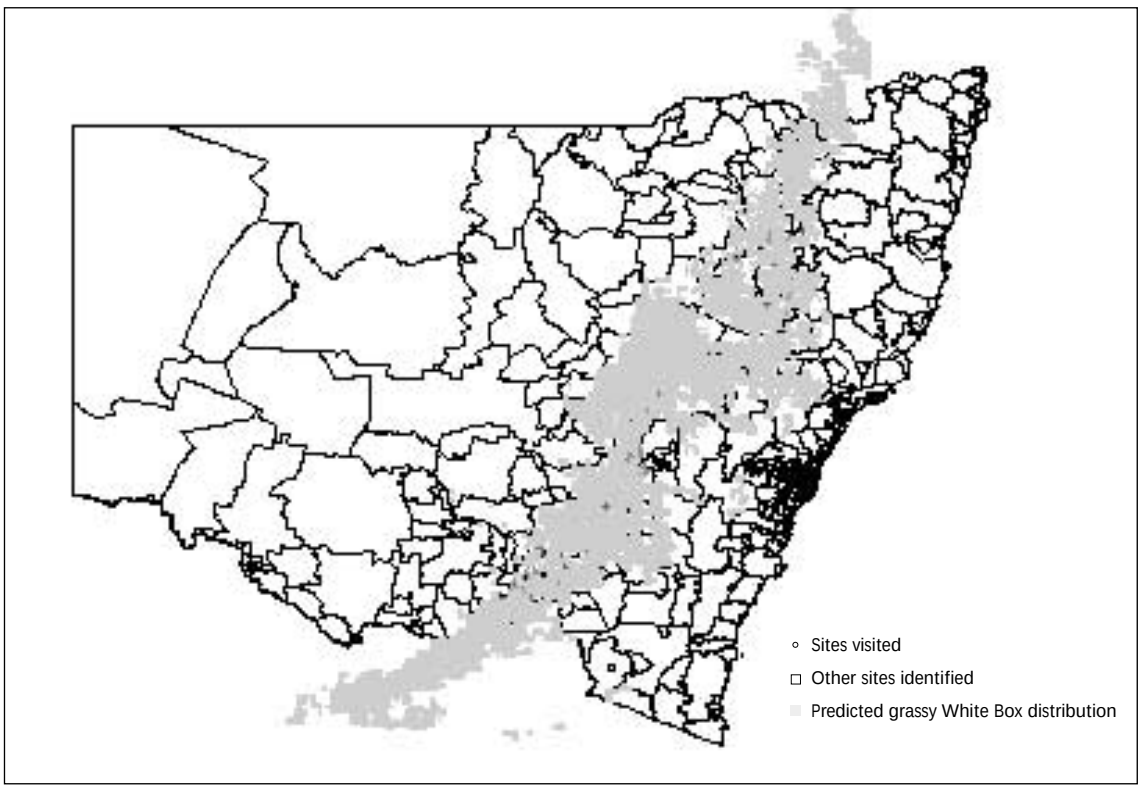

Figure 1

Prober (1996) used the Bioclimatic Prediction System (BIOCLIM, Nix 1986, Busby 1991 – see Prober for references) to predict the distribution (an envelope) of *E. albens*. Twelve climatic indices (representing annual and seasonal means and extremes for temperature and precipitation) were estimated for 120 records of *E. albens* from across its range (revised from the eucalypt dataset EUCALIST, Chippendale and wolf 1984). The data were used to derive a climatic profile for *E. albens* for each climatic parameter. The same climatic variables were predicted over a grid system (with a resolution of 0.025 deg latitude and longitude, or approx. 2.5 km) across SE Aust., using latitude, longitude, and elevation predicted from a continental Digital Elevation Model (Hutchinson, 1989; Hutchinson and Dowling 1991). All grid points falling within the climatic profile of *E. albens* were then extracted, giving a predicted distribution of *E. albens* based on the climatic parameters. The grid points falling within the 5–95 percentiles of this *E. albens* climatic profile were chosen by Prober to represent the main distribution of the White Box woodlands. Brian Stone ESU, CSU imported these grid points into the GENASYS Geographical Information System (UNIX software) to generate a grid cell coverage map of the predicted distribution.

Appendix 1
Project contacts and participants

Note:

I = Interviewed

Q = Completed a questionnaire

F = Attended a follow-up forum

Organisation	Family Name	First Name	Address 1	Town	State	p/c	I	Q	F
	Alcorn	Margaret	"Greenacres", Spring Ridge Rd	Quirindi	NSW	2343			
	Armstrong	Douglas	P O Box 110 ("Allendale")	Grenfell	NSW	2810			
	Ashton	James	"Millamalong"	Mandurama	NSW	2792			
	Atkinson	Barbara	"Gundawarra"	White Haven Lane,Via Boggabri	NSW	2382	Yes	Yes	
	Barnes	Brian	"Timaroo" Ophir Rd	Orange	NSW	2800			
	Bereseford-Smith	Aleva	31 Taylor St	Armidale	NSW	2350			Yes
	Birmingham	Megan	PO Box 294	Springwood	NSW	2777			
	Blackley	W & D	5 Lidsdale St	Wallerawang	NSW	2845			
	Brown	Graham & Anita	"Tunbridge Wells"	Four Mile Creek	NSW	2800			
	Campbell	Jan & Kevin	5 Rowe St, Lake Albert	Wagga Wagga	NSW	2650			Yes
	Chalker	Frank & Judy	"Waral", RMB 471	Wantabadgery	NSW	2650			Yes
	Chappel	Rob & Eve	Bridgewater	Via Dundee	NSW	2370			
	Davidson	Tony	"Cardington"	Molong	NSW	2866	Yes		
	Denne	Roger	30 Burns Rd	Wahroonga	NSW	2339			
	Watts	Tim & Janet	"Gowrie"	Spring Ck via Quirindi	NSW	2343	Yes	Yes	Yes
	Fisher	Peter	"Three Rivers"	Molong	NSW	2866	Yes		
	Fraser	Jock		Molong	NSW	2866			
	Fry	Rae							
	Garrett	Lesley	"Parakeet"	Manilla	NSW	2346	Yes	Yes	
	Griffin	Anne	PO Box 261	Oberon	NSW	2787			
	Hatherly	Meredith	9 Alpugi Place	Kelso	NSW	2795			
	Hawkins	Clive	9 Jindabyne St	Bossley Park	NSW	2176			
	Howard	Will	"Tufnell Park"	Junee	NSW	2663			Yes

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Organisation	Family Name	First Name	Address 1	Town	State	p/c	I	Q	F
	Hutchison	Mick	Carinya Pks Rd	Wellington	NSW	2820			Yes
	Hynes	Ray and Judy	"Craigilea"	Willowtree	NSW	2339	Yes	Yes	Yes
	Smitt	Kevin	P O Box E61	Orange	NSW	2800			Yes
	Klimpsch	Stephen	"Kumonin" RMB 230	The Rock	NSW	2655	Yes	Yes	
	Legge	Jessie	P O Box 25	Cudal	NSW	2864			Yes
	May	Herb	Cadia St	Orange	NSW	2800			Yes
	McClure	NF & SM	"Wongalee"	Molong	NSW	2866	Yes		
	McDonald	Tein	1/691 New South Head Rd	Rose Bay	NSW	2029			
	McLachlan	Joanna	"Bandoola", Orange Rd	Bathurst	NSW	2795			
	McLeish	Toni & Robert	"Kurrajong Hills"	Manilla	NSW	2346			
	Mitchi	Ron	RMB 271 Upper Moore Creek	Tamworth	NSW	2340			
	Nelson	Mike	66 Lind Street	Boggabri	NSW	2382	Yes	Yes	
	Nicholas	David & John	"Nebraska"	Molong	NSW	2866	Yes		
	O'Brien	Louise	14 Hughes St	Kelso	NSW	2795			
	O'Bryan	Thelma	"Shelysse"	Georges Plains	NSW	2795			
	Parmwell	Pam & Peter	"Kurrajong", Warrah Ck Rd	Willowtree	NSW	2339			
	Pitson	Bev	"Carinya"	Via Culcairn	NSW	2660	Yes	Yes	
	Pratten	David	Amaroo	Via Molong	NSW	2866			
	Reynolds	Owen	"Delhi Downs"	Mangoplah	NSW	2652			Yes
	Robertson	John	"Amaroo"	Mangoplah	NSW	2652	Yes	Yes	
	Robertson	Aileen	Turners Lane	Old Junee	NSW	2652			Yes
	Rowlands	Bruce	"Werribee"	Woodstock	NSW	2793	Yes	Yes	
	Russell	Graham	"Kentucky"	Lyndhurst	NSW	2797	Yes	Yes	Yes
	Schneider	Colleen		Wellington	NSW	2820			
	Schrader	Neville	2 Elizabeth St	Parkes	NSW	2870			
	Simson	Reg	"Ginanny"	Quirindi	NSW	2343			
	Sinclair	Ian	"Suncrest" C/- P O	Manilla	NSW	2346	Yes	Yes	
	Southwell	Max (MBS & MP)	"Glen Bower", Spring Range Rd	Via Hall	ACT	2618			
	Spark	Phil	"Tarcoola"	Wooloomin via Tamworth	NSW	2340	Yes	Yes	
	Thompson	Wyatt	"Goonamurrah" Turondale Rd	Duramana	NSW	2795			
	Tolomeo	Christine	"Kamaringi" Lowes Mt Rd	Tarana	NSW	2787			
	Tonkin	Geoff	Murrabar	Cumnock	NSW	2867			Yes

