

ECOTOURISM AS A MEANS OF
ENCOURAGING ECOLOGICAL RECOVERY
IN THE FLINDERS RANGES,
SOUTH AUSTRALIA

By

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ABSTRACT

Some of Australia's most pressing conservation problems are found in the arid and semi-arid rangelands where the traditional major land-use is extensive pastoralism. Yet with the emergence of a change in resource values, the rangelands of Australia have started to move away from a strict production land-use towards a multifunctional land-use where pastoralism, tourism and the environment have an influence on one another. With the present mixture of consumption and protection values in the rangelands, ecotourism represents a model for achieving a symbiotic relationship between tourism activity and conservation in a pastoral setting.

This study develops a theoretical framework for understanding the relationships between ecotourism, pastoralism and ecological recovery efforts in the Flinders Ranges through employing mixed qualitative and quantitative research techniques to examine the perceptions and practices of tourism operators, local landholders and visitors to the study site. The study finds that while pastoralism and its level of success often remain variable, the strength and stability of tourism is increasing. Because economics is a central component of the concept of sustainability, and because we must manage the environment while accommodating tourists, ecotourism is one way to help reach rangeland sustainability goals, provided that there are adequate levels of agreement amongst the local community and other land users.

The results indicate that the vast majority of stakeholders are currently in a state of co-existence with each other rather than one of conflict, suggesting ecotourism has the potential to assist ecological recovery. However, many landholders are constrained in their ability to integrate ecotourism operations and conservation due to economic difficulties and market barriers. There are also conflicting results among visitors who claim to be interested in ecotourism but do not necessarily act accordingly, highlighting the need for a greater focus on environmental education. Ecotourism should be incorporated into a regional sustainability plan where the public are able to assist decision makers through collaborative planning.

The thesis concludes that when well-managed, ecotourism can be a business supporting conservation in the Flinders Ranges. It contributes to knowledge of the role that ecotourism can play in encouraging ecological recovery in the rangelands and explores the complex interrelationships involved through consultation with the primary stakeholders of landholders, tourism operators and visitors.

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DECLARATION

This work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

I give consent to this copy of my thesis, when deposited in the University Library, being made available for photocopying and loan, subject to the provisions of the *Copyright Act 1968*.

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May 2008

Section I: Preliminaries

This section introduces the thesis in two parts; the introduction chapter briefly familiarises the reader with the setting of the case study and describes the aims and objectives of the research. Some key definitions as used in the study are also provided. The framework of the study (Chapter 2) and the methods used (Chapter 3) are provided in the following chapters. This material is concerned with acquainting the reader with several important issues in environmental studies from an epistemological viewpoint, and explaining the methods used in conducting the research.

1.0 INTRODUCTION

1.1 Introduction

This chapter provides an overview of the study to follow and the questions the research intends to answer. In general terms, the study explores a possible shift in Australia's rangelands away from pastoralism and toward the potentially more environmentally sustainable land-use of ecotourism.

1.2 Conceptual Basis for Thesis

June 1992 marked the United Nations Conference on Environment and Development (the Rio Earth Summit) where the governments of 182 nations adopted Agenda 21 for securing the sustainable development of Earth. The priorities identified as the four most pressing areas of environmental concern included the increasing unsustainable demands on natural resources, the prevalence of unsustainable production and consumption patterns, the impact of environmental change on human health and well-being, and the impact of the globalisation of the economy on the environment (Genot, 2004). In response, the World Travel and Tourism Council, the World Tourism Organisation (WTO) and the Earth Council (1996) jointly produced a report attempting to translate Agenda 21 into an action plan for the tourism industry. This report is called *Agenda 21 for the Travel and Tourism Industry: Towards Environmentally Sustainable Development* (World Travel and Tourism Council *et al.*, 1996). The guiding principles identified within the report for tourism development include that environmental protection should constitute an integral part of the tourism development process and that tourism development issues should be handled with the participation of concerned citizens, with planning decisions being adopted at the local level. Priority areas for action were developed based on these and the other principles of Agenda 21. Among these are:

- providing for the participation of all sectors of society in tourism development;
- the design of new tourism products with sustainability at the core: an integral part of the tourism process;
- partnerships for sustainable development; and

- the involvement of staff, customers and communities in environmental issues (World Travel and Tourism Council *et al.*, 1996).

Globally, an increasing number of governments and local communities have relied on the tourism industry to create employment and provide much-needed foreign exchange in the past few decades (e.g. Honey, 1999). Tourists now travel vast distances including to formerly inaccessible communities and remote natural regions, and the industry has had to face the evidence that many tourist destinations, including national parks and other protected areas, have been spoilt. The dilemma faced by decision-makers in the tourism industry relates to the fact that while environmental quality is an essential condition for tourism operations to thrive in, tourism also causes various environmental impacts on a region. Tourism depends on the environment as its primary resource, and very few question the need for tourism. The relationship between conservation and tourism (especially in protected areas) has also been acknowledged by the International Union for the Conservation of Nature and Natural Resources (IUCN) and is a key problem for management of such areas today (Amend & Amend, 1995). It is against this background that Australia has to examine the importance of a sustainable tourism sector with particular respect to environmental conservation and recovery.

1.3 Research Questions

Ecotourism has received a great deal of interest since the coining of the term by Ceballos-Lascurain in 1983 (with the preliminary definition being popularised through Boo, 1990) as it is often proposed as being able to ensure environmental conservation while also enabling economic benefits to a region (e.g. Department of Industry, Tourism and Resources, 2005; Buckley, Pickering & Weaver, 2003; Ecotourism Australia, 2006; Foggin & Munster, 2000; Hvenegaard, 1994; Lindberg, 1996; Novelli, Barnes & Humavindu, 2006; Preece & van Oosterzee, 1995; Richardson, 1993; van Oosterzee, 2000). While it has been given numerous definitions to describe it (see section 5.3), the most common denominator is that it is nature-based (Cater, 2006). Its supporters believe it is a new way forward for environmentally sustainable development. Numerous case studies have been conducted into best practice ecotourism operations in specific sites throughout the world (e.g. Cater & Lowman, 1994; Duffy, 2002; Fennell, 1999; Foggin & Munster, 2000; Harris & Leiper, 1995; Honey, 1999; King, McVey & Simmons, 2000; Mowforth & Munt, 1998; Nyaupane, Morais & Dowler, 2006; Ross & Wall, 1999; Yuksel, Bramwell, & Yuksel, 1999), however, the trend appears to be a focus on how to reduce the impacts of mass tourism by minimising further environmental

degradation as opposed to actually encouraging greater environmental recovery. In landscapes such as the Flinders Ranges with such a high degree of environmental change since European settlement (Bickford & Gell, 2005; Davies, Twidale & Tyler, 1996; Mincham, 1996; National Parks & Wildlife South Australia, 1999; Smith, 1996), the challenge is not only to conduct ecotourism in a manner so as to prevent negative impacts from tourism activity, but to positively contribute to conservation efforts along the way.

In recent years there has also been greater debate regarding issues surrounding ecotourism, such as its definition, ideals, and its actual impact on destinations, with the Australian government and many State and Territory governments producing their own discussion papers or strategies to encourage ecotourism development due to its potential to provide both economic and environmental benefits. A large portion of the literature essentially takes a Western cultural, economic and political viewpoint approach (Cater, 2006), yet analysis of literature shows that studies of tourism's contributions to conservation and local communities have largely been confined to developing countries (e.g. Boo, 1990; Fennell & Eagles, 1990; Honey, 1999; Kamsma & Bras, 2000; King *et al.* 2000; Nelson, Butler & Wall, 1999; Nyaupane *et al.*, 2006; Palmer, 2006; Southgate, 2006; Ziffer, 1989) and have often overlooked the actual roles and behaviours of tourists (e.g. Dickinson & Dickinson, 2006; Duffy, 2002). Recent literature has reinforced that economic, environmental and cultural impacts of ecotourism development vary greatly and that a number of critical factors may explain this variability, including destination site and both host community involvement and the number and type of tourists (e.g. Nyaupane *et al.*, 2006). With different socio-economic and political structures in Australia (compared to developing countries), a detailed exploration of the nature of ecotourism in a local case study, including visitor behaviour, opinions and environmental awareness, would therefore be beneficial.

The focus of this study is to examine the relationship between ecotourism and ecological recovery in the pastoral setting of the Flinders Ranges. This included how they may be able to support each other if correctly managed and how one may be an incentive for the other, particularly for individual landholders¹. From an environmental perspective, combining conservation with pastoralism is seen as an issue of high priority because of the large area of land involved and the potential of this form of land-use to degrade land resources (Holmes, 2006).

¹ A landholder may be an individual, corporation, non-government body, trust or not-for-profit organisation who has a role in land management. Although the majority of landholders in the Flinders Ranges are individual private leaseholders, the term may be used to refer to freehold, native title or leasehold tenures.

The central research question is:

Could the growth of ecotourism assist ecological recovery in the Flinders Ranges?

Exploration of this question requires an examination of the interactions between human beings, other living things, and the environment of the Flinders Ranges in both a tourism setting and a pastoral² setting to determine the relationships connecting them.

1.4 Specific Objectives

This research study is essentially exploratory, with the objectives guided by the research question as outlined above.

Originating from this question, the primary objectives are to:

1. Evaluate the extent of environmental degradation in the rangelands of Australia that has resulted from pastoralist activity since European settlement, and explore whether or not continuing with this land-use practice would be advisable in environmental and economic terms (Chapter 4).
2. Explore the nature of the tourism industry and the characteristics of the ecotourism market in Australia and within the Flinders Ranges, focusing on reported environmental and social impacts of tourism to determine the viability of ecotourism in respect to the potential to contribute to sustainability in the region (Chapters 5 and 6).
3. Examine visitor aspirations, opinions and knowledge of ecotourism and evaluate visitor awareness of ecological degradation, recovery and conservation in the Flinders Ranges and wider Outback Australia (Chapter 7). Do visitors want to learn more about environmental issues and are ecotourism messages actually reaching visitors?
4. Examine pastoralists' opinions on the rise in popularity in ecotourism (Chapter 8). Do landholders think ecotourism could be a solution to local economic and environmental issues?

² Pastoralism refers to farming specific to sheep and/or cattle, and is used in this study to mean livestock production on an extensive basis.

5. Explore local tourism operators' opinions regarding ecotourism's potential, and their present environmental strategies (Chapter 8).

1.5 Justifications for Research

Tourism is not a topic purely for the social sciences; it is increasingly being integrated amongst biological, ecological and social dimensions. Environmental Studies therefore finds itself appropriately positioned to explore tourism, pastoralism and conservation relations.

We are faced with a legacy of mismanagement from the rapid change human activity brought to Australia's ecosystems, now with more than half of Australia's rangelands suffering from degradation (Gutteridge, Hall & Hanna, 2000; Yencken & Wilkinson, 2000). The natural features they support, such as the Flinders Ranges of South Australia, are highly regarded as a focus for tourism and consequently generate significant interest and revenue.

Not every community can maintain an environmentally and economically sustainable level of tourism development. The literature suggests a community-based approach to tourism development is a prerequisite to sustainability (e.g. Nelson *et al.*, 1999) but it does not often explore the necessary contribution by local residents and control over tourism development and management in cooperation with other stakeholders. It also generally concentrates on empowerment of (often displaced) local communities largely in developing countries regarding rights to contribute to the running of national parks and tourism facilities and the need for a greater proportion of profits to remain in the local economy (e.g. Honey, 1999; Pleumaron, 1994).

Workshops from the 1982 National Arid Lands Conference (Messer & Mosley, 1982) identified the need for the undertaking of social research on tourism user perceptions and effects in the rangelands. Primary impacts were listed as shooting, litter, tracks and stock disturbance, and education was regarded as necessary to increase tourist respect for the land and others' property. In considering tourism impacts one must take into account the different sets of users: commercial bus tours often causing high localised pressure and obligatory small sacrifice areas, and individual tourists whose impacts are more widespread and are more likely to be those who may use firearms, disturb stock and leave new tracks from using four-wheel drive vehicles.

Different users will not always have the same perceptions as each other. A lack of societal agreement and lack of resources are proposed by Woinarski and Fisher (2003) as the two major impediments to reaching rangeland biodiversity goals. This research explored the level of societal agreement in the Flinders Ranges towards this goal with respect to the tourism industry.

One of the main obstacles to a sustainable tourism industry is *ad hoc* or speculative tourism development without integrated and comprehensive planning, which is difficult as tourism is traditionally planning averse (Duffy, 2002; Genot, 2004). If we are to overcome the environmental hurdles facing the tourism industry, innovative thinking and research is needed along with the will to put it into practice. The information gathered about visitors to the Flinders Ranges can be related to the development of tourism and environmental and economic benefits in the broader regions of Outback South Australia and other arid and semi-arid pastoral zones. The research assesses the visitors' attitudes and experiences, and this knowledge can be applied to:

- the promotion and sustainable use of Australia's natural heritage through tourism and specifically ecotourism operations;
- the development of facilities that maximise the ecotourism experience and visitor satisfaction;
- the creation of demand for ecotourism through marketing and education; and
- assessing the feasibility of generating new ecotourism products for Outback and pastoral regions primarily to aid environmental recovery.

The major outcomes of the research include:

- an assessment of the feasibility of nature-based tourism or ecotourism in particular in the Flinders Ranges, especially by private land owners;
- an assessment of the visitors' understanding and expectations of tourism in the Flinders Ranges and potential conflicts over land management issues;
- an assessment of the land owners' beliefs and perspectives of tourism in the Flinders Ranges; and
- an analysis of the advantages and disadvantages of ecotourism as a means of encouraging ecological recovery.

This research is necessary as the research outcomes relate to the potential environmental, cultural and economic benefits of a conservation-minded, nature-based tourist industry, which are:

- recognition of the value of Australia's exceptional natural heritage; and
- to add the economic value of tourism to essentially a pastoral region and thereby encourage and finance maintenance and restoration of biodiversity.

Furthermore the project benefits:

- wildlife and land managers in directing alternative or additional largely non-consumptive use of the natural environment to expand protected areas and broaden the economic base;
- independent tourists and tourism operators by providing research to enhance the quality of their ecotourism or nature-based experience;
- regional tourism development through the promotion of Operation Bounceback; and
- community participation in tourism planning.

Finally, to clarify some of the issues involved in the complex topic of community perspectives towards tourism development and sustainable land-use, both visitor and local resident perceptions are explored. It is also necessary to assess whether tourism development is used to achieve economic benefits, ecological benefits, or a combination of the two.

1.6 Structure of the Thesis

The thesis comprises four sections. The first section consists of an introduction, a description of the framework from an Environmental Studies perspective and the methods of the study. The subsequent section provides a review of the relevant literature pertaining to tourism and pastoralism, including economic overviews of both land uses, environmental sustainability issues relating to their actions, and current areas of interest.

The third section introduces the case study and begins with a description of the study site of the Flinders Ranges, and a detailed description of results as separated into visitor survey results in one chapter, and tourism operator and landholder results in another. In the final section, the results are then discussed in amalgamation and conclusions are drawn, giving recommendations and final reflections from the study.

1.7 Conclusion

This study aims to highlight the question regarding which activity (tourism or pastoralism) is best able to help reach sustainability goals in the case study site of the Flinders Ranges, South Australia. It assumes there must be some level of agreement between tourists, tourism operators, landholders and conservationists in order for a successful sustainable multifunctional land-use plan to be achieved, especially if ecotourism operations are to actively aid conservation and enable a reduced reliance on pastoral activity through income generation. This agreement must include similar hopes and desires for the region as a whole, a similar understanding of tourism and ecotourism operations, and an agreement to work in partnership with each other for the best possible outcomes.

2.0 THE FRAMEWORK OF THE STUDY

2.1 Introduction

This chapter explores some of the values and beliefs common to Environmental Studies and examines the role it plays within the social sciences, identifying the key themes for this research. It acquaints the reader with further discussion of environmental issues pertaining to the study, and provides information explaining the significance of the issues at hand. It does so in order to provide the reader with an overarching framework for the study which explores ecotourism as a means of encouraging ecological recovery in the Flinders Ranges.

2.2 Environmental Studies

Environmental Studies approaches the theory of knowledge from a transdisciplinary point of view. It focuses on combining theories taken from a broader knowledge base of several individual disciplines and looks at how humans (the social sciences) interact with nature (the natural sciences). It is the overall perspective that is important, as Environmental Studies plays an advocate role in being *for* the environment not simply *about* it. It also plays a large part in informing others and having a problem-solving focus. The theory behind it is principally for enlightening people about various environmental issues because wide scale environmental awareness is seen by many to be ‘the mightiest weapon in the fight to preserve the environment’ (Pollak & MacNabb, 2000:7).

Macquarie Editorial Committee (1990:308) defines the environment as ‘the aggregate of surrounding things, conditions or influence’. Belshaw (2001:3) restricts it to that which is outdoors and inhabited, whether by humans or other living species. The *Environment Protection and Biodiversity Conservation Act (1999)* refers to the environment as those nationally and internationally important flora, fauna, ecological communities and heritage places. Regardless of which approach is taken, definitions suggest Environmental Studies covers a very large range of content with no sharp boundaries. In the same such way (of being what one perceives it to be), the environment can be said to be what one constructs it to be in their own mind. Different people see the world in different ways and consequently treat the world differently. Additionally,

these attitudes have changed throughout time. People of different cultures often have different lifestyles, and the way in which they are brought up to live in their society can greatly affect these perceptions of the environment (Cater, 2006). Just as the world cannot be seen in only one way (as people construct it in different ways to each other), neither can the environment. Environmental Studies covers the understanding of how and why individuals and groups live together in these different ways, how they interact with and within their environment and how they manage their resources (therefore also include elements of environmental economics).

This research study also falls within the social sciences discipline, which traditionally includes discussions in studies of the environment, psychology, sociology, anthropology, history and related domains. The social sciences suggest there may be a science to people, as human beings appear to be able to guide their own behaviour in accord to their own reasoning (Bookchin, 1990). As a social science study, this research investigates the actions and opinions of human beings, and as a study of Environmental Studies, it investigates these actions as they influence the local environment in the Flinders Ranges of South Australia. The multidisciplinary attitude of Environmental Studies provides this research with a generalist approach to many complex environmental issues.

Within the discipline of Environmental Studies, this research focussed on the field of ecotourism (recognising improperly managed tourism can have negative environmental impacts). This is a relatively young field, the term not being used until 1983 when it was defined by Ceballos-Lascurain (Ceballos-Lascurain, 1991), and specific academic journals not appearing until the *Journal of Sustainable Tourism* emerged in the 1990s followed by the *Journal of Ecotourism* in 2002 (Carrier & MacLeod, 2005). The United Nations did not declare an International Year of Ecotourism until 2002, yet in this short time, ecotourism created much debate from its definition to its principles (e.g. Boo, 1990; Cater, 2006; Diamantis & Ladkin, 1999; Medina, 2005).

This research was also influenced by the field of conservation biology (concerned with the increasing rate of habitat and species loss, and the need to help arrest environmental degradation). Also being a relatively young science only surfacing as an academic field in the 1980s, conservation biology aims to effectively manage the environmental crisis by understanding the scientific basis of conservation. With the growth of conservation biology and the increased use of the term biodiversity in the 1990s, there emerged a re-arrangement of Environmental Studies in which biodiversity conservation became a central focus of environmental concern (Sarkar, 2004).

While ecotourism is a managerial or commercial response and conservation biology is a scientific response, they are both fields that have emerged in reaction to the increasing community concern about land degradation and the loss of endangered plants and animals, and the recognition of the need for environmental approaches to be complementary rather than competitive. They are also linked through the importance they place on communication to reach their goals. Effective communication is very significant for raising public awareness about environmental issues (Belshaw, 2001; Tilden, 1977). McNeely (1998:86) claims:

Changing attitudes and practices is a strategic process that is facilitated by communication.

People are able to obtain a greater understanding of the value of a resource if they experience it first hand through interpretation, and this understanding leads to protection (Charters, Gabriel & Prasser, 1996). For example, we can help the public try to accept that kangaroo culling is part of a necessary solution to rangeland problems and not a travesty against our coat of arms, or that restricting water supply benefits grazing production and nature conservation in semi-arid Australia. If communication is to aid in changing practices for better environmental results, it has to be open and realistic, and planned and managed to encompass a range of social interactions. A key aspect of ecotourism is communication through various methods of interpretation such as signage, brochures and tour guides.

