Down To Earth Research

10 Caladenia Circuit
Frankston South Victoria 3199

ABN: 38 873 356 803

Tel: (03) 9708 8008
Fax: (03) 9787 0367
Mobile: 0418 380 105
Email: admin@dter.com.au

Department of Natural Resources and Environment

Grazing for Biodiversity and Profit: Farmer Segmentation Study & Evaluation of Research and Extension Worker Attitudes

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A report commissioned for the *Grazing for Biodiversity and Profit project* (ESAI 05115):
A project under the Ecologically Sustainable Agriculture Initiative,
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Primary contacts:

Jim Crosthwaite

Stephen Clark

Report authors:

Pam Watson

Rebekah Pryor

Contents

Page

Main Report

Grazier Survey

Extension Officer and Industry Stakeholder Survey

Executive Summary

Executive Summary

Background and methodology.

This market research project aims to provide the Department of Natural Resource and Environment (NRE) with insight into behavioural and attitudinal segments existing among graziers identified as having areas of native pasture and/or native woodlands on their property. It also determines segments existing within the group of people (extension officers, private consultants, farmer 'champions') who give advice on native pastures and/or native woodlands.

An extensive literature review was initially conducted to source existing reports which identify various farmer segments.

Four group discussions were conducted with graziers from the Riverina and Volcanic Plains regions known to have areas of native pasture and/or native woodlands on their properties.

A series of 20 in-depth interviews were conducted with extension officers, farmer champions and private consultants who advise graziers from these regions.

The key findings.

Literature review.

A literature review was conducted to source previous farmer segmentation studies undertaken. Several studies were identified which offered information on various segments within agricultural sectors, one specifically relating to natural resource management. In depth information relating to these studies is outlined in Section 4 of this report.

The characteristics and traits of various segments detailed in previous studies and their validity for this project were explored during a series of grazier group discussions.

Grazier survey.

Awareness of and attitude towards native pastures and native woodlands.
All graziers participating in the group discussions are aware they have native pastures and/or native woodlands on their properties.

For most, awareness was raised by extension officers visiting their property, often on other business, and identifying these areas as being significant.

The majority of group participants are keen to conserve these areas, mainly for posterity and maintaining ecosystems, but also due to the benefits of including native pastures in their grazing systems.

Many claim grazing native pastures offers health benefits to stock, particularly worm control, growth rate of foetal calves and subsequent ease of calving and feed quality for young stock.

Some of the graziers attending the groups also believe native pastures and woodlands provide production benefits, namely summer feed, particularly in very dry seasons, and the low rate of inputs required to maintain them. Group participants who are specialist fine wool producers believe grazing native pastures contributes to the low micron of their wool.

There are however, some perceived disadvantages associated with grazing native pastures and woodlands. Lower carrying capacity than improved pastures, perception of lost potential income and peer pressure to 'improve' native pastures are mentioned.

Those graziers who tend to be very production focussed are less interested in conserving native pastures unless it suits their enterprise, as in fine wool production.

Although many group participants are positive towards conserving their native pastures and woodlands, other factors are often a consideration. These factors include financial constraints, particularly on smaller properties where the whole farm needs to be productive, problems with weed invasion and severe weather conditions, resulting in more pressure on available feed and water.

Current management of native pastures and woodlands.

There is general consensus among group participants that native pastures and woodlands provide most benefits when grazed lightly and rested for longer periods than improved pastures. Excluding stock altogether has resulted in weed invasion and a general decline in quality.

Many group participants claim they lack knowledge on how to manage native pastures effectively and would appreciate further information and assistance in this area, particularly the following:

- effective grazing
- sowing and establishing native pastures
- effects of different soil types
- strengths and weaknesses of individual grass species
- mistakes made by other graziers

Attitudes towards increasing production from native pastures varies, from those who are willing to try things like increased fertiliser use, lime, dolomite, sea kelp application and burning, to those who believe the only way these areas will become more productive is to under sow clover and rye grass.

One group participant claims to have increased the carrying capacity of his native pastures to 3DSE per acre by cell grazing.

Activities such as seed collection, harvesting wildflowers and tourism appeal to some graziers participating in the research, but only if these activities prove to be profitable.

Understanding of and attitude towards biodiversity.

While all group participants claim to have heard the term 'biodiversity', only a few have detailed knowledge of its full implications.

Most have a rudimentary understanding of plant, wildlife and insect interactions which can benefit the productivity and profitability of their enterprise and believe it is important to maintain.

Some of the group participants display a lack of concern about biodiversity, with their whole focus being on productivity and maximising short term gains.

Preferred information sources.

Although preferred information sources vary substantially, it is evident that personal face-to-face interaction with Landcare members and extension staff has a substantial impact on awareness of native pastures and woodlands and desire to conserve them.

Graziers attending the groups who are interested in conserving native pastures and woodlands tend to prefer information received from the following sources (not in any priority order):

- extension officers
- field days
- courses
- internet
- industry journals and papers
- other farmers and trial and error on farm

Those graziers participating in the study who can see a benefit to their production (for example fine wool producers) tend to prefer information from other farmers and through trial and error on farm.

Extension officers who are knowledgeable on both native pastures and farming systems and have the ability to provide suitable information efficiently, in a non-confronting manner are the most successful at encouraging change.

Group participants highlighted the need for extension officers to fully understand the importance of farming enterprises to be profitable when delivering the conservation message.

Effect of financial incentives and grants.

During the group discussions, several graziers raised the issue of receiving some form of financial support or compensation for conserving areas of native pasture and woodlands.

Financial assistance in the form of grants to undertake activities such as fencing, is claimed to encourage graziers struggling financially.

It is notable that in each group conducted, participants raised the issue of receiving compensation. Many graziers, particularly those with a strong production focus, are keen to be compensated for conserving native pastures and woodlands which benefits the wider community, but results in lost production capability.

Some graziers who are more conservation oriented believe they should be paid 'management money' as a reimbursement for costs and time involved in conserving these areas (eg. spraying herbicides, fencing, etc.).

Attitudes towards legislation designed to encourage conservation of native pasture and native woodlands.

Fierce opposition towards enforcement to conserve native pastures and native woodlands is evident among all group participants, even those with strong conservation leanings. There is a culture of *"don't tell me what I can or can't do on my farm"*. Comments made during the groups reveal that fear of being told native pastures must be conserved has resulted in some areas being *"ripped up"* and some graziers deliberately concealing the fact they have native pastures.

Influence of women and children.

Several graziers attending the groups revealed that women and children bring substantial pressure to bear on environmental decisions made on properties. They tend to be more conservation focussed and often *"it's the families that are holding back the plough"*.

Extension officer and industry stakeholder survey.

Knowledge of grazier attitudes and behaviour and willingness to assist with native pasture and native woodland management.

The extension officers and industry stakeholders participating in the survey revealed in-depth knowledge of attitudes and behaviours of graziers in relation to native pastures and native woodlands. On most issues, their thoughts were validated in the group discussions.

Respondents typically claim that levels of interest in conserving native pastures are broad and varied, with different motivations to do so. Sustainability, stewardship and social attitudes are all believed to be drivers of involvement in conservation and maintaining the ecological balance.

The level of interest shown by respondents to assist graziers to manage their native pastures and native woodlands is polarised, from extension officers who are very eager, to some private consultants who are slightly dubious about the benefits of grazing these areas.

Extension officers eager to assist graziers to manage their native pastures and native woodlands fall into two categories. There are some who believe native pastures can be an integral part of a rotational grazing system and can see the potential to increase productivity of native pastures. Other extension officers however, believe native pastures should be managed for conservation purposes and for posterity.

There is also a group, which consists mainly of private consultants, who are neither positive or negative towards including native pastures and woodlands in a grazing management system. While this group agrees native pastures can be useful in a low input system, they would prefer more scientific proof of their benefits in other systems before recommending their worth to clients.

Information and support requirements.

Extension officers are typically seeking information directly relating to the management of native pastures and native woodlands which they can pass on to graziers, including:

- how to graze these areas
- how to encourage more competitiveness
- how to control serrated tussock and other weed invasion
- how to encourage herbs
- the effects of stocking rates
- characteristics of different grass species
- the effects of fire
- selective herbicides

Preferred methods for extension officers to receive the above information include reports and summaries as well as hands-on experience through workshops and farm walks.

There is also some demand from extension officers for simple, user-friendly information sheets which they can pass on to graziers.

Farmer champions are also interested in more information relating to native pasture and woodland management, with a preference to receive this information from extension officers. some farmer champions are eager to establish a network of other graziers with native pastures and/or woodlands to facilitate information sharing.

Private consultants are more likely to be seeking business management information - factual scientific proof that native pastures and biodiversity can return a gain in terms of productivity and profitability.

Delivering information through seminars and groups appeals to private consultants and some suggest providing them with contact details of people with extensive native pasture knowledge to establish a network.

Suggestions to ensure success of *Grazing for Biodiversity and Profit*.

Respondents recommended promoting the management benefits of grazing native pastures to achieve a biodiversity gain, potential increases in productivity and decreases in cost of production to ensure success of the project. Supporting this information by scientific proof is believed to give it more credibility.

They also suggest linking in to existing networks and programs, such as Sustainable Grazing Systems, as well as giving practical demonstrations at Field Days and Farm Walks.

Field Days conducted on weekends and aimed at families is recommended by some respondents, due to the influence of women and children on natural resource management issues.

Ensuring consistent messages are delivered by credible staff capable of developing relationships with graziers is also deemed important.

Grazier segments identified.

The survey results outlined above reveal that grazier segments identified in previous studies are not entirely valid for issues relating to native pastures and woodlands and the following five segments are more representative:

Stewards: Graziers who are committed and passionate about conserving native pastures and native woodlands. They have a strong sense of responsibility to the land in general and conserving pastures is high on their priority list. They tend to be financially secure and are often Landcare members. They have high levels of contact with extension officers and prefer to receive information from them. They respond well to messages of conservation and biodiversity.

Embattleds: Graziers who have been made aware they have significant native pastures and/or woodlands on their property and due to their sense of responsibility to the land in general, would like to conserve these areas, but often feel they do not have the financial resources to do so. They have some contact with extension officers and prefer to receive information from them. They respond well to messages of conservation if monetary incentives are available.

Opportunists: Graziers who have been made aware they have significant native pastures and/or woodlands on their property. They have little sense of responsibility about the land generally and tend to be production focussed, but their soil type or their niche market for their product (eg, fine wool) incidentally correlates to retaining native pastures. They tend to have some angst over extension officer contact and prefer to receive information from other farmers or by trial and error on farm. They respond well to monetary incentives.

Traditionalist: Graziers who may or may not be aware they have native pastures or native woodlands. They tend to be production oriented, with no long-term management plan or view. They lack knowledge on biodiversity and are sceptical about its importance. They have little contact with extension officers and feel threatened by government intervention. They respond negatively to messages of conservation and biodiversity and do not take advantage of monetary incentives for NRM. They prefer to receive information from other farmers.

Unaware: Graziers who are unaware they have native pastures and native woodlands on their property. They tend to live further away from regional centres and as such have limited contact with extension officers. Once made aware of their significant native pastures or native woodlands, they will be come a Steward, Embattled, Opportunist or Traditionalist.

Extension officer and industry stakeholder segments

The in-depth interviews conducted uncovered three clear segments among extension officers and industry stakeholders, namely:

Protagonists: People who believe native pastures and native woodlands can be an integral part of a rotational grazing system and consequently are eager to improve the productivity of these areas. They tend to prefer receiving information via reports and summaries, but also through workshops and farm walks.

Nurturers: People who believe native pastures and woodlands should be managed for conservation purposes and for posterity. They are keen to increase the productivity of other areas of the farm so less pressure is placed on native pastures and woodlands. They also tend to prefer receiving information via reports and summaries, workshops and farm walks.

Sceptics: People who are neither positive or negative towards including native pastures or native woodlands into grazing management systems and need scientific proof of their benefits before recommending their worth to clients. They tend to be private consultants. They prefer to receive information in seminars and courses which provide opportunity for interaction and discussion.

Conclusions and recommendations.