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Organisation	Family Name	First Name	Address 1	Town	State	p/c	I	Q	F
	Vassey	Mervyn	46 Oakleigh Ave	Thornleigh	NSW	2120			
	Waters	Gavin	"Gundebooka"	Turondale	NSW	2795			
	Watts	Jenny & Russ	"Deenderrah"	Upper Manilla	NSW	2346	Yes	Yes	Yes
	Wherry	Ross	Civic Ctr, Cecile St	Parkes	NSW	2870			
	Whitehorn	Mollie	"Murrabar"	Cumnock	NSW	2867			Yes
	Whiting	Eric	6 Cypress St	Leeton	NSW	2705			
	Wiggins	Mark	"Mullungeen"	Molong	NSW	2866	Yes		
	Wilks	Lyn	Bushcare Link, PO Box 184	Lyneham	ACT	2602			
Agriculture and Environment Consulting	Daw	John	21 Gurwood Road	Wagga Wagga	NSW	2650			
Armidale Tree Group	Mawsley	Richard	UNE	Armidale	NSW	2351			
Aust Network for Plant Conservation	Correy	Ben	PO Box 537	Lithgow	NSW	2790			
Aust Network for Plant Conservation	Mills	Jeannette	Australian National Botanic Gardens, GPO Box 1777	Canberra	ACT	2601			
Aust Trust for Conservation Volunteers	Bennett	Kara-Jane	2 Holt St	Stanmore	NSW	2048			
Australasian Beekeeper	Gulliford	Bob	65 Panorama Road	Tamworth	NSW	2340			Yes
Bathurst Conservation Group	Higgins	Isobel	PO Box 861	Bathurst	NSW	2795			Yes
Birds Australia (RAOU), Northern NSW Group	Williams	Beth	P O Box 330	Armidale	NSW	2350			Yes
Bruce Smith Tree Services	Smith	Bruce	5 Kite St	Orange	NSW	2800			Yes
Burrendong Aboretum & Mt Arthur Reserve	Holmes	Keith, Felicity & Netta	'Noonee Nyrang'	Wellington	NSW	2820			Yes
C.B.A.lexander Ag. College	Brouwer	David	"Tocal"	Paterson	NSW	2421			
CALM — WA	Hussey	Penny	Locked Bag 104	Bentley Del. Centre	WA	6983			
Carbonne Shire Council	Moore	Iain	PO Box 17	Molong	NSW	2866			Yes
Carbonne Shire Council – Environmental Services	Stewart	Bob	Kite St	Orange	NSW	2800	Yes	Yes	
Carbonne Shire Council – Mayor	Farr	J F	P O Box 17	Molong	NSW	2866			
Central West CMC	Bath	Richard	PO Box 53	Orange	NSW	2800			
Central West CMC	Howling	Gary	154 Russell St	Bathurst	NSW	2795			Yes
Central West Planning Group			P O Box 60	Geurie	NSW	2831			
Central West Regional Organisation of Councils	Armstrong	Neville	PO Box 342	Cowra	NSW	2794			
Charles Sturt Uni – Environmental Studies Unit	Cardale	Sylvia	Panorama Ave	Bathurst	NSW	2975			
Charles Sturt Uni – Environmental Studies Unit	Fisher	Andrew	Panorama Ave.	Bathurst	NSW	2795			
Charles Sturt Uni – Environmental Studies Unit	Goldney	David	Panorama Ave	Bathurst	NSW	2975			Yes
Charles Sturt Uni – Environmental Studies Unit	Stone	Brian	Panorama Ave	Bathurst	NSW	2975			Yes
Charles Sturt Uni – Environmental Studies Unit	Wakefield	Sue	Panorama Ave	Bathurst	NSW	2975			Yes

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Organisation	Family Name	First Name	Address 1	Town	State	p/c	I	Q	F
Charles Sturt Uni – Environmental Studies Unit	Windsor	Donna	Panorama Ave	Bathurst	NSW	2975			
Charles Sturt Uni – Riverina School of Science and Technology	Wood	Helen	PO Box 588	Wagga Wagga	NSW	2650	Yes		
Charles Sturt University	Lockwood	Mike	GPO Box 789	Albury	NSW	2640			
Charles Sturt University	Lord	Brian	GPO Box 789	Albury	NSW	2640			
Charles Sturt University	Miller	Jo	GPO Box 789	Albury	NSW	2640			
Charles Sturt University	Walpole	Sandra	PO Box 789	Albury	NSW	2640			Yes
Charles Sturt University – Dept Env Science	Curtis	Alan	GPO Box 789	Albury	NSW	2640			
Charlotte Vale Landcare	Bishop	Jocelyn	"Bundari"	Perthville	NSW	2795			Yes
Charlotte Vale Landcare	O'Bryan	Robyn	"Shelysse"	Georges Plains	NSW	2795			Yes
Citizens Wildlife Corridor	Wray	Kath	7 Merinda Pl	Armidale	NSW	2350	Yes	Yes	
Climax Mining	Nolan	Mark	PO Box 51	Kyndhurst	NSW	2797			Yes
Community Biodiversity Network	Glanznig	Andreas	PO Box 439	Avalon	NSW	2107			
Council of Aust. Apiarists- Inverell Branch	Weiss	Bill	206 Lambeth St	Glen Innes	NSW	2370			Yes
Cowra Shire Council – Dept. Environmental Services				Cowra	NSW	2794	Yes		
Cox's River CMC	Bryant	Hedy	PO Box 95	Lithgow	NSW	2790			
Cox's River CMC	Spence	Ariel	35 Mid Hartley Rd	Hartley	NSW	2790			
Cox's River CMC, Chair	Graves	Sue	PO Box 95	Lithgow	NSW	2790			
Cox's River TCM	Book	Jane	PO Box 95	Lithgow	NSW	2790			
Cox's River TCM	Dykes	Peter	PO Box 428	Oberon	NSW	2787			
CRES, Aust. National Uni.	Lindenmayer	David		Canberra	ACT	6200			
CSIRO	Prober	Suzanne	Martin's Ck, Bonang Hwy	Via Orbost	VIC	3888			
CSIRO	Thiele	Kevin	Martin's Ck, Bonang Hwy	Via Orbost	VIC	3888			
CSIRO Tropical Agriculture	McIntyre	Sue	306 Carmody Rd	St Lucia	QLD	4067			
CSIRO Tropical Agriculture	McLeod	Neil	306 Carmody Rd	St Lucia	QLD	4067			
CSIRO Wildlife & Ecology	Binning	Carl	PO Box 84	Lyneham	ACT	2601			Yes
CSIRO Wildlife & Ecology(visiting scientist)	Bowers	John							
CSIRO Wildlife & Ecology	Hobbs	Richard	LMB 4 PO Midland	Midland	WA	6056			
CSIRO Wildlife & Ecology	Young	Mike	PO Box 84	Lyneham	ACT	2602			
Cundumbul Landcare Group	Hickey	Peter	"Waitara"	Dubbo	NSW	2830	Yes	Yes	
Cundumbul Landcare Group	Smith	Bernard	"Fortignac" via	Molong	NSW	2866	Yes	Yes	
Deakin University	Bennett	Andrew	662 Blackburn Rd	Clayton	Vic	3168			