Ecotourism and conservation biology both present important ethical challenges through their necessary relationships with local communities, such as partnerships to involve local people in conservation programs or tourism developments. Both must consider and respect national and local legislation along with any customary practices and local values, and inform local communities of any results and progress. Conservation biology and ecotourism realise we cannot continue in a lifestyle that ‘mines’ our natural resource base so they try to find ways to accommodate ourselves a more sustainable future.

Emerging issues in the fields of ecotourism and conservation biology include:

- the increased emphasis on how the public can help their cause (including through non-government organisations) (e.g. Eagles, 2004; Pagiola, Bishop & Landell-Mills, 2002);
- equity and collaborative management approaches, particularly through partnerships between the public and private sectors (e.g. Conley & Moote, 2003; Innes & Booher, 1999; South Australian Tourism Commission, 2002);
- the question why resources are actually being over-consumed and measuring the changes (especially those that are environmental) that are occurring (e.g. McNeely, 1998;

Yencken & Wilkinson, 2000); and (importantly)

- environmental education and communication, whether direct or indirect, being critical to raising more support (e.g. Byron, 2000; Duffy, 2002; Pollack & MacNabb, 2000).

Social acceptance is crucial for conservation to be sustainable (Belcher, 2001; Borrini-Feyerabend, 1997). If people value and appreciate biodiversity, and if groups and organisations can derive concrete benefits from it, they have the best chances to succeed in conserving it in the long-term. Therefore it is crucial to achieve a balance between the biological concerns of conservation and the socio-economic concerns of the local community and any other people involved.

Private sector investment in conservation, including by way of the ecotourism industry, increased to the point where it is the dominant player in developing countries (e.g. Mumm & Tuffin, 2004), although most of this investment is in only about 15 countries, with the less rapidly-industrialising countries being ignored (McNeely, 1998). It is now also playing a greater role in developed countries with noted success (e.g. Eagles, 2004). Because the private sector is such a successful vehicle for transmitting cultural values through advertising, cinema and popular music, it is especially relevant to environmental issues and it will be useful when conservationists can work more productively with the private sector. In developed countries an increasing number of government protected areas are following organisational structures in line with private businesses in order to increase profits to be reinvested in conservation (Eagles, 2004). In regard to ecotourism, the success from the private sector gives governments an economic incentive to protect the environment through allocating land for national parks and other protected areas (Figgis in Richardson, 1993).

The combined efforts of the public and private sectors through cooperative partnerships have received increasing interest from an environmental management perspective. They may involve partnerships within or between governments, non-profit organisations, local councils, universities, neighbourhood organisations and foundations, and although their efforts are varied, such collaborative groups engage participants directly in conversation with one another and with decision makers unlike traditional participation methods (such as public hearings or written public comments on proposed projects) which, according to Innes and Booher (1999), do not work because they do not represent all stakeholders or improve decisions made by public agencies.

2.3 Environmental Values

There is also a component of anthropology in this study as in practice, anthropology is not only the study of humanity, but the study of humans as they are embedded in societal and cultural relationships (Rose, 2005). Its methods can be used to study small-scale societies in order to increase knowledge from analysis of these examples and draw broader theoretical and practical knowledge. Environmental anthropology refers to anthropology's efforts to include environments within the study of humanity, and the specific anthropological line of study this research draws upon is that of the different impacts of humans on their natural environment, and the impacts of this environment on humans. The root of environmental problems is often said to lie in human behaviour (Gardener & Stern, 2002; Newhouse, 1990). Any attempt to improve this relationship would therefore be appropriate to investigate people's attitudes, and subsequently look at optimal ways of changing or influencing people's attitude and behaviour.

Our knowledge and our perceptions of the environment are important to explore because they are what determine how we treat and use the environment (Belshaw, 2001; Des Jardins, 2001). A range of factors including religion, education and upbringing, personal experiences, employment and individual interest all influence how we perceive the environment. The European men and women who settled in South Australia from 1836 onwards had different perceptions to the Indigenous Australians. The Europeans were determined to control and develop the natural environment, adapting it to meet their needs, whereas the Indigenous Australians developed a sensitivity to, and appreciation of, their surroundings and adapted their needs to the capacities of natural environments (Australian Museum, 2004; Flannery, 1999; Rolls, 1981). While their activities do appear to have had some influence on the environment (Nance & Speight, 1986), they believed that the earth had life and their perceptions found expressions in legends and customs. They made use of what was available in a practical manner unlike the European settlers who wanted to improve what was available with the use of science and technology, causing problems such as compositional changes in plant and animal species³ (Bickford & Gell, 2005; Rolls, 1981) and fundamentally transforming wide regions of Australia (Kirkpatrick, 1994; Williams, 1977). The change to the landscape since European settlement has been viewed in ecological terms as a massive disturbance event, being novel in kind and greater in magnitude and rate than those experienced before (Kirkpatrick, 1994). The differences between these two approaches have

³ Aboriginal occupation also influenced plant and animal composition to some degree as their use of fire and the introduction of the dingo probably also helped shape ecosystems (Barker, McCaskill & Ward, 1995; Flannery, 1999).

had great impacts on the diversity and functioning of natural communities in Australia and the social component's connection with ecological problems cannot be overlooked (Bookchin, 1990; Newhouse, 1990).

Environmentalists tend to believe they have a moral responsibility to the world of life and they will argue for environmental preservation as a public good. Philosophers have discussed this preservation value in terms of interests, with arguments that an object either has a worth in its own right, inherent value, or its own well-being (Des Jardins, 2001). To the inexperienced eye, the rangelands of Australia may indeed appear to be a natural landscape, unaware that the changes are in fact often more far-reaching than suggested at first glance, and to others, it may be seen as an alien landscape of unused land therefore not worth protecting (Holmes, 1983). Yet Australia's Outback is one of the key features that identifies Australia as very different to the rest of the world, and it is not surprising that Australians have different perceptions of the Outback given the range of ways it has been both glorified and exploited throughout history.

Eric Rolls analysed the shortcomings of Australians by not caring for their environment. He described the Australian Outback as it was prior to European settlement (in Rose, 1996:75):

Everything that moved on the land moved gently. The Aborigines husbanded their land with controlled fires. Kangaroos and emus fed on the short green pick that sprang up on the burnt country. The constant grasses and shrubs grew among scattered trees in spongy soil and the mulch of a thousand years.

Rolls then described Australia as it changed after the land had been taken up for grazing:

Thousands of years of grass and soil changed for ever in a few years. The spongy soil grew hard, run-off accelerated and different grasses dominated.

Rolls, 1981:84

Copeland & Lewis (1997) attribute grazing as having a more significant impact on Australia's environmental condition than low intensity timber harvesting. Rolls (1990) further spoke in more recent years of loss of life and drastic loss in life support systems, claiming that all of Australia is 'degraded and disorganised'.

A common perception of Australia's early settlement was typically that the Australian economy 'rode on the sheep's back'. Campbell (1999) revised this in saying Australians actually 'rode on the back of our fragile native vegetation', and stresses it is time to re-evaluate

the value we give to the landscape, and better fit our agricultural, tourism and living systems to the Australian landscape to set about controlling our future. Belshaw (2001:276) goes so far as to write that:

The more the natural world is wrecked by future lives, the less likely it is that such lives will, in the end, remain worthwhile.

Whether we value nature because we believe it has intrinsic value or because we believe it is better for us if we do so, we ought to give nature a value of some sort to improve the condition of the land now and in the future. In giving nature a value, which is made more difficult because it is not just personal wants or preferences but overall public views and beliefs, we will consequently discover our environmental goals for improving the condition of the land.

2.4 The Condition of the Land

It matters that humans have altered so many of Earth's processes because the non-renewable (and thus potentially scarce) resources we place high dependence on might soon become exhausted, and because of the disturbance to the equilibrium of the pre-modern-human global system (e.g. McGregor, 2006). The ecological implications of the unsustainable use and management of Australia's lands and waters are often far reaching and of particular concern. The natural resources of the earth, which are the only sources for the necessary economic activity that sustains the world's population, are already under stress from current activity (Des Jardins, 2001). With this in mind, any land management planning in the Flinders Ranges, whether pastoral-based, tourism-based or any other use, must consider the condition of the land both now and in the future, thereby placing condition of the land as a key issue for the study.

Rangeland pastoralism is changing complex natural shrub lands into alien landscapes dominated by woody weeds (e.g. Schapper, 1990). Contributing to this is the economic pressures of increasing productivity in these lands. Indeed some argue that the fundamental causes of the major environmental problems confronting the world today are economic in nature (Damania, 2001). Projects and programs such as ecotourism, medicinal plant use or non-timber forestry product use must be developed in cooperation with local communities and could include alternative forms of livelihoods that reduce land degradation and loss of biodiversity.

The *Australia State of the Environment Report 1996* (Commonwealth of Australia, 1996) found that 56 percent of the 80 Australian bioregions have been substantially altered and 20 percent are

almost totally modified since European settlement. Only six percent were classified as having no known risk from European-settlement modification. Forty-three percent of Australia's forest habitats have been lost and most of the remaining uncleared areas are subject to forestry and pastoralism (Scanlan & Turner, 1995). The *Australia State of the Environment Report 2001* (Australian State of the Environment Committee, 2001) wrote that a net loss of vegetative cover was still occurring and that it was one of the key threatening processes to biodiversity. This was further supported by the most recent *Australia State of the Environment 2006*, which suggested pressures being put on the land were still increasing (Beeton *et al.*, 2006). The state of species diversity in Australia is cause for national concern and Australia has the potential to lose numerous plant and animal species within the next century if nothing is done to prevent their decline (Commonwealth of Australia, 1996). While Beeton *et al.* (2006) stated chronic degradation issues remain in a number of areas, it also claimed there were some positive improvements. In areas where steps have been taken to reduce land clearing, biodiversity decline has slowed, and in 70 percent of rangeland grasslands, density levels and diversity has improved or remained stable.

Yencken and Wilkinson (2000:244) quote the Director of the Land and Water Resources Research and Development Corporation (LWRRDC) admitting that all present farming systems in southern Australia are unsustainable in ecological terms, and 'not likely to ever be sustainable, no matter how much we fiddle at the edges'. Furthermore, the Deputy Chief of CSIRO Land and Water, Dr John Williams (in Yencken & Wilkinson, 2000:244), claimed:

We have to face the fact that our land-use practices were not designed for Australia's unique natural ecosystems - and [that we] are slowly but surely damaging and destroying them.

It is obvious that the challenge is to think critically about the long-term future of our lands and waters and it is long overdue. However, it is not only the ecological implications, but also the economic and social implications that are of importance as they are so closely linked to each other. Pearman (1995:202) notes that:

The real cost of the wealth generated by Australian agriculture may never be fully counted other than by the legacy of problems it leaves for future generations.

Others have also noted the mounting costs associated with agricultural production. Graham Harris (in Miller, 1999) estimated that the cost of restoring the damage caused to Australia's land and water from agriculture to be more than the 37 billion dollar annual value of agricultural production.

Robertson (2003) attributes the tension between traditional uses and values of the rangelands and the world's expectations for food, fibre, tourism and entertainment to globalisation. The consequent changes expected in the future include larger businesses, fewer properties in pastoral use, diversified economic use, and more tourism and recreational use of pastoral lands.

Four land-use scenarios for Australia in the approach to the year 2020 were put forward by Graetz (1995) based upon assessment of the drivers and controllers of land-use change. The key drivers of change were claimed to be opportunities for international trade for the agricultural sector, international interest in Australia as an ecotourism destination, the acceptance that our land-use rates are unsustainable, the increasing human population, and Australia's responsibility to provide food security for the expanding population. The main controllers were identified as population policies, international environmental treaty obligations, the balance between the financial capital available for sustainable land-use compared to the social capital needs of a growing urban population, science and technological contributions to environmental problems, and the degree of climate change.

One scenario Graetz (1995) put forward was the continued expansion of the present land-use patterns of agriculture, tourism and population. It was concluded this would lead to a noticeable expansion of Australia's environmental problems. In the next scenario, agricultural regions and the area of land devoted to tourism and population would remain stable and environmental problems again would not improve. In the third scenario, the amount of land devoted to conservation would increase, as would that devoted to traditional uses, but at the expense of land previously used for pastoralism and unused land, and the condition of the land would significantly improve. In the last scenario, Australian people would acknowledge the large environmental problems and take an adaptive management approach in order to deal with them and much more land would be consequently withdrawn from pastoral activity. Only the last two scenarios would achieve both economic and ecological objectives for Australia in the future.

It appears that those things known to cause considerable damage therefore need to be reduced or stopped to enable a sustainable future. Unsustainable environmental practices have led to the decline of civilisations in the past, and we must not ignore the lessons to be learned from these ancient states (Diamond, 2005; Rose, 2005). Many resource agencies perceive that our land-use practices are ecologically sustainable and all that needs to be done is to implement them, but in truth this is not the case. The problem is a very large one and change does need to happen. In the face of the wide-scale environmental problems arising from our

prevailing culture of exploitation, it is vital that new options for sustainable use and land conservation are explored (Berkes, 2004; McNeely, 1998). National parks and reserves cannot protect everything worth protecting (Nance & Speight, 1986).

To achieve environmental objectives it is now widely accepted that conservation needs to focus on entire ecosystem management as opposed to single species protection (as Operation Bounceback does in the Flinders Ranges) because the components of an ecosystem are largely dependent upon one another (Flannery, 1999; Wamsley, 1998, in De Alessi, 2004). As previously mentioned, it also needs to be more widespread than within national parks alone⁴. Indeed farmers are being increasingly encouraged to adopt their more traditional role as guardians of the countryside (Sharpley & Vass, 2006). Cohen (1992) suggested until the mid-1980s (when there was a growing public interest in the arid zone), conservation efforts were generally concentrated in the more accessible agricultural areas of South Australia due to the remoteness of the arid zone, the concentration of major population centres in the south of the State and the perceived greater threat to natural systems through agricultural activity. But it has been over thirty years since the Interdepartmental Committee on Vegetation Clearance concluded that there was a pressing need for off-park conservation measures, based on a report on the South Australian parks and reserves system in 1974 (Nance & Speight, 1986). Consequently, South Australia was the first state of Australia to introduce land clearance regulation (Rolfe, 2002).

Despite grazing systems being potentially renewable resources, their management systems can be a leading cause of degradation to the condition of the land. Rangelands are among the most degraded of the world's arid and semi-arid lands, with about 80 percent suffering from serious or moderate degradation (Dixon, James & Sherman, 1990). There are case studies around the world (e.g. Braat & Opschoor, 1990; Wilcox & Thomas, 1990) that illustrate rangeland problems and their relationship with economic techniques. If management introduced suitable regeneration projects, long-term profit is likely to increase. Wilcox and Thomas (1990) evaluated the economic situation of the pastoral industry in relation to range condition in the western Kimberley rangelands. Using a conventional social benefit-cost analysis for one station as a base unit, Wilcox and Thomas (1990) calculated that a regeneration project would increase revenue from around \$4.2 million per year to \$4.6 million per year following regeneration. Average costs would be expected to fall, thus estimated gross margins would increase from about \$1.3 million

⁴ This is despite the fact that by 1992, arid zone reserves had increased to cover 19.2 million hectares, compared to 5.9 million in 1988 and 3.7 million in 1982 (Cohen, 1992).

per year to around \$2.2 million per year once the project's effects had worked through. Accessing the initial funding for such a project is the difficulty however.

The UN-backed *Poverty Environment Partnership Report 2005* also found that spending to protect the environment has the potential to yield substantial returns. For every dollar spent fighting land degradation and desertification, at least three dollars could be generated in benefits, and for every dollar spent in protecting coral reefs, five dollars could be generated in tourism and renewable fish stocks (Doyle, 2005). As Klaus Toepfer, Head of UNEP, claimed in Doyle (2005):

Conservation of habitats and ecosystems are cost effective when compared with the short-term profits from environmentally damaging activities.

...The environment...is not a luxury good, only affordable when all other problems have been solved.

2.5 Human-Environment Relations

The relationship between humans and the natural environment is controversial and complex. Our understanding of the links between society and environment are underpinned with assumptions that are vital not only to how we view the environment we live in, but also to how we use, abuse, manage and mismanage it (Belshaw, 2001; Des Jardins, 2001). Johnson (2007) shows that for some people, nature is divine and a source of spiritual and artistic inspiration, but for others, as Seddon (1997) shows, it is an enemy and a source of human insecurity. Bookchin (1990) explores how humans are sometimes seen as unique from the rest of the world because of their capacity to think conceptually and feel empathy for the natural world and therefore should practice an ecological stewardship of nature, yet at the same time others believe this uniqueness gives them a 'biospheric right' to exploit nature. Indeed Aristotle argued that plants exist for the sake of animals, and all other animals exist for the sake of humans, therefore concluding that nature made everything specifically for the sake of humanity. Scholars of Environmental Studies of course tend to side with the first-mentioned philosophy, respecting the nonhuman world and suggesting humans have a responsibility to preserve nature and natural resources not merely because they can provide food and shelter for humans.

Bookchin (1990) suggests the great public interest in nature's interface with society compares only to that which Darwinian evolutionary theory generated a century ago, with equally important social implications. The difference is that today's interest stems from a deep public

concern over the ecological disturbances that uniquely mark our era. Much of the modern environmental philosophy literature has emerged from a significant popular dissatisfaction with a strictly issue-orientated approach to the environmental crisis. In the 1970s the problems (pollution, resource depletion, urban sprawl, radiation and the increased incidence of cancer) were strictly practical. The concern now is to develop an 'ecologically creative sensibility', or an ethical guide, towards the environment that will 'provide an awareness of humanity's place in nature' (Bookchin, 1990:53).

Nature is described by many as 'not man', which strongly separates humans from the rest of the world. The notion that humans and nature exist separately has important implications as it ignores the interactive character of social and ecological change. Human activity is not external to ecosystem functioning but integral to it (Bookchin, 1990; McDonald & Lane, 2000). The relationship is interactive and therefore any environment has been fashioned by both human and environmental forces just as surely as the geology, flora and climate of a region has influenced its social systems. Utilisation and conservation must consequently go hand in hand.

For those groups and individuals concerned with the protection of valued bioregions such as the Flinders Ranges, the implications of this observation are probably apparent. The traditional approach to this conservation can be described as biocentric as management largely disregarded the social dimension, sometimes with dramatic consequences. The past 20 years or so has seen a more anthropocentric approach in response, which emphasises the human dimension (e.g. Salafsky & Wollenberg, 2000). Along with other developments, this has helped shape a more sophisticated approach to conservation. The philosophical debate over the needs for nature conservation is now critical to the deliberations over the appropriate level of involvement for the public and private sectors to play in protected areas, national parks and in associated recreational activities. With so few areas of land set aside where nature has a priority and intrinsic values are highly recognised, human use of all lands require management and planning. Fundamental paradigm shifts are needed to achieve a sustainable resource use future. This study accordingly explores possible resource use shifts for sustainable use of the Flinders Ranges.

2.6 Conclusion

This chapter has provided an overarching framework for the study, demonstrating that environmentalism suggests a positive attitude towards the environment. It is assumed that through study and care, or an understanding of the environment, benefits will arise (Belshaw, 2001). Environmental issues clearly have a social basis (Bookchin, 1990; Rose, 2005; Smith & Wishnie, 2000), but the notion that environmental sustainability relies on economic sustainability also persists. When considering land-use options for any region both environmental and economic implications must therefore be examined. The primary topics within the field of Environmental Studies that combine to set the framework for this study include ecotourism, conservation biology and the relationship between land management and economics. An underlying theme is addressing the challenge of helping better manage our cultural and natural environment, from which humans are inseparable. The next chapter outlines the research approach and methods used in this study to examine the relationship between tourism, pastoralism and ecological recovery in the Flinders Ranges.

3.0 METHODS OF THE STUDY

3.1 Introduction

This chapter describes the combination of qualitative and quantitative methods used for the research and the reasons why this mixed method research design was appropriate to the question and best suited to the study. Additionally the nature of the semi-structured interviews and written questionnaire methods used in this study are explained.

