

Bushcare



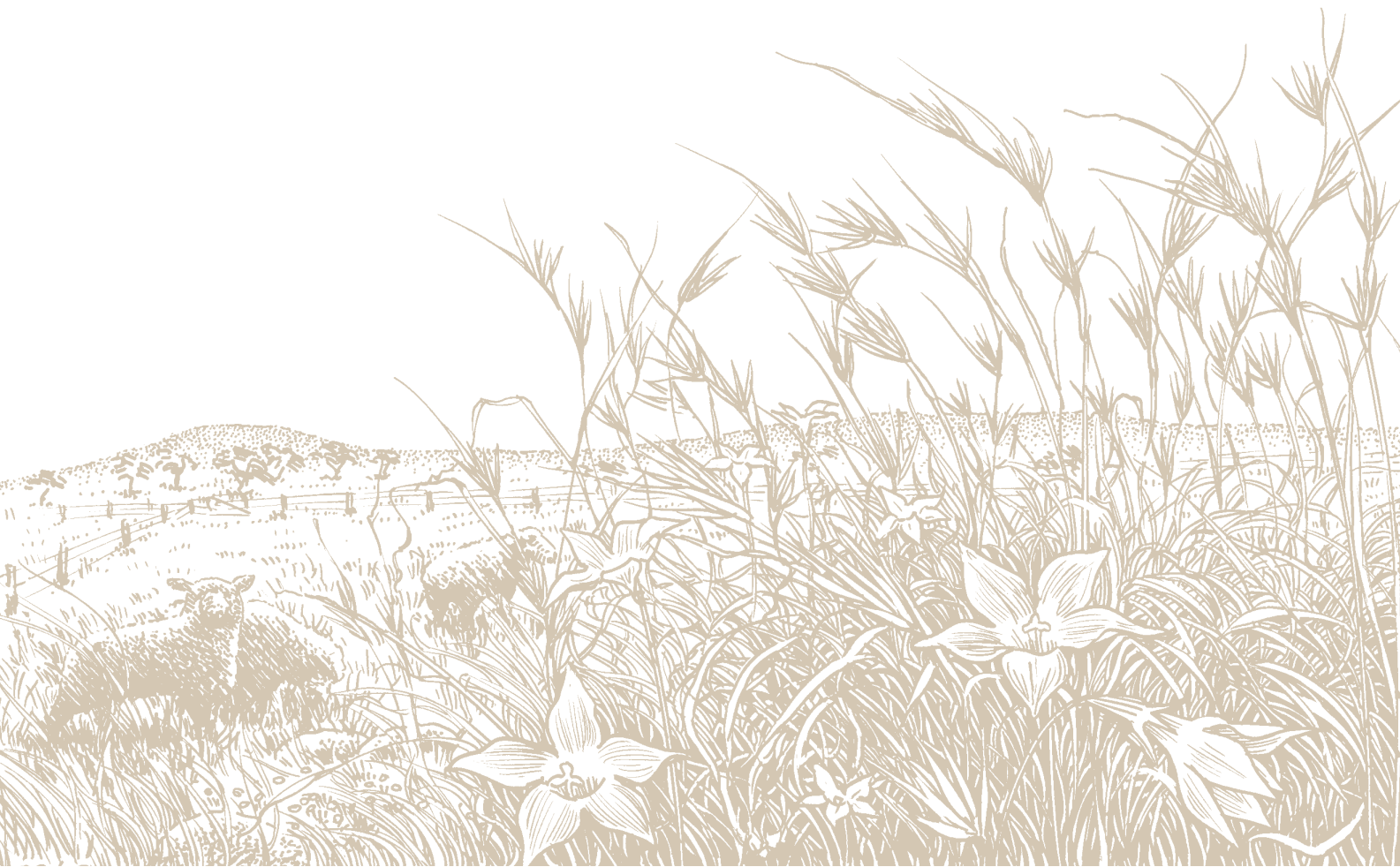
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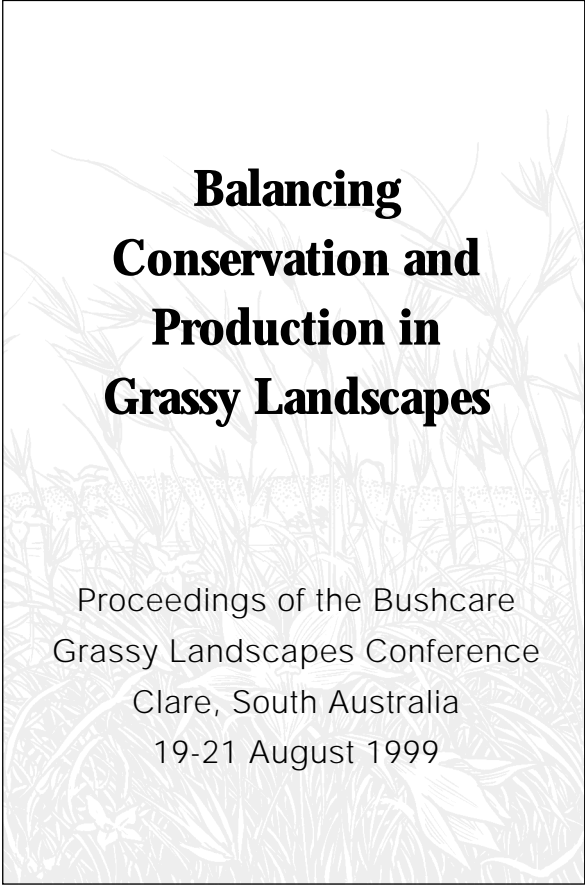
*Helping Communities Helping Australia*

# Balancing Conservation and Production in Grassy Landscapes

Proceedings of the Bushcare Grassy Landscapes Conference  
Clare, South Australia 19-21 August 1999

Edited by Tim Barlow and Roberta Thorburn





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The conference was organised and funded by Bushcare,  
a program of the Commonwealth Government's Natural Heritage Trust



**Natural Heritage Trust**  
*Helping Communities Helping Australia*

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## Published by Environment Australia:

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## Publication data

Barlow, T. & Thornburn, R. (eds) 2000. Balancing Conservation and Production in Grassy Landscapes. Proceedings of the Bushcare Grassy Landscapes Conference, 19-21 August 1999, Clare, SA. Environment Australia, Canberra.