Organisation	Family Name	First Name	Address 1	Town	State	p/c	I	Q	F
Dept. Land & Water Conservation	Guyver	Jon	PO Box 2146	Orange	NSW	2800			Yes
Dept. Land & Water Conservation	Hull	Warwick	PO Box 60	Wagga Wagga	NSW	2650			Yes
Dept. Land & Water Conservation	Cole	Ian	PO Box 445	Cowra	NSW	2794			
Dept. Land & Water Conservation	Elder	Tim	PO Box 50	Quirindi	NSW	2343			Yes
Dept. Land & Water Conservation	Garrard	Ian	GPO BOX 39	Sydney	NSW	2001			
Dept. Land & Water Conservation	Harcombe	Louise	PO Box 2146	Orange	NSW	2800			Yes
Dept. Land & Water Conservation	Lynch	Ian	PO Box 53	Orange	NSW	2800			Yes
Dept. Land & Water Conservation	McDonald	Brad	PO Box 535	Tamworth	NSW	2340	Yes	Yes	Yes
Dept. Land & Water Conservation	O'Reilly	Katrina	PO Box 136	Forbes	NSW	2871			
Dept. Land & Water Conservation	Paton	Cheryl		Wagga Wagga	NSW	2650			
Dept. Land & Water Conservation	Sheahan	Mark	PO Box 829	Albury	NSW	2640	Yes	Yes	Yes
Dept. Land & Water Conservation	Shelly	Darren	PO Box 228	Wellington	NSW	2820			Yes
Dept. Land & Water Conservation	Sinclair-Hannocks	Sharyn	GPO Box 39	Sydney	NSW	2001			
Dept. Land & Water Conservation	Smith	Peter	GPO Box 39	Sydney	NSW	2001			
Dept. Land & Water Conservation	Watts	Tim		Quirindi	NSW	2343	Yes	Yes	Yes
Dept. Land & Water Conservation –	Bott	Bill	GPO Box 39	Sydney	NSW	2001			
Dept. Land & Water Conservation & DCNR	Stelling	Fleur	C/- 397 Tribune St	Albury	NSW	2590			Yes
Dept. Land & Water Conservation, Catchment Planner	Griffin	Liz	PO Box 1480	Bathurst	NSW	2795			
Dept. Land & Water Conservation, Lachlan TCM	Massey	Cliff	PO Box 136	Forbes	NSW	2871			
Dept. Natural Resources and Env (Vic)	McLennan	Rod	PO Box 1057	Shepperton	Vic	3632			
Dookie College, University of Melbourne	Hamilton	Steve	Dookie College		Vic	3647			Yes
Dubbo City Landcare	Berry	Stan	4 Oakdene Rd	Dubbo	NSW	2830			Yes
Environment Aust. Biodiversity Group	Lumb	John	GPO Box 636	Canberra	ACT	2601			
Environment Aust. Biodiversity Group	Tracy	Kathy	GPO Box 636	Canberra	ACT	2601			
Environment Aust. Biodiversity Group	Campbell	Andrew	Box 787	Canberra	ACT	2602			
Environs Consulting Pty Ltd	Safstrom	Rod	49 Manchester St	Victoria Park	WA	6100			
Evans Shire Council	Graham	Pam	Lee St	Kelso	NSW	2795			
Evans Shire Council	Moppett	Patsy	7 Lee St	Kelso	NSW	2895			
Greening Aust. – Roadsides Cons Officer	Kulinskis	Venita	PO Box 169	Molong	NSW	2866			Yes
Greening Australia			GPO Box 9868	Sydney	NSW	2001			
Greening Australia	Allan	Gary	20 Lee St	Molong	NSW	2866			Yes
Greening Australia	Allworth	David	PO Box 302	Darling Heights	QLD	4350			
Greening Australia	Carr	David	PO Box 1467	Armidale	NSW	2350			Yes

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Organisation	Family Name	First Name	Address 1	Town	State	p/c	I	Q	F
Greening Australia	Curtis	David	PO Box 1467	Armidale	NSW	2351			
Greening Australia	Davidson	Ian	4 Thomas St	Glenrowan	Vic	3675			Yes
Greening Australia	Dean	Les	Railway St	Molong	NSW	2866			Yes
Greening Australia	dePlater	Karen	1562 Limekilns Rd	Bathurst	NSW	2795			Yes
Greening Australia	Green	Dick	PO Box 5481	Wagga Wagga	NSW	2650	Yes		Yes
Greening Australia	Kerr	Samantha	PO Box 9868	Sydney	NSW	2001			
Greening Australia	Retke	Lyn	186 Bayliss St	Wagga Wagga	NSW	2650			Yes
Greening Australia	Southwell	Malcolm	GPO Box 9868	Sydney	NSW	2001			
Greening Australia	Walker	Karen	168 Baylis St	Wagga Wagga	NSW	2650	Yes	Yes	
Greening Australia	Watson	David	PO Box 165	Doonside	NSW	2767			
Jenolan Caves Reserve Trust	Holland	Ernst	PO Box 1495	Bathurst	NSW	2795			
Kestel Research Group	Taw	Nicki	GPO Box 2546	Canberra	ACT	2601			
Kings Park & Botanic Gardens	Courtney	Patrick		West Perth	WA	6005			
Kingstown Landcare	Gowing	David	"South Winslombe"	Uralla	NSW	2358			Yes
Lachlan CMC	Reade	Len	55 Church St	Forbes	NSW	2871			
Land & Water Research Centre	Lemon	John		Gunnedah	NSW	2380			
Landcare Coordinator, Orange/Bathurst	Higgins	Michelle	PO Box 53	Orange	NSW	2800			
Landcare Cootamundra	Vanzella	Bindi	PO Box 189	Cootamundra	NSW	2590			Yes
Landcare facilitator	Maguire	Sally	PO Box 510	Cowra	NSW	2794			
Landcare Junee	Slinger	Chris		Junee	NSW	2663			
Landcare Manilla	Gyorgy	Colin	"Nut Park"	Manilla	NSW	2346	Yes	Yes	Yes
Landcare, Regional Specialist, DLWC	Hamilton	Clare	90 Market St	Mudgee	NSW	2850			
Leeton Horticultural College	Burrows	Geoff				0			
Lithgow/Oberon Landcare Assoc	Fleming	Tammy	PO Box 95	Lithgow	NSW	2790			Yes
Lockhart Shire Council	Sly	Graham	PO Box 21	Lockhart	NSW	2656	Yes	Yes	Yes
LWRRDC	Conroy	Glen	GPO Box 2182	Canberra	ACT	2601			
LWRRDC	Price	Phil	GPO Box 2182	Canberra	ACT	2601			
Macquarie Uni., School of Biological Sciences	Cunningham	Saul			NSW	2109			
Mangoplah Landcare Group	Bostock	Ashley		Mangoplah	NSW	2652	Yes		
Mangoplah Landcare Group	Jaeger	Bruce	PO Box 19	The Rock	NSW	2655	Yes	Yes	
MDB Community Adv. Committee	Thomas	Clive	PO Box 431	Forbes	NSW	2871			
Monash University, Dept. Ecology & Botany	Horrocks	Greg		Clayton	Vic	3168			