3.2 Case Study of the Flinders Ranges

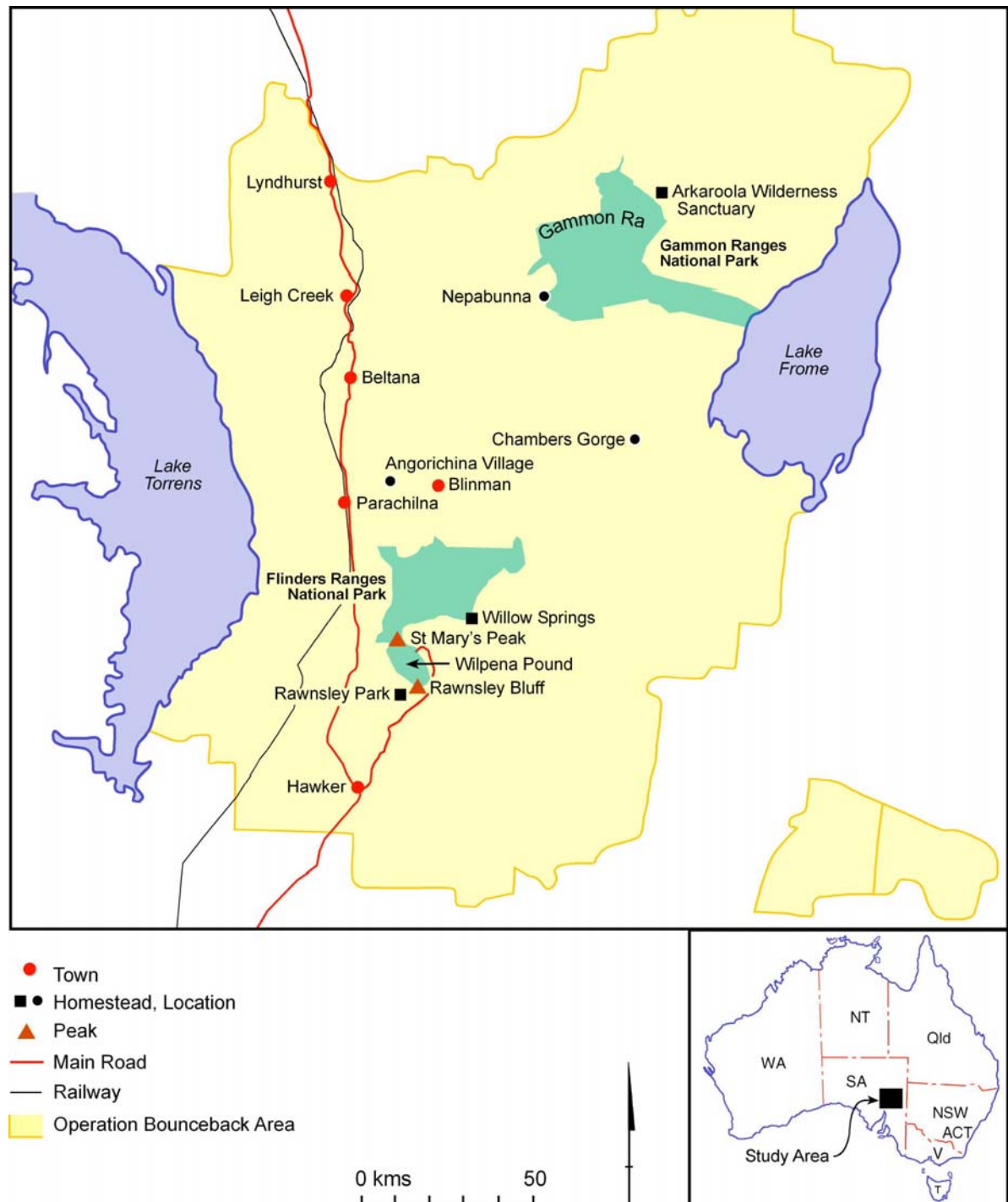
3.2.1 Study Site Location

This study is concerned with ecotourism in the Flinders Ranges. Situated in South Australia (Figure 3.1), the Flinders Ranges are mainland Australia's longest and most dramatic upland region after the Great Dividing Range, consisting largely of Pre-Cambrian rock, dated back to 1600 million years ago in some places (Davies *et al.*, 1996). They form the northern extension of the Mount Lofty Ranges and stretch along the eastern shores of the Gulf of St. Vincent and Spencer Gulf, in an Outback region with an average annual rainfall ranging from 400mm in the south to 200mm in the north (Barker *et al.*, 1995). The Flinders Ranges, one of the most important Pre-Cambrian and Cambrian fossil sites in the world, support between 30 and 50 percent of South Australia's total plant and animal species (Barker *et al.*, 1995) and traditionally consist of small, remote pastoral communities. The climate is known to be harsh with great extremes including drought, flood, severe daytime heat and contrasting low temperatures at night and the region is renowned for its bushwalking, plants and wildlife and Aboriginal heritage.

Due to the large amount of land involved, it would be impractical to try to cover the whole of the Flinders Ranges for this research. The region this study concentrates on, as shown in Figure 3.1, therefore only represents the central and northern Flinders Ranges, although the boundaries were guided by the boundaries of Operation Bounceback and the major tourist sites

of the Flinders Ranges National Park, Vulkathunha-Gammon Ranges National Park, Rawnsley Park Station, Blinman, Parachilna, Arkaroola Wilderness Sanctuary and Chambers Gorge/Wirrealpa. Most of the study site is pastoral land (mainly sheep with some cattle) and land tenure is largely a mix of pastoral and perpetual lease, with individual properties relatively small by pastoral zone standards (Barker *et al.*, 1995). National parks cover approximately 240 000 hectares in the Flinders Ranges region (DEH, 2005a).

Figure 3.1: Study site of the Flinders Ranges, South Australia



3.2.2 Selection of Study Case

Cases to select from may be categorised into three types of case; paradigmatic, extreme or critical. A paradigmatic case refers to a case that can operate as a reference point and may function to establish a school of thought for the domain that the case concerns (Flyvberg, 2006). This compares to an extreme case which may be more relevant when aiming to collect information from an unusual case or to make a point in an ‘especially dramatic way’, or a critical case referring to a case having ‘strategic importance in relation to the general problem’ (Flyvberg, 2006:229). To enable the research to highlight more general characteristics of the issues in question, a paradigmatic case was chosen for this research.

The Outback is an Australian icon and refers to the remote and arid interior and north of the country, commonly promoted in international tourism, but also domestic tourism because a proportionally low number of Australians live there. The Outback is famous for its dry, dusty desert-like properties and its contrasting heavy rains that rejuvenate the landscape, transforming it temporarily until the land dries out once again.

The year 2002 was declared the ‘Year of the Outback’⁵, bringing about an evident focus on Outback tourism in South Australia. Outback tourism was identified as growing in popularity (South Australian Tourism Commission, 2004a), but greater attention was also given to local populations and their way of life. Greater awareness was brought to the pastoral lifestyle and the often harsh conditions.

The Flinders Ranges appeared to be a site commonly perceived as characteristic of the Australian Outback environment, with already established pastoral and tourism industries. Furthermore, as the research commenced at the time of the ‘2002 Year of the Outback’, many special tourism events were in place such as the Eclipse in the Outback, the Great Australian Outback Cattle Drive, Wilpena Under the Stars and Tastes of the Outback. It was also (and still is) a time when the condition of the land was of particular concern, having a large impact on pastoral properties in the region. Environmental recovery programs were proving to be successful in the Flinders Ranges as a result of both Government and local landholder participation. The major environmental program in the Flinders Ranges, called Operation Bounceback, had just been awarded the 2001 National Banksia Award for environmental

⁵ The ‘2002 Year of the Outback’ refers to the national celebration of the environment that played a significant role in shaping Australia’s psyche, showcasing many special events and activities to promote and educate Outback regions, conducted throughout 2002.

restoration. Partly as a result of the increasing environmental awareness by the Australian public and the final realisation of the degraded state of the rangelands, and the often unpredictable position of the pastoral industry, a transition throughout the rangelands became evident (Holmes, 2006). With the Flinders Ranges experiencing this shift from a productivist landscape to a post-production era of land-use policy, the region can no longer focus strictly on increased produce yields.

The Flinders Ranges was also a suitable study site because of the land management project already based there known as Operation Bounceback. This project aims to develop and implement a best practice model for ecological systems management in semi-arid environments, demonstrating how conservation and sustainable use of rangelands can be integrated. It began in 1992 in the Flinders Ranges National Park and has since been expanded to the Vulkathunha-Gammon Ranges National Park and private properties of the region due to its success. It has been described as an attempt to ‘unite communities in action to reverse the fragmentation of habitats and loss of biodiversity’ by the Department for Environment and Heritage (2005a).

A final reason why the Flinders Ranges was selected as the study site was because the researcher lived in Adelaide and travel, time and financial conveniences were favourable. The Flinders Ranges was deemed the most appropriate site for a case rather than the more remote parts of Outback Australia which require longer travel distances and have smaller settlements. As previously mentioned, only part of the Flinders Ranges was chosen for practical reasons relating to its large size.

3.2.3 Case Study Research

This research used the Flinders Ranges as a case study for exploring land-use in an Australian Outback region, examining pastoralism, ecotourism and environmental degradation and recovery. Case study research excels at bringing us knowledge about complex issues or objects and can add strength and broaden experience to what has previously been discovered through earlier research (Yin, 2002). It is used as a research strategy whereby a range of methods may be used to carry out an empirical inquiry, often used by social scientists as it investigates contemporary social and cultural phenomena within their real-life context (Yin, 2002). A case study of the mix between tourism, pastoralism and conservation in the Flinders Ranges can consequently be used as an example of relationships involved in areas in transition to

multifunctional land-use. Flyvberg (2006) writes how the force of examples are underestimated, supporting the value of case study research, as it can consequently be used to make analytic generalisations. With this in mind, the choice of a paradigmatic case was deemed particularly suitable, as it could provide an example of the general characteristics of the issues in question. The case may then be used, with caution, to reflect on our understanding of the ecotourism and pastoralism industries throughout Australia.

Case study research is useful particularly as an exploratory tool. It comprises the following main stages, as followed for this research: to determine and define the research questions; select the case or cases and determine the methods of data collection and analysis; prepare to collect the data; collect the data in the field; evaluate and analyse the data; and report on the findings (Stake, 1995; Yin, 2002). To determine and define the research questions, a literature review was conducted to examine which questions had already been researched in the relevant fields and which questions remained unanswered, leaving a gap in the literature. The Flinders Ranges was chosen as a single case, for reasons previously described, and the researcher explored the options for the most appropriate methods of data collection in regard to the desired questions, with the aims of describing, understanding and explaining the topics. In preparation for field work at the study site, visitor written questionnaires and interview templates of a semi-structured format were constructed. The data collection took place over several different field trips and the data was subsequently analysed once out of the field. The following sections further explore the steps taken to complete the case study research.

3.3 Methods Used

Because the focus of this study was to examine the relationship between ecotourism and ecological recovery in the pastoral setting of the Flinders Ranges, including how they may be able to support each other if correctly managed and how one may be an incentive for the other, the research is of an exploratory nature. The research question asked:

Could the growth of ecotourism assist ecological recovery in the Flinders Ranges?

The exploratory nature of this study accordingly required a degree of flexibility in the research approach allowing the researcher to delve into complex processes and relationships. The research consequently used both quantitative and qualitative methods for analysis to enable a broader research investigation. According to Strauss and Corbin (1994), quantitative

researchers are becoming less satisfied with purely quantified results and are turning increasingly to supplementary qualitative analyses. This type of multi-methodology (triangulation) allows a deeper exploration of the opinion Fielding and Fielding (1986) thereby enlarging the scope of the topic, or enhancing the rigour of the research (Robson, 2002:174). As suggested by Fielding and Fielding (1986:27),

Qualitative work can assist quantitative work in providing a theoretical framework, validating survey data, interpreting statistical relationships and deciphering puzzling responses, [and] selecting survey items to construct indices.

In conducting such research however there is the possibility of premature conclusions as the findings from the exploration may appear to be convincing before sufficient research has actually been completed. Because this mixed method enabled a broader scope of the topic thereby increasing the information gathered from the case study, generalisations could be made. Robson (2002) suggests not only the value of generalisations (whereby readers can explore the relevance of the information to their own research), but that triangulation may help reduce the risk of researcher bias and possible threats to validity. Consequent generalising can be both appropriate and important, and is one of the practical skills needed in research as it is one of the ways people gain and accumulate knowledge (Flyvberg, 2006).

The two techniques that were used for primary data collection were two different types of surveys; one for local residents of the study site, and another for visitors to the study site. The term survey is used in this research to describe any method of gathering information from a sample of individuals. Survey research is one of the most important areas of collecting data in applied social research (Ferber *et al.*, 1980; Neuman, 2003). The broad area of survey research encompasses any measurement procedures that involve asking questions of respondents and can range from short paper-and-pencil feedback forms to intensive one-on-one in-depth interviews. The two types of surveys that this study used were written questionnaires and verbal interviews. Written questionnaires were used to allow visitors to complete the survey themselves, and interviews were used for the landholders and tourism operators so the researcher could compile more detailed responses from an interactive conversation.

Regardless of the data collection method, there are two fundamental types of surveys; opinion surveys that ask for people's opinions, and awareness surveys that determine to what degree subjects know about a certain topic. Surveys that contained elements of both of these types were deemed most appropriate for the purpose of this study. Survey questions themselves also fall into categories; open-ended (unstructured) questions and closed-ended (structured)

questions. Open-ended questions, which may be numeric open-ended or text open-ended, enable the respondent to give any answer, whereas closed-ended questions are used to give the respondent fixed responses from which to choose (Neuman, 2003). In writing the surveys, it was important to consider various question types to ensure that the questions did not influence the accuracy of the measurements of the respondents' opinions (Grimm & Wozniak, 1990). The two basic goals in survey design, according to Warwick and Linninger (1975), are to obtain information relevant to the purpose of the survey and to collect this information with maximum reliability and validity. The surveys used in this research involved a non-probability sampling method due to the practicalities and conveniences previously mentioned. Without the availability of a complete listing of visitors to the Flinders Ranges, the results therefore refer to the sample population.

3.3.1 Landholder and Tourism Operator Interviews

For the landholders and tourism operators, interviews were chosen as the research method because the researcher wanted to explore how the local residents and operators working in the region considered the various types of land-use in the Flinders Ranges and their environmental, pastoral and tourism opinions. Such research could then be qualitatively analysed for themes, in contrast to the visitor surveys where the results were primarily analysed quantitatively in numbers. Being a form of social research, this research had the aim to interpret and explain certain phenomena, and due to the very nature of social systems, numerous concepts influence us. Interviews were the most suitable way to explore the complex social system of the mix between pastoralism, tourism and ecological recovery in the Flinders Ranges.

Yuksel *et al.* (1999) illustrate how interviews can provide detailed information on the attitudes of stakeholders to tourism issues and changes in a destination area. This information can help in iterative and ongoing planning, which stresses the value of experience and learning, and is responsive to changing circumstances. The study also noted that the value of such interviews can be greatly enhanced if stakeholders are involved fully in their development and in interpreting the results. Interviewees in this study were therefore invited to contribute to the interpretation of some of the results.

As they are often far more in depth than a relatively short questionnaire, interviews were selected as the best survey method to use with the private landholders and tourism operators in

the Flinders Ranges. According to Lofland and Lofland (1995:16),

Face to face interaction is the fullest condition of participating in the mind of another human being and that you must participate in the mind of another human being... to acquire social knowledge.

Such one-on-one interviews were conducted so the researcher could work directly with the respondent, in an interview acting as a largely unstructured conversation. In some cases, telephone interviews were used due to distance, time or other practical barriers. Interviews were additionally considered very appropriate as interviewers have the ability to probe respondents or ask follow-up questions, and they are generally easier for the respondent, especially as opinions and impressions were sought. Semi-structured questionnaires were used to form the base of the interview. However, the interviews were a time consuming and intensive method.

The interview process began with locating and enlisting the cooperation of appropriate respondents. For this study, appropriate respondents ultimately refer to people working in either the Flinders Ranges pastoral or tourism industries, or both. Those to consider therefore ranged from private landholders or land managers in the Flinders Ranges to private tourism employees based both locally and interstate, and public tourism employees working in Adelaide. Some of the landholders had no direct experience working in the tourism industry while others already had established successful tourism operations on their pastoral properties. All of the abovementioned were deemed appropriate because they are stakeholders in the local community. There was no intention in this research to judge the worthiness of individual tourism operators or pastoralists in their roles in the community.

Landholders were identified through the use of a map showing all the pastoral boundaries in South Australia, produced by the Department for Environment and Heritage. This map was used in conjunction with a map outlining the central and northern Flinders Ranges boundaries, and any properties falling within the study site were contacted. Names of landholders were unobtainable, but station names were available on the pastoral boundary map. Australia Post provided the researcher with the postal addresses for the majority of the stations, and letters of introduction were written and sent out. In some cases, telephone numbers were obtained through tourist materials such as brochures (for landholders who are also involved in the tourism industry), and telephone calls were made to introduce the researcher. Many of the letters were able to be addressed by name through the use of Internet searches for the stations or through the help of other landholders advising the researcher of their neighbours' names.

Tourism operators were identified through brochures obtained at local Tourist Information Centres and through internet searches for Flinders Ranges' tourism products. Although the majority of operators were local (referring to the broader Flinders Ranges region including Port Pirie and Port Augusta), some operators were based interstate (New South Wales, Victoria, Queensland). Some of these interstate operators were sent a mail survey of similar questions to those asked in the interviews as they regularly visit the Flinders Ranges, including the national parks in the region, and this was deemed of interest to the study because of their ongoing involvement with the region. Adelaide-based or Flinders Ranges-based operators were contacted by telephone to enquire about the possibility of an interview. In some cases the operator chose to be sent the questions in the form of a written survey as opposed to meeting in person, whereas in other cases the operator accepted the request for a one-on-one interview and an appointment was made at a time that suited the operator. The interview was conducted either in the office of the operator or at the Wilpena Pound Visitor Centre for convenience.

To ensure interviewees completely understood the nature of the research, considerations of confidentiality were discussed before each interview began. At the interview (for both operators and landholders), the research topic was introduced in a manner so as to enhance the respondents' interest in the relevant themes in order to maximise the outcome for the researcher. If there were any confusions or concerns these were clarified and dealt with as they arose. The researcher observed the quality of the responses and recorded the interview with written notes as suggested by Lofland and Lofland (1995). Many interview methodologists do not think it is a good idea to record interviews with a tape recorder (Nielsen, 1993; Shaughnessy & Zechmeister, 1997), as respondents may strain to only say things in a socially acceptable way⁶. Although recording would produce a more detailed and accurate record, it is likely to be distorted by the interview process itself. Responses were recorded by hand as they were stated and it was not deemed necessary to take stenography, but certain key phrases or quotes were important. Interviews with operators took approximately one hour, and interviews with landholders took approximately two hours.

The interviews were conducted only after considerable preparation to avoid interview bias. Not being completely structured interviews, such planning was necessary so the researcher was able to extract the respondent's ideas and opinions on the topic, rather than lead them

⁶ It did appear with several landholders that if their interviews had been recorded on a tape, they would not have disclosed certain information. This information was in regard to stocking rates, feral animal management or lack thereof, or personal viewpoints on other individuals or groups in the region. Indeed several landholders specifically said some of what they were saying was 'off the record'.

toward any preconceived choices. Bias is more likely to be a problem when exploring political or moral issues on which people may have strongly held beliefs (Trochim, 2000), which did not particularly apply with this research. The list of interviewees themselves may be slightly biased as those with more interest in the topic may have been more willing to be interviewed, and those who found it more difficult to return contact with the researcher or find spare time to be interviewed may have been less likely to agree to the interview.

Semi-structured interviews can be defined as interviews that are conducted with a fairly open framework allowing conversational, two-way communication (Lofland & Lofland, 1995). While relevant topics are identified prior to the interview, all the questions do not need to be designed and phrased before the interview. Such interviews were chosen as a method for this case study research as they offered a more focused interview design than unstructured interviews and they were able to help centre the interview on the main points of interest of the research. It was also appropriate as there was a reasonable degree of flexibility in these interviews to allow expansions on answers, while still being objective (although to a lesser extent than structured interviews). Importantly, semi-structured interviews are commonly less intrusive to those being interviewed but they can still enable the interviewer to gain a range of insights on specific issues. Additionally, semi-structured interviews were preferable over structured interviews as to avoid a completely predetermined agenda. On this note, it is important for an interviewer not to ask leading questions in semi-structured interviews, yet to have the ability to probe when necessary.

The interviews enabled one-on-one discussions with local landholders in the Flinders Ranges and tourism staff in various parts of South Australia, or interstate operators who bring tourists to the Flinders Ranges. This was also considered the best method as the sample base was relatively small and an in-depth discussion about their operations and opinions was preferred. Locals' values are important to the success of tourism management as they drive important involvement in, and understanding of, the issues at hand (Edwards, Fernandes & Matos, 2003; Honey, 1999; Jack, 2000; White *et al.*, 1994).

The structure of the interviews followed the interview guide. The questions asked in the landholder interviews began with a series of simple closed questions regarding the landholder's background in the region (e.g. length of time on property, property size and type, number of people working there) and continued on to the themes central to the research aims.