The survey clearly identifies several attitudinal segments existing among graziers and also extension officers and industry stakeholders. These segments relate specifically to conserving native pastures and native woodlands to achieve a biodiversity gain and consequently differ slightly to other segments discovered in other studies conducted.

While the authors are constrained in their recommendations due to some sampling bias in the groups conducted and a lack of quantified data to support their findings, there is evidence to suggest the following communication strategies will successfully encourage conservation of native pastures and native woodlands by each grazier segment:

- *Stewards:*
    - provide information on managing native pastures and woodlands, particularly effective grazing and when to sow native grasses
    - offer financial support to manage these areas in order to conserve them
    - encourage other activities such as seed collection, wildflower harvesting and tourism
    - provide information on conservation and biodiversity through extension officers, Landcare, field days, courses, internet, industry journals and papers

- *Embattleds*:
    - provide information on the importance of conserving native pastures and woodlands
    - provide information on maintaining or improving current levels of farm profitability while conserving native pastures and woodlands
    - provide information about financial support available
    - offer financial support
    - provide information through extension officers and farmer 'champions'

- *Opportunists:*
    - provide information on profitability gains likely from conserving native pastures and woodlands or biodiversity
    - provide information relating to different soil types and the characteristics of different grass species
    - offer financial incentives
    - provide information through farmer 'champions', industry journals and papers

- *Traditionalists* (who may be difficult to target due to their scepticism about conservation and biodiversity):
  - provide information on profitability gains likely from conserving native pastures and woodlands
  - rely on peer group pressure from other farmers

- *Unaware* (these recommendations are based on anecdotal evidence from other survey participants due to none of this segment participating in groups):
  - provide farm visits from extension officers to raise awareness of the significance of native pastures and woodlands and help graziers to identify these areas
  - offer financial support
  - provide information through the mass media

Survey results reveal several opportunities to provide extension officers and other industry stakeholders with information and support tools required to enable them to encourage graziers to conserve native pastures and native woodlands, including:

- *Protagonists:*
  - provide supporting information on how to increase productivity from native pastures and woodlands
  - provide information on grazing, stocking rates, weed control and encouraging species competitiveness
  - provide supporting information in reports or summaries
  - offer opportunity to participate in farm walks and workshops
  - provide pamphlets or Ag Notes which can be passed on to interested graziers

- *Nurturers:*
  - provide supporting information on how to manage and conserve native pastures and woodlands
  - provide information on grazing, stocking rates, weed control and encouraging species competitiveness
  - provide supporting information in reports or summaries
  - offer opportunity to participate in farm walks and workshops
  - provide pamphlets or Ag Notes which can be passed on to interested graziers

- *Sceptics:*
    - provide scientific proof of the benefits of conserving native pastures, native woodlands and biodiversity
    - offer the opportunity to participate in seminars and workshops

To encourage conservation of native woodland and native pastures to achieve a biodiversity gain, NRE could also consider the following actions:

- Provide specific examples of interactions between plants, wildlife and insects which result in productivity, profitability and management gains.
- Provide scientific proof of these gains.
- Provide information to extension officers from other divisions (eg. pest plants and animals) as a means of ensuring conflicting information given to graziers is minimised.
- Establish networks of professionals and farmer 'champions' to facilitate information exchange.
- Ensure extension officers are knowledgeable in both native pastures and farm management and are able to deliver messages efficiently in a non-confronting manner.
- Support farmer 'champions' to act as a source of information for Opportunists and Traditionalists.
- Conduct field days on weekends aimed at encouraging family participation.
- Provide information and resource materials to schools aimed at creating awareness of the importance of conserving native pastures and native woodlands

Main Report

Section 1:
Introduction and objectives

1. Introduction and objectives

and Environment (NRE) with a comprehensive insight into attitudinal and behavioural segments among Victorian graziers from the Riverina and Volcanic Plains regions as they relate to grazing native pastures and native woodlands. The project also explores attitudes among these segments towards improving the balance of biodiversity and agricultural productivity on properties.

Secondly, the project provides information relating to the attitudinal segments existing among extension officers and key stakeholders working with graziers from these regions who have native pastures and/or native woodlands on their properties.

The market research also explores several other key issues among graziers, including:

- level of awareness of native pastures and native woodlands on private property
- current practices relating to grazing native pastures and native woodlands
- perceived benefits and disadvantages of grazing these areas
- attitudes towards conserving these areas
- understanding of the term biodiversity
- level of awareness of the link between native pastures, native woodlands and biodiversity
- current native pasture and native woodland information sources
- preferred methods to receive information
- effects of financial incentives and grants
- attitudes towards legislation designed to encourage conservation of native pastures and native woodlands

To fully understand issues facing extension officers and key stakeholders, the following issues relating to native pastures and native woodlands and biodiversity are explored:

- perceived level of awareness and knowledge among graziers
- perception of graziers' attitudes towards conserving these areas
- current grazing management observed
- perceived benefits and disadvantages of grazing native pastures
- level of interest and confidence in providing information and support
- perceived potential to increase productivity from these areas

- support and information requirements
- suggestions to ensure success of *Grazing for Biodiversity and Profit*

Careful analysis of the above issues is aimed at providing NRE with valuable information to assist in development of future communications and support for each of the segments identified.

Section 2:
Research Methodology

2. Research methodology

To obtain the necessary data for the project, information was sought in three stages, outlined below:

Stage 1: Literature review

A literature review was conducted to source previous farmer segmentation studies undertaken. Several studies were identified which offered information on various segments within agricultural sectors, one specifically relating to natural resource management. In depth information relating to these studies is outlined in Section 4 of this report.

The characteristics and traits of various segments detailed in previous studies and their validity for this project were explored during a series of grazier group discussions.

Stage 2: Grazier group discussions

Four group discussions were conducted with graziers from the Riverina and Volcanic Plains regions between Tuesday 29 May and Tuesday 4 June 2002. Group locations are listed in the table below:

Table 1

REGION	GROUP	LOCATION	DATE
Riverina	1	Benalla	Tuesday 29 May 2002
	2	Mitiamo	Wednesday 30 May 2002
Volcanic Plains	3	Lismore	Monday 3 June 2002
	4	Dunkeld	Tuesday 4 June 2002

Names of potential group participants were sourced from extension officers in the above regions. Lists provided included names of graziers known to have native pastures and native woodlands on their property.

There was a degree of bias in the lists due to some extension officers deciding not to provide names of graziers known to be either unaware they have native pastures and woodlands, or have negative attitudes towards conserving these areas. The under-representation of this group of graziers consequently limited the scope of the study and reduced the representativeness of some segments identified in the group discussions. Hence, while the recommendations given in this report are accurate according to the findings of the discussions and in-depth interviews, they do not necessarily address all of the characteristics and needs of this relatively unknown group of graziers. Ultimately, a larger study involving quantitative research is recommended to address these issues.
Group participants were selected randomly from the lists provided and invited to attend.

Groups were conducted at 7.00 pm, with dinner provided. Group participants also received a gratuity of $75 to ensure they were not out of pocket for petrol, baby-sitting, etc.

All groups were facilitated by Pam Watson and Rebekah Pryor, using a loosely structured topic guide (see Appendix 1) to ensure all relevant issues were covered.

Stage 3: In-depth interviews with extension officers and key stakeholders

Twenty (20) in-depth interviews with extension officers and key stakeholders were also conducted. The *Grazing for Biodiversity and Profit* team supplied the consultants with a list of people to contact.

Pam Watson and Rebekah Pryor conducted the interviews using a loosely structured topic guideline (Appendix 2). The average interview length was 30 minutes, with good co-operation from respondents. The total sample includes:

Table 2

STAKEHOLDER SEGMENT	INTERVIEWS ACHIEVED
Grazing Expert	6
Biodiversity Expert	5
Agribusiness Adviser	1
Soil Expert	1
CMA Representative	2
Farm Management Consultant	1
Farmer Champion	4

Stakeholder interviews were conducted between Monday 20 May and Monday 3 June 2002.

Report note.

This project was conducted simultaneously with the Land & Water Australia (L&WA)/Australian Wool Innovation Limited (AWI) project: *Best Practice Survey: Natural Resource Management and Wool Producers*.

Some of the information gathered in the L&WA/AWI study is relevant to this project and permission was sought to include that information in this report.

Consequently, some of the quotes used actually come from wool producers (with native pastures and/or native woodlands on their property) attending the L&WA/AWI group discussion held in Benalla on Tuesday 14th May 2002.

Section 3:
Definition of terms

3. Definition of terms

Throughout this report, several terms are used which require definition. These terms include the following:

Farmer 'champions'

Identified by the *Grazing for Biodiversity and Profit* team and defined as those landholders who are implementing current recommended practices in natural resource management and so are seen as leaders and potential advisers of NRM in their communities.

Native pastures and native woodlands

Based on definitions outlined in Barlow's *Grassy Guidelines* (1998).

Native pastures are defined as pastures which contain from 1% to 100% of native grasses, usually wallaby grasses, spear grasses, tussock grasses, weeping grass, wire grasses and kangaroo grass.

Native woodlands are defined as areas with native grasses and trees which are widely spaced with canopies that do not overlap. They can be dominated by one or two species of trees, typically red gum, swamp gum, manna gum, grey box, yellow box, yellow gum, black box, silver banksia, buloke or native pines.

Consultants and survey participants used the terms 'native pasture' and 'native woodland' interchangeably with 'native grassland' and 'native grassy woodland' respectively, without apparent confusion.

Biodiversity

Defined by consultants according to NRE's definition:

> *'The variety of all life forms – the different plants, animals and micro-organisms, the genes they contain, and the ecosystems of which they form a part'*
> (NRE 1997 p.2).

Section 4:
Results of the literature review

4. Results of the literature review

The literature review uncovered a large body of research relating to the attitudes and behaviours of farmers and the drivers and barriers to their adoption of current recommended practices in natural resource management. (The entire list of studies sourced appears in the Bibliography.)

While much of this research presented only general theories about the attitudes and behaviours of landholders, several studies did offer specific information on segments within various agricultural industries. One of these (undertaken by Interact Market Research) related specifically to NRM and segmented landholders according to their attitudes and behaviours regarding sustainable land management practices.

Notably, due to the limited time frame of the project and issues relating to commercial confidentiality, it was not possible to source and review all reports that may have been relevant to this research. The following series of relevant segmentation studies may therefore not be exhaustive.

The relevant segmentation studies sourced are briefly described below:

'The Steward, The Contented, The Laggard, The Embattled, The Independent'
Darbyshire (1999) identifies five landholder segments that emerged from an Interact Market Research survey of 300 landholders in the Corangamite region and their attitudes and behaviours regarding sustainable land management practices.

- *The Steward* comprises 26% of those surveyed. Characteristically, '*Stewards'* are the farmers most committed to sustainable land management practices. They 'have a strong sense of responsibility about the land in general' (Darbyshire 1999, p.28). Stewards perceive the long-term economic benefits of addressing NRM issues and have the time and resources required to achieve this. Their primary NRM concern is pest plant control. Stewards prefer to receive information from extension agents about land management in the context of a farm visit. They believe that an individual's actions are of significant effect.

- *The Contented* segment represents 49% of those surveyed - it is the largest segment. '*Contenteds'* generally have high levels of time and resources to commit to NRM activities. While they believe that an individual's actions are of significant effect, the event and/or regularity of such activities are limited by a lack of urgency and responsibility to address NRM issues and a disbelief that they will yield any economic benefit. Like the Stewards, the

Contenteds prefer to receive information about land management during farm visits. They are also responsive to newsletters. Their NRM concerns match those of the stewards.

- *The Laggard* represents only 8% of the sample population. According to Darbyshire (1999), 'they consistently demonstrate land management attitudes and behaviours in the lowest ranges' (p.30). '*Laggards'* have minimal financial resources with which to address such issues and see little economic gain in NRM. They have a weak sense of social responsibility to undertake NRM activities and believe that an individual's actions are of little effect. They also strongly believe that their land is not under any particular threat. The Laggards are most responsive to relatively 'impersonal' methods of information delivery such as newsletters, telephone calls and letters (Darbyshire 1999, p.30).