Organisation	Family Name	First Name	Address 1	Town	State	p/c	I	Q	F
Mudgee Shire Council	Kingsford	Grant		Mudgee	NSW	2850			Yes
Murrumbidgee CMC	Stacey	Tom	62 Fitzroy Street	Tumut	NSW	2720	Yes		
National Parks & Wildlife Service	Auld	Tony	PO Box 1967	Hurstville	NSW	2220			
National Parks & Wildlife Service	Beckers	Douglas	P.O. Box 1007	Dubbo	NSW	2830	Yes		Yes
National Parks & Wildlife Service	Beukers	Max	PO Box 2115	Queanbeyan	NSW	2620			
National Parks & Wildlife Service	Burns	Andrea	105 Banna Ave	Griffith	NSW	2680	Yes	Yes	Yes
National Parks & Wildlife Service	Burrell	Phil	P O Box 351	Mussellbrook	NSW	2333			Yes
National Parks & Wildlife Service	Goode	Roger	6 Rutledge St	Queanbeyan	NSW	2620			
National Parks & Wildlife Service	Goodwin	Alan	154 Russell St	Bathurst	NSW	2795			
National Parks & Wildlife Service	Kingham	Lloyd	154 Russell St	Bathurst	NSW	2795	Yes	Yes	
National Parks & Wildlife Service	Nadolny	Chris	P O Box 402	Armidale	NSW	2350	Yes		
National Parks & Wildlife Service	Neville	Jason	154 Russell St	Bathurst	NSW	2795			
National Parks & Wildlife Service	Pressey	Bob	87 Faulkner St	Armidale	NSW	2350			
National Parks & Wildlife Service	Rehwinkler	Rainer	6 Rutledge St	Queanbeyan	NSW	2621			Yes
National Parks & Wildlife Service	Richardson	Vanessa	PO Box 330	Oberon	NSW	2782			
National Parks & Wildlife Service	Sivertsen	Dominic	PO Box 1967	Hurstville	NSW	2220			
National Parks & Wildlife Service	Smart	Julianne	PO Box 1967	Hurstville	NSW	2220			
National Parks & Wildlife Service	Szigethy	Jess	PO Box 2115	Queanbeyan	NSW	2620			
National Parks & Wildlife Service	Vaga	Gary	GPO Box 1967	Hurstville	NSW	2220			
National Parks & Wildlife Service	Woodhall	Steve	154 Russell St	Bathurst	NSW	2795	Yes	Yes	
National Parks Assoc	Byrne	Dennis	PO Box 100	Wallerawang	NSW	2845			
National Parks Assoc	Evans	Margaret	"Benwerrin", Mt View Pl.	Wellington	NSW	2820			Yes
National Parks Assoc	Hawley	Marion	PO Box 7	Leura	NSW	2780			Yes
Nature Conservation Council	Lembit	Roger	P O Box 294	Springwood	NSW	2777			
NE Landcare Coordinator	Williams	Sonia	P.O. Box 949	Armidale	NSW	2350			
NSW Agriculture	Beer	Lindsay	PO Box 477	Wagga Wagga	NSW	2650			
NSW Agriculture	Kennedy	Andrew	Locked Bag 1	Orange	NSW	2800			
NSW Agriculture	McCormick	Lester	PO Box 71	Manilla	NSW	2346			
NSW Agriculture	Tupper	Graham	Locked Bag 1	Orange	NSW	2800			
NSW Agriculture, Farming for the Future	George	David	PO Box 865	Dubbo	NSW	2830			
NSW Agriculture, Trees on Farms	Blore	Dhyan	Locked Bag 21	Orange	NSW	2800			
NSW Apiarists Association	Cooper	Carl	Shorts Rd	Tingha	NSW	2369			Yes

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Organisation	Family Name	First Name	Address 1	Town	State	p/c	I	Q	F
NSW Apiarists Association	Eden	Tony	Lot 11, Nemingha Heights	Nemingha	NSW	2340			Yes
NSW Apiarists Association	Reid	Paul	7 Wilga St	Glen Innes	NSW	2370			Yes
NSW Apiarists Association	Roberts	Greg	122 Mundy St	Goulburn	NSW	2580			
NSW Apiarists Association	Sunderland	Glenn		Dubbo	NSW	2830			Yes
NSW Beekeepers Association	Field	Neville	148 Ashmont Avenue	Wagga Wagga	NSW	2650	Yes	Yes	Yes
NSW Beekeepers Association	Robertson	Bruce	211 Alldis Place	Wagga Wagga	NSW	2650	Yes	Yes	
NSW EPA	Mercer	Christine	PO Box 1135	Chatswood	NSW	2057			
NSW Farmers Association	Frank	Bob	PO Box 259	Macksville	NSW	2247			
NSW Farmers Association	Hines	Darren	PO Box 301	Wagga Wagga	NSW	2650			Yes
NSW Farmers Association	Hughes	David	PO Box 38	Peak Hill	NSW	2869			
NSW Farmers Association	Kennedy	Shane	PO Box 219	Goulburn	NSW	2580			
NSW Farmers Association	Linnegar	Matthew	PO Box 2288	Griffith	NSW	2680			
NSW Farmers Association	McClintock	Ian	"Milford Park"	Cootamundra	NSW	2590			
NSW Farmers Association	Nuthall	Greg	"Dutton Park"	Young	NSW	2594			
NSW Farmers Association	Peterson	Hans	PO Box 1151	Armidale	NSW	2350			
NSW Farmers Association	Ragg	Warrick	PO Box 602	Gunnedah	NSW	2380			
NSW Farmers Association	Salvin	Sue	GPO Box 1068	Sydney	NSW	2001			
NSW Farmers Association	Ware	Sally	PO Box 502	Hay	NSW	2711			
NSW Farmers Association	Waugh	Sarah	PO Box 2133	Orange	NSW	2800			Yes
NSW Farmers Association	Wright	Barrie	PO Box 30	Anna Bay	NSW	2316			
NSW Natural Environment Project C/-NCC	Harris	Kate	39 George St	The Rocks	NSW	2000			
Nubrygyn Landcare Group	Crossley	Lindsay				0			
Orange Agricultural College	Hodgkins	Dennis	PO Box 883	Orange	NSW	2800			Yes
Orange Agricultural College	Kinross	Cilla	PO Box 883	Orange	NSW	2800			
Orange Agricultural College	Watson	Geoff	Leeds Pde	Orange	NSW	2800			
Orange Field Naturalists	Kenna	Jenny	13 Caleula Cr	Orange	NSW	2800	Yes	Yes	Yes
Orange TAFE (Bush Regeneration)	Woods	Mandy	211 Hope St	Bathurst	NSW	2795			
Parkes Council	Wherry	Ross	PO Box 337	Parkes	NSW	2870			
Parry Shire Council	Gilbert	John	PO Box 441	Tamworth	NSW	2340	Yes	Yes	
Parry Shire Council	Myers	Sean	PO Box 441	Tamworth	NSW	2340	Yes	Yes	
Quirindi Shire Council	Dodd	Tim	PO Box 152	Quirindi	NSW	2343			Yes
Quirindi Shire Council	Short	Ron	60 Station Street	Quirindi	NSW	2343			