The primary questions asked included⁷:

1. What is your background in the Flinders Ranges?
2. Are you satisfied with your pastoral achievements and lifestyle? What factors positively and negatively influence your success?
3. How do you feel about the environmental situation in your region? Can you see positive impacts from Operation Bounceback?
4. Are you involved in tourism on your property? What made you become involved? What emphasis do you place on environmental education? Do you feel that tourists are interested in learning about the local environment?
5. If you are not involved in tourism, what would inspire you to enter the industry? What deters you from entering the tourism industry?
6. Do you think sustainable tourism, or ecotourism, has the potential to increase environmental recovery efforts in the Flinders Ranges?
7. How would you compare the impacts (environmental, social and financial) of tourism and pastoralism in the Flinders Ranges?

Appendix I lists the complete set of questions for landholder interviews. The primary questions asked in the operator interviews included⁸:

1. What is the nature of your tourism operation?
2. What made you decide to enter the tourism industry and what factors influence success in the industry?
3. In which ways (if any) do you interact with the South Australian Tourism Commission and National Parks and Wildlife South Australia?
4. What is the market like at the moment? Do you feel that the '2002 Year of the Outback' impacted business?
5. In which ways do you think tourism impacts the environment? What do you do to try to minimise negative impacts, and do you create any positive environmental outcomes?
6. How would you describe ecotourism?
7. What sort of experience do you think tourists are looking for?

Appendix II lists the complete set of questions for tourism operator interviews.

⁷ Not *verbatim*.

⁸ Not *verbatim*.

Interviews with operators were important because studies suggest it has become apparent over the last 20 years that local communities play key roles in ensuring tourism development is sustainable, a key component of ecotourism (Campbell, 1999; Hardy & Beeton, 2001; Hardy, Beeton & Pearson, 2002; Masberg & Morales, 1999; Nelson *et al.* , 1999). They also suggest however that if experts try to re-educate local people so that they change their ideas and preferences, the whole issue of local decision-making control and community-based tourism is debatable (Weaver, 1998). This study therefore had a strong focus on listening to the local people rather than simply promoting tourism development and environmental conservation.

The interviews were among the most challenging and rewarding forms of measurement. They required a personal sensitivity and adaptability as well as the ability to stay within the bounds of the designed protocol. A disadvantage of the method however, was that some interviews became quite time consuming due to factors such as allowing for warming up time for the respondent and irrelevant conversations that occurred (Lofland & Lofland, 1995). As previously mentioned, in a few cases telephone interviews were also conducted to gather small amounts of information or to ask questions that were later considered desirable to include. These were advantageous in these circumstances as data could be gathered quickly yet still with some form of personal contact between the researcher and respondent. These interviews were pre-arranged however to avoid the respondents feeling imposed upon. Also, the telephone interviews were relatively short in length.

3.3.2 Visitor Questionnaires

Visitor questionnaires in contrast enabled a much larger sample size to be evaluated. Convenience sampling was used as samples were taken from large groups of the most accessible cases (Grimm & Wozniak, 1990). The approach adopted was the pragmatic one of aiming for the largest sample size possible within all existing constraints. To reduce any potential bias, surveys were conducted over different months of the year and at numerous different locations within the Flinders Ranges. Visitor Opinion Surveys were conducted in December 2002 and between April and June 2003, while Visitor Awareness Surveys were conducted over one year between June 2003 and May 2004. No selections were made based on the researcher's individual assessment of who would be more or less suitable for participation, as it was deemed the survey would better reflect the surveyed tourist population without purposely excluding extremes.

Visitor surveying is commonly used in the tourism industry to collect data relating to both inbound and outbound tourism (Australian National Training Authority, 1997). In the case of these industry surveys (conducted under strict protocols), valuable information about the patterns and nature of travel can be collected, which can be used by Government authorities, marketing staff, policy makers, and tourism businesses. Benefits of such surveys include having detailed profiles of visitor characteristics and behaviour, the ability to monitor market segments, expenditure and duration of stay, travel arrangements and motivational data, and the opportunity to assess impacts of particular facets of marketing strategies. It can also monitor any change in the level and pattern of tourism in a region over time.

This research was unable to conduct purely random surveys due to the nature of the study. Random sampling techniques are difficult and often impractical or impossible in social sciences (Grimm & Wozniak, 1990) as total population listings are not easily obtained. When looking at inbound and outbound tourism on a national scale, the total population is known because all tourist arrivals in Australia are recorded. In contrast, the total population of visitors to the Flinders Ranges cannot be known; hence simple random surveying could not be undertaken. If everyone in the population does not have an equal chance of being surveyed, non-probability sampling techniques must be used. It is often accepted however that such sampling, by rule, is almost as effective (e.g. Kelly *et al.*, 2002; Oberski, 2008). The ways in which the research methods attempted to overcome biases and inefficiency are described below.

Although numerous locations were used for surveying, practical considerations meant that visitor surveys were best conducted largely within the Flinders Ranges National Park, specifically at the Wilpena Pound Visitor Centre, and at the Prairie Hotel in Parachilna. This means that the tourist profile results from the surveys do not give a complete census of all tourist users of the study site and the surveys do not equally represent the tourists who seek the more isolated experience afforded by pastoral properties of the north and northwest of the study region.

Because non-probability (convenience) sampling was used, a large number of visitors were surveyed to provide sufficient numbers to compare sub-groups. In total, 789 visitors to the Flinders Ranges were surveyed over a period of 18 months. Two different types of surveys were conducted; opinion surveys of which two versions were used (totalling 377), and awareness surveys of which three versions were used (totalling 412). While there is no

simple rule for sample size that can be used for all surveys, national polls frequently use samples of about 1000 individuals to get reasonable information about national attitudes and opinions (Ferber *et al.*, 1980). A moderate sample size is often statistically and operationally sufficient (Fielding & Fielding, 1986). Particularly because outdoor recreation surveys are usually quite homogenous, a higher sample size is less crucial (Wellman *et al.*, 1980) and a survey is likely to be more efficient. Together with the low refusal rate (1.1%), this study is deemed a fair depiction of sampled visitors to the Flinders Ranges, although without knowing the total population of visitors, the refusal rate is used more as a point of interest in showing that almost all visitors were willing to participate in the research.

This research has potential bias in that the questionnaires may survey people who are pre-disposed to positive environmental attitudes (such as supporting conservation) because the study site is already widely considered to be a nature-based tourism site. For the international visitor however this may not necessarily be the case, as seeing Australian wildlife is likely to be considered an essential and presumed part of an Australian holiday regardless of the visitor's attitudes about the environment as a whole.

Survey questions for visitors to the Flinders Ranges study site covered the following topics:

- Demographic statistics of gender, age group and place of residence;
- Number of previous visits and length of stay in the Flinders Ranges;
- Understanding of the term ecotourism;
- Expectations of what ecotourism can offer;
- Attitudes toward the state of the environment;
- Interest levels in using operators who are more environmentally-friendly; and
- Awareness of various environmental issues.

A written survey was used to ensure respondents were able to unreservedly express their opinions, as they may be more at ease doing so on paper than with an interviewer. In order to reduce the time needed for the visitors to complete the survey, many of the questions were 'closed' questions requiring simply a tick or one-word response. Also, the less demanding short answers were expected to reduce the number of unanswered questions. The few open-ended questions that were included enabled the respondents to express their own views independent of any preconceptions of the researcher. These questions are useful as they do not restrict a participant's answers to a number of (possibly inadequate) alternatives (Schuman & Presser, 1981).

The surveys were constructed to be relatively short in length and used a basic layout to help put the respondents at ease. Accordingly, the opening few questions were factual questions, either related to demography or to set the tone of the survey. Subsequent questions sought opinions, firstly general conservation questions to engage the respondent, followed by specific questions regarding Operation Bounceback and tourism operators in the Flinders Ranges. The questions were tested using a pilot survey in October 2002. The pilot survey was conducted at Wilpena Pound in the central Flinders Ranges. Fifty visitors to the region participated to help determine the suitability and appropriateness of the survey, and to see if any questions were too long or confusing. The pilot survey proved extremely worthwhile and led to the inclusion of extra questions, a minor layout change and a grammatical change.

Surveys in the form of mail-out questionnaires were considered less appropriate than surveys handed out face-to-face despite the fact they allow the respondent to fill them out at their own convenience. Response rates from mail surveys are expected to be low (Robin, 1965) and most literature suggests they are not the best method for gaining detailed written responses (Shaughnessy & Zechmeister, 1997; Trochim, 2000). Non-response is generally considered to be the most significant problem associated with mail-out questionnaires because there is the possibility the sample obtained will not be a representative of the population being studied, although this is of particular concern when undertaking probability samples (Robin, 1965).

It is possible that some respondents may have felt they had to make quick decisions for answers to either preference-based, opinion-based or 'true or false' survey questions which may not be conducive to good decision making. However, the majority of respondents appeared to take their time in answering the surveys, often whilst waiting for a meal to be served, waiting for other group members in the Wilpena Pound shop, whilst having a tea or coffee, or whilst simply enjoying sitting outside in Flinders Ranges National Park. It appeared that the vast majority of persons approached were happy to be surveyed.

A combination of the analysis program Statistical Package for Social Sciences (SPSS) and the database Microsoft Access were used for the collation and analysis of the data from the visitor surveys. Random errors were reduced by double-checking any transposed data from page to page and any mathematical calculations of results in order to increase reliability of the final results and analysis. The analysis took the form of a spiraling process beginning with more general to more specific observations, beginning informally during conversations

with tourists and through observations at the study site, and continuing during data entry and statistical examination, especially when recurring themes, patterns and categories became evident. In interpreting and analysing the data, a descriptive approach was taken and the researcher looked for themes that emerged from the triangulated sources.

3.3.3 Secondary Data Analysis

The above sections describe the primary data collection for this research, referring to the data personally collected by the researcher. Analysis of secondary data, referring to data originating from already existing sources, was also conducted and for this process, elements of policy research were drawn upon. While this research was not a study of the process of policy making, the essentials of policy research methods were considered valuable because policy research involves research and analysis that aims to assist decision- and policy-makers in alleviating problems through focusing on providing recommendations (Majchrzac, 1984). Although case study research and policy research both have a concern for fundamental social problems (as opposed to technical research that is concerned with specific technical questions), the advantage of policy research is that it has a higher action-orientation than case study research (Majchrzac, 1984). Therefore it was logical to consider some policy research methods when undertaking this study because as well as exploring ecotourism as a means of encouraging ecological recovery in the Flinders Ranges, this research provides information and recommendations that could be used by policymakers.

Primary research findings are only one of many inputs into a policy decision. Other inputs include the views and perspectives of relevant stakeholders and existing policies and plans. If stakeholder wishes directly conflict with research findings, recommendations are less likely to be followed. Therefore in line with recommended policy research methods, it was practical to focus on an evaluation of secondary data in the form of policies and plans, government documents, industry and consultancy reports throughout the literature review as it assisted the author to capture current thinking and planning being undertaken in the case study region. Routine data collections by governments, businesses and other organisations occur regularly and can often be accessed and analysed for these research purposes. Among the data available for secondary analysis useful to this study was:

- Census bureau data (referring to the Australian Bureau of Statistics' census data for key national indicators including characteristics in income, transport, industry and

leisure activity, and population estimates including overseas visitors in Australia, useful in planning, administration and evaluation);

- Economic data (referring primarily to the Australian Bureau of Statistics' economic data including international economy figures, national accounts, and income, costs and prices, and the Australian Bureau of Agricultural and Resource Economics' data on Australian commodities);
- Tourism data (referring primarily to Tourism Research Australia's data of international, national and destination visitor surveys, the Australian Bureau of Statistics' relevant data such as Overseas Arrivals and Departures, and the South Australian Tourism Commission's Research Services offering tourism trends, fact sheets and regional profiles); and
- Academic data (referring to previous studies on relevant topics by academics and academic institutions, research experts in their field, and unpublished theses by postgraduate students).

Such secondary analysis was used because it has the advantages of being efficient and highly useful in establishing trends, and it often allows the researcher to considerably extend the scope of a study. However, being secondary data, if there were any problems in the original data collection they may not be well documented.

3.4 Reliability and Validity

To test the approach chosen for this research, a pilot study was conducted to ensure that the techniques employed elicited the information sought and that the researcher could feasibly conduct the research. The pilot study, consisting of one landholder interview and a trial visitor survey, also helped to ensure that all the questions asked were appropriate and relevant. It also enabled the researcher to understand the respondents' point of view, for example from the landholder interview it was discovered that many of the questions regarding environmental degradation were asked from a negative point of view. The interviewee suggested this may make other landholders think that the researcher thought unfavourably towards pastoral practices, so these were altered to include both negative and positive points of view.

Disadvantages of each method became apparent as the research was conducted. In regard to the interviews, while the script of the interview ensured uniformity of topics across the

whole sample, each particular interview was different due to the new questions elicited by the particular answers given by the interviewee. This was disadvantageous in some ways as it meant that for earlier interviews, some topics which later appeared to be of interest were not discussed in the same level of detail.

As every step in the research process is dependent on the previous step, if there is one step that is missing or inaccurate, the succeeding steps will fail. Therefore it is crucial to examine reliability and validity throughout any data collection process. The central issue in determining this reliability and validity is often the method of data collection (and sometimes the data analysis process) (Warwick & Linninger, 1975), so careful consideration was given to the methods used for this study to avoid errors and increase dependability. Triangulation was engaged in this study as a way to reduce possible threats to validity as per Robson (2002).

The reliability of data collection refers to its consistency, stability, and repeatability, all of which determine the extent to which the results can be relied on (Trochim, 2000), although repeatability is more crucial with probability sampling methods. To increase the reliability for this study, questions were developed to avoid affecting the variable being measured. This was done for example through avoiding leading questions (allowing the subject to become aware of an answer they may not have otherwise thought of), as this would not truly represent the variable being measured. To check the reliability of answers within the surveys, some questions were asked in slightly different ways, and the answers were cross-checked with each other, a form of data triangulation.

It is noted however that some questions in the visitor surveys are expected to be less reliable than others, namely those questions relating to visitor behaviour as they are self-assessed questions and no official observations were made by the researcher to attempt to cross-check these responses. It is also noted that a proportion of the Visitor Opinion Surveys were conducted during the time of a solar eclipse, a rare event that attracted larger than average numbers of visitors to the Flinders Ranges during early December 2002. The implication is that the sample may not accurately represent those who would have been visiting the study site at this time regardless of the solar eclipse.

Validity can be defined as the degree to which a test measures what it is supposed to measure, and may refer to either internal validity or external validity (Trochim, 2000). The

internal validity, concerned with the degree of certainty that the results are actually the effect of the experimental treatment or condition, can be enhanced by controlling any variables that may be intervening or irrelevant. However, if the internal validity is controlled to a great extent, the external validity is reduced. The external validity refers to the degree to which the research findings can be applied to the real world. Because this research makes use of the case study research method with a paradigmatic case as its focus, external validity was deemed more important. This is because the case of the Flinders Ranges is intended to be used as an example for all Australian rangelands.

In regard to participant selection, because the primary criteria for interviews was to be a landholder of a pastoral property or a tourism industry operator or employee, other local residents such as those living in the small towns of the Flinders Ranges (as opposed to on properties) with high interest in the research question may have been overlooked. Therefore it is possible potential extra interviewees did not participate as they could not be identified and subsequently invited to participate.

Case study research can, but does not have to, use more than one case. This research only used one case site rather than multiple study sites due to the researcher's desire to fully explore a particular region of South Australia. It was also not considered feasible to include multiple case studies due to time and financial considerations. The disadvantage of this is while case study research is applicable to real life situations and fundamental problems, the application of this particular research may only be relevant to other similar Australian Outback communities, therefore excluding many of the popular tourist sites of Australia.

3.5 Conclusion

The goal of social science research is often to be able to describe and understand the rich and complex phenomena that communities engage in. The research question for this study revolved around the phenomenon of multiple land-use interactions in the Flinders Ranges. This chapter has shown the research methods adopted included a combination of qualitative and quantitative methods including visitor questionnaires and landholder and tourism operator interviews because the research assumed that pastoralists, tourism operators and tourists were the three most important interest groups in the Flinders Ranges. Due to the exploratory nature of the research, the mixed method design was appropriate as it enabled a deeper examination of the case study.

Section II: Literature

This section explores the literature relating to tourism, pastoralism and environmental degradation. The pastoralism and environmental degradation chapter first familiarises the reader with an introduction to pastoralism in the rangelands including its profitability, describes the environmental degradation with which is it associated, and suggests diversification as a way to reduce negative environmental impacts and increase financial stability. With the suggestion of tourism being a form of diversification, the tourism chapter then examines the tourism setting, the nature of the tourism and ecotourism industries and the positive and negative impacts such operations may cause.

4.0 PASTORALISM AND ENVIRONMENTAL DEGRADATION

4.1 Introduction

This chapter introduces the history of pastoralism in the rangelands of Australia and explores the effects it has had on the land, in order to compare it to the effects of tourism and ecotourism as explored in the following chapter. It also examines the productivity and profitability of the pastoralism industry, which can additionally be compared to that of the tourism industry. The information presented addresses the specific objective of evaluating the extent of environmental degradation resulting from pastoralist activity in order to consider whether or not continuing with this land-use practice would be advisable.

4.2 The Influence of Farming

Farming dramatically changed the way people lived because, barring natural disasters, they did not have to roam the earth surviving on what they could hunt and gather, and they could survive by staying in one location. For possibly over 20 000 years in some regions, vegetation has been cleared for agriculture or altered by grazing pressures (Barrow, 1995). As well as permanent settlement, agriculture and pastoralism effectively introduced an economy. Land ownership in the country became seen as one of the surest ways to gain prosperity and wealth, whether it was a pastoral or agricultural property (Nance & Speight, 1986). It also, however, vastly accelerated human impacts on the earth (Adamson & Fox, 1982; Dixon, 1892; Dregne, 1986; Flannery, 1999; Lay, 1979; Messer & Mosley, 1982), and is sometimes referred to as 'the stretching of nature' (Barrow, 1995).

The effects of such impacts in Australia, especially in arid and semi-arid regions, have been intensively studied and the sustainability of pastoral activities is under constant investigation (e.g. McKeon *et al.*, 2004; Robertson, 2003; Stafford Smith, Morton & Ash, 2000) largely due to the important role these industries play in the national economy, and there are case studies from around the world (e.g. Arntzen, 1990; Braat & Opschoor, 1990; Campbell, Stafford Smith & CTE Pastures and Rangelands Network members, 2000; Wilcox & Thomas, 1990) illustrating pastoral problems and economic techniques.

Almost all the industries and communities based on the rangelands⁹ are heavily reliant on available natural resources for their survival and prosperity. It is therefore important that they are managed in an ecologically sustainable way. Presently the major land-use of the rangeland areas is extensive pastoralism. This is mostly sheep in the south and cattle in the north. There are around 4000 grazing enterprises covering about 3.7 million square kilometres (representing 70%) of the 5.3 million square kilometres that make up the rangelands of Australia (Campbell, 1997a). The 2002 National Land and Water Resources Audit clearly identified a number of areas of the rangelands where sustainable practices are not in place (Robertson, 2003), and 55 percent of the rangelands are considered degraded (Rose, 1996).

In the relatively short period of time since European settlement, severe environmental degradation clearly resulted in degeneration of pastures and erosion. Some of Australia's most pressing conservation problems are found in the pastoral regions, undergoing profound ecosystem changes from its inception onwards (Adamson & Fox, 1982; Barker *et al.*, 1995; Chesterfield & Parsons, 1985; Condon, 1983; Dixon, 1892; Dregne, 1986; Lay, 1979; Messer & Mosley, 1982; Ratcliffe, 1970), and since permanent South Australian settlement in 1836, vegetation clearance has been regarded as a necessary precursor to pastoral and agricultural development and expansion of the state (Jennings, Clarke & Sheahan, 1989). Traditionally, Australia's land was sometimes stocked by five to 10 times its carrying capacity based on water availability, which severely accelerated this environmental change (Condon, 1983; McKeon *et al.*, 2003), sometimes denuding the soil in only 20 to 30 years (Lay, 1979). Grazing by domestic stock could therefore probably be seen to be the most pervasive threatening process affecting the Australian landscape. For example, in the 1960s the central Australian township of Alice Springs suffered from several large dust storms 'looking like tidal waves', attributed to the damage caused by overstocking in such a fragile environment (Messer & Mosley, 1982:82).