**Cover illustration by** Brian Bainbridge  
(with permission of Trust for Nature (Victoria))

**Printed by** Elect Printing, ACT

**Designed and typeset by** Fusebox Press

ISBN: 0 642 19478 5

Printed on recycled paper

# Acknowledgments

The planning and organisation of this conference involved a cast of thousands. Thanks to the many people who contributed their ideas.

The following people deserve a special mention:

The Council for Sustainable Vegetation Management for their support for and participation in the conference.

The speakers and poster presenters for taking the time and contributing to costs to attend the conference and share their knowledge, experiences and enthusiasm for grassy ecosystems.

Ann Prescott and Millie Nicholls (World Wide Fund for Nature Australia) for organising and running the field trip to South-Australia's Mid-North, and to the local farmers and graziers for inviting us onto their properties to see the theory in action. Thanks also to the staff of the SA Department of Environment, Heritage & Aboriginal Affairs for their assistance with transport for the field trip.

The Conference Organising Committee (and their respective organisations) who survived the sometimes arduous task of organising a conference entirely by email and teleconference:

Vanessa Craigie	Department of Natural Resources & Environment, Victoria
David Eddy	World Wide Fund for Nature Australia, ACT/NSW
Denys Garden	NSW Agriculture
Louise Gilfedder	Department of Primary Industry, Water & Environment, Tasmania
John Lumb	Environment Australia, ACT
Ian Lunt	Charles Sturt University, NSW
Ann Prescott	World Wide Fund for Nature Australia, SA
Andrew Walker	Agriculture, Forestry & Fisheries Australia, ACT
Lyn Wilks	Bushcare Link, ACT

We are grateful to Intercomm Event Coordination and particularly to Anna Handley who kept the show on the road and maintained her good humour despite the string of complexities that we threw at her.

Finally, we'd like to thank the delegates for travelling (from all over Australia) to Clare, South Australia to share their passion for Australia's native vegetation and for the better integration of conservation and production goals in our grasslands and grassy woodlands.

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# Introduction

Grassy landscapes occur on the fertile plains, foothills and tablelands that for most Australians typify the farming environment (the rangelands of the 'outback' are in a different category). With few exceptions, farming activity has been so extensive that the original ecosystems of these regions have become highly fragmented, with many plant and animal species continuing to decline in number and extent.

Increasingly, the fragmentation of habitat and extinction of populations is manifesting as disrupted ecological processes that also threaten the economic viability of farms and rural communities. For example, weed invasion is estimated to cost Australian agricultural production some \$3.5 billion per year. Salinity is another obvious problem of great economic cost, and it is estimated that up to 30% of the arable land in Australia will become salt-affected unless there is significant intervention.

For the remnants of the original ecosystems to survive, it is imperative that nature conservation becomes a normal part of farming operations. It is also argued that, for farming itself to survive, production objectives need to be more fully integrated with nature conservation.

The goal of Bushcare is to reverse the long-term decline in the quality and extent of Australia's native vegetation cover. It is therefore appropriate that Environment Australia, which manages the Bushcare Program, convene a conference that explores the social, economic and ecological issues involved in balancing nature conservation and agricultural production.

The conference *Balancing Conservation and Production in Grassy Landscapes* was divided into seven sessions, each of which contained four or five speakers invited to present a given topic relevant to their area of expertise. The first session, *Setting the Scene*, is introduced by the Hon. Dorothy Kotz, South Australian Minister for the Environment and Heritage, and fellow South Australian, Senator the Hon. Robert Hill, Commonwealth Minister for the Environment and Heritage, who outlines the role of Bushcare in balancing nature conservation and agricultural production. Biz and Lindsay Nicolson present their views on what it means to be 'on the land', in their case the Northern Midlands of Tasmania.

Denis Saunders then explains what biodiversity really means as a term, and for the maintenance of essential, life-supporting ecological processes.

The *Two-Edged Sward* includes presentations from farmers from various regions across South-eastern Australia, each giving their own perspective on balancing conservation and production. As Cynthia Dunbabin states 'it's hard to be green if you're in the red'. An issue of ubiquitous concern is the socially crippling exodus of young people from rural communities.

Despite the fragmentation and impoverishment of natural ecosystems, the Biodiversity of Grassy Landscapes still supports an array of biological treasures, including the mysterious sex-life of the Pale Sun Moth and the cryptic habits of our bat fauna. Conservation strategies, whether for a single species such as the Plains-wanderer or an entire ecosystem such as the White Box Woodlands, reveal the importance of including socio-economic issues, and adopting a flexible approach in conservation planning.

Gaining an understanding of the socio-economics of the farm enterprise is the purpose of *The Nature of the Business*, wherein we explore a range of issues from creating marketing advantages, to the strategic delivery of conservation incentives. In *Looking Back: Moving Forward* we consider the potential importance of 'evolutionarily-acquired' attitudes to grassy landscapes, and the on-going relationships of Indigenous Australians with this land. Both the long-past and most recent experiences will help determine our abilities to better integrate conservation and production.

The final two sessions are both pragmatic and profound. *Managing Native Pastures* examined concepts relating to knowing your plants and utilising 'ecological windows' to achieve a range of objectives from manipulating pasture composition through to non-destructive cropping of degraded native grasslands. *A Broader Look at Grassy Landscapes* includes consideration of the \$20 billion worth of trees standing in the grassy landscape and threatened by dieback. Limiting pasture intensification to about 30% of any one property could potentially rectify this and maintain sufficient patchiness in the landscape to provide for the majority of plant and animal habitat needs.

Ultimately though, we must develop a more diverse and stable agricultural system if this balance of biodiversity and production is to be achieved.

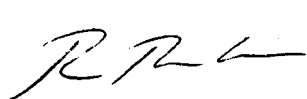
These Proceedings are a record of the presentations given at the conference. We have endeavoured to allow the full 'flavour' of each presentation to come through to the written form. It should be noted that editorial input has been limited to mostly typographical matters and papers have not been subject to external refereeing.

One person with extensive experience in natural resource management in the NSW Riverina stated it was 'the most important couple of days I've had in the job in the last 10 years'. As editors, we are proud to be able to put this claim in print, and we know it represents the feeling of many at the conference.