- *The Embattled* comprises 6% of those surveyed. They have much in common with the Laggards, particularly their lack of resources and sense of urgency to address issues of degradation on their own land. Like the Laggards, the '*Embattleds'* see little economic benefit from NRM. They do however have a moderate sense of social responsibility to undertake some kind of land care activity. Darbyshire (1999) identifies that the Embattleds 'have the lowest levels of resources (time, money, etc.) of any of the segments' (p.31). This factor, together with their low rate of permanent occupancy, means that they exhibit the lowest levels of sustainable land management behaviours. Embattleds prefer farm visits and newsletters as means of receiving information.

- *The Independent* represents 15% of surveyed landholders. *'Independents'* exhibit the second best levels of sustainable land management activity, despite their relatively moderate resource levels. They are convinced of the high economic benefits of NRM and have a moderate view that one's actions are of significant effect. Despite this, they do not feel a strong sense of social responsibility to address issues of land degradation, nor do they believe that their land suffers any urgent threat. As with other segments, Independents prefer farm visits and newsletter as means of receiving information.

'Intensive Graziers' and 'Extensive Graziers'

Qualitative market research undertaken by Marks and O'Keefe (1996) for Agriculture Victoria showed that the processes behind farmers' decisions to improve their pastures essentially relate to 'the core of the graziers' management approach' (p.2). As a result, Marks and O'Keefe (1996) identified two broad farmer segments: *'Intensive Graziers'* and *'Extensive Graziers'*. They characterise them in the following way:

INTENSIVE	EXTENSIVE
Focus on increasing revenue and profit	Focus on minimising cost
Motivated by increased productivity	Not motivated by productivity
Use wool kg/ha as a measure of performance	Focus on wool kg/head
Pasture oriented	Animal oriented
Bare pastures are utilised pastures	Bare pastures = high risk and could run out of pasture (their greatest fear)
Will pay for information	Low value on information
Actively seek out information from wide range of sources	Seek out information from local contacts only
Management flexibility	Inflexible managers
Sceptical of extensive systems	Sceptical of intensive systems
Encourage peer comparisons	Shy away from comparisons

SOURCE: Marks, N. & O Keefe, M. (1996) *Pastures and Farm Management*. Agribusiness Research Unit, Monash University, Caulfield East, VIC, p.4.

'Trial and Error' and 'Learning' Decision Making Processes

Marks and O'Keefe (1996) also identify two decision making styles: *'Trial and Error'* and *'Learning'* (p.5). They estimate that the majority of graziers (approximately 90%) rely on a Trial and Error decision making process, during which they become aware of an innovation, trial it and then form an attitude about its success and/or potential. The remaining estimated 10% of graziers who tend to follow a Learning approach to decision making become aware of an innovation and, having understood the management system, form an attitude about its potential success and suitability, and then proceed to trial it.

While these approaches to decision making do not perfectly match one or other of the segments identified above, Marks and O'Keefe (1996) contend that Extensive farmers tend towards Trial and Error processes while Intensive farmers tend towards Learning decision making processes.

'Onion Grass' and 'Profit Driver Benchmarking' Marketing Strategies

Understanding the effects that peer pressure has on graziers' management attitudes and behaviours, Marks and O'Keefe (1996) offer two marketing strategies: the *'Onion Grass'* strategy to target graziers in the Extensive segment, and the *'Profit Driver Benchmarking'* strategy to target those in the Intensive segment (p.7).

In brief, the Onion Grass strategy relies on the perception that the presence of onion grass signals poor pasture management. Characteristically, Extensive farmers are problem driven and so are motivated (with pressure from their peers) to address the problem. Marks and O'Keefe (1996) argue that 'onion grass then becomes a catalyst to stimulate interest in solving other pasture related problems' (p.7).

The Profit Driver Benchmarking strategy aims to develop a better understanding of grazing systems among Intensive farmers. It depends on graziers' motivation to improve productivity and their

readiness to be compared to other producers via a benchmarking process, which in turn establishes 'higher levels of performance expectation' (Marks & O'Keefe 1996, p.8).

Wool growing as an 'Occupation' or 'Business'

In a later study conducted for the BESTWOOL 2010 Steering Committee, O'Keefe and Fletcher (1998) identify a further distinction between graziers in the wool industry. They suggest that the differences between those graziers who perceive wool growing as an occupation and those who understand it as a small business correlate to differences in land management approach and learning styles. The characteristics of each group are summarised in the following way:

OCCUPATION	SMALL BUSINESS
Passive	Active
Males (fathers and sons) provide labour	Farm family provides management
Future is owning land	Future is management ability
Commodity prices determine income	Decisions (largely) determines income
Income determines expenditure and investment decisions	Expenditure and investment decisions are business decisions
Farm stops at the farm gate	Farm extends beyond the farm gate
Little value on information closed information networks. New information often introduced by the rural retailer, stud breeder and/or stock agent	Value information open information networks
Time has low value	High value on time
Minimising costs is the only driver under their control	Productivity leads to profitability
Never consider changing the actual grazing system	Interested in developing more intensive grazing systems
Waiting for the next wool price hike	Managing wool price volatility and the links with customers is an important challenge
Few alternatives	Alternatives

SOURCE: O Keefe, M. & Fletcher, M. (1998) Productivity Gains in the Wool Industry: Towards a New Perspective on Adoption and Extension. Rabo Australia Ltd, p.5.

In the case of graziers in the Occupation group, their farm lifestyle and business decisions are determined by their farm income which is influenced by commodity prices. In contrast, those in the Small Business group make their family aspirations and lifestyle choices direct their farm business decisions. These, together with wool prices, then determine the farm income (O'Keefe & Fletcher 1998).

While these groupings may not appear to relate directly to the adoption of more sustainable grazing practices (like those the *Grazing For Biodiversity and Profit* project seeks to promote), they do highlight the world views that inevitably lie behind such adoption.

'Best Practice Growers, Innovative Growers, Middle Growers, Traditionalists'

In 1994, TQA Research undertook a 'best practice' benchmarking survey of producers in the grain industry. As a part of their research, they segmented the market according to producer attitudes towards adoption of technological innovations. In 1994 (and in the tracking studies of 1997 and 2001 that followed), TQA identified four segments: *Best Practice Growers, Innovative Growers, Middle Growers* and *Traditionalists* (TQA Research 2001). These segments are described in the following way.

- *Best Practice Growers* have adopted and are implementing best recommended practices. They seek new and improved ways of farm management and make use of formal decision making and evaluation systems. They also employ consultants. Best Practice Growers represent 9% of growers surveyed (TQA Research 2001).

- *Innovative Growers* are similar to Best Practice Growers in that they have adopted many best recommended practices. However, they do not share the same ''analytical' approach to farming' rely less heavily on formal decision making and evaluation tools (TQA Research 2001). Innovative Growers have generally participated in on-farm trials and are relatively quick to adopt new innovations. They comprise 34% of growers surveyed (TQA Research 2001).

- *Middle Growers* make up the largest segment, comprising 39% of growers surveyed (TQA Research 2001). Growers in this segment are not sufficiently motivated to change. They do not depend on formal support tools, nor are they willing to pay for information and advice regarding land management.

- *Traditionalists* manage their farms according to conventional methods. They adhere to the *status quo* and are generally reluctant to outlay resources to improve their practices. Growers in this segment do not even consider the use of formal decision making and evaluation tools, nor do they participate in farmer groups or employ consultants. Traditionalists represent 17% of those surveyed (TQA Research 2001).

The 'Triers', 'Satisfieds', 'Stoics' and 'Unconcerned'

In several studies conducted by Down To Earth Research for the Dairy Research and Development Corporation between 2000 and 2002, key dairy farmer segments have been identified. Descriptions of these segments are given below:

- *Triers* believe that particular aspects of their herd or farm management could be better and are actively trying to improve in those areas.

- *Satisfieds* believe their herd or farm management is very good (and typically is) and are satisfied with their methods and performance.

- *Stoics* acknowledge that aspects of their herd or farm management could be better, but are satisfied with current results and are not actively seeking to change practices.

- *Unconcerneds* do not know how well they are performing in terms of herd or farm management, but this does not concern them.

Though these segments are not specifically derived from studies of Victorian graziers in the Volcanic Plain and Riverina regions, they nevertheless signal attitudinal and behavioural differences among farmers and as such, provide a background to the survey components of this research. The group discussions and in-depth interviews tested the validity and relevance of existing farmer segments and revealed others that have not previously been identified. The in-depth interviews also served to identify several segments among extension officers and other industry stakeholders. All segments are described in the next section.

Section 5:

Segments relevant to native pastures and native woodlands

5. Segments relevant to native pastures and native woodlands

Results from the group discussions and in-depth interviews confirmed the existence of several separate attitudinal and behaviour segments existing among graziers from the Volcanic Plain and Riverina regions. Some of these segments are similar to those identified in previous studies sourced, while others appear to be unique to issues relating to native pastures and native woodlands.

Readers should note that this research project does not identify how representative these segments are compared to the entire population of graziers in the Volcanic Plain and Riverina regions and therefore results are indicative only. There was some clear bias evident in some of the lists of potential group participants provided by extension officers and consequently the authors strongly recommend quantifying results of this project prior to making strategic decisions.

Characteristics of the five grazier segments identified during this project are summarised below:

Stewards

The Stewards segment was the most widely represented segment across the four discussion groups. This segment followed Darbyshire's characterisation of the Steward segment (see Darbyshire 1999), but also includes traits specifically relating to conserving native pastures and native woodlands.

Key characteristics of the Steward segment include:

- They are committed and passionate about conserving native pastures and woodlands for posterity and maintaining ecosystems.
- They have a strong sense of responsibility about the land in general.
- Conserving native pastures and woodlands is high on their priority list.
- Conservation, production and animal health benefits of including native pastures and woodlands in their grazing system are evident to them.
- While they are aware of the lower carrying capacity and other disadvantages of including native pastures and woodlands in their grazing system, they tend to be less concerned about this factor than other segments.
- Some however, believe they should receive 'management money' to cover the cost and time of keeping these areas weed and pest free.
- They prefer to receive grasslands information from extension officers.
- They have good understanding of biodiversity.

- They tend to be financially secure.
- Most are Landcare members.
- Many are aware of various grants and subsidies available and have received financial assistance from these sources.
- They have actively sought environmental information.
- Activities of seed collection, harvesting wildflowers and tourism are of interest as long as these activities prove to be profitable.
- Most have high levels of contact with extension officers and others knowledgeable in this field.
- They tend to respond well to messages of conservation and biodiversity.

In terms of communication strategies most likely to encourage adoption of practices relating to the conservation of native pastures, woodlands and biodiversity, the Stewards prefer to receive information directly from extension officers and other industry leaders. They are seekers of information however and source information from field days, courses, internet, industry journals and papers and other farmers. They are open to and interested in any innovation that will enable them to better manage their natural resources.

Embattleds

The Embattleds segment was relatively well represented in the discussion groups. It appeared similar to Darbyshire's Embattled segment in that farmers belonging to it had the lowest level of resources to commit to NRM of all the segments (see Darbyshire 1999). In contrast to Darbyshire's description however, farmers in this group tend to share the NRM concern of the Stewards, also having a sense of responsibility about the land generally.

Key characteristics of the Embattled segment include:

- They have been made aware they have native pastures and/or woodlands on their property.
- They have a sense of responsibility about the land generally.
- They have undertaken some conservation activities on their property, believing it is important for posterity and maintaining ecosystems.
- Conserving native pastures is not as high on their priority list as it is with Stewards.
- Conservation, production and animal health benefits of including native pastures and woodlands in their grazing system are not always evident to them.
- They believe there are several disadvantages of including native pastures and woodlands in their grazing system, including lower carrying capacity and production and consequently are strongly in favour of being compensated as a result.

- Most are interested in activities such as seed collection, harvesting wildflowers and tourism, as long as these activities prove to be profitable.
- They prefer to receive grasslands information from extension officers.
- They generally have some understanding of biodiversity.
- Most are less financially secure than Stewards
- They tend to have lower levels of awareness of grants and subsidies available.
- Many have not actively sought information (but are receptive when given information).
- They tend to have varying levels of contact with extension officers.
- They respond well to messages of conservation if monetary incentives are available.