Worldwide, pastoral zones are said to be among the most degraded of all arid and semi arid lands, with about 80 percent suffering from serious or moderate degradation (Dixon *et al.*, 1990). Pastoralism is clearly critical to the ecological sustainability of rangelands due to its dependence on natural resources, its central role in land management, and the large area of land that it occupies (Lesslie *et al.*, 2006). Sustainable pastoral land-use is therefore crucial. Sustainable pastoral land-use was defined by Pickup and Stafford Smith (1993:472) as livestock production on rangelands that, as a minimum, seeks to:

⁹ The majority of the Australian mainland, particularly the arid and semi-arid zones, is rangeland (and is what was once defined as the pastoral zone), and is that land which excludes the wheat-sheep zone and high rainfall zone.

- a. maintain the long term capacity of the biological system to produce forage from rainfall (although the composition of that forage may change, as may the short term capacity)
- b. produce an acceptable financial and non-financial return for the manager and dependants thereby providing an acceptable standard of living (this standard is a matter of preference and may include intangibles such as preferred lifestyle).

Although intensification of land-use has been the continuing trend, most of Australia's actual land area is still being utilised under a pattern of extensive grazing, referring to the direct dependence of livestock upon natural plant formations.

4.3 Pioneer Period

The old saying 'Put your money in four feet' encouraged many early settlers to venture into the Outback and led to the initiation of the wool industry of Australia. Pastoralism is closely bound to the European settlement of Australia. Some argue that it is part of our national heritage and as such, should be protected and nurtured so it remains a continuing part of the Australian way of life and heritage (Messer & Mosley, 1982).

During early settlement, the climate of South Australia was seen to be better suited to the grazing of sheep and cattle than the growing of wheat¹⁰. Wool had favourable characteristics such as being able to bear the cost of transport to overseas' markets and the capability of arriving at its destination without deteriorating, and by 1850 South Australia had more than one million sheep (Flinders Ranges Research, 2005). Davidson (1980) later calculated that wool had indeed correctly been seen as the most economically viable large-scale enterprise for the rangelands at the time (and in fact claimed it was the *only* economically viable enterprise) because as well as not deteriorating, it used very little expensive labour, large areas of land, and was a commodity for which export markets existed (with high value in terms of its weight). This economic viability did not consider the environmental costs however.

The earliest pastoralists of South Australia, arriving during the initial land rush, had the best land and hopeful pastoralists arriving later found it difficult to get started (Flinders Ranges

¹⁰ There was however a period where compact occupation by farmers was preferred by the government, and the legal framework of the 1840s favoured wheat to sheep. Pastoralists were given permission to use the land for grazing, but would have to quit at short notice if it became required for wheat farming (Barker *et al.*, 1995). In hindsight, South Australia is listed as the most evident example of desert creation via human activity when the saltbush plains were ploughed for wheat far north of Goyder's Line of Rainfall during good years, only to create desert when drought returned (Mincham, 1983).

Research, 2005). As the size of herds and flocks continually increased, pastoralists moved further away from Adelaide, and those arriving after the 1850s often failed as they had to move to the more remote and often less fertile land, with higher transport costs and climatic variability. Policies of early Australian Governments required that pastoralists stock their properties with rates of up to 100 sheep per square mile within five years or risk losing their lease (Nicolson, 1982:90) as almost all of the welfare, prosperity and security of Australia rested upon the health and success of its primary industries. (These stocking rates were usually based on carrying capacity calculations of wet years rather than dry years.)

With the development of appropriate ports such as Port Augusta, land was opened up as far as the central and northern Flinders Ranges, and the properties Angepena Station and Wooltana Station were established. Wilpena, Arkaba and Aroona were set up as sheep stations in 1851 and within a few years other nearby runs such as Wonoka and Warcowie were also being planned as the 14-year pastoral lease replaced the annually-renewed occupation licence (Mincham, 1996). Pastoralists had spread as far as Marree by the late 1850s. Leases were cheaper further north but there were the added higher costs of labour, food, transport, well sinking, water supply and fencing. But the future looked promising for many pastoralists and success was not only economic but also social and political, with one sign of such success being that pastoralist representation in parliament was never less than thirty per cent of the total members of each House for most of the Nineteenth Century (Flinders Ranges Research, 2005).

The droughts of the 1860s changed the fortunes of most pastoralists in the north of South Australia, with stock losses of up to ninety percent and many giving up their holdings. Furthermore, in the eight severe droughts of the Australian pastoral industry since 1880, more than 100 million sheep are estimated to have died (Webster, 1973), an amount equal to one years' national average production of sheep at that time (McKeon *et al.*, 2004). Stock losses did however result in improved management, with reduced stocking rates, sinking of wells, construction of dams and the control of the Dingo (*Canis dingo*) and Rabbit (*Oryctolagus cuniculus*). These management changes brought new success, and combined with the promising wetter seasons of the 1870s, they led to the acquisition of pastoral land (beyond Goyder's Line of Rainfall) by the South Australian government. This forced many pastoralists to move further north into more arid regions as their previous land was subdivided into wheat farming blocks. However the move was not as successful as hoped. Very dry conditions prevailed over much of Australia between 1895 and 1902, a time referred to as the

Federation Drought, when sheep and cattle numbers plummeted. According to Flinders Ranges Research (2005):

Eventually the move north by both farmers and pastoralists resulted in the ruin of most farmers, some pastoralists and almost all the land.

Pastoralists did not necessarily disagree about the environmental damage their livelihoods caused to the land:

We agree...pastoralists through ignorance overstocked certain areas, and certainly caused degradation, chiefly those with underground water and the Flinders Ranges with its permanent water, for example.

Messer & Mosley, 1982:90

During the early 1900s rabbits became a major pest to pastoralists throughout Australia, with their spread covering approximately 40 years (Rolls, 1969). The fall in export prices and sales during the Great Depression of 1929 to 1932 further impacted farmers. During much of this period, the Australian Government provided assistance to landholders in the form of bounties to encourage production and employment, and through placing tariffs on some goods to discourage imports. By the mid-1900s production had greatly increased.

4.4 Hyper-production Period

The pioneer period was followed by a hyper-production period in the 1950s and 1960s whereby Australia's major primary industries (wool, wheat, meat and sugar) contributed to approximately two-thirds of the country's total exports. The relative contributions these primaries made to the export income in 1964-66 are shown in Table 4.1, indicating wool production alone contributed over 30 percent.

Table 4.1: Relative contributions of Australia's primary industries in the mid-1960s

<p>NOTE: This table is included on page 47 of the print copy of the thesis held in the University of Adelaide Library.</p>
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Source: Le Couteur, 1967

During this hyper-production period there was a high demand for good quality wool and a need for increasing its production, and while prices paid for raw wool varied from time to time, it was believed that a greater volume of wool would alleviate this and other problems. Pastoralists were confident that the Australian Government would be willing to help mitigate if any problems arose because their industry was Australia's dominant earner of foreign exchange, and they believed additional research and promotion would stimulate demand even further (Le Couteur, 1967).

However the rapid increase in Australia's production output expanded well beyond the needs of the Australian population and an overall decline of prices in overseas markets (on which the industry had long depended) decreased the earnings from wool especially. At the same time, other sectors of the economy such as the mining industry began to rise. Consequently the relative importance and contribution of pastoralism to the Australian economy decreased in the second half of the Twentieth Century. Wool was no longer such a significant and valuable commodity and landholders became forced to innovate and often consolidate to survive. Whilst wool's contribution to Australia's Gross Domestic Product (GDP) in the 1960s was approximately 30 percent, today the rangelands contribute less than one percent (Lesslie *et al.*, 2006).

4.5 Contradiction and Consolidation

An examination of past income figures shows that there are noticeably long phases of relatively low prices and quick-passing phases of very high prices for wool (Kingwell, 2000). This variable nature of the wool industry was still evident in the 1980s and 1990s (Table 4.2). During the decade of the 1990s, average gross receipts per enterprise from wool in Australia fell from \$106 095 in 1990 to \$61 328 in 1999, with a low of \$54 754 in 1993 (Australian Bureau of Agricultural & Resource Economics (ABARE), 2006a). At this time approximately 19 percent of properties in the northern pastoral region of South Australia ranked in the bottom 25 percent of farm performance in Australia. Fifty-five percent fell into the middle 50 percent of farm performance, and 27 percent fell into the top 25 percent of performance (ABARE, 1999).

Table 4.2: Comparison in wool data (per enterprise) for selected years between 1980 and 1999 (Australia-wide)

NOTE:
This table is included on page 49 of the print copy of the thesis held in the University of Adelaide Library.

* Profit at full equity refers to farm profits adjusted by adding amounts paid for rent, interest, leasing of plants and livestock, less depreciations on leased plant.

^ Farm business profit refers to farm income plus build up in trading stocks, less depreciation and input value of owner labour. Note: all figures are in 2004/05 financial year equivalent prices.

Source: ABARE, 2006a

While Australia's major primary industries in the 1960s accounted on average for 60 percent of total exports, by the 1990s and 2000s they counted for only 40 percent. While wool exports alone contributed to over 30 percent of Australia's total exports in the 1960s, this fell to 11.3 percent in 2000-01 and less than ten percent by 2005-06 (ABARE, 2006b), whereas wheat and sugar exports remained relatively stable, and meat exports doubled (ABARE, 2005a). In 2002-03 the average price for wool (by the Eastern market indicator for clean wool) dropped from 1049 Australian cents per kilogram (Ac/kg) to 820 Ac/kg in 2003-04, and 750 Ac/kg in 2004-05 (ABARE, 2005b). ABARE (2005b) projected this figure to fall to 734 Ac/kg in 2009-10 (inflation adjusted).

The real value for wool exports from Australia for 2002-03 was \$3717 million, dropping to \$2778 million in 2003-04, and \$2461 million in 2005-06 (ABARE, 2006b). Projections show this figure is likely to remain around this figure for at least the next five years. However ABARE's (2005b) forecast for 2005-06 was an overestimation of \$187 million, questioning the 2009-10 forecast of \$2552 million. The saleyard price for sheep is also projected to decline, with a high in 2003-04 of 204 Ac/kg dropping to 195 Ac/kg in 2004-05, followed by a steady decline to only 144 Ac/kg by 2009-10. The saleyard price and retail price for lamb is also projected to significantly decline over the next five years, from a peak 1170 Ac/kg in 2003-04 to 971 Ac/kg in 2009-10, with a low 943 Ac/kg in 2007-08. This is despite a projected noticeable increase in production and consumption over the same time period (ABARE, 2005b).

Increasing costs and declining returns from pastoralism contribute to increasing pressures on the viability of pastoral enterprises. While the pioneer period development of the rangelands was associated with fragmentation or sub-division of land, a consolidation period followed primarily as a result of these external pressures leading to decreased profit margins. To remain viable, an increase in physical size can help buffer against climatic variability and financial risk, potentially improving economies of scale. This not only has an impact on economic sustainability however, but on environmental sustainability. McAllister, Gross and Stokes (2006) claim that the environment is at most risk at this point where consolidation pressures begin to outweigh fragmentation pressures.

If rural producers become economically marginal they may cause greater environmental degradation because in order to remain viable in the short term, some land users may turn to compromised land management practices that do not take account of the environmental costs. Once environmental costs are factored into the decision-making process, many land uses in rangelands have been found to be unviable (Barson *et al.*, 1993; Condon, 1983) or only modest investment in ecological recovery is affordable due to the low productivity in the majority of the rangelands (Stafford Smith *et al.*, 2000). Therefore accounting for environmental costs may result in increased structural adjustment requirements.

Copeland & Lewis (1997) claim that the risk of environmental damage caused by grazing cannot be justified on economic or employment grounds. Even in 1943, the New South Wales Department of Lands reported that 70 percent of the semi-arid rangelands were affected by wind erosion, with much of the land beyond economic reclamation (Holmes, 1983). Smith (1995) gives the example of the unviable nature of grazing in the Kempsey/Wauchope Management Area where 39 percent of grazing lessees return less than an estimated \$5000 per year, and 64 percent return less than \$10 000 per year. The environmental impact assessment of this practice suggests the effects of grazing are 83 times higher than logging per unit of economic benefit (Smith, 1995). Smith (1995) further shows the unviable nature of grazing by stating that if graziers were charged the full cost of environmental planning and were required to implement environmental protection standards (such as fencing sensitive areas, restricted burning activity), grazing would cease of its own accord in many areas as it could not sustain itself in the long-term.

It is still seen as being in the interests of today's pastoralists to overstock because costs are not incurred until indeterminate future dates. Stafford Smith *et al.* (2000) stated that it is rational for pastoralists to discount future production. Mills (1983:94) reported that:

[F]inancial pressures due to the changing pressures of the industry have caused overstocking of a number of smaller properties.

While this behaviour within the short-run is actually economically sound, a course of action must be taken to change this situation into one in which it is in the pastoralists' interests as economic agents not to overstock. If their time horizons were extended out to five to 10 years it may help, but this is not perceived as being in their best interests due to the uncertainty involved. Dixon (1892) showed that if managers looked at long-term scenarios, it would be evident the costs of overstocking, although not incurred for some time, would in fact be very high, and not economically sound over a period of time. If marginal costs (all costs to society incurred through an increase in production including labour costs, raw materials costs, capital costs and pollution/degradation costs) are underestimated (e.g. through insufficient information), overproduction will result (which in this case is overstocking). With overproduction, total costs continue to rise despite the decrease in average costs (per unit) ameliorating fixed costs, therefore indicating that in the long-term, overstocking is not an advantage economically.

The fluctuating economic situation that the rural sector has experienced over recent years is regarded by many as one of the worst ever faced (National Farmers' Federation, 2005). Successive years of weak commodity prices, drought, world recession and declining farmers' terms of trade resulted in low incomes for many. Pastoralists have responded to these financial pressures with attempts to increase productivity or reduce expenditure in ways such as consolidation. To improve productivity pastoralists can also use inputs (labour, land or capital) more intensively or adopt more efficient management and husbandry methods. This may have implications upon stocking rates with destocking in the event of drought, and the resources available to better manage grazing pressure at the property level and economic activity at the wider regional level.

The cost of harvesting wool (including shearing, crutching, wool sacks, cartage, coretesting bales, wool tax, storage and selling) was approximately 35 percent of gross proceeds in the 1970s and 1980s (Bartholomaeus, 1982). Although harvesting costs *have* been reduced in more recent years with new technologies and other advances, declining product prices have resulted in an increased percentage of harvesting costs compared to gross proceeds, now being 41.6 percent (Mac Stats and Analysis & Gabrys, 2004). In 2000-01, pastoralism generated only 0.2 percent of Australia's GDP, whereas in comparison, the contribution of tourism and mining in the rangelands was 2.8 percent (Lesslie *et al.*, 2006).

The mining industry has had reasonable success in adapting to terms of trade pressures, through productivity improvements related to management, technology, marketing and by choosing the most appropriate ore bodies to mine within an economic framework including environmental assessment (Whitehead, 2001). In contrast, the environmental costs from pastoralism have only been considered once degradation has occurred. It is generally not cost-effective to the individual landholder to rehabilitate degraded pastoral land if inputs (such as machinery or seed) are needed (Limpitlaw *et al.*, 2005). Therefore preventing further degradation, or allowing natural factors to rehabilitate less severely degraded land by lowering stocking rates for example, may be the most cost-effective method to address degradation.

4.6 Environmental Degradation and Sustainability

The shift from productivism to post-productivism in the rangelands incorporated the introduction of a range of agri-environmental programs aimed at halting farm-related environmental degradation, contributing to the development of an ethos of sustainability. Renewed Indigenous occupancy, conservation and tourism activities in the rangelands (that were once so strongly focussed on pastoralism) were, according to Holmes (2002), propelled by over-production, the emergence and recognition of amenity-oriented uses and changing societal values. Ash and Stafford Smith (2003) also recognise that the industry needs to deal proactively not only with the continuous cost-price squeeze, but the increasing environmental awareness in society at large in order to be sustainable (economically and environmentally) in the future.

The United Nations Development Program's (UNDP) 'Poverty-Environment Initiative' proclaimed that conservation of habitats and ecosystems is actually cost effective when compared to short-term profits of environmentally-damaging activities (UNDP, 2005). The difficulty however is the initial up-front costs of conservation (such as setting-aside land for regeneration) and loss of immediate profits from existing activities. Pollack and MacNabb (2000) estimate that over a longer time period however, three dollars could be generated in benefits from every dollar spent fighting land degradation and desertification (and in many cases, this profit would be generated from tourism activities).

Wilcox and Thomas (1990) also evaluated the economic situation of the pastoral industry in relation to range condition in the western Kimberley rangelands, and in particular, the relationship between costs of production and range condition under long-term steady-state

conditions. Their model suggested that rehabilitation of degraded rangeland could have three economic effects: first, an increase in stable carrying capacity (and production capacity); second, a reduction in average production cost; and third, an improvement in product quality and price received. The conventional social benefit-cost analysis used, using a representative station as the base unit, calculated that a regeneration project would increase the carrying capacity of the study area from an estimated present 100 000 cattle units to around 113 000 cattle units, assuming no changes in stocking rate in the untreated country. Revenues were correspondingly calculated to increase from around \$4.2 million per year to \$4.6 million per year following regeneration. Average costs would be expected to fall, thus estimated gross margins would increase from about \$1.3 million per year to around \$2.2 million per year once the project's effects had worked through. (The study did not consider the regeneration project from the viewpoint of the individual station lessee, as this would need to include tax deductions and knowledge of the financial circumstances of individual stations, but the costs and benefits accruing to society.)

Australia's rangelands have carried 18 to 40 million sheep and 8 to 14 million cattle since 1956 (McKeon *et al.*, 2003) and the benefits that would result from improving Australia's rangeland management would be great. Appendix III shows examples of eight degradation episodes from all the rangeland States and the Northern Territory and represents a sample of the types of degradation episodes that have occurred since settlement. While rainfall variation was certainly a large factor in the degradation, it would be simplistic to view it as the sole cause. The degradation in the examples was very large scale, which drought alone would not cause (McKeon *et al.*, 2003; Tynan, 2000). Drought has been a feature of the Australian landscape for tens or hundreds of thousands of years (Flannery, 1999) and the main factor of degradation in the episodes given was the carrying of too many animals, for too long, on areas especially under stress from drought.

The degradation episodes draw attention to the managing of stock numbers as the major management issue in natural grazing systems. It is important to try to minimise resource degradation risk while optimising economic performance through matching stock numbers with available feed. One of the problems faced with this is that pastoralists only really have reasonable control over the numbers of domestic stock, not the native herbivores and feral herbivores that also commonly feed on their pastures. Campbell, Stafford Smith and CTE Pastures and Rangelands Network members (2000) indicated that a greater focus is needed on links between the biophysical, social and economic factors that will influence future

changes in rangeland ecosystem condition with particular reference to the impact of drought and climatic changes causing degradation.

Grazing by all introduced mammals on tree seedlings in the rangelands cause concern for the long-term future of various tree species (Chesterfield & Parsons, 1985). Because native inland Australian vegetation evolved in total isolation from ungulates, it may be unavoidably susceptible to the effects of large numbers of flocks and herds. Additionally, due to a lack of surface water, most of the vegetation probably only experienced very light grazing pressure, on average, by kangaroos alone (Lange, Lay & Tynan, 1994). This regime changed ‘cataclysmically’ however when Europeans settled the land (Adamson & Fox, 1982), introducing a grazing industry occupying 40 million hectares of South Australia (Lange *et al.*, 1994). Ratcliffe (1970:196)¹¹ attributes the loss of ‘desirable’ perennial shrubs and grasses in South Australia during the 1930s to overstocking:

The fact that the ‘bush’ had been eaten too much during the lean years when other feed had failed turned out to be the key to the problem of drift and erosion. Over-grazing had killed and destroyed the bush over thousands of square miles of country; and when the plant cover had disappeared, the soil lay unprotected at the mercy of the wind.

Even low densities of livestock in arid or semi-arid zones can be equally as damaging to vegetation, soil and fauna as high densities of livestock in wetter areas (Commonwealth of Australia, 1996). Chesterfield and Parsons (1985) showed that even favourable rainfall does not necessarily override the mammal-grazing effects in the arid zone. Estimates in the early 1990s showed that between 15 and 30 percent of pastoral enterprises in semi-arid and arid Australia were unviable (Barson *et al.*, 1993). Heavy pastoral use of land around natural waterholes often led to their demise, as sand was carried by the wind into the gullies and drainage lines, to be washed by the storm rains into creeks and eventually silting up the waterholes (Condon, 1983). Tree decline was so serious it led to major environmental, production and aesthetic consequences in rural areas and by the 1970s, clearance had reached a point where constraints were necessary as over eighty percent of South Australia’s farming regions had been cleared¹² (Jennings, *et al.*, 1989). As a result, the Vegetation Retention Scheme was introduced in 1980 (referred to as Heritage Agreements) by the South Australian Department of Environment and Planning. From 1983, landholders required permission to clear native vegetation, and the *Native Vegetation Management Act* was consequently introduced in 1985, followed by the *Pastoral*

¹¹ Ratcliffe’s classic *Flying Fox and Drifting Sand* was first published in 1938.