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Organisation	Family Name	First Name	Address 1	Town	State	p/c	I	Q	F
Rail Services Authority	Ferris	Greg		West Tamworth	NSW	2340			
Rail Services Authority	Semple	Peter	Rm 306, 3rd Fl, Transport House, 11–31 York St48	Sydney	NSW	2000			
Roadside Environment Committee	Green	Bruce	GPO Box 3482	Sydney	NSW	2001			
Roadside Environment Committee	Lean	Bruce	G.P.O. Box 3482	Sydney	NSW	2001			
Royal Botanic Gardens	Benson	John	Mrs Macquaries Rd	Sydney	NSW	2000	Yes	Yes	
Rural Lands Protection Board	Dekkers	Eric	P O Box 64	Manilla	NSW	2346			Yes
Rural Lands Protection Board	Grant	David	PO Box 108	Coonabarabran	NSW	2357			Yes
Rural Lands Protection Board	Larnach	Graham		Bathurst	NSW	2975			
Rural Lands Protection Board	Nowland	Alison	LMB 21	Orange	NSW	2800			Yes
Rural Lands Protection Board	Pallett	Tony	17 Triall Street	Wagga Wagga	NSW	2650	Yes		
Rural Lands Protection Board	Spackman	Ted	PO Box 108	Coonabarabran	NSW	2357			
Rural Lands Protection Board	Treweeke	Rory							
Rural Lands Protection Board NSW	Prell	Sandy	Locked Bag 21	Orange	NSW	2800			
Rural Lands Protection Board, Bathurst	Mann	Norm							
Rural Lands Protection Board, Carcoar	Ferson	Dennis	PO Box 4	Carcoar	NSW	2791			
Rural Lands Protection Board, Molong	Lee	William	PO Box 15	Molong	NSW	2866		Yes	
Rural Lands Protection Board, Molong	Somerton	Colin	PO Box 15	Molong	NSW	2866	Yes	Yes	
Rural Women's Network	Carroll	Margaret	Locked Bag 1	Orange	NSW	2800			
SA Farmers' Federation	Day	Peter	P O Box 6014, Halifax St	Adelaide	NSW	5000			
Soil & Water Conservation Assoc., NSW	Porter	Val	283 Butt St	East Albury	NSW	2640			
State Forests of NSW	Deane	Andrew	Camp St	Forbes	NSW	2871			Yes
State Forests of NSW	Wells	Paul	PO Box 369	Forbes	NSW	2871			
The Good Oil	Handley	Denise	2F/802-808 Pacific Highway	Gordon	NSW	2072			
The Wilderness Society, Central West	Boulton	Gladys	32 Spring St	Orange	NSW	2800			Yes
Thring Pastoral Co	Fitzhardinge	Guy	"Penny Royal"	Mandurama	NSW	2792	Yes	Yes	
Univ. of New England	Kaine	Geoff		Armidale	NSW	2351			Yes
Univ. of New England, Botany Department	Clarke	Peter		Armidale	NSW	2351			
Univ. of New England, Botany Department	Davison	Elizabeth		Armidale	NSW	2351	Yes		
Univ. of New England, Botany Department	Jones	Christine		Armidale	NSW	2351	Yes		
Univ. of New England, Botany Department	Whalley	Wal		Armidale	NSW	2351	Yes		
Univ. of New England, Botany Department	Williams	John		Armidale	NSW	2351			
Univ. of New England, Deparment of Zoology	Ford	Hugh		Armidale	NSW	2351			

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Organisation	Family Name	First Name	Address 1	Town	State	p/c	I	Q	F
Univ. of New England, Dept Environmental Education	Metcalf	Peter		Armidale	NSW	2351			
Univ. of New England, The Rural Development Centre	Reeve	Ian		Armidale	NSW	2351	Yes	Yes	
Univ. of New England, The Rural Development Centre	Sandall	Jean		Armidale	NSW	2351	Yes		
Univ. of New England, Dept. of Ecosystem Management	Reid	Nick		Armidale	NSW	2351			
Uni of Melb – Dept Agriculture & Resource Manag.	Crosthwaite	Jim	University of Melboune			3052			
Uni of NSW (ADFA), School of Economics & Management	Bennett	Jeff	Northcott Drive	Campbell	ACT	2600			
Uni of Tasmania, Geography & Environmental Studies	Kirkpatrick	Jamie	PO Box 252- 78	Hobart	Tas	7001			
University of Canberra, Applied Ecology Research Group	Treweek	Allison	PO Box 1	Belconnen	ACT	2616			
University of Melbourne	Carey	John		Melbourne		3000			
University of NSW, School of Biological Sciences	Adam	Paul	Uni. of NSW, Biological Sci.	Kensington	NSW	2052			
University of SA School of Economics, Finance & Property	Marano	Wayne	North Terrace, Adelaide	SA	5000				
University of Western Sydney Hawkesbury	Berryman	Tim	29 North St	Windsor	NSW	2756			
Victorian Farmers Federation	King	Greg	Farrer House, 24 Collins St	Melbourne	Vic	3000			
Wagga Wagga City Council	Harry	Darren	112 Fernliegh Rd	Wagga Wagga	NSW	2650			Yes
Wagga Wagga City Council	McGhie	Sian	P.O. Box 20	Wagga Wagga	NSW	2650	Yes	Yes	
Wambangalang Field Studies Centre	Newton	Bob	Obley Rd	Dubbo	NSW	2830			
Wantiool Landcare Group	Whitaker	Owen	Kimvale	Eurongilly	NSW	2663			
Wellington Field Naturalists/GW CMC	Evans	Graham	98 Thornton St	Wellington	NSW	2820			Yes
Wellington Shire Council	Bell	Denis	P O Box 62	Wellington	NSW	2820			
Wellington Shire Council	Craythorn	Syd	PO Box 62	Wellington	NSW	2820			Yes
Wellington Shire Council	Johns	Owen	P O Box 62	Wellington	NSW	2820			
WIRES	Murray	Pat	53 Warrawong St	Wagga Wagga	NSW	2678	Yes	Yes	Yes
World Wide Fund for Nature	Pittock	Jamie	GPO Box 528	Sydney	NSW	2001			
World Wide Fund for Nature	Tremont	Ruth	"Tatibah", Pine Forest Rd	Armidale	NSW	2350	Yes	Yes	Yes

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Appendix 2
Questionnaire distributed

Due to the small numbers involved, and the similarity of questions provided to private and public landholders, the two sets of questionnaires were combined for analysis. Results are those from the 42 questionnaires returned during the life of the project.

Questionnaire for Private Landholders

Grassy White Box Woodlands: incentives and barriers to rural conservation

Community Solutions is working with a team of experts in carrying out the above project, which has been funded by the Land and Water Resources Research and Development Corporation.

Judy Lambert and Jane Elix from Community Solutions have worked in the area of rural nature conservation extensively over the past few years. In particular, we collaborated with the CSIRO and the ANU's Department of Environmental Law on a major project on incentives for protection of biodiversity. This project was funded by the Federal Environment Department, which recently published our 2 volume report – "Reimbursing the Future".

The other project team members are

- Dr David Goldney and his colleagues from Charles Sturt University at Bathurst
- NSW Farmers Association (Fred Gulson is the main contact)
- World Wide Fund for Nature (Jamie Pittock is the main contact)

We are meeting with both private and public landholders who have remnant grassy White Box woodlands on their property to discuss how incentives might be introduced to help in the conservation of these remnants

We would be very grateful if you could help with our project by completing the attached questionnaire, and returning it to us in the reply paid envelope.

Thank you for your participation. If you require further information please contact Jane or Judy on the phone numbers above.

> "Before European settlement, grassy Box woodlands covered millions of hectares between southern Queensland and northern Victoria. The woodlands were made up of number of different eucalypt species, including White Box (*Eucalyptus albens*) with an understorey of Kangaroo Grass, Snow Grass, Wallaby Grasses and abundant wild flowers such as Yam Daisies and Chocolate lilies. …We estimate that less than 0.01% of the original grassy White Box woodlands ... remain relatively unmodified.
>
> …we need to clearly distinguish the tree from the ecosystem to which it gives its name: although White Box trees are common, the grassy White Box woodlands are extremely rare. This is a common problem in conservation – it's easy to understand conserving a species, but the need to conserve ecosystems is harder to get across *(Suzanne Prober and Kevin Thiele, 1995)*."