Graziers in the Embattleds segment tend not to be information seekers. They are however receptive when told. The most effective communication strategy for this segment is direct contact with extension officers and other farmers. Low levels of spare time and money mean that they tend not to access other, more passive sources of information. Implementation of new practices in favour of conservation depends very much on the availability to monetary incentives. Therefore, it is recommended that the Embattleds be supplied with information about and access to sources of financial support, as well as information about ways of conserving native pastures and woodlands and improving biodiversity while maintaining or improving current levels of farm profitability.

Opportunists

As with the Embattleds, the Opportunists segment was relatively well represented. This segment was not identified in any secondary sources.

Key characteristics of this segment include:

- They are aware they have native pastures and native woodlands on their property.
- They have little sense of responsibility about the land in general.
- They are very production focussed.
- Soil type and their niche market for their product incidentally correlates to retaining native pastures and native woodlands and including them in their grazing regime.
- They tend to see the benefits of grazing native pastures in terms of increased profit (eg. finer wool).
- They have some angst over extension officer contact.
- They believe they have sufficient knowledge of managing native pastures.
- They respond well to monetary incentives.

Graziers in this group are largely unresponsive to formal communication strategies that involve extension officers. They prefer to receive information about new farming practices from other farmers who may already be implementing such activities, or simply discover it by trial and error on their own farms. Communication strategies targeted at this segment should involve local farmer champions. Opportunists are very focused on maximising the profitability of their enterprises. Hence, financial incentives and information that highlights the monetary value of recommended NRM practices will encourage conservation of native pastures and native woodlands and improvement of biodiversity.

Traditionalists

Traditionalists were not strongly represented in the four group discussions conducted. They were however, mentioned and described by several in-depth interviewees.

This segment is similar to the Traditionalists segment TQA Research identified among grain growers (see TQA Research 2001) and the Unconcerned segment identified by Down To Earth Research (see Down To Earth Research 2001). Graziers in this segment also follow conventional methods of farm management and tend to be reluctant to change or improve their operation in favour of better NRM.

Key characteristics of Traditionalists include:

- They may or may not be aware they have native pastures and/or native woodlands on their property.
- They tend to have limited contact with extension officers, often because their properties are a considerable distance from regional centres.
- They tend to be production oriented, but with no long-term management plan or view.
- They lack knowledge on biodiversity and are sceptical about its importance.
- They tend to respond negatively to messages of conservation and biodiversity.
- They feel threatened by government intervention.
- They do not tend to take advantage of monetary incentives for NRM.
- They strongly believe they should be paid compensation if they are forced to conserve areas of native vegetation.

Generally, Traditionalists are wary of extension officers and feel threatened by government intervention. While Traditionalists are not concerned about conserving native pastures or woodlands, nor improving biodiversity, they may be persuaded if such practices are recommended to them by their peers. It is therefore recommended that communication strategies for this segment involve local farmer champions.

Unaware

The Unaware segment was not represented in the secondary data or in the grazier discussion groups. The existence of this segment was however alluded to by group participants and confirmed by the majority of in-depth interviewees.

Graziers in the Unaware segment tend to have limited contact with extension officers because they live further away from regional centres. Once made aware of new information about native pastures, woodlands and biodiversity by whatever means, they then become Stewards, Embattleds, Opportunists or Traditionalists. Communication with this segment of graziers during farm visits by extension officers or via mass media (eg. local newspapers, radio, farming magazines, etc.) are recommended to improve awareness of native pasture and biodiversity issues.

The research also revealed three clear attitudinal segments among extension officers and other key industry stakeholders, namely:

Protagonists

This segment is characterised by the following traits regarding native pastures and native woodlands:

- They tend to be extension officers.
- They believe native pastures can be an integral part of a rotational grazing system.
- They are keen to increase productivity of these areas.
- They tend to prefer information in the form of reports or summaries, but are also interested in workshops and farm walks.

Nurturers

Nurturers display the following attitudes towards native pastures and native woodlands:

- They tend to be extension officers.
- They believe native pastures should be managed for conservation purposes and for posterity.
- They are keen for graziers to increase productivity of other areas of farm so less pressure placed on native pastures and native woodlands.
- They tend to prefer information in the form of reports or summaries, but are also interested in workshops and farm walks

Sceptics

Sceptics are likely to have the following characteristics:

- They are not positive or negative towards including native pastures and woodlands into grazing management systems.
- They need scientific proof of benefits of native pastures and biodiversity before recommending their worth to clients.
- They tend to be private consultants.
- They tend to prefer information in the form of seminars and workshops where interaction and discussion are possible.

Sections 6 - 16
Grazier Survey

6. Awareness of native pastures and native woodlands

Key findings

- All the graziers participating in the group discussions are aware they have some areas of native pastures and/or native woodlands on their properties.

- In most situations, these graziers have been made aware of the significance of native pastures and woodlands by various extension people visiting their property.

- The importance of being made aware of the potential threat to native pastures and native woodlands was highlighted by one group participant:

  "If you know that yours is the last little daisy, you'd been keener on preserving it, but if there's another 20,000 acres somewhere else …"

- A small group of survey participants claim to have always been aware of the native pastures on their property. They tended to be Stewards.

Implications

Many graziers are unaware of the significance of native pastures and native woodlands on their property until advised of their existence and importance by an extension officer.

Clearly, the level of contact between extension officers and graziers is an important aspect of their education on native pastures and native woodlands.

7. Understanding of and attitudes towards biodiversity

Key findings

- All group participants have heard the term 'biodiversity', but many admit they have limited understanding of what biodiversity actually means:

  "Biodiversity. I don't understand a lot of it, but it's obviously very important and that's the big buzz word at the moment of course. I suppose it's all very touchy in the way it works together."

- While understanding of the term 'biodiversity' may be low, many group participants have initiated activities to improve biodiversity without actually realising they have done so. One respondent (a Steward) claimed that he and his neighbours have purposely linked vegetation corridors and are seeing the benefits:

  "The increase in the number and variety of birds and insects and creepy crawlies and all the rest of it is unbelievable, and to be honest, I don't know what a lot of them are, but it's magic to see what's coming back."

- Most understand the link between birds and insect control:

  "It's well documented now that if you have insectivorous birds around, your reliance on insecticides is greatly reduced. A high flying industry like the horticulture industry, they're doing this integrated pest management and introducing predatory wasps and things like that. It's reduced their cost of production and reliance on chemicals. We could all do that."

- Interestingly, while many group participants talked about an increase in bird-life and insects, few can see the link to an increase in productivity. Stewards and Embattleds are generally the exceptions.

- There are however, a few graziers who have an in-depth understanding of biodiversity and the impact it can have on various aspects of their enterprise. They tend to be Stewards.

  "I certainly think that we're not only looking for biodiversity on top of the soil we're looking for biodiversity in the soil itself. We're looking to have the soil functioning from energy of its own making, something like 600 billion microbes per gram of soil. The more we learn about

the ability of microbes to turn minerals into a form available for plant roots, the more chance we have of running economically and maximising the health of the soil for the animals."

- Some of the group participants display a lack of concern about biodiversity, with their whole focus being on productivity and maximising short-term gains. They characterise the Opportunists and Traditionalists segments:

  "There's a couple of us here that don't put much consideration into that (biodiversity) *with the chemicals we pour into it. If I'm planting a crop of canola or wheat, I don't want anything else in there … I'm killing bugs and worms and whatever."*

- There was some evidence in the group discussions that a proportion of graziers, particularly the Embattleds, will become more focussed on maintaining or improving biodiversity if it can be shown to increase sustainability without incurring direct costs:

  "I reckon if it's got links to sustainability, biodiversity's great if it doesn't cost you much, if it's just a way of farming. If you can get a happy medium, well it's great if you can aim for it."

Implications

While the term 'biodiversity' is not well understood by many graziers participating in the group discussions, they are aware of plant, wildlife and insect interaction which can benefit productivity and profitability of their enterprise.

It is therefore recommended that communications relating to biodiversity focus on providing specific examples of these interactions and results and linking this to potential productivity, profitability or management gains.

8. Perceived benefits of native pastures and native woodlands and drivers to conserve these areas

Key findings

- All the graziers participating in the group discussions believe native pastures offer some sort of benefit.

- There appear to be several schools of thought on the benefits of native pastures, including low input cost, increased production, better stock health or conservation and biodiversity.

- Respondents who believe the benefits of native pasture are production based (Opportunists in particular), mention the following factors:

  - Ability to make use of summer rainfall:

    "It's a summer-active grass ... your native grasses seem to be able to take advantage of any summer rainfall ... they're really good to convert summer rainfall into feed."

  - Provides nutritious feed during the summer months

  - Production of specialist wools, particularly low micron fibre. For some of these graziers, the benefits of grazing native pastures has almost been incidental:

    "I think we've been lucky to have as much (native pasture) *as we do have and to find an industry to fit it. If we hadn't had the industry to fit it, then the whole concept would have to be put under some sort of question."*

  - Part of a low input farming system:

    "The argument for having it (native pasture) *is that you don't have to spend anything on it."*

  - Ability to grow in difficult areas:

    "You have different areas ... hill tops, swamp land that naturally forms on your property ... and you need a diversity of plant species to make it work in those areas."

- While some Opportunists and Traditionalists understand why others see posterity and biodiversity as benefits for conserving native pastures and native woodlands, they do not identify them as drivers for undertaking such activity themselves.

- Several group participants commented on the health benefits to their stock of grazing native pastures:

  - Useful to general health and cleaning up worms in sheep:

    "I fix the ewes up if they're down a little bit. There appears to be nothing actually in there for them to eat, but they just love it. They'll just pick and pick and pick and as you (another group participant) *said before about worms and that, they're so clean."*

    "They're very beneficial because they're safe areas to put the stock in. You don't have the rye grass problems and that sort of thing."

  - Restricts calves from growing too large, which subsequently facilitates easier calving and lowers the mortality rate.

  - Valuable feed for young stock due to more suitable protein levels in native grasses compared to 'rich' improved pastures.

- Conservation and maintaining the ecological balance are also seen as benefits of having and maintaining native pastures, particularly among Stewards and some Embattleds. This mindset is based on several factors, including:

  - Desire to ensure the survival of species:

    "I get very sad when I remember the big orange-bellied water rats down at the dam. There's none of them and there's no red bellied black snakes. The rock plovers are a very small population on the plains. The brolgas are getting a hammering, the stony curlews are gone, completely gone and I think it's a great pity. So if you keep native pastures, I believe you will help to keep those sorts of things going."

  - Desire to hand on the land in better condition:

    "I don't have any rights to this land. All I believe is that I'm a custodian of the land and I hand it on to the world when I've finished with it."

- Perception that it is the 'right thing to do':

  "It's definitely a feel good thing. You know - we've buggered up everything else - we'll just leave a little aside there and maybe we'll go to heaven."

- Benefit to the wider community.

Implications

Perceived benefits to profit, production, stock health, social values and pressures and care of the land encourage graziers to maintain their native pasture and woodland areas.

The findings for this measure are evidence of some distinct mindset groups among graziers. While it is accepted that all graziers must have a production focus, some solely concentrate on this area (eg. Opportunists and Traditionalists), while others prefer to balance production with social values, care of the land and the ecosystem (eg. Stewards).

9. Perceived disadvantages of native pastures and native woodlands and barriers to conserving these areas

Key findings

- All group participants could nominate at least one disadvantage of having native pastures and native woodlands rather than improved pastures or a difficulty with conserving these areas. Even graziers who believe their enterprise is enhanced by having native pastures admitted to putting pressure on these areas on occasion.

- The main perceived disadvantage of native pastures is based on the belief that production suffers due to poorer carrying capacity. Among the group participants who are very production focussed (Opportunists, Traditionalists and some Embattleds), even being aware of the health benefits of grazing native pastures is not enough to encourage their conservation:

  "We've got two paddocks on our place which my father used principally to clean the sheep out before putting them in the shed. He could put them straight in without emptying them out which was a great advantage. The sheep would be as clean as a whistle the next morning. There's been studies done on it, but I'm probably going to plough it up, but that's confidential ..."

- Others who lock up native pastures and native woodlands, or only graze them very occasionally claim the cost of not being able to use these areas also impacts on productivity:

  "You've also got to look at the dollars lost. If there's a grassland there that could be under crop ..."