¹² Furthermore, Robertson (2003) states that the pastoral zone currently produces a higher proportion of greenhouse gases compared with their contribution to the economy.

Land Management and Conservation Act (1989) in South Australia in March 1990 after many years of contention (Lange *et al.*, 1994). Lange *et al.* (1994) concluded that from initial experience with the Land Condition Index it seemed likely most pastoral stations in South Australia would fall short of the land condition ideal of this new Act however.

The Department for Environment and Heritage (DEH) (2005b) show that approximately 25 percent of remnant native vegetation in South Australia is protected in National Parks and Wildlife reserves and a further 10 percent via Heritage Agreements. The remaining 65 percent occurs on private land (including leasehold land) and is therefore not necessarily subject to any form of protection, conservation or management for any conservation outcome. Adding to the obstacle of the majority of remnant native vegetation occurring on private land, evidence suggests people need specific motivations to participate in conservation as complete voluntary conservation is rare (Smith & Wishnie, 2000).

Grazing pressures are increased by higher numbers of native animal species (such as the kangaroo and emu) due to the need for additional watering points by pastoralists. Contributing to the problem is that rangeland vegetation generally only germinates in exceptionally good years and years of high rainfall (one in three to 15 years), and total exclusion of stock is needed for up to five years after such rainfall for the vegetation to establish itself (CSIRO, 1956:16). Recovery, referring to the ability to survive after being damaged, is largely dependent upon the subsequent interactions with the environment (Liddle & Kay, 1987).

Failure of the rains over a lengthy period may decimate the flocks or herds, but excepting such a calamity the scope for increasing or decreasing animal numbers, as forage supply warrants, is strictly limited...[Once] pasture has been deteriorated by overstocking...it can be improved again only slowly and with difficulty.

CSIRO, 1956:16

Native pastures in the arid zones are easily degraded by overstocking and the pace of regeneration is unpredictable...Recovery is much slower than in the non-arid zone.

Department of Environment, Housing & Community Development, n.d.

In the 1980s the changes to the landscape became of particular public concern when government administration publicly conceded that some pastoralists were still failing to meet land-care obligations and that land degradation was extensive due to overstocking and feral animal pests (Lange, 1983). By the 1990s there was an increasing recognition that ecosystems must be managed and that people were an integral part of the ecosystem they inhabit (e.g. Krebs, 1993).

Substantial land cover change was still occurring in the pastoral zone only one decade ago (Barson, Randall & Bordas, 1999; Yencken & Wilkinson, 2000). Barson *et al.* (1999) showed that between 1990 and 1995 throughout Australia, grazing contributed to almost eight times as much woody vegetation cover loss as agriculture, and more than 14 as much as forestry. Williams (2001:10) found that it would be necessary to revegetate 30 percent of Australia's rangelands to achieve sustainability.

Rangelands grazing is believed to be responsible for the loss of 34 plant species (representing 41 percent of the total number of plant species lost from Australia since European settlement) and the threatening of another 55 species (Commonwealth of Australia, 1996). Some tree species may need at least 10 years without stock grazing for successful regeneration (Chesterfield & Parsons, 1985). Many species resistant to grazing have replaced these grazing-sensitive species, and the introduction of exotic grasses continues to be a problem. Of the 463 exotic pasture introductions between 1947 and 1985, only five percent proved to actually be useful as fodder (Lonsdale, 1994).

By the introduction of the *Pastoral Land Management and Conservation Act*, one-third of all meso-mammal species were extinct and 90 percent of medium-sized mammal species were extinct, endangered or vulnerable in the rangelands (Lange *et al.*, 1994). Competition between domestic stock and kangaroos also contributes to land degradation in the rangelands (Flannery, 1999). Numbers of red, eastern grey and western grey kangaroos fluctuate to a large extent depending on whether the seasons are good or bad, with kangaroo harvesting in the order of several million annually continuing for several decades (Department of Environment & Conservation (NSW), 2004b).

Considering that continued high grazing pressures between sheep, red kangaroos and euros competitively excluded the red kangaroo from the Pilbara Region (Newsome, 1980), it is possible that the kangaroo's current abundance in the Flinders Ranges could be eclipsed eventually. Newsome (1980) claims that red kangaroos were abundant in the 1940s in the Pilbara but are now very rare, the cause believed to be from the change in pastures due to sheep grazing and the use of fire to promote feed for them (and the fact that red kangaroos have more restricted diets than both sheep and euros). A similar situation has been seen in the Hale River valley with cattle (who have broader diets than kangaroos) and high rabbit numbers causing noticeable decreases in red kangaroo numbers (Newsome, 1980). These situations are models of initial increase and final rarity of marsupial herbivores due to the introduction of

ruminant herbivores and may help to explain the disappearance of all medium-sized wallabies, rat kangaroos and bandicoots in inland Australia about 40 to 50 years ago (Flannery, 1999). Although debatable, Newsome (1980) suggests it is also possible that the current abundant native fauna may be an indicator of deteriorating pastures in the rangelands of Australia and the kangaroo may become rare as a result if controls are not put on the grazing industry.

It is not simply a lack of managerial advice that explains the extended period of degradation. Well-reasoned technical prescriptions for land care in South Australia's pastoral zone have been available for over a century. Waite (1896) aimed for a balance between off-take and sustainability via an argument involving land and flock subdivision, drought strategy, watering point multiplication, the distances sheep walk, nutrition of lactating ewes, deferred grazing and economics. Lay (1979) reinforced these key principles for good landcare on the basis of long-term studies. The more recent managerial prescription of the 1990s is also little different to that of Waite (1896) (e.g. Copeland & Lewis, 1997; Stafford-Smith & Morton, 1990). Despite this advice being available, Mills (1982) and Conacher and Conacher (1995) suggest it was a combination of ignorance, financial pressures and irresponsibility that caused overstocking and degradation. It is possibly largely the attitude 'Out of sight, out of mind' that also contributed to such degradation, with the vast majority of South Australia's population living along the coastal regions of the state, largely unaware of the arid zone until tourism, wildlife protection, recreation and mining increased. Indeed only a few hundred people at any one time have had extensive pastoral zone experience.

It is now acknowledged that many landholders are responding to environmental degradation problems resulting from pastoral activity. The recent spur in sustainability values and education about the social, environmental and economic benefits that may be obtained through conservation has encouraged many landholders previously not committed to conservation to become involved (Platt & Ahern, 1995). Blias and Chapman (2005) report that of the 23 percent of farmers reporting some form of degradation in 2001-02, only 20 percent did not take action in response. Wilcox and Cunningham (1994, in McKeon *et al.*, 2003) optimistically suggest that 94 to 95 percent of the degradation from pastoral use may be rectified by adjustments to stocking practices or by the introduction of fire and other agents of change, but Rose (1996) claims only up to 87 percent may be rectified.

Financial incentives play a large part in landholders' management plans (Department of Natural Resources and Environment, 2000). Australian cattle farmer, author and

environmental consultant Roland Breckwoldt writes the following as a farmer's perspective:

If nature conservation made a readily apparent and direct contribution to farm income that could compete as an alternative enterprise to grazing and cropping then there would not be the decline in native plants and animals now facing Australia.

...The economic benefits of conserving remnant vegetation and animal wildlife do not compete very vigorously with other rural enterprises in putting cornflakes on the table, paying school fees and keeping bank managers at bay. There is an important role for nature conservation in the overall farm plan but the main economic drivers facing farmers might push them in other directions.

Yencken & Wilkinson, 2000:213

Rangeland ecosystems are clearly under a high degree of pressure but society is increasingly recognising that biodiversity, local identity, cultural heritage and other non-marketable outputs of pastoralism are assets with potential value and they should be protected. Significant economic as well as social changes are currently taking place in the rangelands (Lesslie *et al.*, 2006) where there is now the scope for multifunctionality as a unifying concept under which the productivist role of pastoralism and its role in land management for biodiversity conservation, recreation, water management and climate control can be brought together.

4.7 Multifunctionality

Wool was the economic driver for rangeland settlement in Australia, but it is acknowledged that Australian rangeland grazing offers only very low production per hectare (Robertson, 2003). Sheep in the extensive grazing zone (the rangelands) yield less wool and very little mutton or lamb compared to sheep in the wheat-sheep belt and higher-rainfall sheep zone (Holmes, 1983). Australia now only produces 3.8 percent of the world's total wool production, and while this is not an insignificant contribution, it represents only 0.4 percent of the world's apparel fibre, suggesting it is no longer critical to clothing the world. Wool is now regarded largely as a niche market, and Australia will only be able to continue earning from the industry (both fibre and food) if it can compete internationally. The rangelands must be economically efficient and the returns must be at least as good as the returns from other investment opportunities across the country, which are being explored through diversification options. With the aim of moving beyond the primary goal of providing food and fibre, multifunctionality is the new unifying paradigm to bring post-modern farming in accordance with present societal demands such as wealth, employment, contribution to environmental services, water management and recreation.

It is not generally thought that the pastoral industry should completely abandon the arid zone, largely because of its historical ties and the belief that Australia would be 'a poorer place culturally and financially' if this were to happen (Bartholomaeus, 1982:161). Rather, diversification and alternative resource use is encouraged. Particularly if degradation can indeed be reversed over 87 to 95 percent of the rangelands (Rose, 1996; Wilcox & Cunningham, 1994, in McKeon *et al.*, 2003), some degree of management change is favourable to encourage environmental recovery. Lesslie *et al.* (2006) acknowledge that low productivity grazing environments such as the Flinders Ranges only have the capacity to support modest investment in restoration. This suggests diversification into industries that support higher production rates would enable a greater level of investment in restoration. Woinarski and Fisher (2003) claim that there is sufficient management expertise to realise this rangeland restoration goal, but they propose a lack of societal agreement is a major impediment to reaching this goal. Ash and Stafford Smith (2003) also maintain that better integration between the values of pastoralists and other inhabitants of the region is required to control such land management issues.

Much of the economic development literature promotes the development of new rural industries as one path to sustainable regional areas, whether individuals be 'attracted out' of traditional land-use practices into other more appealing industries or 'pushed out' by declining incomes and employment (Keller, 2000; Tambunan, 1995). Diversification is one way rangelands pastoralists have responded to financial pressures. There has been a substantial reduction in farm resources devoted to sheep (due to low returns relative to other farm enterprises) since the 1990s with the pastoral industry undergoing significant changes (ABARE, 2006a). Indeed diversification is recommended for a range of reasons including environmental sustainability and the realities of rural economies and cultural life (high unemployment, persistent poverty, deteriorated social well-being, lower earnings and diminished health care), as well as changing national and global circumstances (e.g. Galston & Baehler, 1995; Holmes, 2006; Keller, 2000; Tambunan, 1995).

There are many risks that pastoralists face, the most common tending to be price risk and climatic production (or yield) risk. Risks not only refer to the possibility of exposure to adversity, but to a range of uncertainties that affect their welfare (Kingwell, 2000). There are also risks of personal (injury/trauma) nature, financial nature, asset risks (such as availability of resources), legal risks and commercial risks (ABARE, 2005b). With a traditionally narrow production base and exposure to highly variable seasonal conditions and market fluctuations, these risks greatly influence pastoral enterprises' income levels and consequent enterprise

viability. Risk management, to account this risk exposure, proposes the diversification of income sources by expanding production bases and greater reliance on off-farm income.

Price risk has been higher in the wool industry than many other industries in the past thirty years. While wheat price variability (47.1 units) for the period 1970 to 1983 was greater than that for wool (40.2 units), wool price variability for the period 1984 to 1997 was much greater than that for wheat (31.9 and 21.9 units respectively). The measure of wool price risk fluctuated by a total of 22.7 units between 1970 and 1997, compared to 18.5 units for wheat, 15.1 units for cotton, and only 7.7 units for lamb (ABARE, 1998, in Kingwell, 2000).

As a response to changing demands for wool, diversification into sheep meat production was expanded with the higher global demands for lamb. However after a short period of strong financial performance in the early 2000s, the 2002-03 droughts caused most sheep producers to suffer financially and stock numbers dropped (ABARE, 2006a). There has also been a steady increase in the reliance of off-farm work undertaken by those in the wool industry, with the average off-farm income in 1980 of \$1058 rising to \$5991 in 1989 and \$8883 in 1999. While this figure has fluctuated to some degree, it is evident that on average, the trend is increasing (ABARE, 2006a).

Diversification is favourable for livestock producers because the industry is 'not favourable' as a growth industry and employment growth is expected to fall by 2009-2010 (Department of Education, Science & Training, 2006). South Australian Tourism Commission (SATC) (2001a) report that tourism¹³ can assist in diversifying regional economies, strengthen existing industries and even create opportunities for new industries. Sustainable tourism is said to assist the local economy by making it less reliable on traditional bases, 'especially for rural communities' (SATC, 2001b:2). Sustainable harvesting of kangaroos and introduced animals is another example of enterprise diversification in pastoral areas as it can generate useful income and local employment as well as contribute to the broader conservation efforts of the region (Grant & Ramsay, 1993). The development of 'bush tucker' products and the cultivation or harvesting of native flora for wildflowers or seed are further examples of diversification. But with the growth in tourism in recent years, rural farm stays and ecotourism operations are potentially highly profitable forms of diversification (Fausnaugh *et al.*, 2004; SATC, 2001b; Sharpley & Vass, 2006).

¹³ In contrast to the below average, 'unfavourable' growth prediction for livestock farming employment, the tourism industry received a 'moderate growth' rating, and for the 'accommodation and café' sector of tourism there was a 12 percent increase in average weekly earnings per person between 2000-01 and 2004-05 (Department of Education, Science & Training, 2006).

There is already a trend in some areas for pastoral leases to be purchased for non-pastoral purposes. Not only could landholders be involved in tourism, they could be involved with the management of conservation areas and ecotourism activities. Farm-based tourism is not a new concept, but has a long tradition (particularly in Europe), and in recent times farm diversification into tourism has become more widely recognised as an effective means of dealing with socio-economic problems of many rural areas. According to Keller (2000), the only reasonable conclusion as to how rural areas can remain persistent is through *diversity*. Diversification is a social and economic reality. Today, the rural areas that show most favourable growth and economic strength have economies based on both tourism and recreation (Keller, 2000) and:

Throughout most of North and South America, Western Europe, Australia, and New Zealand the lure of the natural environment and tourism (place and historicity) are significant parts of their economies. Firms and industries built around the exploitation of amenities show exceptionally strong growth and are a world leader in providing new jobs.

Higginbottom, Northrope and Green (2001) propose that where economically viable, governments should encourage shifts from traditional agricultural or pastoral practices to nature-based tourism activities on private land. However, such diversification opportunities may be limited within certain regions due to natural resource constraints and legislation regarding leasehold land. Societal disagreements may also be encountered when members of local communities have differing perceptions on best options for diversification (Woinarski & Fisher, 2003).

Kangaroo Island's resident population of approximately 4373 people is largely dependent on a combination of agriculture and tourism. Due to downturns within the agricultural sector, particularly the sheep market, many residents diversified into tourism. Tourism is increasingly being perceived as a viable alternative to the agricultural industry, although there were concerns amongst some sectors regarding the ability of the Island to manage tourism in the long-term to ensure economic revitalisation whilst minimising impacts upon the environment and lifestyle. The Tourism Optimisation Management Model (TOMM) has however been successful in embracing not only an environmental focus but also aspects involving economic, socio-cultural, market and experiential conditions to show that a community can manage tourism in a sustainable manner in an agricultural setting (Jack, 2000).

In the Victorian River District of the Northern Territory, Bullo River Station is another successful example of using pastoralism to enter the tourism industry. A half-million hectare station with a pure pastoral background until recently, the owners diversified into agri-tourism as the nature of the country meant that they could not produce enough income solely out of cattle, and working in the tourism industry better suited their lifestyle. Once established, they expanded their accommodation options to cater for the ecotourism, bird watchers and hunting markets and visitor figures steadily rose by 25 percent. They were awarded the 'Best Hosted Accommodation' class at the 2003 Northern Territory's Brolga Awards (Francis, 2003). This success relied on both suitable levels of consumer service and on high levels of environmental quality (Bushell, 2003).

Through incentives such as these, diversification therefore also plays a role environmental sustainability efforts as well as economic sustainability. Many authors (e.g. Ledger & Stafford Smith, 1996; Ratcliffe, 1970) suggest it may not be possible to even maintain the rangelands in at least their present condition if pastoralism continues at its current levels. Stafford Smith *et al.* (2000) describe how management of the rangelands is still far from universally nearing a sustainable basis, largely prevented by fundamental economic and ecological barriers. Diversification into ecotourism has been recognised by the Australian Conservation Foundation as something that may actually be an incentive for private land owners to conserve their lands (Figgis, 1996). Ratcliffe (1970) stresses that the safety of pastoral settlement in arid and semi-arid Australia completely depends on the fodder reserve of long-lived plants, and concludes that this fodder reserve is nowhere near sufficient to stand up indefinitely to the strain that is inescapably placed upon it from pastoral settlement, therefore diversification is *necessary*. This conclusion is persuasive and, based on his evidence from around Lake Eyre and the northern Flinders Ranges, is difficult to disagree with. Ledger and Stafford Smith (1996) wrote that environmentally sustainable uses of the rangelands rely on key sites for tourism being in areas currently used for pastoralism. With limited numbers of national parks, increasing land-use pressure and the need to protect biodiversity, to prevent simply replacing one unsustainable use with another it is necessary to make some pastoral land available for tourism.

It needs to be accepted that multiple uses can be complementary to each other. Holmes (2006) describes the emergence of multifunctionality as a contemporary trend in Western rural landscapes, valuing a mix of consumption and production uses as opposed to the traditional dominance of production values. Fargher *et al.* (2003:140) describe it as largely a

'romantic myth' that the Australian rangelands have supported only a pastoral economy and society for the past 150 years. The rangelands *could* survive economically without the present level of pastoralism. In many parts of the rangelands, the pastoral industry has in fact been a less important generator of employment and economic wealth than mining. Additionally, the rangelands have relatively recently become more reliant on the service sectors of tourism and defence than grazing in many regions. While mining generates about \$12 billion dollars towards Australia's GDP, Commonwealth support only reached 1.8 percent of the total production value. In contrast, the pastoral sector was assisted with a higher four percent of its total revenues (of \$1 billion per year) (Fargher *et al.*, 2003:150). If it makes no sense to maintain the current level of pastoralism as an economic activity, restructuring should occur, especially considering the reduction in the previously-outlined wide-ranging environmental services. To avoid the reduced functionality that the loss of biodiversity and other such impacts suggest, as well as a loss in environmental services, multifunctionality has been the emerging trend. Indeed it only actually receives its full meaning in relation to the impact of pastoral restructuring to biodiversity and landscape values (Potter & Burney, 2002).

4.8 Conclusion

Throughout the rangelands of Australia, signs of degradation of pasture resources are apparent. It is evident that immense hardships induced by Australia's climate have been borne by the livestock, the land and those people who have made a living from the pastoral industry in much of South Australia and indeed most of the rangelands. It is also evident that pastoralism has accelerated environmental degradation by altering the soil, water, flora and fauna. Relationships established between stocking rate, livestock production, rainfall and management activities over long periods can account for changes in the composition and quality of land resources and the subsequent productivity of a region as a whole.

The pastoral industry is subject to highly fluctuating commodity prices and production patterns. A decreased global demand for wool and woollen apparel has seen wool production and sheep numbers fall in Australia especially since the early 1990s. With pastoral leases in the Flinders Ranges typically smaller than those of other parts of Australia, in order to be economically viable landholders may be tempted to use practices that benefit them in the short-term, but are unsustainable in the long-term. To prevent this, the emerging trend of multifunctionality acknowledges it is possible that the same area of land can be used for more

than one purpose without conflict (Holmes, 2006; Young, 1983), so diversification has the potential to aid sustainability goals if land-uses that are both environmentally and economically sustainable are undertaken.

From a conservation perspective, when several uses are compatible or complementary, simultaneous joint use is efficient.