We would like to publicly thank our colleagues on the Conference Organising Committee:

Vanessa Craigie, David Eddy, Denys Garden, Louise Gilfedder, John Lumb, Ian Lunt, Anne Prescott, Andrew Walker and Lyn Wilks.

Most especially, we thank and acknowledge the presenters for the time, wisdom, and enthusiasm they gave so generously, for it is they who made the conference such a success.



---

**Roberta Thorburn**  
Conference Convenor  
Sustainable Landscapes Branch  
Environment Australia



**Tim Barlow**  
Bushcare Grassy Ecosystems  
Networker (South-east Australia)  
Victorian National Parks Association



**Andrew Campbell**  
Assistant Secretary  
Sustainable Landscapes Branch  
Environment Australia

## Authors' biographies

### David Baker-Gabb

Dr David Baker-Gabb is a self-employed ecologist with a special interest in threatened species and land management. These interests have evolved from his life-long passion for birds and from his farming background. He currently chairs four recovery teams for threatened birds, writes species recovery plans and reserve management plans, and does lots of related volunteer work. He is the Council member of BirdLife International, representing the Pacific region, and the honorary Conservation Adviser to Birds Australia. David's work experience includes: 1993-97 Director of Birds Australia (RAOU); 1989-92 Senior Wildlife Planner with the Victoria Government; 1983-88 professional ornithologist with RAOU; and 1979-82 PhD at Monash University.

### Carl Binning

Carl Binning is a senior research economist at CSIRO Wildlife and Ecology. His research is focused on designing economic incentives and institutions for sustainable natural resource management, focussing on the conservation of biodiversity outside public nature reserves. In the last three years he has undertaken a detailed evaluation of the potential role of innovative policy instruments, such as covenants, management agreements and financial incentives, in securing voluntary private investment in nature conservation.

Prior to joining CSIRO, Carl worked as an environmental economist within the Commonwealth Environment Department and the Department of Prime Minister and Cabinet. In this period, he participated in the Ecologically Sustainable Development process, the Council of Australian Governments Water Reforms and the development of Regional Forest Agreements.

### Sylvia Clarke

Sylvia Clarke has a Bachelor of Science, with a major in Environmental Biology, from the University of Adelaide. In 1997 she completed Honours in the Department of Zoology with Associate Professor Keith Walker, looking at the effects of salinity, drought and insect herbivory on the ecology and ecophysiology of eucalypt seedlings.

She has been working as the Project Officer for the Pygmy Bluetongue Lizard Recovery Program at the South Australian Museum since mid-1998.

### Jim Croshwaite

Jim Croshwaite is currently doing a PhD titled 'Reconciling Public and Private Interests: the Case of Native Grasslands'. This research builds on a recently completed two year LWRRDC/Environment Australia funded project on the same topic. Jim worked for eight years in the Victorian Department of Natural Resources and Environment, ensuring that conservation plans accounted for social and economic matters, as required under the Flora and Fauna Guarantee Act. Earlier he managed the Agricultural Census (Victoria) in the Australian Bureau of Statistics and wrote a Masters thesis titled 'The Persistence of Family Farming: Land, Cows and Capital in Victorian Dairying 1945 to 1975'. Recently he wrote *The Dairy Industry* for the Oxford Companion to Australian History.

### Rick Davies

Rick Davies has worked as a botanist in South Australia and Victoria for twenty years, specialising in research into threatened plant communities, threatened plant species and native vegetation management. He has undertaken an extensive field and literature based experimental study into weed management in native grassy ecosystems, published in his book *Weed Management in Temperate Native Grasslands and Box Grassy Woodlands in South Australia*.

Rick is currently working as a Biodiversity Extension Officer with the Nature Conservation Society of SA, coordinating the biodiversity component of the Bushcare Support Program in South Australia.

### Fabian Douglas

Fabian Douglas is a freelance entomologist with a special interest in the conservation and management of endangered species. He is particularly concerned about insects that depend on threatened habitats for their survival and has carried out a number of entomological surveys in such areas during the past twelve years. Fabian is also in the process of doing

a Master of Science degree at the University of Ballarat. His study focuses on the biology, taxonomy, distribution, habitat requirements and conservation of the Pale Sun Moth (*Synemon selene*).

### **Martin Driver**

Martin Driver has been the Regional Manager of Greening Australia (Riverina) for nine years. During that time he has worked closely with the Murray Catchment Management Committee (MCMC) in fostering natural resource management programs and awareness. Greening Australia and the MCMC were instrumental in establishing broad vegetation assessment programs and the implementation of the Fencing Incentive and Management/Vegetation Enhancement Incentives. These programs have since been adopted by Catchment groups across NSW. Greening Australia (Riverina) offers a range of incentives and support, through core Bushcare, Seedbank and Fencing Programs, to enhance nature conservation values while balancing production capacity on private land.

Martin worked with CSIRO Division of Wildlife and Ecology for fourteen years prior to joining Greening Australia. He is an active partner in a dryland grazing property in the NSW Riverina. His interests on the property include extensive regeneration and vegetation management projects for both nature conservation and production outcomes through increasing the perennial vegetation base.

### **Cynthia & Tom Dunbabin**

Cynthia and Tom Dunbabin manage 'Bangor', a family property in Tasmania's south east. The major enterprise is grazing sheep, for both wool and prime lambs, and beef cattle. Other enterprises include forestry, vegetable seed crops and farm tourism. Cynthia has undertaken a number of farm related training courses, including property management planning, Prograze and farm forestry. A special interest at Bangor is the conservation of the rich natural and cultural heritage of the area.

### **Simon Ellis**

Simon Ellis is a private farm consultant with 20 years experience in the sheep and beef cattle industries, and an extensive knowledge of grazing management in hill country. He has a unique understanding of animal production from both the environmental and the commercial agriculture perspectives.

Simon offers a range of services to commercial producers across South Australia, including farm financial review, farm planning, pasture and animal productivity, animal breeding and landcare issues. He is currently managing the South Australian site of the Murray Darling Basin Commission-funded project 'Management of Grazed Key Native Pasture Communities in the Murray Darling Basin'.