Name _____

Address _____

_____

Postcode _____

Phone ( ) _____

Fax ( ) _____

☐ Please tick this box if you would prefer that your name not be used in reporting on this project

1. Location of property

☐ Central West (Orange/Bathurst region)

☐ South West Slopes (Wagga region)

☐ North West Slopes (Tamworth region)

☐ Other (please specify) _____

2. Do you have grassy White Box remnants on your property? (please circle your answer)

Yes/No If your answer is No, please go to question 7

3. How would you describe the quality of the remnants? (you may tick more than one box if you have remnants of differing quality)

- ☐ very good (scattered White Box trees, with *many different* grasses, herbs and wildflowers in the understorey, for example Australian Yam Daisy, Leafy Templetonia or Purple Diuris)
- ☐ good (scattered White Box trees, with *several different* grasses, herbs and wildflowers in the understorey)
- ☐ fair (scattered White Box trees, with *a few different* grasses, herbs and wildflowers in the understorey)
- ☐ poor (scattered White Box trees with *introduced pasture and/or weeds*)

Comment _____

4. Are your remnant areas of grassy White Box woodlands currently being grazed by stock? (please circle your answer)

Yes/No If Yes, how often _____

5. Do you consider it viable to protect these remnants for their environmental values? (please circle your answer)

Yes/No If No, why not? _____

6. What have been the barriers to you protecting these remnants?

1. _____
2. _____
3. _____

7. What sort of incentives would encourage and help you to take actions such as fencing out vegetation remnants like grassy White Box, and removing stock?

(Please number 1–5 with 1 being the most important and 5 being the least important)

- ☐ help from scientists and other experts in identifying your grassy White Box remnants
- ☐ advice on the best ways of protecting your remnants
- ☐ tax breaks for the costs of fencing materials and labour
- ☐ grants or subsidies for the costs of fencing materials and labour
- ☐ rate rebates for the areas of land that are being protected
- ☐ a Conservation Agreement with the government that might provide you with assistance in return for you agreeing to protect the remnants for a long period of time
- ☐ other (please specify) _____

8A. A proposal has been put forward whereby the remaining areas of grassy White Box in NSW might be linked together in a reserve system, but with the ownership and day to day management being provided by the existing landholder.

Do you think this proposal would work?

Yes/No

8B. What factors would need to be considered in further developing this proposal?

1. _____

2. _____

3. _____

9A In some circumstances, grassy White Box remnants overlap private land and adjoining public land. It has been suggested that private landholders have responsibility for managing the whole area in such cases.

Is this a good idea?

Yes/No

9B If Yes, what would encourage private landholders to take on this role?

1. _____

2. _____

3. _____

10. Would you be interested in receiving more information about this project?

Yes/No

THANK YOU VERY MUCH FOR COMPLETING THIS QUESTIONNAIRE. PLEASE RETURN IT TO COMMUNITY SOLUTIONS IN THE REPLY PAID ENVELOPE ENCLOSED. PLEASE USE THE SPACE BELOW FOR ANY ADDITIONAL COMMENTS YOU WOULD LIKE TO MAKE.

Questionnaire for Public Landholders and Managers and interest groups

Grassy White Box Woodlands: incentives and barriers to rural conservation

Community Solutions is working with a team of experts in carrying out the above project, which has been funded by the Land and Water Resources Research and Development Corporation.

Judy Lambert and Jane Elix from Community Solutions have worked in the area of rural nature conservation extensively over the past few years. In particular, we collaborated with the CSIRO and the ANU's Department of Environmental Law on a major project on incentives for protection of biodiversity. This project was funded by the Federal Environment Department, which recently published our 2 volume report – "Reimbursing the Future".

The other project team members are

- Dr David Goldney and his colleagues from Charles Sturt University at Bathurst
- NSW Farmers Association (Fred Gulson is the main contact)
- World Wide Fund for Nature (Jamie Pittock is the main contact)

We are meeting with both private and public landholders who have remnant grassy White Box woodlands on their property to discuss how incentives might be introduced to help in the conservation of these remnants

We would be very grateful if you could help with our project by completing the attached questionnaire, and returning it to us in the reply paid envelope.

Thank you for your participation. If you require further information please contact Jane or Judy on the phone numbers above.

> "Before European settlement, grassy Box woodlands covered millions of hectares between southern Queensland and northern Victoria. The woodlands were made up of number of different eucalypt species, including White Box (*Eucalyptus albens*) with an understorey of Kangaroo Grass, Snow Grass, Wallaby Grasses and abundant wild flowers such as Yam Daisies and Chocolate lilies. … We estimate that less than 0.01% of the original grassy White Box woodlands … remain relatively unmodified.
>
> … we need to clearly distinguish the tree from the ecosystem to which it gives its name: although White Box trees are common, the grassy White Box woodlands are extremely rare. This is a common problem in conservation – it's easy to understand conserving a species, but the need to conserve ecosystems is harder to get across *(Suzanne Prober and Kevin Thiele, 1995).*"

Name _____

Address _____

_____

Postcode _____

Phone ( )

Fax ( )

☐ Please tick this box if you would prefer that your name not be used in reporting on this project

1. Location of public lands

- ☐ Central West (Orange/Bathurst region)
- ☐ South West Slopes (Wagga region)
- ☐ North West Slopes (Tamworth region)
- ☐ Other (please specify) _____

2. Do you have grassy White Box remnants on properties for which your organisation is responsible? (please circle your answer)

Yes/No If your answer is No, please go to question 7

3. How would you describe the quality of the remnants?

- ☐ very good (scattered White Box trees, with *many different* grasses, herbs and wildflowers in the understorey, for example Australian Yam Daisy, Leafy Templetonia or Purple Diuris)
- ☐ good (scattered White Box trees, with *several different* grasses, herbs and wildflowers in the understorey)
- ☐ fair (scattered White Box trees, with *a few different* grasses, herbs and wildflowers in the understorey)
- ☐ poor (scattered White Box trees with *introduced pasture and/or weeds*)

Comment _____

4. Are these remnant areas of grassy White Box woodlands currently being grazed by stock?

Yes/No If Yes, how often _____

5. Are these remnant areas currently being mowed or modified in other ways?

Yes/No If Yes, could you please provide details _____

_____

6. Would your organisation be interested in protecting these remnants for their environmental values?

Yes/No If No, why not? _____

_____

7. What have been the barriers to your organisation protecting these remnants?

1. _____
2. _____
3. _____
4. _____

8. What sort of incentives would encourage and help your organisation to take actions such as fencing out the remnants and undertaking management activities to regenerate the areas?

(Please number 1–4 with 1 being the most important and 4 being the least important)

- ☐ help with identifying your grassy White Box remnants from scientists and other experts
- ☐ advice on the best ways of protecting your remnants
- ☐ grants or subsidies for the costs of fencing materials and labour
- ☐ a Conservation Agreement with the State government that might provide you with assistance in return for you agreeing to protect the remnants for a long period of time
- ☐ other (please specify) _____

9. A proposal has been put forward whereby the remaining areas of grassy White Box in NSW might be linked together in a reserve system, but with the ownership and day to day management being provided by the existing landholder.

Do you think this proposal would work?

Yes/No

9B What factors would need to be considered in further developing this proposal?

1. _____
2. _____
3. _____

10A In some circumstances, grassy White Box remnants overlap private land and adjoining public land. A proposal has been suggested that private landholders have responsibility for management of the whole area. Is this a good idea?

Yes/No

10B If Yes, what would encourage public landholders to relinquish the responsibilities to private landholders.

1. _____
2. _____
3. _____

11. Would you be interested in receiving more information about this project?

Yes/No

THANK YOU VERY MUCH FOR COMPLETING THIS QUESTIONNAIRE. PLEASE RETURN IT TO COMMUNITY SOLUTIONS IN THE REPLY PAID ENVELOPE ENCLOSED. PLEASE USE THE SPACE BELOW AND ON THE BACK FOR ANY ADDITIONAL COMMENTS YOU WOULD LIKE TO MAKE.

Appendix 3 Financial incentives

– Report by Carl Binning, CSIRO

Financial incentives for conserving grassy White Box Woodland

Rationale for using financial incentives

In recent years financial incentives have been consistently promoted as having the potential to play an important role in conserving vegetation such as grassy White Box woodlands. However, questions will always arise as to the costs of incentive based programs and, more generally, how the costs of vegetation management should be shared between private individuals and the public sector. The following section provides some costings on individual instruments and some rationale for how the incentives identified in this report can be most effectively targeted.