- Two group respondents commented on a perception by the industry that retaining unimproved pastures rather than improving them or planting trees in those paddocks represent laziness:

  "We've got 500 acres which I want to keep the way it always was - which is a treeless plain. So I'm specifically not planting any trees in this area. I'm just trying to get the native grasses back and I'm sure every neighbour on that boundary looks over and says, 'Look at that lazy bastard. If that was my paddock, imagine what I'd be doing with that'. That's a common perception, that you're not a good farmer if you've got these sorts of areas."

- Survey results reveal several barriers to conserving native pastures and native grasslands among group participants, particularly those in the Embattleds and Opportunists segments. These are:

  - Lack of knowledge on how to manage native pastures correctly.

  - Size of property:

    "It definitely comes back to the almighty dollar, specially in my case. I'm not big enough to set aside 50 or 60 acres and not make money off it. Not at all."

  - Lack of significant area of native pastures:

    "I don't think we have enough of it really. As far as farm operation goes, it's a minor issue. I mean, we're doing it, but it's a minor part of the operation - bits and pieces around the farm."

- There was also some mention of difficulties in managing native pastures in the preferred way during severe weather conditions, resulting in lack of available feed and/or water:

  "I've got stock in a native pasture paddock at the moment. Normally I wouldn't have, but it's the only area I've got which still has water in the dam."

  "It's been so dry, I don't have anywhere else I can put them. There's a limit to how many you can put in the bedroom!"

- Some group participants claim their native pastures are being invaded with weeds, such as bent grass, onion grass and serrated tussock, which may impact on their management in future.

Implications

Lower carrying capacity, perception of lost potential income and peer pressure to 'improve' native pastures are all identified as disadvantages of these areas compared to improved pastures.

With several group participants claiming they have insufficient knowledge on how to manage native pastures and native woodlands correctly and struggling with weed invasion, an opportunity exists for NRE to provide support in these areas.

10. Current management of native pastures and native woodlands

Key findings

- While all group participants graze their native pasture areas, their management regime differs substantially from that of improved pastures.

- Many claim to blitz graze these areas, with long period of rest:

  "Mostly running stock for a certain period, only running them for a short time."

- Few graze their pastures in spring and this is based on two different drivers, namely:

  - growth rate of improved pastures during spring:

    "We usually take them off in the spring because we want to put as much pressure on the good pastures as we can."

  - desire to facilitate seed set in native grasses

- Several group participants who represent the Stewards segment claim to use their native pastures as part of a rotational grazing system, with one actively cell grazing.

- Grazing of native pastures and native woodlands is also claimed to be important to facilitate better weed control.

- Several respondents have noticed various plants returning to native pastures and woodlands where the management of these areas has been altered, particularly by a reduction or abolition of spring grazing.

- Others claim the quality of their native pastures and native woodlands is similar to what it was five years ago.

- Group participants who have fenced off native grassland areas and excluded stock totally have noticed some deterioration in these areas:

"I fenced off an area quite a while ago ... we had someone come out and look at it and they said it was fairly pristine native grassland, so we thought, right-ho, we'll fence it off and try to look after this and it went backwards because we fenced it off and started doing different things to it. It was really interesting to see what it did. We ended up cell grazing outside the fence in the paddock and the area that wasn't fenced off ended up going backwards. There was too much grass cover and it wasn't well grazed enough. So, I think the big issue is working out how to manage it to keep the species."

Implications

There appears to be general agreement among group participants that native pastures provide most benefits when grazed lightly and rested for longer periods than improved pastures.

There is also evidence that excluding stock altogether from native pastures and native woodlands has a detrimental effect on their quality.

11. Attitudes towards increasing production from native pastures

Key findings

- While several Stewards are undertaking rotational or cell grazing regimes, only one group participant claims to have actively increased the productivity of his native pastures. This has been achieved by cell crazing, resulting in a carrying capacity of 3 dry sheep equivalents (DSE) to the acre, which compares to 5 DSE to the acre on his improved pastures.

- Several participants suggested other methods they would like to try, but have not to date, due to being unsure of the outcomes. These methods include:

  - Increased fertiliser use. While some group participants were keen to try different rates and different types of fertiliser on their native pasture, the general response was the opposite, due to perceived damage to grasses or low returns:

    "I suppose the native pastures are the ones less likely to give you a return on the cost of the fertiliser."

  - Lime, to encourage activity in the soil:

    "Lime is probably the answer to getting the microbes started and then just trying not to overdo any one operation. The lime goes on at no more than a tonne."

  - Dolomite

  - Sea kelp

  - Burning, although this method is perceived to be risky by many due to the risk of fire burning out of control.

- During the group discussions, reactions to undertaking other activities linked to native pastures and native woodlands, such as harvesting native seed for revegetation programs, cultivating wildflowers, tourist activity, government conservation schemes and similar activities were explored.

  Most group participants, Stewards, Embattleds and Opportunists in particular, were positive towards considering these activities as long as they could be proven to be profitable.

  One respondent has had wallaby grass seed collected from his native pastures as a trial and is eager to go through the process again.

Implications

Clearly, many group participants would be keen to trial management methods aimed at increasing production from their native pastures and this is an area NRE could explore further.

Activities, such as seed collection and cultivating wildflowers among others will all appeal, but only if proven to be profitable.

12. Additional information required to make management decisions and preferred information sources

Key findings

- A few group participants from the Embattleds segment expressed a need for further information to assist them to maintain their native pastures and native woodlands.

- Some however, believe they have enough information and knowledge already to make management decisions. Interestingly, this group claims to have mainly learnt about native pastures through *"the school of hard knocks"* or *"handed down information"*. This group is also more likely to be focussed on production rather than conservation. They characterise the Opportunists and Traditionalists segments.

- Those Stewards and Embattleds interested in conserving native pastures to ensure improved biodiversity and the continuance of native species, identified the following information as lacking:

  - How to graze native pastures effectively
  - How to establish native grasses and when to sow them
  - Historical information on the types of mistakes made by others trying to conserve native pastures

  These respondents tended to prefer information received from (not in any priority order):

  - Extension officers
  - Courses
  - Internet
  - Industry journals and papers
  - Field days
  - Trial and error on farm

- Group participants able to see a benefit to their production from grazing native pastures (eg. fine wool producers) mentioned a need for the following:

  - Information relating to different soil types
  - Information relating to individual grass species

- The preferred information sources for this group (mainly Opportunists) are other farmers and trial and error on their own property:

  "I don't think there's very many people who do know what they're talking about and they're few and far between. The people that I'm listening to are people who have done it themselves. They're the farmers that probably 20 years ago decided that there's got to be a better way and they've done the hard yards and they've found out …"

- Although preferred information sources vary substantially across the grazier segments, it was evident in all the discussion groups that personal face-to-face interaction with Landcare members and extension staff has had the most significant impact on awareness of native pastures and native woodlands and desire to conserve them.

- The characteristics of people who have successfully increased awareness and encouraged conservation of native pastures and native woodlands was explored during the group discussions. Generally, Opportunists and Traditionalists identified other farmers rather than extension staff in this regard:

  "I think 90% of farmers are as good at conservation as you'll get. Better than most people behind a desk, I can guarantee you."

- Stewards and Embattleds (who prefer to receive information from extension staff) nominated the following characteristics and traits they prefer to see in extension staff and others encouraging change:

  - Knowledgeable in areas of natural resource management

  - Have a good understanding of farming systems and the need to make a profit:

    "You can't replace the school of hard knocks with a university degree."

  - Encouraging rather than confronting:

    "The Landcare group president knocked on my door one day and he didn't tell me I had to do anything. He just asked me if I was aware of the importance of these grasses and asked me how I would like to deal with them and what sort of support I needed. He didn't try to force his ideals down my throat."

- Committed to helping graziers find the most suitable information
- Respond to requests for information immediately
- Able to understand the mindset change process:

> *"It's a fairly long transition. It's taken me seven years to even come around to liking the idea of having these grasses and wanting to look after it* (native pasture)*."*

Implications

Information provided on growing and managing native pastures and native woodlands, particularly if it relates to various soil types and explores potential of individual grass species, is likely to be well accepted by graziers.

Extension officers who are knowledgeable on both native pastures and farming systems and have the ability to provide suitable information efficiently in a non-confronting manner are the most successful at encouraging change.

There is some evidence that many extension officers who have dealt with group participants have managed to establish better rapport with those who have strong conservation tendencies than those for whom production is their only focus.

Consequently, an opportunity may exist for some extension officers to gain more knowledge on how to deliver the 'conservation' message in a more production focussed manner.

13. Effect of commodities market and financial situation on conservation activities

Key findings

- Almost all the graziers participating in the group discussions claim that financial security is directly linked to natural resource management activities, including conserving native pastures:

  "We really try and do something every year but sometimes we just run out of time or we get to the end of the year and the money pot's empty and you can't do it.'

- One group participant (a Steward) disagreed with this thinking however, claiming that if graziers are convinced of the value in undertaking an activity, they will change their priorities and find the money.

Implications

Clearly, conservation activities are affected by the financial security of landholders.

14. Effect of financial incentives and grants

Key findings

- Several group participants raised the issue of receiving some form of financial support to conserve native pastures and native woodlands.

- For some, particularly the Embattleds who are struggling financially, financial assistance in the form of grants to undertake activities like fencing encourages conservation of native pastures and grassy woodlands:

  "As far as I'm concerned, it just comes back to compensation. You know, I'd love to put up more fences, but I haven't got the time or money to pay."

- Many group participants (some from each of the Stewards, Embattleds, Opportunists and Traditionalists segments) believe they are losing production capabilities by conserving these areas, which benefits the wider community. Embatttleds, Opportunists and Traditionalists are keen to be compensated:

  "There's probably a benefit, sure, to the wider community, but someone has to pay."

  "We're making our place feel good for ourselves and for bringing in birds … It's also the rest of Australia, the rest of the community that want us to do this and it's going to benefit generations to come. We all want to do it, but there's got to be some sort of compensation."

  Notably, the term 'compensation' was not mentioned or prompted by facilitators in the course of group discussion. Participants raised and discussed the issue voluntarily.

- There is also demand to compensate those who are looking after their land and ensuring sustainability:

  "You automatically rest it and look after it … you're not rewarded for that. If they give the people a bit of compensation and reward for looking after it, they'd probably get a lot more co-operation."

- One group participant (a Steward) believes graziers should not be paying rates on areas which are being conserved:

  "One thing I've made noises about to different people - the Heartlands people and the Department - with regard to a big block that I've got of 320 acres that I'm prepared to take out of production permanently, but I would like some inducement to do it. There's been different suggestions put forward. You know, alleviation of rates has been one… you know that's totally unreal that you've got to pay rates on it when you're keeping it out for the good of the community"

- This respondent and some other Stewards also express interest in receiving management money for these areas:

  "They've been talking about giving some people some sort of management money to see that it's not overrun with weeds and to maintain the fences… you know, like the BushTender Trial… I'd be interested in that…"

- There is a small segment of group participants however, who believe the community is already paying enough through taxes which support grants currently available. While this group is comprised of Stewards, it is by no means representative of the majority of group participants.

Implications

Financial incentives and grants are seen by many group participants as an important factor in their ability to conserve areas which have strong environmental impacts, but are perceived to reduce the productivity of their property.

Results also suggest most graziers do not associate native pastures and woodlands and biodiversity with increased productivity or profit.

15. Attitudes towards legislation designed to encourage preservation of native pastures and native woodlands

Key findings

- Fierce opposition to legislation or pressure to force graziers to conserve areas of native pastures or woodlands was evident in the group discussions. Even Stewards who are very conservation focussed become incensed at the prospect of being told how to manage their freehold land:

  "Don't come in and tell me what I can do on my farm. I mean, I've got a pair of pliers that'll fix those fences in about five minutes flat!"

  "What we're complaining about is when it's forced on people and they forego earning capacity … and all for the benefit of other people."

- Some respondents even suggested that the threat of restrictive legislation results in loss of significant vegetation areas, rather than conservation:

  "Somehow farmers have got to be convinced, not threatened, because if they're threatened, they just rip it up and that will be it."