### **David Freudenberger**

Dr David Freudenberger is a Senior Research Scientist with CSIRO Wildlife and Ecology's Sustainable Landscapes Program, Canberra. David's current research is focused on developing revegetation guidelines in the Southern Tablelands of NSW and the wheat-sheep zone of eastern Australia. This work is in partnership with Greening Australia, NSW National Parks and Wildlife Service and the Lachlan Catchment Management Committee, with support from the Natural Heritage Trust. David is also involved in long-term ecological research into the impacts of grazing on landscape function in the rangelands.

### **Bill Johnston**

Bill Johnston graduated from the University of New England in 1991. Bill's main area of interest is agricultural ecology, particularly the use of summer active grasses in pastures. Bill developed Consol Lovegrass and was project leader for the low input grasses LIGULE project. He is also project leader of an NRMS-funded research project examining management of grazed key native grasslands in the southern sector of the Murray-Darling Basin.

### **Christine Jones**

Christine Jones' first degree was through the University of New South Wales (wool and pastoral sciences). She obtained her PhD through the University of New England (crop and weed management). Over the past twenty-five years, Christine's principal interest has been the investigation of integrated management practices that regenerate soils and vegetation. Most recently this has involved exploring appropriate grazing management strategies for grasslands, and the combined farming/grazing methodology of perennial pasture cropping for farmed areas. Christine undertook a three week lecture tour in the USA in 1998 giving seminars on these topics, and presented a paper on permanent groundcover farming at the International Women in Agriculture Conference in Washington DC.

**David Kemp**

David Kemp has a PhD in agriculture. He was recently appointed to the foundation Chair in Farm Management at the University of Sydney, Orange Campus. In this position, he aims to develop a more sustainable approach to Farm Management and to achieve better integration of financial, biological, physical and social aspects of farming systems. Prior to taking up this appointment, David worked with NSW Agriculture.

In central NSW, David has worked on improving the competitiveness of wheat crops through varying spatial arrangements and density. Over the last fifteen years his work has returned to a more ecologically based approach, aiming to improve the productivity, stability and sustainability of pastures and grasslands. This work has been central to the large Key Programs, Temperate Pasture Sustainability and Sustainable Grazing Systems (SGS) funded by Meat & Livestock Australia and other R&D Corporations. David was also involved in establishing the CRC for Weed Management Systems and was the Leader of the Perennial Pasture Ecosystem Program within the CRC until March 1999. The work at Orange has been in the forefront of developing grazing management practices to improve or maintain the composition of perennial pastures. An important component is the development of better advisory tools for managing grasslands. David is leading a study across all the SGS sites of the impact of management treatments on plant and soil invertebrate biodiversity. He recently completed a three year term on the Scientific Committee established under the Threatened Species Act in NSW.

**Val Lang**

Val Lang and her family's livelihood depends on their cropping and grazing enterprise in the grassy landscape of Western Victoria. She is also the Chair of the Victorian National Trust's Mooramong Nature Reserve Committee and a past member of the Corangamite Catchment and Land Protection Board.

**Ted Lefroy**

After graduating from the University of WA with a degree in agricultural science in 1973, Ted Lefroy worked in agricultural extension in Queensland and Papua New Guinea and in horticulture at the Royal Tasmanian Botanical Gardens in Hobart. In 1985 he returned to WA and began working as a consultant to Landcare groups in farm and

catchment planning. He is currently a research fellow at the Centre for Legumes in Mediterranean Agriculture at the University of WA, studying the development of farming systems as mimics of the natural woodland ecosystems of the Western Australian wheatbelt.

**Charles Litchfield**

Since graduating from Sydney University, working in the financial markets in Sydney, and returning to the family farm near Cooma in 1990, Charles Litchfield has been involved in a number of producer and community organisations. He was Vice President of the Beef Improvement Association of Australia between 1994 and 1996 and is a graduate of the Australian Rural Leadership Program.

Charles has had broad involvement in resource management, from input to the Monaro Grasslands Management Plan to coordinating the Upper Snowy Landcare Committee, and is currently undertaking an action planning project for the Snowy region, with the Snowy Genoa Catchment Management Committee, local government and community.

**Lindy Lumsden & Andrew Bennett**

Lindy Lumsden has been studying insectivorous bats for 20 years. She has worked extensively throughout Victoria, as well as elsewhere in Australia and overseas. In the last 6 years she has been undertaking research on the fauna of the Northern Plains and Box-Ironbark regions of Victoria, including a major study on the conservation of insectivorous bats in rural landscapes.

Andrew Bennett is a leading expert on landscape ecology and wildlife in remnant habitats in rural landscapes. He is the author of a recent book *Linkages in the Landscape: the role of corridors and connectivity in wildlife conservation*, published by the IUCN.

**Sue McIntyre**

Sue McIntyre is a Principal Research Scientist at CSIRO Tropical Agriculture, Brisbane. She has 18 years experience in ecological research with the University of Melbourne, University of New England and CSIRO. She has published over 50 papers on the relationship between native vegetation, introduced plants and human management. Her most recent research has focused

on integrating management for natural resource conservation and production in grazing lands, with particular emphasis on native grasslands. Sue is currently a member of the Council for Sustainable Vegetation Management.

### **Millie Nicholls**

Millie Nicholls has lived on farms in South Australia's Mid-North all her life, and for the last 25 years has been an active partner in a farming and grazing enterprise near Clare. Increasing frustration at not being able to find any information on the native grasses on the family property led her to completing a Bachelor of Science degree at the University of Adelaide as a mature age student. For the past two years, Millie has been working as an Extension Officer with the World Wide Fund for Nature's Mid-North Native Grasslands Project.

### **Lindsay & Biz Nicolson**

Lindsay and Biz Nicolson are farmers from 'Bonneys Plains', Conara, in Tasmania's Midlands district. 'Bonneys Plains' (2300 ha) is a traditional sheep grazing enterprise, which has been recognised with State and National Landcare awards. Biz and Lindsay own 'Taz Wild Plants' nursery, specialising in local provenance native species with emphasis on understorey plants. Their company 'Tasmanian Revegetation Services' undertakes projects with individuals, community groups and local government to implement revegetation on a broader scale.