An economic perspective

From the perspective of economic efficiency, in an "ideal world" there would be no case for the use of incentives. This is because the full economic, social and environmental costs and benefits of conserving remnant vegetation would be reflected through prices in the market place. Hence, through the decisions of individual landholders, an optimal allocation of resources would be made. Clearly this is not the case because markets do not exist for many of the values and environmental services provided by woodlands.

An alternative approach is to identify what are the costs and benefits of incentive based measures for conserving woodlands. If these costs and benefits can be easily quantified, they can be shared on the basis of who benefits. For example, the table below explores the case of providing fencing assistance.

The table demonstrates that whilst the majority of the costs of a fencing assistance scheme could be readily quantified, the majority of benefits are of a non-marketable nature. This presents a significant difficulty in objectively determining who should bear the costs of a fencing assistance scheme.

Approaches to calculating the significance of non-marketable values are available through the various methodologies, such as contingent valuation and hedonic pricing, covered in the broad discipline of applied cost-benefit analysis. These approaches can be used to quantify the public benefits arising from individual projects and hence guide how much public funding should be provided. This approach has been adopted by the Murray Darling Basin Commission which has recommended that costs for on-ground

Table 1: Costs and benefits of providing fencing assistance

Costs		Benefits	
Landholder	Public	Landholder	Public
Opportunity cost is equal to restricted land use (eg. no grazing)	Loss of future use options	Capital value of fence	Threatened ecosystem conserved
Labour in construction of the fence	Fencing materials	Possible improved farm management	Improved land management ethic
Maintenance of the fence	Extension and facilitation services	Amenity	Flow on effect to other landholders
Costs of future conservation management	Program administration		
Any loss of land value			

works be shared on the basis of an assessment of the costs and benefits of the project to various stakeholders using cost-benefit analysis. They emphasise the importance of involving all stakeholders in the process of evaluating costs and benefits (MDBC 1996).

Such an approach has many difficulties associated with the methodologies and techniques used to place monetary values on non marketable goods. Even if these difficulties could be resolved, the process of assigning values is very resource intensive and costly and would vary between landholders. It is suggested that the use of such an approach would only be appropriate in the case of very large once off projects rather than small incentive based schemes of the kind discussed in this report.

The fact that there are clear public benefits arising from actions to conserve threatened woodlands provides a strong case for the provision of public funds. However, a more important factor is that without the use of incentives there are strong incentives for individuals to continue to degrade woodlands. This is clearly evidenced by continued grazing and cultivation of grassy White Box woodland remnants.

Ultimately the public's objective is to secure a permanent change in landuse, which in turn requires changed management practices by individual landholders. Governments can provide information and education materials, financial incentives, change property rights or regulate to secure a change in landuse. Young et al (1996) find that a mix of these instruments is most likely to be most effective in meeting the policy objectives.

Beyond this general framework which provides a rationale for a mix of incentives to conserve remnant woodlands, important questions to resolve are

- in what circumstances can financial incentives be justified?, and
- when made, how large should incentive payments be?

In what circumstances can financial incentives be justified?

Binning and Young (1997) distinguish between the "duty of care" landholders face for sustainable land management and the provision of a non-marketable "public conservation service" by landholders managing vegetation to meet conservation objectives. They suggest that a dividing line should be "drawn between those management practices required to achieve landuse objectives at a landscape or regional scale and any additional practices required to sustain sites of unique conservation value". Hence, a public conservation service is provided when the community's interest lies in securing active and ongoing management of a particular site.

From this framework, the following situations in which incentives can be paid are identified by Binning and Young (1997)

- Where community expectations resulting in legislative or policy changes cause duty of care to be shifted significantly over a short period of time, financial assistance may be provided to speed the transition to the new arrangements and maintain community support. Such payments should be "once off payments" in recognition of the need to adjust to a new regime and should only be made where a permanent change in landuse is secured
- Where the community seeks landholders to manage areas of remnant vegetation at a standard that is in excess of that required through existing regional planning processes and regulations. In these cases ongoing payments can be justified on the grounds of equity because a conservation service is being provided by the landholder, and
- Financial assistance should not generally be paid to landholders to meet their duty of care for sustainable land management.

Grassy White Box woodlands are a threatened ecosystem which require site specific management, including removal of all grazing

pressure to secure the continued presence of native understorey. For this reason the use of incentive payments can be justified on both of the grounds outlined above. If legislative changes, arising from the NSW government's consideration of vegetation management following State Environment Planning Policy 46, prohibit clearing of grassy White Box woodlands then incentives may be used to retain landholder support and motivation as an effective steward and manager of that land. In the absence of legislative controls, payments may be justified to secure conservation outcomes that would otherwise remain unregulated.

How large should incentive payments be?

Evaluating how large incentive payments should be is a difficult task. In theoretical terms payment should be made at a rate that just exceeds the opportunity cost of conservation. However, the incentives put forward in this report will be well below the opportunity costs of most landholders because they only provide assistance for a proportion of the direct costs of managing the woodlands to meet conservation objectives.

The opportunity cost of each landholder will vary considerably. For a landholder with a strong conservation ethic, no payment may be required to secure conservation outcomes as this is already the most highly valued use to the individual. Other landholders will be dependent on continued grazing for their livelihood and require substantial payments to voluntarily change landuse practices. The objective of the policy mix put forward in this report is to use education and information programs to shift landholder attitudes at the same time as providing financial assistance to provide a strong incentive for changed landuse.

There is considerable anecdotal evidence that a small financial incentive may have an impact on behaviour that is well in excess of its size. This is because incentives are a direct way of governments acknowledging the contribution of the landholder in providing a conservation service to the public. Thus costs are seen to be shared with both parties making a fair contribution. Further, landholders are often willing to undertake conservation activities as long as they are not "out of pocket" (Young et al. 1996; Binning and Young 1997).

For this reason, all incentives put forward in this report are modest and directly related to the input costs of management. Concerns may be raised about precedents being set for government to provide assistance for other vegetation management.

Because grassy White Box woodlands involve small areas they provide a good opportunity to pilot a program of incentives and evaluate the acceptability and impact of various alternatives. The outcomes of any program should be carefully monitored with a view to the potential to apply similar incentives to other threatened ecological communities.

The incentives and their cost

Fencing assistance

Fencing costs vary considerably depending on the purpose of the fence and the terrain on which it is to be built.

Box 1 explores a range of options for fencing materials, costs are identified on the basis of materials required to construct one kilometre of fence. Costs for materials are shown to vary from approximately $1,000 to $3,000 per km depending on the combination of materials used. The use of rabbit proof mesh approximately doubles the material cost of the fencing and therefore is not considered cost effective. Given the predominance of grazing in grassy White Box woodlands areas, a seven strand wire fence with two barbs or a hinge joint fence would be recommended. These lie in the range of $1,085 to $1,933.

The costs in Box 1 are derived from average prices at rural supply centers. These costs could potentially be reduced by seeking sponsorship from major fencing suppliers in return for a discount on materials. Taking these factors into account, assistance for the full costs of materials may average at $1200 to $1400 per kilometre.