Young, 1983:111

Evaluating the extent of environmental degradation in the rangelands provides the background knowledge required to enable the research, when combined with the analysis of the case study results, to address whether or not continuing with pastoralism would be advisable. This chapter has shown that the present economic situation and the more recent social changes in the rangelands have given rise to the possibility for multifunctionality to bring together the productivist role of pastoralism, its role in environmental services, and greater rangeland involvement in tourism and recreation.

5.0 TOURISM

5.1 Introduction

This chapter is intended to familiarise the reader with the concept of tourism and its relationship with the physical and social environments with which it is inextricably linked. Sustainable tourism, specifically ecotourism, has been suggested as a diversification strategy in the rangelands; the following sections explain the structure of the tourism industry and its vast economic importance, explore ecotourism in detail, and describe the potential positive and negative impacts of tourism. Through this literature review, it is evident that tourism will only be beneficial if its level, type and management is appropriate and within the sustainable use carrying capacity of an area, and that it has the potential to contribute to environmental recovery and conservation efforts in various ways.

5.2 The Business of Tourism

Tourism is one of the world's leading industries (Honey, 2003). This industry collectively refers to the individuals, organisations and industries who supply both directly and indirectly, goods and services to tourists en route to and from their destination, and at their destination. The number of international trips made throughout the world are predicted to almost triple between 1996 and 2020 (UNESCO, 2000:1).

The World Tourism Authority (WTO), a specialised agency of the United Nations, encourages the implementation of the Global Code of Ethics for Tourism to ensure negative social and environmental impacts to destinations are minimised. The Sustainable Tourism Development Section of the WTO is dedicated to ensuring the sustainable development and management of tourism. The United Nations designated the year 2002 as the International Year of Ecotourism after recognising its global importance, and a World Ecotourism Summit in Quebec, Canada was organised collaboratively with the United Nations Environment Programme (UNEP) in May 2002. This resulted in the Quebec Declaration on Ecotourism of guidelines for sustainable ecotourism development and management.

On a national level, Tourism Australia is the Federal Government statutory authority responsible for tourism marketing, research and forecasts. It was established in July 2004 to encompass the roles of the Australian Tourist Commission, See Australia, the Bureau of Tourism Research and the Tourism Forecasting Council. Under the *Tourism Australia Act (2004)*, it has a statutory obligation to help foster a sustainable tourism industry in Australia, and has implemented the 'Leave No Trace' educational program to provide a framework for better educating visitors in behaviours that minimise negative effects of human use (Tourism Australia, 2005) such as disposing of waste properly, minimising campfire impacts, respecting wildlife and being considerate of other visitors (Leave No Trace, 2004).

To help the industry secure, sustain and improve the future market share, the *Tourism White Paper* was developed by the Australian Government Tourism Division. It described the potential for Australia to bring increased tourism revenue through the provision of 'a value-for-money experience second to none' (Department of Industry, Tourism & Resources, 2003:ix) and identified the need to build partnerships between tourism and conservation to protect the natural environment, so the tourism industry can directly contribute to biodiversity and conservation.

In South Australia a combination of local governments, regional tourism associations and development boards, and the state government-funded South Australian Tourism Commission (SATC) liaise with industry operators to create marketing and development plans. The State Tourism Plan for the next three years involves concentrating on the strengths of the State such as 'good living', festivals and events, and having accessible nature (SATC, 2006), the latter of which has strong implications for the ecotourism sector.

5.3 Ecotourism as a Niche

Numerous definitions exist for ecotourism and it is often interchanged with nature tourism (Boo, 1990; Fennell, 2001; Western, 1993). However while nature tourism is only 'primarily concerned with the direct enjoyment of some relatively undisturbed phenomenon of nature' (Valentine, 1992:108), ecotourism, in one of its most widely used definitions, is:

That segment of tourism that involves travelling to relatively undisturbed or uncontaminated natural areas with the specific objective of admiring, studying, and enjoying the scenery and its wild plants and animals, as well as any existing cultural features (both past and present) found in these areas.

Ecotourism is dependent on natural areas for certain types of activities. Nature tourism is concerned with relatively natural areas for certain types of activities. Ecotourism Australia, a non-profit organisation formed in 1991 and the leading ecotourism body in the country, defines ecotourism as:

[E]cologically sustainable tourism that fosters environmental and cultural understanding, appreciation and conservation.

Ecotourism Australia, 2006

The National Ecotourism Strategy (Commonwealth Department of Tourism, 1994:17) defines ecotourism as:

[N]ature-based tourism that involves education and interpretation of the natural environment and is managed to be ecologically sustainable.

These definitions suggest an importance of the sharing in knowledge and in learning participation, allowing people to understand the interconnectedness of plants and animals, and consequently, how impacts of tourism can be progressively influential (not necessarily in a positive way). Interpretation is widely believed to be one of the keys to successful ecotourism as it combines knowledge with feelings in order ‘to touch the hearts and minds of people’ using concepts and thematic stories as aids (Interpretation Association of Australia, 2001).

Some ecotourism groups also incorporate the ethical component related to conservation and education in their definition. Hvenegaard (1994:25) quotes the definition of the Canadian Ecotourism Society to be:

Purposeful travel to natural areas, to understand the culture and natural history of the environment, taking care not to alter the integrity of the ecosystem, while producing economic opportunities that make the conservation of natural resources beneficial to local people.

Most importantly in its meaning for this research, the World Congress on Tourism and the Environment (1992) describe ecotourism as ‘travel that promotes conservation’ (in Hvenegaard, 1994:25).

Although the early definition coining the term from Ceballos-Lascurain (1983 in 1991) referred to ‘relatively undisturbed or uncontaminated natural areas’ and did not suggest minimal impact activities, later definitions concentrate far more on interpretation and understanding of natural and cultural environments, on ecologically sustainable practices

and economic sustainability. A less common viewpoint is that it must be completely ecologically sound and even altruistic (Duffy, 2002). In this study, ecotourism is used to describe tourism that not only minimises environmental disturbance but enhances natural resources through protection and conservation, or at the very least, maintains them as they are. The involvement and consultation with local communities and the inclusion of an educational element are also considered crucial aspects of ecotourism in this research.

Ecotourism can be seen as a component in helping society achieve sustainable development because the funds flowing from tourists can be used to ensure the environment is protected for future visitors. As Scace (1999:115) writes,

Ecotourism should be seen as one possible component of an overall ecosystem management strategy aiming to achieve sustainable development.

Fennell (2001:416) reveals the majority of definitions use variables such as 'natural areas', 'culture' and 'education' to describe ecotourism, and predicts a continuance of creating such variations of the term. This causes difficulty in instilling meaning and standards in the industry. Alternatively, Edwards *et al.* (in Fennell, 2001:416) suggest that one precise definition may not actually be necessary 'due to the varied nature and demands of those associated with the industry'. Carrier and MacLeod (2005) propose that ecotourism's definition is so elastic it is close to meaningless. It is widely accepted however that there are differences between ecotourism and tourism and that they are not only based on environmental sustainability but on education and ethics.

5.3.1 The Arrival of Ecotourism

By the late 1960s, two related realisations were made by conservation organisations, environmentalists and scientists in Africa and Latin America. It was becoming evident in Africa that 'preservationist' conservation methods of the (often forced) separation of people and parks were not working. There was traditionally little regard for local people in the establishment of parks in Africa, and park management focussed on the eviction of local community members in favour of hunters, scientists and tourists (Honey, 1999). The local people received little or no benefit from either the parks or tourism and greatly resented their exclusion from the lands (which were of religious and economic value to them). This resulted in an area of heightened conflict through increasing hostility between local people and parks and tourism (Machlis & Tichnell, 1985 in Wells & Brandon, 1992). The

consequent realisation was that protected species, areas and ecosystems could only survive if local people could benefit financially from both parks and tourism (e.g. Budowski, 1976; Wells & Brandon, 1992). Honey (1999:12) quoted David Western, first president of the Ecotourism Society, as writing that it is implicit:

[T]he assumption that local communities living with nature can and should benefit from tourism and will save nature in the process.

This new approach was first officially trialled in Kenya in the early 1970s with the government putting several reserves, including the Maasai Mara, under the control of local councils, enabling them to receive revenue from park entrance fees, hotels and other tourism facilities. This became known as the stakeholders theory – where people will protect what they receive value from. With the rise in popularity of ecotourism in the 1980s, the stakeholders theory was broadened to encompass environmentally and culturally sensitive, low-impact tourism that also helped educate visitors and local community members.

At the same time, scientists and environmentalists in Latin America were becoming increasingly alarmed at the rate of destruction by illegal logging, ranching, oil drilling, mining and human settlement, particularly to the world's remaining tropical rainforests. Budowski (1976), a Costa Rica-based conservationist, was one of the first to suggest ecotourism could be used to support the conservation of these vital places on earth. Ceballos-Lascurain, a Mexican architect and environmentalist, who is credited with coining the term ecotourism, further went on to argue that:

[T]he person who practices ecotourism will eventually acquire a consciousness that will convert him into somebody keenly interested in conservation issues.

Ceballos-Lascurain in Honey, 1999:13

Thus in two different regions of the world, ecotourism emerged during the same time period although not for entirely the same reasons¹⁴. Subsequently, the use of tourism as a development tool and conservation strategy was also taken up by international assistance agencies and the World Bank to try to reduce Third World debt via ecotourism programs (Lea, 1988). Only in more recent years in Australia has the economic benefit of encouraging ecotourism been fully acknowledged within the national parks and reserves system as a tool for aiding conservation efforts (Figgis, 2004; Wearing & Bowden, 1999).

¹⁴ This is not to say that ecotourism, unnamed, was not developing in Australia, New Zealand and North America during this time.

5.4 The Tourism Market

Tourism is one of Australia's most valuable sectors, worth some \$70 billion (Commonwealth of Australia, 2003; SATC, 2001a) and is predicted to drive the Australian economy over the next decade. In 2002-03 tourism directly accounted for the employment of over 540 000 people (about 10 percent of the workforce) and indirectly another 400 000 jobs (Department of Industry, Tourism & Resources, 2004). It contributed 4.5 percent to Australia's GDP, implying it is more valuable to the national economy than industries such as agriculture, forestry, fishing and communication services (SATC, 2001a). While one of the main characteristics of current tourism is a reduction in the length of stay at a destination (Alegre & Pou, 2006), overall spending from tourists is increasing (e.g. SATC, 2003a; 2003b; 2005a).

In South Australia, tourism is considered the industry most likely to contribute to the 'economic prosperity and quality of life enjoyed by the South Australian community' (Community Attitude to Tourism Survey in SATC, 2005a:2). More than \$4 billion was generated in spending in 2004 by the State's tourism industry, and the goal has been set to increase this figure to \$5 billion in 2008 (SATC, 2005a:5). Overnight expenditure in South Australia is greater in regional areas than in the capital city, and represents approximately \$2100 per resident per year (SATC, 2001a).

Hoffmann (in SATC, 2003b) stated that the tourism industry was affected by the ongoing impacts of the terrorism attacks on the World Trade Centre in 2001, the collapse of Ansett Australia, the terrorism attacks in Bali in 2002, the war in Iraq and the Severe Acute Respiratory Syndrome scare. Despite these events, tourism continued to be a significant economic generator for South Australia. In 2002-03, total visitor nights increased by nine percent, with domestic visitor nights by 12 percent (exceeding 21 million nights). Because the domestic market accounted for 83 percent of visitor nights in South Australia, it helped protect the State from the negative impacts felt by those states that rely heavily on international visitors (SATC, 2003b). In 2004-05, domestic tourism remained a key market, comprising almost 80 percent of visitor nights in the State, and accounting for over 3.6 million visits (SATC, 2005a:2).

The interstate market, generating 10.2 million visitor nights in 2002-03, comprised of 34 percent from Victoria, 26 percent from New South Wales, 16 percent from Western Australia and nine percent from Queensland (SATC, 2003b). The most important interstate markets

remained Victoria and New South Wales in 2004-05, forming a combined 66 percent of South Australia's total interstate visitors (SATC, 2005a:2). International visitors spent 4.5 million nights in South Australia, with the largest source of visitors being the United Kingdom (25%). A further 11 percent were from Germany, and in total Europe provided 56 percent of South Australia's international visitors. Only 10 percent were from the United States of America and three percent from Canada. By 2004-05, there was a 15 percent increase in the number of international visitor arrivals in South Australia (SATC, 2005a:2), with visitors from North America and Europe accounting for over three-quarters of overseas visitor numbers.

5.4.1 The Ecotourism Market

Ecotourism is regarded as a distinct segment of the tourism market because individuals who desire ecotourism experiences, despite having distinct needs, characteristics and behaviour from each other, can be grouped together as they respond in a similar way to marketing stimuli (Fennell, 2001). Ecotourism is commonly said to be the fastest growing sector of the tourism industry (Carrier & MacLeod, 2005), with supply of and demand for ecotourism growing significantly in the last 25 years (e.g. Sharpley, 2006) by up to three times as fast as the tourism industry overall (Honey, 2003). In Australia most of the tourism industry is already based on attractions of the Australian environment, the essentials of which fall under some form of environmental protection (Figgis, 1999), and Australia's ecotourism operations have 'long been championed as amongst the best in the world' (Dowling, 2002:89). Australia's native kangaroo is a more recognisable tourism symbol than France's human-made Eiffel Tower (Benson, 2001). The majority of Australians (72%) prefer a holiday where they can see nature or be in natural settings (SATC, 2005b). Wearing and Bowden (1999:8) propose one of the reasons why so many Australians enjoy a nature-based holiday is due to the 'increasingly frenetic pace of city life'.

Nature-based tourism is also a major aspect of Australia's international tourism market (Australian National Training Authority (ANTA), 1997). For international visitors classed as holiday purpose visitors, 'wildlife/nature' was the thing 'most' enjoyed about their Australian holiday, with almost half identifying nature-related features as influencing their decision to visit Australia (SATC, 2001b). The top criterion for European, North American and Japanese visitors was the landscape and natural environment (SATC, 2005b; UNESCO, 2000). For potential international visitors, nature based activities are among the activities they would be 'most interested in doing' if visiting Australia (SATC, 2001b). Blamey and Hatch (1998)

classified 38 percent of international visitors to Australia as nature-based tourists, referring to visitors who went to at least one ecotourism site or participated in at least one ecotourism activity. The two strongest growth markets in tourism were visitation of Aboriginal sites, which grew by 30 percent over the early 1990s, and visitation to national parks, which grew by 17 percent per annum.

Forty-two percent of international visitors (2.09 million visitors) visited a national park or reserve during their stay in Australia in the year to June 2005, representing 56 percent of international visitor nights (Tourism Queensland, 2005:4). Visitors from the United Kingdom, Japan and Europe made up 17, 16 and 12 percent of this market respectively. China had the strongest growth rate with an increase of 23 percent visiting national parks (Tourism Queensland, 2005:4). The tourism industry has identified the likely increase in visitor numbers from China and Korea to have a noticeable impact on total visitor numbers, questioning whether or not with more visitors parks will be able to offer the same use in the future (Ecotourism Australia, 2005).

Domestic tourism has a stronger growth rate of people visiting national parks, with an average annual increase of 3.3 percent since 2001. Nine percent of domestic visitor nights in Australia were spent in national parks in the year to June 2005 (Tourism Queensland, 2005:1). High visitor numbers, or the potential to attract high visitor numbers, are not only important in terms of income and employment, but are also important as they are among the reasons that government officials and residents support protected areas (Drumm & Moore, 2005). These areas are typically important destinations for ecotourism operations. Based on past visitation patterns, Eagles (2004) predicted national park visitation will continue to increase. However it was also predicted that there will be a change in the activities that need to be offered as experiences sought are changing (from less camping and active activities to more passive, appreciative experiences), as parks become used by higher educated visitors wanting information, interpretation and knowledge¹⁵.

The SATC and Department for Environment and Heritage's (DEH) joint *Responsible Nature-based Tourism Strategy 2004-2009* highlights the State's need for the development of 'strong and compelling' nature-based experiences centred on the major themes of soft adventure (trails), dive, national parks, ecotourism, wildlife, fossils and geological heritage. There has consequently been a focus on partnerships and cooperative projects such as the inclusion of

¹⁵ Eagles (2004) predicts this partly based on the Australian population shift to a larger proportion of older people and changes in technology (including improved access to educational information through the Internet).

national park features in all regional marketing guides and the promotion of trails ('Short Walks'). National Parks and Wildlife South Australia (NPWSA) and the SATC provide links and refer visitors to each other's websites (Hocking, 2003). While there are approximately 220 accredited ecotourism operators in Australia, only eleven percent are from South Australia (Ecotourism Australia, pers. comm., 2006). Within the State there are 13 'advanced ecotourism' operators (three from the Flinders Ranges and Outback region), seven 'ecotourism' operators and five 'nature tourism' operators (two from the central Flinders Ranges) (Ecotourism Australia, 2006). Prior to the 2002 'International Year of Ecotourism' there were far less accredited South Australian operators however (S. Kondylas¹⁶, pers. comm., 2003).

The 'International Year of Ecotourism' was a driving factor in encouraging South Australia's ecotourism focus, with two important nature-based tourism operator forums, valuable media exposure from the national launch in the Coorong National Park (worth \$300 000) and successful partnerships with NPWSA, Forestry SA and the Office of Recreation and Sport in the printing and production of nature-based collateral. These included *SA Nature*, *Get in Touch with the Untouched*, *Nature Media Kit*, *SA Trails* book and website and *SA Parks* publications (Hocking, 2003). Since 2002 the SATC has also tracked South Australia's brand image interstate, and the level of association the State received with 'nature' increased from 12 to 17 percent by 2005, and with 'Outback experiences' from 17 to 25 percent (SATC, 2005b).

The value tourists put on the ability to experience nature by going to such places as national parks can be measured by an economist's tool known as the Travel Cost Method. Estimates have shown positive correlations between the amount tourists are willing to pay for an ecotourism experience and the quality of the environment (e.g. Hundloe's 1990 study of the Great Barrier Reef). Therefore knowing the environmental impacts tourists may cause from their experiences is desirable from a management perspective (whether tourism managers or land managers) to ensure environmental quality at a destination is sufficient to help generate an income that will correspondingly facilitate economic sustainability.

5.5 Impacts of Tourism

Whilst the mining and manufacturing industries have a large amount of information available on environmental impacts and impact prediction through large-scale industry-funded assessments and monitoring programs over several decades, this is not the case in the tourism

¹⁶ Ms Stella Kondylas, Ranger, Flinders Ranges National Park

industry. Buckley and King (2003) suggest the reason for this is in part because individual tourism operators are generally too small to trigger environmental impact assessment requirements. Cumulatively however their operations may lead to significant environmental impacts. Also contributing to the difficulty in thorough impact assessment is the fact that tourism activities are often in protected areas or areas of high conservation significance where smaller and more subtle impacts than those of mining or manufacturing may still be substantial (Buckley, 2000 in Buckley & King, 2003).

Buckley and King (2003) additionally suggest that the lack of detailed studies on environmental impacts from tourism relates to the tourism industry having little experience in commissioning and using scientific research. While the industry uses new technologies (such as air travel, navigation and internet bookings), it does not invent them or constantly rely on the most recent of technologies. Rather, it is a service sector dealing with people. Because ecological sciences are newer than physical sciences, and biological systems are more complex than physical systems, it further challenges the industry's ability to predict and assess how the environment really reacts to our actions.

Being largely a natural resource-based industry, tourism usually has an impact in both desirable and undesirable ways. It offers employment and retail opportunities and enhances the value of natural and cultural features, but may also bring about conflicts in land-use, pollution, environmental degradation, cultural hijacking and crime (e.g. Boo, 1990; Budowski, 1976; Duffy, 2002; Fennell, 1999; Green, 2005; Mathieson & Wall, 1982). It is uncertain whether the objectives of sustainability can therefore be readily integrated by a profit-oriented travel and tourism industry (Keller, 2000), yet many studies claim that the commitments and incentives needed to implement the necessary sustainable development reforms can indeed be conceived within the framework of ecotourism (e.g. Buckley, Pickering & Weaver, 2003; van Oosterzee, 2000). Ecotourism does not have the same meaning as sustainable development, but it is increasingly recognised as a *means of achieving* sustainable development in destination areas (Sharpley, 2006). It is a widely accepted argument that ecotourism is a non-consumptive form of recreation (Novelli *et al.*, 2006), but the term ecotourism is also sometimes used purely as a marketing tool for any nature-based tourism regardless of the environmental impacts it may cause.