### **Nick Reid**

Nick Reid is an Associate Professor in, and Convenor of, Ecosystem Management at the University of New England, where he teaches sustainable land management, agroforestry and farm forestry, and park and wildland management in the Natural Resources degree programs. His recent research has focused on the ecosystem function of trees in temperate native pastures, but he maintains active research interests in mistletoe ecology and management as well as in his teaching areas. Current PhD and Masters students are working on: *Eucalyptus radiata* plantation management for medicinal oil production; fire management guidelines for plant conservation in northern NSW wilderness; environmental impacts of pastoralism and mining at Roxby Downs; tree–nutrient–pasture and tree–soil moisture–pasture interactions on the Northern Tablelands of NSW, and management impacts on rare native herbs in New England.

### **James Ross**

James Ross has a peculiar mix of qualifications in Law, Science and Horticulture. He was the Grassland Project Officer at the Victorian National Parks Association for six years and led the Association's successful campaign for new national park areas in the Victorian Mallee. He currently works as an environmental consultant and has recently completed projects for the World Wide Fund for Nature, Australian Bush Heritage Fund and the Victorian Department of Natural Resources and Environment. He remains passionate about the flat parts of Victoria.

### **Denis Saunders**

Dr Denis Saunders is an Assistant Chief of CSIRO Wildlife and Ecology. He has a strong commitment to conservation biology and to communicating landscape ecology and conservation to all members of the community. He has considerable research and community background in issues associated with the conservation and management of remnant native vegetation and associated fauna.

Denis chaired the reference group that prepared the chapter on biological diversity for the 1996 Australian State of the Environment Report, and, more recently, has drafted a set of indicators of biological diversity for national state of the environment reporting. He is currently a member of the Biological Diversity Advisory Council (a Commonwealth Ministerial Council) and an Australian Heritage Commissioner.

He was the recipient of the International Society for Conservation Biology's 1998 Individual in Government award for making 'significant, meaningful and lasting contributions to conservation biology.' This year he was awarded the International Association for Landscape Ecology's 1999 Distinguished Scholarship Award for 'exceptional contributions to the development of landscape ecology as a science and a practice.'

### **Peter Simpson**

Peter Simpson has been employed with NSW Agriculture since 1961, primarily as District Agronomist. Most of his working career has been spent on the high rainfall tablelands of New South Wales at Glen Innes, Orange, Bathurst and Goulburn.

Peter has been extensively involved in evaluating pasture improvement strategies with introduced species, but since observing the drought recovery

effects of a wide range of pasture types in 1982, he has been increasingly interested in understanding native pasture management systems and where they fit into the landscape.

Peter has been actively involved in industry-funded projects during the last 10 years, evaluating herbage quality, acid soils tolerance, herbicide tolerance, and non-destruction methods of developing native pasture based systems.

### **Adrian Stanley**

Adrian Stanley is currently a Research Assistant within the Policy and Research section of the Indigenous Land Corporation. He is also studying part time, undertaking an Honours degree at the University of Adelaide. The main focus of his thesis is Aboriginal and non-Aboriginal use and knowledge of fire. The principle aim is to combine the knowledge of both groups and create a fire regime for South Australia.

Adrian was born in Naracoorte in the South-east of South Australia, and has connections with Queensland. Adrian has held numerous positions from working in the building industry to working at Batchelor College as a lecturer in Natural and Cultural Resource Management.

### **Kevin Thiele & Suzanne Prober**

Kevin Thiele is a botanist with a PhD from Melbourne University, specialising in systematics. Suzanne Prober is a botanist with a PhD from the Australian National University, specialising in the ecology of rare plants and ecosystems. Together they constitute Ecological Interactions, a small consultancy partnership. First at CSIRO and later freelance, they have worked for over ten years studying the ecology, and facilitating the conservation, of the grassy White Box Woodlands of New South Wales. This currently involves a partnership with NSW National Parks and Wildlife Service in a project, funded by the Natural Heritage Trust, to develop a new model—the Conservation Management Network model—for conserving fragmented, threatened ecosystems.

### **Geoff Watson**

Dr Geoff Watson is Senior Lecturer in Marketing at Orange Agricultural College, the University of Sydney, with key interests in: marketing practice within farmer groups and agribusiness; strategic marketing and supply chain management; board

policy governance for profit and not-for-profit organisations; environmental marketing approaches for remnant bushland; action learning/action research as methodologies for undertaking change management and building learning organisations; and facilitating strategic planning and change for individuals and groups.

He consults extensively to companies and organisations both within Australia and overseas and was design coordinator for the 1999 NSW Dairy Business Focus Extension Program, which integrated strategic management and action learning for change management in dairy businesses. Geoff has participated in the delivery of courses in relationship marketing to ranchers from the USA and Canada, and in NSW Agriculture's Rural Leaders Industry Training Course.

Geoff is currently focussed on the development of value chain thinking within agribusiness industry. He is a member and past Branch President of the Australian Marketing Institute, a member and past National President of the Agriculture Information Association of Australasia as well as a member of the Australian Agribusiness Association and book review editor for the Australian Agribusiness Review.

### **Owen Whitaker**

Owen Whitaker is a fourth generation farmer, practising beef cattle and prime lamb production with cereal and grain legume cropping. For the last 20 years he has integrated natural and introduced biodiversity with general farm management, that is, multi-species, perennial pasture establishment, trees for timber, shelter and fodder, and grazing 120 ha of native grassland for conservation and profit. This area is now recognised as a significant remnant native grassland. Owen has recently purchased another property, near Yass, that contains diverse native grassland/woodland structures, for which management including grazing of both fauna and livestock is still being developed.

Owen is also a Project Officer in the Upper Murrumbidgee for the Remnant Vegetation Fencing Incentive with Greening Australia, resourcing landholders, from Yass to Adaminaby, with funds and bush management extension.

He sees the future of farming dividing in two paths: ever increasing 'per unit' production expectation involving manipulation and elimination of ecosystems at great risk to our own species; or farming with a truly sustainable imperative for the future that embraces preservation of remaining natural landscapes.

**Kathryn Williams**

Kathryn Williams is a teacher and researcher at the University of Melbourne. She has a PhD in environmental psychology from Monash University. Kathryn's research is concerned with psychological aspects of land management, with a particular focus on human relationships with natural places.