- In the Mitiamo group, the issue of the 'ten year rule' was raised by one group participant who owns a large tract of land that carries native pasture. In order to increase the profitability of the rest of his dairy farm, he hopes to crop a part of this area to grow extra feed for his stock. He is willing to fence and set aside half the area (approximately 400 acres) for conservation purposes. This land has not been ploughed for the past ten years and consequently under the ten year rule, he must apply for a cropping permit and wait for government permission to plough up part of the remnant area.

  He (along with others in the group) believes this is unfair due to his preparedness to conserve a substantial proportion of the land:

  "It's a bit about working in together. Like, don't just come in and say 'No, you can't touch it.' We get our backs up … so it's got to be some sort of system where you can scratch each other's backs basically."

- This negative reaction to the perception of loss of control of activities on freehold land was described by one group participant in the following way:

  "How would you like me to make a decision on your house and say, listen, that's your house there, but you're only allowed to use the front two rooms, because the rest is National Trust?"

- Of concern, one respondent (a Steward) claims the fear of losing control over what he is allowed to do on his land has restricted him from seeking further information on the types of grasses he has and how to manage native pastures:

  "It comes back to the fear factor. I've wanted to actively source information about what I've got, but I've been trying to do it on the sly so that I don't get someone who'll come down and say, 'Right, you can't do it'. There's still people who are fanatical about these native grasses and they're frightening. Our income is not their issue. Their issue is preserving that grass."

- Some respondents from the Opportunists segment also feel that if legislation is brought in which restricts them from farming or grazing freehold land in the most productive manner, they should be compensated for loss of income:

  "It's pretty obvious to all of us that the production on an improved situation far outweighs any native grass, particularly in this area (Dunkeld)*. I think if you have a freehold right to a grazing property or a farming property, unless there's a huge financial incentive from some other source to keep it that way, then I don't think there's any moral right for some other group to tell you what to do on your place. I'm really saying, if people want to have native vegetation for a special purpose, fine, let them, but if it's forced upon them to keep native vegetation, then everyone else should pay for it - the whole of society must do."*

Implications

Clearly there is fierce opposition to enforcement among all segments of graziers, regardless of whether they are actively conserving native pastures or these areas are useful in their specialist wool production enterprise. As emphasised earlier in Section 9, this opposition comes even from those who see themselves as temporary custodians of the land.

This is further evidence that if graziers are forced to maintain vegetation areas which subsequently has an impact on their potential production or profitability, they believe they are entitled to compensation.

NRE and other organisations should note the potential damage to significant vegetation areas which can occur when departmental messages and activities are not clearly understood by landholders and result in them feeling threatened.

16. Influence of women and children on native pasture and native woodland conservation

Key findings

- Several group participants claimed their wives and children bring substantial pressure to bear on environmental decisions:

  "... this main paddock was a big paddock. I've chipped little bits off that weren't flash and sowed them down to pasture and there's probably other little bits that are all onion grass now that you could probably sow down. I haven't yet, but that's only because I'm not allowed to, which is something actually, if you've got an environmental spouse, you've got the brakes on and probably quite often, it's the families that are holding back the plough."

  "Certainly our children are very ferocious if you've done anything to something that could be remnant. It's certainly an education thing. They are taught about environmental issues, whereas we were taught that if you have a bigger car and you burnt more fuel, you went faster. Their education and awareness is completely different."

Implications

Survey results reveal that NRE could consider aiming some communications at the family in future.

Providing information packs and activities to school children should continue and perhaps a field day held on a weekend aimed at encouraging whole families to attend could be considered.

Sections 18 - 26:

Extension Officer and Stakeholder Survey

17. Perceived level of grazier awareness and knowledge

17.1 Level of grazier awareness of native pastures and native woodlands

Key findings

- There is a strong perception among respondents from both the Volcanic Plain and Riverina regions that many graziers are not aware of the native grasses and/or native woodlands they may have on their property.

  Many respondents from each of the Protagonists, Nurturers and Sceptics segments believe there is a small proportion of graziers with extensive knowledge, who are able to correctly identify most plant species on their property. Others, however are perceived to have very limited knowledge:

  "It varies significantly, from those who are able to identify up to 60 plant species to those who wouldn't be able to identify Themeda."

  "There are some farmers who may be aware they have unsown areas on their place, but they don't think of them as native grasslands."

- Several participating extension workers report that a mistrust of the system sometimes results in graziers claiming they don't have native pastures or grasslands, even though they are aware of their existence:

  "There's a fear of saying they've got native grasses in case the government will lock the area up or take it out of production."

- Once made aware of the native pastures on their property however, many graziers are positive towards retaining them:

  "I went to a farm and told them they had something really special and they were excited. They were going to plant trees in that spot, but decided not too."

Implications

Clearly, extension offices and key industry stakeholders believe there is a general lack of knowledge on native grasses and their involvement encourages some positive response, but also some fear.

17.2 Level of grazier knowledge about biodiversity

Key findings

- All respondents concur that the level of knowledge about biodiversity among graziers is generally low. While several suggested that graziers are familiar with the term and identify it as *'something environmental'*, the majority agree that most farmers have little or no understanding of the concept of biodiversity and its implication in the whole farm context.

  There is however, acknowledgement that some graziers have extensive knowledge and incorporate it into their farming systems:

  "A small percentage are very knowledgeable and are managing very well for biodiversity and grazing."

- For others, the term biodiversity is thought to have negative connotations:

  "Biodiversity has negative connotations for a lot of farmers. It implies an increase in workload, financial cost in terms of loss or reduction of farm productivity and profitability."

- A few respondents suggested the lack of knowledge among some graziers is linked to a lack of interest in biodiversity.

Implications

Results for this measure are validated by findings from the group discussions and suggest that communications need to provide specific examples of interactions between plants, wildlife and insects which result in a productivity, profit or management gain rather than focus on 'biodiversity'.

18. Location of native pastures and native woodlands on private land

Key findings

- All respondents agree that native pastures and native woodlands tend to be found on less arable areas of private properties where machinery access is difficult (including stony rises and ravines), areas with poor soils or low-lying areas prone to flooding.

- In some situations, native pastures and native woodlands remain incidentally, particularly in areas where heavy grazing results in erosion:

  "In Victoria Valley, they manage their grazing according to soil type. If they graze too heavily, they have problems with erosion. So they have tended to look at sustainable grazing and this fits in perfectly with their management and our ideals."

- Extension agents and private consultants from the Volcanic Plain tend to claim that much of the remaining native pasture and native woodland area on private property is severely degraded.

- Several respondents nominated roadsides, easements, streamlines and other linear reserves as the most common sites for remnant native vegetation.

Implications

Native pastures and native woodlands generally occur in the less arable regions on properties, which possibly means they are under less pressure of being ploughed up in the short-term.

19. Grazing and management activities

Key findings

- The general perception among respondents is that grazing and management of native pastures and native woodland areas varies among graziers, although most believe that typically there is some grazing in these areas.

- Some graziers are seen to proactively manage grazing of native pastures:

  "You have those who lock up areas and graze them spasmodically. Graze from summer onwards and then exclude the stock after autumn."

- Most respondents claim that native woodlands are grazed similarly to other native pasture areas, although there is some perception that carrying capacity in treed areas is reduced further.

- While grazing in woodlands is also believed to be fairly common, a couple of respondents who tended to reflect the Nurturers segment claimed they have clients who fence stock out of these areas.

Implications

Findings for this measure are validated by the findings from the grazier group discussions where it was revealed that most native pastures are grazed lightly and rested for substantial periods.

20. Perception of graziers' attitudes towards native pastures and native woodlands

20.1 Attitudes towards conserving native pastures and native woodlands and maintaining biodiversity

Key findings

- Respondents typically claim that levels of interest in conserving native pastures are broad and varied, with quite different motivations.

- While some graziers are keen to conserve the grasses, others are more interested in the herbs which are found in native pastures and native woodlands according to respondents:

  "Some are passionate and committed greenies. Others like to see the flowers that come up in spring."

  Most of these graziers are believed to either graze their native pastures lightly, or fence them off to stock altogether, particularly if the pastures are in bushland areas.

- Respondents also believe there are some graziers who conserve native pastures due to their perceived productivity potential:

  "These farmers are more interested in making it productive towards a more sustainable system."

- A small percentage of graziers (typically Stewards) are believed to be managing very well for biodiversity and grazing. This group is generally believed to be aware of the environmental benefits of biodiversity, such as increases in bird populations, reduced chemical use and the reduction of creek-side erosion.

- There is a perception among respondents from the Protagonists and Sceptics segments that most graziers are not motivated to manage native pastures in order to conserve biodiversity because the benefits to production are not quantifiable.

Implications

Extension officers and key industry stakeholders are well aware of the variety of attitudes and motivations among graziers towards conserving native pastures and native woodland and biodiversity.

20.2 Perceived benefits of grazing native pastures and grasslands

Key findings

- According to respondents, some graziers (from the range of grazier segments) see benefits in grazing native pastures and grasslands. These benefits tend to be either input cost, production, stock health or environment driven.

- Respondents identify that for some graziers, native pastures and native woodlands are important in a low input grazing system.

- There is some belief that grazing native pastures fines up the wool on young wethers.

- Others, particularly the Protagonists, believe there are advantages to be had for stock condition and health, including:
  - sheep staying cleaner on native pastures (no dags)
  - controlling worm burden in sheep
  - good for weaners

- Respondents who fitted the Nurturers segment believe that conserving indigenous species is seen as a benefit by some graziers (these graziers are typically Stewards):

  "They might be environmentally conscious and like to conserve things."

Implications

Results for this measure are also validated by findings from the group discussions, which also identified low input cost, production, stock health and environmental factors as key benefits of native pastures and woodlands.

20.3 Perceived disadvantages of grazing native pastures and grasslands

Key findings

- Respondents from each of the three extension officer and industry stakeholder segments claim that many graziers associate native pastures with low productivity due to reduced carrying capacity (thought to be as low as half a sheep to the acre).

- Grazing native pastures is seen to be incompatible with farm profitability and survival by many graziers, particularly when compared to improved pastures:

  "A benefit analysis of conserving native pastures shows that it is not as attractive as putting dollars into improved pastures."

- Fear of legislation and restrictions was also highlighted as a disadvantage of conserving native pastures and grasslands:

  "Some feel very threatened if they have native pastures. They're worried about restrictions being put on."

Implications

While extension officers and key stakeholders are clearly aware that graziers see the poor carrying capacity of native pastures as a disadvantage, it is interesting to note that none of them mentioned other disadvantages raised in the groups.

Graziers' lack of knowledge on how to manage native pastures correctly was identified as a major disadvantage - an area where extension officers and private consultants may be able to assist graziers in future.

20.4 Relevance of property size

Key findings

- Almost all the respondents interviewed believe there is a direct relationship between property size and managing native pastures and woodlands to conserve them or achieve a biodiversity gain.

- Farmers with large landholdings are believed to be generally more open to the idea of *"putting away"* land for conservation due to having sufficient country to maintain current rates of production despite areas being fenced off and less heavily grazed.

- There is also some belief that graziers from very small farms, or hobby farms, have a greater tendency to conserve native pastures and woodlands.

- Graziers from small to medium sized properties are those perceived to be the most likely to be under financial pressure and consequently less likely to be willing to conserve native pastures:

  "They're looking at the economics of things rather than their sustainability."

  "They can't afford to put it away."

Implications

There is clear evidence from both the group discussions and in-depth interviews that graziers from smaller properties (but not hobby farms) struggle to retain areas of native pasture.

Incentives or compensation (identified as a need by group participants) may appeal to this group however and act as encouragement to conserve these areas. Demonstrating to these graziers that productivity or profitability can be increased or retained by including native pastures in their grazing system is also likely to result in retention of these areas.

20.5 Impact of enterprise type on conservation decisions

Key findings

- Most respondents believe the type of enterprise influences decisions relating to the conservation of native pastures and woodlands and managing them to achieve biodiversity gains.

- Graziers (particularly those who fit the Stewards and Embattleds segments) are perceived to be more open to conservation activities than those who are also involved in cropping. Croppers are thought to believe that conserving areas of remnant vegetation equates to a reduced economic return.