Box 1: Possible fencing materials and associated

Materials

	Quantity	Cost
Strainer post	1	$18.00
Stay	1	$16.00
Star picket	1	$3.45
Concrete support post	1	$10.50
Plain wire	1500m	$110.00
Barbed wire	500m	$55.00
6 Wire hinged joint	200m	$140.00
7 Wire hinged joint	200m	$158.00
Mesh 1050mm	100m	$205.00

Plain wire fences

	No barbed wire ($36.67 extra)	1 Barbed strand ($73.34 extra)	2 Barbed strands
6 Plain wires/2 strainers/star pickets every 8 metres	$939.25	$975.927	$1,012.58
Plain wires/2 strainers/star pickets every 8 metres	$1,012.58	$1,049.25	$1,058.92
7 Plain wires/4 strainers/star pickets every 8 metres/ concrete support posts every 50 metres	$1,290.58	$1,327.25	$1,363.92
7 Plain wires/4 strainers/star pickets every 5 metres	$1,339.33	$1,376.00	$1,412.67

Hinged joint fences

	No barbed wire	1 Barbed strand ($36.67 extra)	2 Barbed strands ($73.34 extra)	7 Wire hinge joint ($90.34 extra)	Rabbit proof mesh ($1350 extra)
2 Plain wires/2 strainers/ star pickets every 8 metres/ 6 wire hinge joint	$1,345.92	$1,382.59	$1,414.26	$1,435.92	$2,695.92
4 Plain wires/2 strainers/ star pickets every 8 metres/ 6 wire hinge joint	$1,492.58	$1,529.25	$1,565.92	$1,582.58	$2,842.58
5 Plain wires/2 strainers/ star pickets every 8 metres/ 6 wire hinge joint	$1,565.92	$1,602.59	$1,639.26	$1,655.92	$2,915.92
5 Plain wires/4 strainers/ star pickets every 8 metres/ concrete support post every 50 metres/ 6 wire hinge joint	$1,843.92	$1,880.59	$1,917.26	$1,933.92	$3,193.92
5 Plain wires/4 strainers/ star pickets every 5 metres/ 6 wire hinge joint	$1,892.67	$1,929.34	$1,966.01	$1,982.67	$3,242.67

Labour costs for fencing are usually about equivalent to the costs of materials but can vary considerably depending on the terrain and difficulties encountered in construction. It is suggested that fencing assistance be limited to the costs of materials to ensure that landholders are committed to the outcomes of assistance, a proposal already identified as acceptable to many of the landholders participating in this study.

The overall costings for such a scheme will also depend on the ratio of the size of the remnant to its perimeter. A full cost of approximately $100 per hectare would seem reasonable. This is based on assumed costs of $1,250 per kilometre of fence covering an average of 12.5 hectares which in turn assumes that the average remnant would be approximately 25 hectares in size. These costings yield an estimated conservation of 10,000 hectares per $1 million of public funds spent. If remnants are larger than 25 hectares, or less than 100% assistance is provided, the number of hectares conserved per dollar spent will rise.

Clear criteria for eligibility and standards for fencing would need to be made. Eligibility should be dependent on an assessment of the conservation value of the site. Payment should be tied to an on site inspection of a satisfactorily completed fence, in the correct location.

These costs are consistent with fencing assistance currently provided in the Murray Catchment at $1,200 km. The scheme is sponsored by a range of companies and has provided funding for over 300 km of fencing at 180 sites. The scheme has been very successful with demand outstripping supply with thorough site assessments being used to identify suitability and priorities for assistance (Martin Driver, Greening Australia pers comm).

Fencing assistance and subsequent construction of a fence will not secure conservation outcomes in itself. Where significant assistance is paid it is reasonable that the community secure management arrangements that ensure conservation objectives will be met in the long term.

Binning and Young (1997) have suggested that fencing subsidies be tied to the level of commitment of the landholder to a binding management agreement. They have suggested the following steps

- 33% for non-binding agreement such as a person involved in Land for Wildlife
- 66% for a fixed term agreement, for example, 30 years
- 100% for an agreement in perpetuity such as for a site that is important for an endangered species.

A stepped scale has the advantage of appealing to all landholders through a non-binding "Land for Wildlife" scheme, whilst maintaining a strong incentive to enter a binding agreement.

Rate rebates

Binning and Young (1997) have made the following recommendation in relation to rate rebates

> "Commonwealth and State governments encourage local governments to provide **rate rebates** for land covered by a management agreement that provides for vegetation conservation".

- 100% supplementation should be provided in the first 3 years and decrease by 20% each year thereafter.
- Following this transition, rate rebates should be built into the rating base of local governments by reviewing the basis for land valuation and rating.

Rates are generally based on the unimproved value of land. It is assumed that all land is used for productive purposes, though this need not be the case. What is surprising is that despite the modest impact rates relief would have in most areas (approximately $10 ha per annum in Yass NSW) their absence is very often cited as a major impediment to conserving remnant vegetation. This may be because of the symbolic nature of rates being associated with productive land. Based on this example, it could be assumed that conserving 1000 ha of grassy White Box woodlands over

4 Local Government areas (250ha per Council), would cost each Council approximately $2500 per annum.

Rates may, however, be a significant issue in areas close to urban settlements which have been subdivided for future. In these cases, the impact of rates and land taxes may be prohibitive, but given that grassy White Box woodland is generally found on soils of higher fertility, it is unlikely that significant stands will remain in close proximity to urban development areas.

Taxation issues

The impact of rates and other expenses associated with land management on the tax liability of a landholder is another important issue. If a landholder does not qualify as a primary producer any work undertaken on the property will not be tax deductible.

The impact of taxation arrangements is well illustrated in relation to payment of rates. A primary producer can claim the costs of rates as a business expense against tax. A landholder managing for conservation cannot. Hence, a landholder managing for conservation is discriminated against and can pay up to almost twice as much in land rates on land set aside from production (this is based on a marginal tax rate of 48%) as is payable on production land. Further, expenses such as fencing and weed control are not deductible and cannot be depreciated for tax purposes.

It is recommended that arrangements for taxation of land managed for conservation be urgently reviewed. Costings of changed taxation arrangements would need to be included in any review process.

A possible role for a vegetation trust

Binning and Young (1997) have recommended that

- "A range of Vegetation Management Trusts be established to provide funding for ongoing management of areas covered by a management agreement in perpetuity
- The Trust should be established with once off funding for 5–10 years. Public donations should be encouraged and be tax deductible
- The Trust would provide payments to landholders based on applications for funding linked to monitoring of management agreements undertaken on a two yearly basis
- The Trust would provide performance payments for examples of exceptional management."

The objective of a trust would be to provide landholders with guaranteed access to funding for ongoing management costs.

Governments are generally concerned that funding commitments be restricted to a finite period, usually not greater than five years. However, to be enduring, agreements to conserve grassy White Box woodlands will require ongoing adaptive management. The Trust would hold funds to provide assistance for a range of management actions, such as control of unanticipated pests and weeds. Application to the Trust would be made jointly by the landholder and the management agency. This would be done on the basis of monitoring against agreed performance indicators every two years.

The Trust might also provide payments to landholders who have excelled in their management or achieved a particular milestone in relation to rehabilitation. Such a scheme need not be complex and might be initiated as a simple awards scheme.

A vegetation trust may also manage a revolving fund for purchase of woodland areas of high conservation value. A revolving fund purchases land on the open market, places an in perpetuity covenant on the land, and then re-sells the land to a landholder willing to conserve the area covered by the covenant. As the property right is changed, via the covenant, it is more likely that a landowner committed to vegetation management

will purchase the land. In this way the market works to put a "willing" landholder in the place of an "unwilling" landholder.

Revolving funds are attractive because they are cost effective and also because they may be more ecologically dependable. As Farrier (1995) notes, it is difficult, if not impossible, to get a resistant landowner to change their management practices. This is irrespective of the approach taken: regulations, information or incentives. By acting in the open market, a dependable landholder identifies themselves through the market. Moreover, because the seller is usually keen to sell, there is no need to offer more than market value to secure a remnant.

If the Trust failed to demonstrate good performance it would be subject to the normal budget process of government and funding would diminish or halt altogether.

Extension and administrative costs

Any incentives program would require program support and extension services. Given the rarity of good quality grassy White Box woodland any program could be tightly focused thereby reducing administrative costs. On the other hand, significant time would need to be spent with each landholder explaining the value and benefits of taking action to conserve the woodlands.

The allocation of one full time field officer would seem an appropriate estimate in the first years of a program. The cost of a field officer with vehicle and other associated expenses would be in the order of $70,000–$80,000 per annum (NSW NPWS pers comm). It is likely that a field officer could provide extension support to a wider group of woodland communities. However, given the new nature of this type of program, it would be worth keeping the program tightly focused for the first one to two years and to carefully monitor the results.

A field officer would require administrative, corporate and policy support. These costs are difficult to estimate. Administrative support may be in the order of $8,000 per annum. Policy support may be high in the establishment phase of the program but would then become minimal. Perhaps a third of a policy officer's time would be spent on the project in the first year, that is approximately $25,000.

Some of these costs could be absorbed within existing programs.

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