# Welcoming address

*The Hon. Dorothy Kotz*

*South Australian Minister for the Environment & Heritage*

Firstly, let me welcome you all to the beautiful Clare Valley for this national conference. In particular, welcome to our interstate delegates. I trust that your stay will be enjoyable and rewarding.

It is appropriate that this national conference, focussing on balancing conservation and production in grassy landscapes, should be held in Clare, the heart of the Mid-North region of south Australia.

For too long we have underestimated the important role that grasslands play in our ecosystem. It is very fitting that this conference should be held here in the Mid-North, where grasslands make such a dominant contribution, both to the landscape and to the economy.

It is estimated that grasses are the main vegetation type for around 500,000 hectares of land in the Mid-North region. This is partly a result of the north-south running ranges traversing the region, which have retained large remnant areas of native grasses as the basis of grazing paddocks.

As a community, we now face some important decisions as we consider the best way of conserving these important grasslands.

More than 98% of all native grasslands are on private property and nearly all of these are grazed by stock. Consequently, the quality of grasslands varies enormously.

The remaining 2% of grasslands on public land and roadsides have therefore assumed a disproportionately high conservation value. We are fortunate in that past management decisions, particularly low grazing regimes and minimal fertiliser applications, in these areas have retained species richness and diversity, which have allowed for retention of species with high conservation value.

This Government has been particularly pro-active in seeking to conserve grassland areas. I am especially proud of our acquisition of the Mt Cone Station through the Comprehensive Adequate Reserve Strategy for South Australia. Mt Cone is an area of 464 hectares of native grasslands near Burra that the State Government purchased in December 1998 as the State's first native grassland park, now known as Mt Cone Conservation Park.

Purchase of the land was made possible through funds provided by the State and Commonwealth via the National Reserve System Program of the Natural Heritage Trust, the Native Vegetation Council, and through the contributions of the National Parks Foundation of South Australia.

The National Parks Foundation is a voluntary group that fundraises and attracts corporate sponsorship to support the National Parks System in South Australia and raises community awareness of conservation projects.

The Foundation not only contributed \$50,000 towards the purchase of Mt Cone, but has also sponsored two other native grassland projects in the region.

A baseline biological survey of native grasslands at Mt Cone is being conducted as a joint project involving the Nature Conservation Society, the Threatened Plant Action Group and the National Parks Foundation. This is a great example of collaboration and I look forward to looking at the results of the survey.

In another part of the Mid-North, the Parks Foundation have recruited students from Snowton Area School to work with Ann Prescott and Millie Nicholls to fence and reserve areas of native grassland in the local district, with the help of farmers who own the land.

The Foundation is to be congratulated for the wonderful support they have given towards acquiring the land for Mt Cone Conservation Park and for assistance with other projects.

The Mt Cone project does not stand in isolation and, through the Natural Heritage Trust, both the State and Commonwealth Governments have supported a number of projects that aim to assist the community to conserve grasslands and regional biodiversity.

Development of community awareness and support is vital to the conservation of our natural ecosystems, and in this instance, our grasslands.

To this end, the government is undertaking a number of projects to raise awareness of grassy ecosystem management in the Northern Agricultural Districts.

Firstly, a Biodiversity Plan for the Northern Agricultural District is being developed to help prioritise conservation actions for the region.

To support the development of the Biodiversity Plan, along with a number of other grasslands conservation projects, we will also be making available a Regional Ecologist for the Yorke/Northern Agricultural Districts.

I am also delighted to see the establishment of a local Grasslands Reference Group to oversee regional grasslands projects. The Group will be:

- investigating conservation and sustainable management projects;
- implementing best practice methods for grassland production and conservation;
- establishing and maintaining links with other groups involved with the same conservation and management issues; and
- providing a community voice in grasslands conservation issues.

The Group have held an initial meeting, but I encourage any of you who may be interested to get involved.

We need to develop programs to demonstrate to landholders the value of maintaining and improving biodiversity values that will not impact negatively on landholders' economic returns.

This can be done through the provision of incentives such as Heritage Agreements over grassland areas. The Biodiversity Plan should assist us in identifying priority areas and then developing appropriate options.

State Heritage Agreements have already seen the protection of some 50 hectares of our native grasslands through Agreements and a further 100 hectares through voluntary management agreements.

Local landholders are also protecting or enhancing more than 500 hectares of native grasslands.

Greening Australia, the Nature Conservation Society and Trees for Life have also provided wonderful support and, through their contract with Environment Australia, have been conducting programs on grassland identification in the region.

The conservation and management of our native grasslands is of major importance across southern Australia. This conference, simply by being held in South Australia, recognises that grasslands exist beyond the eastern seaboard and the Commonwealth is to be congratulated on holding the conference in Clare.

I hope that the conference provides you all with an opportunity to share and learn about grasslands management and conservation, and that you all come away as better informed grasslands managers.

# Opening address

*Senator the Hon. Robert Hill*

*Commonwealth Minister for the Environment & Heritage*

The Honourable Dorothy Kotz, Dr Nigel Monteith, other members of the Council for Sustainable Vegetation Management, ladies and gentlemen: it is a great pleasure to be here today in Clare to set the scene for what promises to be a very productive and rewarding Bushcare conference.

I'm very sorry that I cannot stay with you for the whole conference, as I have a Wet Tropics Ministerial Council meeting in Cairns tomorrow and Saturday. The Wet Tropics are a special place, with extraordinary biodiversity and spectacular landscapes, which most people would agree are deserving of their own Ministerial Council.

But it saddens me that much of Australia's environmental consciousness, energy and focus is concentrated on symbolic icons such as the Wet Tropics, when ecosystems such as native grasslands and grassy woodlands are far more depleted, degraded, fragmented and threatened, just as precious a part of our natural heritage, and just as, if not more, important to the ecological integrity of a very large part of our continent.

So I am particularly pleased that the focus here is on native grasslands, which to me crystallise many of the conservation issues we are grappling with through the Natural Heritage Trust.

The Natural Heritage Trust and its programs such as Bushcare are about dealing with the whole landscape and the full spectrum of sustainable production and biodiversity conservation issues, from ferals and weeds, erosion and salinity, to habitat conservation and enhancement. The Trust covers those vast areas of the continent outside the conservation icons that are largely protected in conservation reserves.