- Croppers are also perceived to be more likely to have intensive farming systems which are typically not compatible with conservation.

Implications

Not surprisingly, cropping is identified as the enterprise type most likely to impact negatively on native pasture and woodland conservation.

20.6 Perceived segments of graziers

Key findings

- Several different characteristics of graziers more likely to be interested in conserving native pastures and native woodlands were identified during the course of the interviews, including:
    - well educated, often with tertiary degree or agriculture diploma
    - financially secure
    - aware they have something special on their property
    - strong sense of responsibility about the land
    - involved in Landcare
    - younger rather than older
    - older graziers who have seen the results of poor land management
    - female
    - interested in low input farming

Conversely, those less likely to be interested in conserving native pastures and woodland are perceived to tend to be:

- production oriented
- financially pressured
- mixed farmers with some cropping
- machinery lovers
- not involved in Landcare
- limited contact with extension officers

Implications

Characteristics identified by extension officers and key stakeholders were validated in the group discussions and helped to form the basis of the grazier segments outlined in Section 5 of this report.

21. Level of interest and confidence in providing information and support to graziers

Key findings

- The level of interest shown by respondents to assist graziers to manage their native pastures and native woodlands is polarised, from extension officers who fit the Protagonists segment and are very keen, to private consultants who represent the Sceptics segment and are somewhat dubious about the benefits of grazing these areas.

- Most extension officers in the Protagonists and Nurturers segments are convinced that graziers can conserve native pastures and achieve biodiversity gains while still maintaining the same level of income. The perceived profitability of native pastures and biodiversity is understood to relate to the balance of such systems, their persistence in drought and their role in maintaining animal health.

- There is also some belief among these respondents that carrying capacity of native pastures can be raised by increasing the forb populations in grassland communities.

- However, opinion is divided among Protagonists and Nurturers in particular, on whether graziers should be encouraged to increase productivity of native pastures and native woodlands or concentrate on increasing productivity from improved pastures to enable 'locking up' of significant areas:

  "If we promote native grasses as being productive, then they lose their attractiveness to conserve. Let's leave them as unproductive areas and encourage better production from those areas which have so called improved pastures on them."

- Sceptics (who tend to be private consultants) are more likely to view native pastures and native woodlands as part of a low input system, with low productivity, but tend to let graziers make their decisions relating to these areas:

  "The idea of native pastures is just a lower input system. I don't go out of my way to say native pastures are good or bad. Most people are looking for productivity and while native grasses might be good for biodiversity, you don't gain anything in production by having wallaby grass."

- Among respondents keen to assist graziers to manage their native pastures and grasslands (mostly extension officers in the Protagonists and Nurturers segments), most feel comfortable they have the knowledge to do so.

- There are some Sceptics however, who claim to lack knowledge, but this is often due to lack of interest:

  "I'm into native pastures, but I'm not really interested in the area of biodiversity, so I just don't talk to farmers about it. I don't have a great deal of knowledge or interest in it."

- Several respondents highlight the problem of graziers receiving conflicting information from different groups, particularly if they have a weed invasion problem:

  "We have to ensure farmers aren't given conflicting information on, for example, serrated tussock (in native pastures). *The pest plant and animal people, grasslands people and Greening Australia people are all giving advice and it is often different."*

Implications

Results for this measure identify the three clear segments among people offering advice on native pastures to graziers, including:

- Protagonists who believe native pastures can be an integral part of a rotational grazing system and are keen to increase productivity of these areas.

- Nurturers who believe native pastures should be managed for conservation purposes and for posterity, with graziers encouraged to increase productivity on other areas of their property to compensate.

- Sceptics who are neither positive or negative towards including native pastures and woodlands in a grazing management system, but need scientific proof of their benefits before recommending their worth to clients.

NRE could explore the possibility of developing consistent information across divisions within the Department with more information on managing native pastures in an effort to minimise the amount of conflicting information received by graziers, particularly relating to weed control.

22. Information and support requirements

22.1 Level and types of support required to assist graziers

Key findings

- Survey results reveal two distinct preferences for information and support relating to assisting graziers to manage their native pastures and native woodlands.

- Sceptics, who tend to be but are not exclusively private consultants, are more likely to be seeking business management information - factual scientific proof that native pastures and biodiversity can return a gain in terms of productivity and profitability:

  "You need to give me real facts, linked to productivity and profitability. Not just warm and fuzzy statements, real proof."

  "The difficulty of being an adviser is there's not enough good examples of biodiversity returning a profit."

  The adviser making the latter statement gave an example of a grazier who has observed a link between an increase in the number of dragonflies on his property and a decline in the number of fly-blown sheep. He believes the dragonflies are keeping down the number of blowflies, which is resulting in a significant reduction in the amount of time spent checking sheep for fly-strike. The adviser suggests this is the type of information (if proven) he needs for native pastures, something which shows a direct correlation between biodiversity and increase in productivity or decrease in labour required.

  Some private consultants also mention a need to establish benchmarks of conservation and biodiversity that can be applied on farm.

  Those in the Sceptics segment are also keen to receive information on the people and organisations which may be able to offer information required:

  "We need a network so that we make telephone calls to the right people. Knowing where the info is and who to contact would be very helpful."

- Protagonists and Nurturers (who tend to be but again, are not exclusively extension officers and farmer champions) are typically seeking information directly relating to the management of native pastures and native woodlands which they can pass on to graziers.

  They have a specific need for information sheets able to be used as reference material:

  > *"As an extension officer, when I come back into the office, I'm looking for something I can send to out to farmers I have just been with."*

  The types of information required by both extension officers and farmer champions include the following:

  - how to graze native grasslands
  - how to make native pastures more competitive with weeds and introduced grasses
  - how to encourage herbs in native pastures
  - how to control serrated tussock and other weeds in native pastures
  - the effects of stocking rates
  - characteristics of different grass species
  - the effects of fire
  - selective herbicides:

  > *"I want to know what weedicides work. For example, I've heard that kangaroo grass is resistant to Round Up. Also, what is the possibility of selective spraying so we can get rid of phalaris?"*

Implications

Supplying private consultants and other Sceptics with proof that native pastures achieve a biodiversity gain which subsequently translates into reduced inputs or increased productivity is likely to encourage them to recommend conservation of native pastures.

Providing this group with contact details of people with extensive native pasture and biodiversity knowledge or developing a network of interested people is likely to be well received.

Specific information on various management aspects of native pastures and woodlands aimed at both extension officers and graziers will be useful.

22.2 Preferred sources of information and support

Key findings

- Respondents' preferred methods of receiving information on managing native pastures and native woodland are quite diverse.

- Most extension officers and other industry stakeholders prefer written information in the form of reports or summaries, while others prefer more hands-on activities such as workshops and farm walks.

- There is also some demand among private consultants for seminars and groups where there is the opportunity for interaction and discussion.

- Farmer champions tend to see extension officers as a credible source of information, but they would also like to develop a network of other Stewards with native pastures and/or woodlands to facilitate information sharing.

- NRE is identified by several respondents as a reliable information source, although this is dependent on the NRE representative delivering the message:

"There are people in any organisation that are good and some that are very ordinary."

Implications

It is recommended that NRE continue to provide extension officers with reports or summaries on relevant topics while also providing the opportunity for hands-on activities.

Providing extension officers with simple, user-friendly information sheets to hand on to graziers will be a reliable method of supplying graziers with correct and up-to-date information.

Seminars and groups aimed at delivering information to private consultants are likely to be well attended, particularly if scientific proof of the benefits of native pastures and achieving biodiversity gains is being presented.

23. Suggestions to ensure success of *Grazing for Biodiversity and Profit* project

Key findings

Respondents were able to offer many suggestions to ensure *Grazing for Biodiversity and Profit* is successful. Suggestions made include:

- Promote the project in terms of increasing productivity and decreasing cost of production, rather than biodiversity.

- Promote the management benefits:

  "Push the relationship between worms and grasses. Highlight the fact that ryegrass staggers is a big problem."

- Support information with scientific facts.

- Link in to existing networks and programs which have proven to be successful in encouraging natural resource management change, namely:
  - Sustainable Grazing Systems
  - Southern Farming Systems
  - Landcare
  - Whole Farm Planning/Management courses
  - Herb Lamb
  - some of the dairy programs (respondent was unable to specify which)

- Deliver message through demonstration, either by Field Days or Farm Walks, particularly on 'farmer champion' properties:

  "What graziers need is understanding and demonstration."

- Consider the influence of women and children on NRM issues and ensure they are included in activities and education through:
  - Field Days held on weekends and aimed at families
  - school projects

- Ensure extension staff and seminar presenters are credible and can build good relationships with graziers.

- Continue to offer incentives and grants to place a 'value' on biodiversity.

- Create ownership of the project among key stakeholders by ensuring they are kept informed of the project's objectives and achievements:

  "I didn't know anything about this market research for instance. I would like to be more involved at the start, at project set-up."

- Promote grass seed collection and sale.

- Minimise conflicting information from various organisations, for example in the management of serrated tussock in native pastures and native woodlands.

- Provide self-assessment work sheets similar to those developed by NRE in the past.

- Promote the project through the media.

24. People nominated as 'champions' in native pastures and native woodlands management

Key findings

- The table below lists (in alphabetical order) the names of people respondents perceive to be the most influential advisers. Readers should note this list is by no means exhaustive, but only contains people respondents could nominate at the time of interview.

RIVERINA	VOLCANIC PLAIN
Andrew Beatty (RCS)	David Allen
Dallas Evans (Producer, Fernihurst)	Graham Anderson
Paul Hall (Nurseryman, Yando)	Dugald Buchanan (NRE)
Kim Lowe (NRE)	Tom Calvert (Producer, Darlington)
Dave Millsom (GAV)	Frank Carland (Ballarat)
Meredith Mitchell (NRE)	Mark Gavins (Producer)
Eris O Brien (Producer, TFN)	Peter Guthrie (Producer)
Geoff Park (CMA, BushCare)	Yvonne Ingeme (NRE)
Roy Pearson (Private consultant)	Clive Jamieson (Producer, Darlington)
Steve Platt (NRE)	Keith MacDougall (Chatsworth Road management plan)
Doug Robinson (NRE, TFN)	
Jim Shovelton (Producer, private consultant)	Geoff McFarlane (NRE)
Chris Shyde (RCS)	Ian McLellan (Producer, Birchip)
John Statchbury (Private consultant)	John Morgan (PhD student)
Bill Twigg (Producer)	Richard Weatherly (Producer)
Harm Van Rees (Private consultant)	Bill Weatherly (Producer)

25. Reactions to definition of 'native pastures' and 'native woodlands'

Prior to the interview commencing, respondents were read the NRE definition of 'native pastures' and 'native woodlands', which were as follows:

'Native pastures' are pastures which contain from 1% to 100% of native grasses, usually wallaby grasses, spear grasses, tussock grasses, weeping grass, wire grasses and kangaroo grass.

Native pastures can also be present in 'native woodlands', which are areas with native grasses and trees which are widely spaced with canopies that do not overlap. they can be dominated by one or two species of trees, typically red gum, swamp gum, manna gum, grey box, yellow box, yellow gum, black box, silver banksia, buloke or native pines.

Key findings

- While most respondents are comfortable with NRE's definition of 'native pastures', there are some (particularly from the Protagonists and Sceptics segments) who suggest increasing the lowest parameter from 1% to between 10% and 50% native grass composition.

- The proportion of other grasses and plants present in the pasture is also believed to have some bearing on the definition:

  "If there is 50%, or even 30% Phalaris, then it's a productive pasture which needs fertiliser."

Implications

NRE's definition of native pastures and native woodlands generally sits comfortably with most extension officers and key industry stakeholders.

Including pastures where native grasses represent less than 10% ground cover can be seen to be a little contentious however.

Appendix 1:

Farmer group topic guide

NRE Grazing for Biodiversity and Profit
Topic Guide for Farmer Group Discussions

Introduction

Thank you for coming along to the group tonight. As you know we are here to discuss some aspects of pasture management and grazing, particularly in areas where you may have native pastures and grasslands. The information you give me today will greatly help the Department of Natural Resources and Environment to better understand issues you may be facing when you make decisions about grazing practices and managing biodiversity in these native grasslands.