Other speakers can cover better than I the ecology and management of native grasslands. My challenge as Minister for the Environment is how we as a nation can value more appropriately all our ecosystems and the services they provide us, across entire landscapes—terrestrial, coastal and marine. Today I want to look at these broader issues, through the prism of our treatment of native grasslands.

Grassy landscapes are a great window to look through because they exemplify so many of the really hard issues. Grassy landscapes were among the first developed after European settlement; they have been profoundly depleted and degraded; they continue to be subject to intense development pressures; they are overwhelmingly managed for primary purposes other than conservation; and their charms are generally subtle—they are not charismatic icons that capture the public imagination like the Wet Tropics, the Franklin or the Reef. For all these reasons, grassy landscapes are poorly represented in our formal conservation reserves.

Take the yam daisy, or *murnong*, a little yellow daisy resembling a European dandelion, which once grew throughout the grasslands of Victoria and New South Wales.

Records extending back to the 1840s list it as occurring in most regions of Victoria. One settler reported 'millions of murnong or yam, all over the plains'. The roots, called tubers or yams, are like carrots or radishes and grow at a shallow depth. They are easily dug up and are quite nutritious. These tubers were among the most important components of the Aboriginal diet.

Things changed with European settlement. Sheep liked the yam daisy and learned to dig up the tubers. In a matter of years the plant became scarce in many areas. Eventually, the yam daisy disappeared—even in areas where native grasses persisted.

The impact on the Aborigines was significant. One European observer noted, and I quote: 'Murnong and other valuable roots are eaten by the white man's sheep, and their [Aborigines] deprivation, abuses and miseries are daily increasing'.

Today the yam daisy is completely absent from the open plains where it once thrived and is found only in small, ungrazed, isolated remnants.

Of course agricultural and pastoral production was very important to the development of Australia. Our cultural history records that Australia rode to riches on the sheep's back, and most of those sheep

grazed on the grasslands of South-eastern Australia, from this very region with its great merino studs to the Darling Downs in Queensland. Our native grasslands and grassy woodlands, referred to so memorably by Major Mitchell as 'Australia Felix', underwrote wealth generation in a prosperous young nation.

But Mitchell traversed the country in a good season. The park-like landscape he surveyed and reported on in such glowing terms was nowhere near as productive, reliable and forgiving as it appeared. Its variable climate and its vulnerability in the face of cultivation, hard-hoofed grazing animals and irrigation were in stark contrast to the deep young soils and gentle misty climes of Mitchell's homeland.

We didn't understand the value of these native pastures and the variability of the Australian climate as well as we might have. Nor did we understand the processes that maintained the open grasslands and grassy woodlands. These dry grassy landscapes had been shaped by the extensive, low impact management of the Aboriginal inhabitants over millennia. Aboriginal people undoubtedly changed the landscape, and their burning regimes favoured some species at the expense of others, but the changes they wrought were gradual and ecologically benign in comparison with what was to come.

The settlers who responded to Mitchell's reports cleared woodlands, introduced alien pasture species (not to mention sheep, cattle, horses, goats and rabbits), intensified grazing pressure and reduced fire frequency. Their descendants applied fertilisers, herbicides and trace elements, opening up even less fertile areas.

Now, native tussock grasslands have been largely displaced, their range contracting to rocky back paddocks, remote valleys on large properties, roadsides, rail reserves, vacant land, parks and neglected country cemeteries.

It would surprise many Australians today to know that the ecosystems that contain the most plant species and communities threatened with extinction are not the Wet Tropics or the eucalypt forests which still inspire such angst.

Of course grasslands and grassy woodlands aren't just about grasses. Native grassland refers to ecosystems in which the dominant plant species are perennial native grasses. Many other species within grasslands contribute to their biodiversity value, including tiny herbs and forbs that are sometimes difficult to see.

In flower, especially in morning and evening light, our native grasslands glow with a wonderfully subtle palette of delicate colours and wavy textures. I'm told that a single hectare of grassland in Gippsland contained some 320,000 flowering Chocolate Lilies, 570,000 flowering Scaly-buttons and 240,000 Common Everlastings.

It is a great shame that the most threatened, disturbed and pressured ecological communities in Australia today are in grassy landscapes.

Unfortunately, the same could be said of the human communities in those landscapes. We can never let ourselves forget that the environmental challenges we face ultimately come down to people—our knowledge, our commitment, our skills and our resources. These inform our daily choices, decisions and actions, which in turn shape our physical environment.

Many of the people managing native grasslands are under enormous economic pressures, generated by ever-declining terms of trade, collapsing land values and hence farm equity, and the need to generate additional income just to make ends meet, just to keep afloat.

This is placing great pressure on the land—pressure to intensify, to introduce improved pastures and fertiliser, to run more sheep, to shift from grazing to cropping, or to cultivate that unimproved back paddock that has always been a handy drought reserve or lambing and off-shears shelter.

Because so few of our original native grasslands and grassy woodlands remain in a relatively undisturbed condition, a few landholders now bear a disproportionate responsibility for the conservation of these ecosystems. The people whose land has been cleared, grazed, fertilised, cultivated and/or irrigated for many years do not have the same concerns. They do not bear a similar weight of community expectation that they will act altruistically for the greater public good.

Given that native grasslands have both conservation and production value, how can we ensure that both factors are valued and contribute to Australia's ecological and economic wealth? How can we achieve this vision of a healthy and productive environment where native grasslands and grassy woodlands are valued and celebrated for their contribution to conservation and to production?

I look forward to the outputs of later sessions today and tomorrow. These sessions will explore some of the real and potential ways that native grasslands

can be retained and managed for productive purposes, in various combinations of agriculture, pastoralism, tourism and the emerging arena of 'ecosystem services'—where we start to value the contribution of natural systems to public goods such as climate amelioration, water quality and catchment hydrology.

I am heartened that a new generation of Australian land users is far more ecologically literate than our forebears, and working very hard to develop ways of making a living that maintain or enhance the natural resource base, rather than depleting or degrading it. Quite a few of these pioneers, including Biz and Lindsay Nicolson whom you will hear from this morning, are here today.

I am very pleased to note that, as well as the Nicolsons, there are many from the farming community in the audience today and that a number will be speaking at this conference—from local landholder Millie Nicholls to Charlie Litchfield from the Monaro in New South Wales.

The everyday responsibilities of managing native grasslands rest primarily with individual land users, local governments, and organisations such as Rural Lands Protection Boards, Cemetery Trusts and Rail Authorities. The primary legislative responsibility for natural resource management rests with the States and Territories. However, the Commonwealth, through Trust programs such as Bushcare, Endangered Species and the National Reserves System, is increasingly active in improving the overall framework within which native grasslands are managed.

One of the key elements of this framework is that of incentives—how to encourage and reward behaviour that is above and beyond the reasonable 'Duty of Care' that society has a right to expect of the individual landholder.

It is important to remember that more than ninety percent of this continent is outside formal conservation reserves. On the vast majority of this land, conservation of biodiversity is not the primary management objective. It must compete with other goals, such as making a living, supporting a family, farming, developing mineral resources, providing irrigation water, ensuring safe road conditions or entertaining tourists.

Some of these goals conflict with long term conservation of environmental values. It is often the case that the optimum, long-term biodiversity conservation option for a given land user is not the most profitable option, especially in the short-term.

Getting the best outcome for society as a whole may incur a real cost for the individual land user, municipality or company.

Native grasslands on private land are often in this category, particularly with the current depressed wool market. Jim Crosthwaite's Bushcare-funded research shows clearly that when we ask farmers not to cultivate that back paddock of tussocks because of its conservation value, we are often asking them to forego real short-term increases in farm income, income that could be critical for the immediate viability of the farm.

In such instances, there can be a case for public investment to ensure that a small number of individuals are not bearing an unreasonable share of the cost of changing to more sustainable land uses in the interests of society as a whole.

I believe there is huge scope to better match public expectations for conservation on private land with more attractive types of assistance for private land managers to deliver those conservation outcomes.

Bushcare, along with the Land and Water Resources Research and Development Corporation, has funded cutting-edge research to develop a rigorous intellectual framework within which incentive-based instruments can be applied. We are now applying these incentives, with different incentives in different contexts—from up-front grants to stewardship payments, differential rating systems, assistance with planning, and information and advice, right through to voluntary acquisition.

Investment in our understanding of native grass species, through the *Flora of Australia* volume on grasses, is fundamental to the improved management of grasslands and grassy woodlands. We have to know which species we are dealing with. As part of this contribution to our knowledge of grass species, I am launching today a series of posters that will assist land users and community groups to recognise some of our most common native (and introduced) grass species.

For those of you who are unfamiliar with the *Flora of Australia* series prepared by the Australian Biological Resources Study (it must be one of our best-kept scientific secrets) I thoroughly commend it to you. Bushcare has also funded the volume on Acacias.

Our work on incentives, taxonomy and research is complemented by direct investment through the Trust both in on-ground measures to conserve and enhance native grasslands, and in capacity-building to boost the ability of others to do more.

Most of you here will be very familiar with the work of Tim Barlow, our grassy ecosystems networker in south-eastern Australia, who has done much to find, link and help landholders with outstanding native grasslands, and of course in helping us to organise this conference. Projects like Tim's make a big difference in keeping an issue like grasslands bubbling in a constructive way.

Bushcare has also contributed to the management of grasslands in South Australia through the World Wide Fund for Nature who are working with local landholders here in the Clare Valley to protect and manage the local grassland sites. You will find out more about this project later.

On the production side, Bushcare is contributing to the development of best-practice management guidelines for the incorporation of biodiversity into sustainable grazing systems in Northern Australia, in partnership with Meat and Livestock Australia.

A number of other important grassland projects have been assisted through the Natural Heritage Trust.

In 1997-98, the Commonwealth approved funding through the National Reserves System for the purchase of Naringaningalook, a property supporting endangered grassland communities in the high priority Victorian Volcanic Plain bioregion. The property was covenanted and is managed by the Trust for Nature (Victoria). This was the first time that the Commonwealth had assisted in the acquisition of a property to be managed as a private protected area.

Since then, the Commonwealth has assisted in the purchase of a number of important grassland sites. The South Australian Minister for the Environment and Heritage, the Hon. Dorothy Kotz, has already told you about the recently purchased Mt Cone Grassland Reserve. More recently, the Commonwealth has been involved in the purchase of Albinia Downs in Central Queensland, which includes about 7000 hectares of native Mitchell Grass Downs.

These purchases demonstrate how conservation partnerships between the Commonwealth, States and Non-Government Organisations can work for everyone's benefit.

While acquisition of land is an integral part of conserving native vegetation, it is neither feasible nor desirable to rely on land acquisition alone for the protection of native vegetation.

I am now in the middle of going through Natural Heritage Trust applications for the current round of funding and I am tremendously impressed with the quality of the proposals this year.

I still feel, however, that not enough is being done to protect our native grasslands and grassy woodlands. That is why I am announcing today a 3 year, 1.5 million dollar Bushcare devolved grant to the World Wide Fund for Nature, for the conservation of temperate grassy ecosystems in south-eastern Australia.

This project has received considerable support from State and Territory conservation agencies. It will build on the results of the Natural Heritage Trust-funded project 'Best Practice Conservation of Temperate Native Grasslands', which you will be hearing more about from James Ross later today, to put the lessons of that project into practice on a much larger scale.

Funding through the devolved grant will be directed to five main areas:

- increasing the number of covenants and land management agreements for nature conservation in grassy landscapes on private land;
- increasing the number of land management agreements with public authorities who are managing native grasslands;
- improving grassy ecosystem management techniques;
- increasing community involvement in grassy ecosystem management; and
- increasing and disseminating knowledge about grassland and grassy woodland remnants, especially those on private land.

Finally, in welcoming you to this conference and encouraging your full participation, I would like to throw you a challenge—a challenge that I think we need to deal with as a community over the next few years.

Native grasslands and grassy woodlands have been the Cinderella of conservation efforts to date. It is now time to recognise the value of native grasslands for both production and conservation, to celebrate their beauty and diversity, and to take this opportunity to enhance our natural heritage through their protection and sustainable use.