I'll be asking you several questions throughout the session and I would like you to answer them as openly and honestly as possible. The most successful groups are those where everyone in the group discusses the issues I raise with the other group participants. The less I have to speak tonight, the better.

I will however ask you to adhere to some group 'rules'. Firstly, please don't interrupt the other group members when they are talking. Feel free to give your point of view when the other person is finished, but let them have their say first.

I also want you all to participate. Even if your point of view is very different from others in the group, it is important that you have your say - don't be shy. Your input is extremely valuable to us.

We'll start today by each person introducing themselves and telling us the size of their property and the type of farming enterprise they have. I'll start by introducing myself and then we'll go around the table.

5 mins

1. Awareness and knowledge of native pastures

Determine awareness of native pastures on property:

Do you have any native pastures or woodland areas with native grasses on your property?
Explore tactfully if participants would know if they have native pastures and what type they have.

Explain definition of native pastures and bushland:
'Native pastures' are pastures which contain from 1% to 100% native grasses, usually wallaby grasses, spear grasses, tussock grasses, weeping grass, wire grasses and kangaroo grass.

'Native pastures' can also be present in 'native woodlands' which are areas with native grasses and trees which are widely spaced with canopies that do not overlap. They can be dominated by one or two species of trees, typically red gum, yellow gum, swamp gum, manna gum, grey box, yellow box, black box, silver banksia, buloke or native pines.

What proportion of your property is native pasture or woodland with native grasses?

How large are these areas?

2. Attitudes towards conserving native pastures

Explore perceived usefulness of this area and how it is managed:

Are these native pastures useful to production?

Do you graze these areas?

Do you graze them differently to other improved pastures?
Explore for:

- stocking rates
- timing of grazing
- resting in spring during flowering and seed set
- used for cleaning wool prior to shearing

Why do you do this?

Determine degree of improvement or deterioration in native pasture areas:

How would you describe your native pasture areas now compared to say, five years ago?

What sort of changes have you noticed?

Did you used to see spring flowers and colours in the grasslands when you were younger?

Do you still?

Explore for:

- *daisies*
- *lilies*
- *glycines*
- *orchids*

Determine attitude towards conserving native pastures:

Do you ever think about conserving the remaining native pasture areas on your property? Why? Why not?

Is it the same for pastures and woodlands?

If yes:

Have you actually implemented activities which would aid in the conservation of native pastures and woodlands?

What have you done?

Explore for:

- fencing, electric vs standard
- controlled grazing (set stocking; rotational grazing - cell, pulse, blitz)
  Do you move stock around according to grass growth in the pasture rather than a set date?
- burning and season
- mowing (with cut grass removal)
- selective herbicide use
- selective tree planting
- restricted vehicle access
- fertiliser use and rate; rock sulphate vs super phosphate
- other?

Explore attitude to increasing production from native pasture:

Do you ever think about increasing production from the native pastures you have on your property?

If yes:

Have you actually implemented activities that you thought would increase production from native pastures?

Explore for:

- fertiliser use
- drainage
- sub-division and fencing to land class
- rock removal
- clearing
- cropping
- running mixed herds (sheep and cattle) or animals with different grazing habits (goats, horses, alpacas)

Did it work?

Would you ever consider planting additional areas of your property to native pasture? Why? Why not?

Explore for benefits of native grasses on property:

- drought resistance
- summer growing, perennial
- adapted to poor, saline and/or acidic souls
- a genetic resource for developing better pastures and crops
- environmental barometers which indicate changes in water tables, acidity, salinity and pest populations
- improving property value

Do you see conserving pastures and biodiversity as more or less compatible with farm business profitability and survival, or as fundamentally conflicting?

3. Awareness, knowledge of biodiversity and attitudes to improving.

Explore understanding of the term biodiversity:

What does the term 'biodiversity' mean to you?

Explain definition of biodiversity:

The variety of life forms: the different plants, animals and microorganisms, the genes they contain, and the ecosystems they form. It is usually considered at three levels: genetic diversity, species diversity and ecosystem diversity.

Determine attitudes towards biodiversity:

Is biodiversity an important issue for you or the local community?

Do you consider biodiversity when you make land management decisions?

4. Drivers and barriers to conserving native pastures and improving biodiversity

Determine drivers and triggers to conserve areas:

What do you see as the benefits of trying to conserve areas of native pasture or considering biodiversity? To you, to the environment and/or to others in the community?

Determine barriers to conserve areas:

Does anything prevent you from conserving these areas or considering biodiversity when you make land management decisions? What?

Does the size of your property affect your decisions?

Explore level and type of support required to conserve native pastures and improve biodiversity:

Have you received any support, either financial, physical (ie labour) or some other to assist you with conserving native pastures or improving biodiversity on your property?

If yes:
Did it encourage you to change your practices?

If no:
Would receiving support encourage you to actively implement grazing changes to conserve native pastures and improve biodiversity on your property? Why? Why not?

What sort of support would you need?

Explore impact of peer pressure:

Do you tend to think about conserving native pastures and biodiversity more if your neighbours are active in these areas?

5. Information sources

Identify information sources:

Where have you learned about native pastures and woodlands, their management and their biodiversity?
Explore for:

- other farmers
- extension officers
- books
- websites
- TV/radio
- training programs
- paid consultants
- trial and error

Identify information gaps:

Have you received all the information you needed to make decisions?

If yes:
Where did the most helpful information come from?

If no:
What additional information do you need?

Identify preferred information sources:

Is there a particular source you would prefer to receive this information from? In other words, is there a person, program or an organisation which you believe usually offers practical and credible information?
Explore for:

- Land for Wildlife
- ProGraze
- BeefCheque
- others

6. Other segmentation issues

If we think about farming practices in general, would you say you are usually one of the first people in the region to adopt new practices, or do you prefer to see a new idea, method or piece of technology proven on someone else's farm before you try it?

Are you one of the first to think or implement conservation issues?

Do you tend to get a lot of advice on farm from paid consultants, people like agronomists, soil experts, farm management consultants, vets, etc?

What about nature conservation advice?

Do you use any software packages, spreadsheets or formal evaluation tools to help you with farm management and record keeping? What do you use?

How important is it to ensure you look after the natural resources on your property?

Could you ever see yourself farming or harvesting other products on your land, like native seed for revegetation programs, wildflowers, tourist activity, government conservation schemes, things like that?

Appendix 2:

In-depth interview topic guide

NRE Grazing for Biodiversity and Profit
Topic Guide for Depth Interviews

Introduction

Good morning/evening. I'm Pam Watson/Rebekah Pryor from Down To Earth Research. We've been commissioned by
(IF NRE STAFF: a joint Ag. Division and Parks Flora and Fauna project)
(IF EXTERNAL: a joint NRE project)
to conduct an independent study on the biodiversity of grazed native pastures among NRE extension staff and private consultants - do you recall receiving an introductory letter about the study for the project *Grazing for Biodiversity and Profit* over the last couple of weeks?

A key aim of this project is to gain a better understanding of the attitudes of farmers, in the Volcanic Plains and Riverina regions of Victoria on the importance of biodiversity in grazed native pastures, with and without trees, on their properties. Extension workers and leading private consultants are key players in the delivery of pastoral information and support to graziers from these regions with native pastures on their properties. Consequently, we are keen to hear your opinion on several key issues relating to the biodiversity of grazed native pastures.

Are you willing to participate in the study? I will need approximately twenty minutes of your time and I am happy to call you back at anytime that is more convenient for you.

Call back time: _____

Explain definition of native pastures:

I will be using the term 'native pasture', during the course of the interview. Just so we are on the same wavelength, I'll outline my definition of native pasture.

'Native pastures' are pastures which contain from 1% to 100% of native grasses, usually wallaby grasses, spear grasses, tussock grasses, weeping grass, wire grasses and kangaroo grass.

'Native pastures' can also be present in 'native woodlands' which are areas with native grasses and trees which are widely spaced with canopies that do not overlap. They can be dominated by one or two species of trees, typically red gum, swamp gum, manna gum, grey box, yellow box, yellow gum, black box, silver banksia, buloke or native pines.

1. Perception of graziers' level of knowledge on biodiversity

Explore perceived level of graziers' knowledge on biodiversity:

How knowledgeable would you say the graziers in the (Riverina/Volcanic Plain) *area are about biodiversity?*

What proportion of the graziers you advise would have native pastures and/or native woodlands?

Do many of the graziers with native pastures and/or woodlands on their properties know they have these areas?

How common is it to graze pastures underneath scattered trees in woodlands?

What part of the farm are they usually found on?

Do farmers manage native pastures differently depending on whether or not there are trees present?

What do they do differently?

Determine perception of graziers' attitudes towards conserving native pastures and woodlands:

In your experience, are the graziers with native pastures interested in conserving these areas? Why? Why not?

What do you think they see as the benefits of conserving these areas?

What sorts of things stimulate them to conserve these areas?

And what do you think they believe are the disadvantages of conserving native pastures?

Determine perception of graziers' attitudes towards improving biodiversity:

Are farmers in these regions interested in learning about how to improve the management of the native pastures on their properties in order to conserve biodiversity? Why? Why not?

Do they see benefits of improving biodiversity? If so, what?

What sorts of things stimulate them to improve biodiversity on their property?

What do you think they believe are the barriers or disadvantages of improving biodiversity?

Do they see conserving pastures and biodiversity as more or less compatible with farm business profitability and survival, or as fundamentally conflicting?

Explore influences on decision-making:

How relevant is the size of the farm in decisions relation to conserving native pastures and/or woodlands, or managing them to achieve biodiversity gains?

Does the type of enterprise run have an impact on these decisions?

Determine types of graziers more likely to be interested in conserving native pastures and woodlands:

Is there a type of farmer or farmers with particular attributes who you have found have a higher level of interest in conserving native pastures?

What characteristics do they tend to have?

Determine types of graziers more likely to be interested in improving biodiversity:

Is there a segment of graziers who are interested in improving the balance between biodiversity and profitability of their native pastures?

What characteristics do they tend to have?

2. Level of interest and confidence in providing biodiversity and productivity information and support to graziers with native pastures.

Explore frequency of assisting graziers with biodiversity issues:

How common is it for you to be asked to provide graziers in the (Riverina/Volcanic Plain) *region with information about managing native pastures on their farms?*

Do you expect these requests to increase in future, stay the same or decrease? Why?

Explore level of interest in assisting graziers with biodiversity issues:

How interested are you in assisting graziers to conserve native pastures and improve the balance between biodiversity and agricultural productivity on their properties? Why do you say that?

What do you see as the benefits of assisting graziers in these areas?

Do you think graziers can conserve native pastures and improve their biodiversity and still make a profit from grazing those areas? Why? Why not?

Are there any negative aspects?

3. Level and types of support required to assist graziers with biodiversity issues.

Explore satisfaction with current information and support:

Where have you gained your knowledge on grazing native pastures and their biodiversity?

Do you currently feel you have the necessary knowledge and support required to encourage graziers to conserve native pastures and grazed woodland areas and improve the balance between biodiversity and livestock returns on the native pastures the have on their properties?

If yes:
What types of information and support have you found most helpful?

If no:

What additional support and information do you need?

What is the best way for you to receive that information?

Explore for:

- manual
- brief information sheets
- short course
- long course
- seminars
- CD-ROM
- other?

Determine preferred sources of information and support:

Where would you prefer to receive that information or support from?

What sources of NRM information or support have most credibility and weight among graziers and consequently result in better or faster adoption?

Where do graziers tend to go for information and support on NRM issues?

4. Suggestions to ensure project has positive outcomes.

Explore suggestions which may assist project:

Do you have any suggestions at all which may assist the Grazing for Biodiversity and Profit project team to better encourage greater adoption of biodiversity measures?

Is there anyone else we should talk to who could offer further or additional insight into these issues?

Who are the two most influential advisors in this region in your view?

5. Respondent background

Determine areas of expertise:

What is your main advisory work?

What advisory programs do you participate in the delivery of? (eg ProGraze)

What proportion of your work would be on the Riverina/Volcanic Plain compared to elsewhere?

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