The values and ethics ecotourism promotes are scarcely found in other segments of the tourism industry (Ziffer, 1989). The 'triple bottom line' catchphrase for ecotourism operational

objectives became widely used to describe operators as businesses giving equal priority to economic, social and environmental profit when measuring business success. Ecotourism may involve such practices as energy saving technology programs, control of noise emissions, air pollution control, treatment and control of waste-water and sewage, construction practices intended to result in minimal site disruption, small group tours, environmentally-friendly product purchasing policies and regular environmental audits. Other practices could be the use of endemic plants for landscaping purposes, zoning areas for specific use, use of biodegradable chemicals, economic contributions to communities through employment, the local derivation of products and services, and very importantly, education of visitors regarding environmental awareness and understanding (Harris & Leiper, 1995). Indeed quality, themed interpretation can be considered a contribution to conservation action in its own right (Thompson, 2005). Ecotourism can also be used as a tool to facilitate and fund research, and its dependence on environmental quality ensures that the environment is a priority on many research agendas (SATC, 2001a).

There are critics who claim that the tourism industry (and even specifically the ecotourism industry) needs to further improve and enforce impact regulations because if enough people participate in an activity, even if it is for the good of the environment, it could have detrimental effects (Crandell, Curtis & Ingalls, 1997; Hammond, 2004; Intarakomalyasut, 2001). The Third World Network Tourism Investigation and Monitoring Team (2006) and Duffy (2002) have made claims essentially portraying ecotourism as a neo-liberal conspiracy that helped large companies and facilitated globalisation, of which Brohman (1996) also acknowledges. These critics argue that ecotourism has opened the door to forest destruction, displacement of Indigenous people and illegal endangered plant and animal species collection. Van Oosterzee (2000) in contrast suggests that it is not tourism that is often a threat on a natural environment, but it is warfare, clearing for agriculture and poaching that are threats (e.g. protected area management studies such as Hocking, 1998), claiming regions with intact tourism industries are those more likely to have intact ecosystems, naming World Heritage Areas as examples.

Further research is indeed desirable to monitor the impacts of tourism (specifically ecotourism) and better evaluate their effects, most of which are largely unquantifiable without such research and long-term studies (Green & Higginbottom, 2000; Preece, 1995), and increased information exchange between landholders and operators is in the best interest of all stakeholders (Buckley *et al.*, 2003). While information offering ways to minimise negative effects and enhance positive effects from tourism based on nature is growing, there is a lack of comprehensive studies on the

overall balance of such tourism's impacts, and there is considerably less research on positive effects than on negative effects (Green & Higginbottom, 2000). Furthermore, Buckley and King (2003) claim that quantitative relationships between tourism impacts on ecosystems are unknown when impacts are diffuse, indirect and intermittent as they are much more difficult to measure than localised, direct, lasting impacts (such as trampling).

One method of information exchange is Green's (2005) database for operators and other nature interpreters to gather as much information as possible regarding effects, recording details of species involved, dates of observation, the effect seen or result of an attempted method of minimising an effect and the effect category (e.g. disturbance of animal at nest). Knowing specific effects can help operators avoid certain impacts (such as crocodiles and alligators deserting their nests if tour boats come too close, therefore exposing their eggs to predators), which will help understand and reduce overall impacts of tourism.

Fortunately many ecotourism operators *are* aware of the dilemma of keeping the tourist satisfied while not damaging the environment on which they rely (e.g. Green, 2005; Harris & Leiper, 1995; D. MacKenzie¹⁷, pers. comm., 2004; Preece, 1995; S. Steiner¹⁸, pers. comm., 2006; Thompson, 2005) if they want to stay in business in the long-term. As Green (2005) states, if giving people satisfying wildlife experiences always endangered wildlife and their habitats, she would simply not be running ecotours. Ziffer (1989) quotes the World Resources Institute's recognition of tourism to the protection of numerous areas throughout the world, most of which can attribute their survival to the revenue they earn from ecotourism.

Economic influence must not be overlooked as the ecotourism industry contributes to both economic impact and economic value for a community, and it can create jobs in remote areas that have historically benefited less from economic development programs than more populous areas. While the number of jobs may be low in some cases, they may make a big difference to a regional community with few employment alternatives (Lindberg, 1996). Nyaupane *et al.*'s (2006) findings revealed that ecotourism can help improve living conditions of local residents, including for the improvement of schools, sanitation and alternative energy infrastructure. In some instances ecotourism also provides significant financial input into conservation, in the majority of instances producing practical contributions to conservation that lead to probable (small) net positive effects on ecological

¹⁷ Mr Duncan MacKenzie, Chairman, Birds Australia Gluepot Reserve & Deputy Chairman, Ecotourism Australia Board.

¹⁸ Mr Stony Steiner, Manager, Warraweena Conservation Park.

recovery (Higginbottom *et al.*, 2001). The economic impacts may also increase political support for conservation, consequently having bearing on additional allocation of land in conservation reserves, leading to benefits to society such as encouraging people to recognise natural values of land (Lindberg, 1996; van Oosterzee, 2000).

Analysis of ecotourism's economic impact in detail allows policy makers to determine priorities for development and examine the viability of ecotourism for a specific region. Brohman (1996) cautions that if the local community is not involved in this development process, they are often excluded from participating in the economic benefits of growth, and stresses that the well-being of the majority (i.e. the local community) must be of primary concern.

5.5.1 Positive Examples of Ecotourism

In September 2005 the Australian Government awarded more than \$920 000 to fifteen projects around Australia to develop tourism and conservation partnerships (Department of Industry, Tourism and Resource, 2005). The initiative, part of the Australian Government's \$235 million 2003 *Tourism White Paper*, was known as the Tourism and Conservation Partnerships initiative, supporting endeavours to develop business feasibility studies for significant new tourism operations that directly encourage conservation. The funding suggested an acknowledgement that tourism and conservation partnerships could provide positive environmental outcomes, as well as generate opportunities for economic growth and new employment, especially in regional and rural Australia. The primary goal was to preserve and build upon Australia's image as a clean, green and unique tourism destination.

Positive partnerships between the public and private sectors are increasingly being seen in ecotourism. Pumalin Park in Chile was established to promote conservation and environmental education, protecting some 300 000 hectares of highly threatened austral forest habitat. Persevering over numerous political hurdles, the park's creation has shown the contributions the private sector can make to preserving ecological diversity and opening private areas to public access (Palma *et al.*, 2002). There has also been success with national parks in Panama and Columbia offering 'adopt-a-hectare' programs for tourists to help protect parks (Drumm & Moore, 2005). As Higginbottom *et al.* (2001) maintain, the costs in terms of direct impacts on the natural environment resulting from well-managed tourism are at least partially offset, and even outweighed, by the incentive that it creates for retention and acquisition of such areas.

Tourism and recreation presence in the Wet Tropics World Heritage Area (WTWHA) is acknowledged to bring many benefits (Driml, 1991; Simmons & Harris, 1995; McDonald & Lane, 2000). One example is the donation Green Island Resort gives to the World Wildlife Fund (WWF) whereby tourists are presented with a \$10 donation certificate, which may either be donated directly to the WWF in their name, or used as a discount for personal yearly membership to the WWF (Harris & Leiper, 1995:104). The Daintree rainforest faced its final retreat in the 1980s from the clearing of all but 8000 square kilometres of small fragments, of which governments planned to split tenure across forestry, defence, housing development and small national parks. After many campaigns to protect the rainforest, the success of ecotourism and nature-based tourism in the Daintree contributes approximately \$400 million annually to the Queensland economy, and the amount required to save it forever is just one year's GST on this amount (Marr, 2001).

While the growth of tourism did place increased pressure on its biological systems, a zoning system was introduced to ensure appropriate use. The popularity of the region and its capacity to enrich the lives of its visitors¹⁹ is credited with being a significant factor in the desire to preserve its ecosystems (Simmons & Harris, 1995). The operators within the WTWHA provide visitors with an opportunity to both enjoy and learn about the significant natural environment through interpretation. Their expenditure contributes to the annual economic benefit of tourism in the region, with an environmental management levy in place for every visiting tourist. The economic benefits derived from these products are now approximately 10 times the amount previously created from logging (McDonald & Lane, 2000). Just before logging was banned in 1986, the gross value of timber sales was about \$26 million, equivalent to about \$34 million in 1994 dollars (Wet Tropics of Queensland, 2002). In contrast, tourism in the mid-nineties received gross expenditure of \$443 million (Prideaux & Falco-Mammone, 2007:6). Therefore, the tourism growth more than offset the economic impacts of the cessation of logging, and even suggests tourism may provide an economic alternative to other forms of forestry and agriculture.

Tourism is also credited by some with saving the sea lions at Seal Bay, Kangaroo Island. Almost wiped out by one group of humans (hunters) between 1803 and 1836, they then began to gain attention from another group of humans (tourists) in the 1900s, who have since ensured their survival (Harris & Leiper, 1995). The current ecotourism management approach (since

¹⁹ The learning opportunities that tourism provides not only help raise awareness of the environment, but there is evidence it actually enhances the visitor's experience (Armstrong & Weiler, 2002), resulting in a more enjoyable tourism product.

1987) whereby visitors use a boardwalk to view sea lions amongst sand dunes is thought to cause very minimal impacts due to the apparent normal behaviours of the animals and the successful recommencement of pupping on the beach (DEH, 2005c). Figures show that the sea lion breeding colony has been increasing steadily in recent years from about 40 000 in 1988 to about 110 000 in 1996 (Ecos, 1988:7). This is largely attributed to appropriate tourist management. Prior to visitor control, the majority of pups were born on rocks beyond a headland and away from tourists, but recently more are being born on the beach adjacent to tourist viewing areas. In 1997 about 30 were born on the beach, compared to only one in 1988, the year after tourist control measures were introduced (Ecos, 1998:7).

Ecotourism is also credited with conserving orangutan populations in Indonesia as it has provided a self-financing mechanism for their conservation (Drewry, 1997). Through proper management the ecotourism venture covers the costs of conservation. This is a great success considering the potential income from logging to help repay the nation's debt is so alluring to many politicians.

International conservation organisations commonly view ecotourism as one of a variety of 'enterprise-based approaches to conservation' (Honey, 1999:76). Organisations such as the WWF, World Conservation Union, The Nature Conservancy and Conservation International hail ecotourism with 'giving nature value' (Pleumarom, 1994:144) and helping achieve sustainable development. They receive millions of dollars in funding to implement ecotourism programs, projects and studies aimed at protecting threatened ecosystems and conserving biodiversity. Small conservation fees have been introduced (such as adding fees to airport departure taxes) to help community-based ecotourism ventures and biodiversity programs in several countries. Conservation Volunteers Australia and the Earthwatch Institute are examples of organisations that use ecotourism to help protect the environment, by offering programs revolving around the involvement of volunteers. The Earthwatch Institute sees over 4000 volunteers per year cover over 10 million hours of fieldwork, research and conservation projects (Earthwatch Institute, 2006). Theberge and Dearden (2006) acknowledge that ecotourism operations can be beneficial for long-term, broad geographical studies, but they also caution that there are limitations with using such operations as non-specialist volunteers for data collection. Yet numerous case studies throughout the literature suggest there is indeed significant potential for them to provide considerable conservation benefits (e.g. Foggin & Munster, 2000; Green & Higginbottom, 2000; Harris & Leiper, 1995; Higginbottom, Tribe & Booth, 2003).

A small-scale example of a successful ecotourism operation with a focus on research and sustainable development is the Cape Ottway Centre for Conservation Ecology, a private business striving to increase environmental awareness, comparable to a combined national park visitor centre and bed and breakfast provider. Management's goal is to make a positive contribution to conservation awareness; from the reactions of their guests it appears that they do (Owner/Operator L. Corke, pers. comm., 2005). The centre was awarded the Colac 2004 'Going Greener Award', the 2004 Victorian Tourism Award in the category of 'Best New Tourism Development', and a Banksia Environmental Award (the Prime Minister's Environmentalist of the Year for 2005).

Tasmania offers a positive example of adjustments made to reduce degradation whilst hiking the Overland Track. Before 2004 hikers were able to freely use the walking trail, but there were not enough camp sites at all rest stops. Vegetation was increasingly being damaged as flattened ground suitable for pitching tents spread progressively further. The high visitor usage also led to subsidiary tracks being formed, or widening of the existing track and further vegetation loss. Managers decided protecting the environment needed to be a higher priority than allowing unlimited tourists access to the track, so a booking system was introduced in 2004. This restricted usage to a specified number of hikers beginning the trail per day, and only walking the trail from north to south (the narrow track makes it difficult to pass people walking the opposite direction). This enabled both environmental considerations and an improved visitor experience to be addressed (Ecotourism Australia, 2005).

Another Tasmanian example relates to the roads and car parks at Cradle Mountain National Park (a similar situation to that previously experienced at the Grand Canyon). Until recently, visitors were able to drive their vehicles freely on the roads and park along the edges of roads if car parks were full. In peak season, numerous cars would be parked along narrow roads, causing much congestion. The overcrowding deterred from the serenity and space that a national park has to offer, and the constant parking on roadside vegetation (and consequent widening of the road) did not conform to management goals.

The solution was to limit the number of cars travelling on the road. A free shuttle bus service was introduced, where visitors were encouraged to park their vehicles on the outskirts of the park, and use the bus as a hop-on, hop-off service. Visitors were no longer allowed to park on the side of the road if a car park was full. This dramatically reduced the number of private vehicles in the park and visitors could also feel they were helping protect the park by not

driving in it. Arriving at a remote World Heritage Site only to be confronted by numerous cars would undoubtedly take something away from the experience (as is the case at Cape Tribulation where visitors must pass through a large, crowded car park before reaching the coastline). Management of tourism and conservation cannot therefore be easily separated.

5.5.2 Negative Examples of Ecotourism

Ecotourism is sometimes used as a marketing tool to promote any type of tourism that is related to nature. This is partly because the concept of ecotourism is widely misunderstood, and partly because by adding the three letters 'eco' in front of 'tourism', it suggests a certain level of responsibility hinting at efforts to ensure minimal environmental impact. Some accreditation programs are largely self-assessed with little proof of environmental-friendliness required. Additionally, the element of sustainable transportation is often forgotten, and environmental impact calculations do not always factor in air travel to (often remote) ecotourism destinations, which alone could be enough to override any environmental benefits the tourist may have generated by using the ecotourism operator (W. Strasdas²⁰, pers. comm., 2005). Atmosfair (2007) estimates that an aeroplane journey from Adelaide to Uluru creates a climate impact of 780kg of carbon dioxide, almost as much as the 900kg an average Indian person would create in one year, or half as much as a medium car would create in a year. Critics also argue that some ecotourism destinations are very sensitive to human use (e.g. Antarctica, bird breeding colonies) and even careful ecotourists may damage them. Duffy (2002) claims ecotourism is intrusive and erodes societies and ecologies, and writes to the effect that the only way to be a true ecotourist is to stay at home and prevent the original intentions of small scale, less environmentally-damaging operations from becoming lost.

In Nepal the number of trekking permits issued yearly rose from eight in 1966 to 61 000 in 1988 and over 250 000 in 1996 (Ceballos- Lascurain, 1996). While tourism development in mountain regions is reported to bring economic growth to host communities (Nyaupane *et al.*, 2006), the harvest of firewood to sell to trekkers and lodge owners means the local tree line in Annapurna's nature sanctuary has risen several hundred feet (Ceballos- Lascurain, 1996) and Nepal's forest area is decreasing at an average rate of three percent per year. For every one hectare of forest that is cleared, 30 to 75 tonnes of soil are lost annually (Sitaula *et al.*, 2005:438). Litter is also a huge problem with many tin cans left behind, and the exclusive

²⁰ Professor Wolfgang Strasdas (director of the Sustainable Tourism Management Programme at the University of Applied Sciences at Eberswalde, Germany), as a keynote speaker at Ecotourism Australia's 2005 National Conference.

contribution from westerners in the form of used toilet paper (Mowforth & Munt, 1998). Honey (1999:54) also lists the loss of cultural integrity as a negative impact resulting from the 255 percent increase in trekker numbers between 1980 and 1991. However, ecotourism has played an important role in the region's economy providing jobs to the local people and increasing economic activities, with locals employed as guides, porters and cooks, and over 1000 locally owned lodges/tea shops are spread throughout the area (Nyaupane *et al.*, 2006).

In an Ugandan example, Obua and Harding (1997) concluded that in the four short years since trails were established in the Kibale Forest Reserve, visitation increased from 1300 to 5000, and although this is still relatively low for a 560 kilometre-square park, more than three-quarters of the campsites were assessed as suffering some form of environmental degradation and up to 30 percent of the trails were already eroding (in Drumm & Moore, 2005:38). In a South American case study, Honey (1999) proclaimed that tourists to the Galapagos Islands brought new animal and insect species that are permanently altering and threatening to destroy the island's unique and delicate ecosystem. In Belize, Duffy (2002) argued that not only has ecotourism led to significant pressures on coral reefs, Mayan sites and rainforest areas, but locals are forced to compete with internationally-funded ecotourism operations (who do not employ any Belizeans).

Four-wheel driving and other off-road driving in Outback Australia can have adverse environmental effects on soils, vegetation, fauna and air. The soil compaction arising from such driving decreases infiltration rates while causing erosion near the surface. Four-wheel drives also cause a significant reduction in plant cover and diversity, and may spread weeds and pathogens, as seen at various sites of Operation Bounceback (NPWSA, 2001a). They can disturb fauna in several ways including collisions, noise, disruption of range and feeding patterns, social activities and habitat damage (numerous studies as referenced in Buckley & King, 2003; Lindsey *et al.*, 2005).

According to Dick Braithwaite, Professor of Sustainable Tourism at Southern Cross University, Australia's tourist industry 'pays lip service to sustainability and fails to grasp meaning' (Carson, 2001:40). Kakadu National Park, a World Heritage Site, is a place of immense ecological and cultural significance. Despite a thriving ecotourism industry and the consequent employment, income and awareness, the local Indigenous Australians do not generally have a favourable perception of tourism in Kakadu. They no longer hold a distinction between the effects of mining and ecotourism, but say that while mining will

ultimately end, tourism will continue, never ceasing to cause environmental degradation (Fennell, 1999). Toyne and Johnson (1991) also write about significant conflicts over park management authority and the impacts of tourism on Aboriginal cultures and sacred places. Richardson's (1993) directory of over 200 ecotourism operators shows that while many operators provide benefits to local regions and many include environmental education to tourists, a large proportion do not combine both of these elements to a large degree, and many operators only hold one or two stars (maximum seven). Additionally, many operators were of the opinion paying national park entrance fees sufficiently offered a conservation contribution from their business, conversely regarded by Richardson (1993) as a necessary operating expense, not a contribution.

5.6 Stakeholder Relationships in Ecotourism

Traditionally when examining the relationship between local communities and tourists, Smith's (1977) *Hosts and Guests* has been commonly referred to. Conventionally analysed through a visitor-host relationship, the ultimate aim is for it to be mutually beneficial (both economically and socially) (e.g. Lea, 1988; Ryan, 2003). The tourist and the host are in diametrically opposite positions as one is at leisure and the other at work. Their relationships are often transitory and the visitors and hosts often know little about each other. The visitor is drawn by the unusual and they seek to escape from the minutiae of everyday reality. Local community members are likely to have contact with the visitors, are potential employees of the industry, and their tolerance of tourism is a function of the returns and compensations that it creates. For successful ecotourism operations the relationships between all stakeholders involved are therefore important (e.g. Honey, 1999; Kamsma & Bras, 2000; King *et al.* 2000; Nelson *et al.*, 1999; Nyaupane *et al.*, 2006), and the involvement of local community members is widely acknowledged as crucial to any industry's survival. High rates of non-local ownership of tourism operations contribute to a loss of control over local resources and consequently reduce effectiveness (Brohman, 1996), and it 'should not be forced down the throats of community residents by outside interests' (Woodley, 1999:298). SATC (2001a) stressed that all regional tourism must engage in partnerships between state and local governments and the private sector for best results. Environmental advocate Penelope Figgis said in her address to the 2004 Ecotourism Australia National Conference 'We need a partnership with tourism and conservation to help this glorious planet' (Figgis, 2004).

At a community level, governments must work in partnership with private sector operators and cooperate with regional bodies not only for continued growth, but to ensure tourism is economically, environmentally and culturally sustainable. To avoid stakeholder conflict, which may result in a deteriorating tourism experience and associated decline in visitation, complete community support for tourism is needed (Cooke, 1982 in Woodley, 1999). Socio-cultural issues have an important role to play in the planning process of all tourism development (King *et al.*, 2000), and if local residents participate in its planning and management it is more likely to be economically and environmentally sustainable. Nyaupane *et al.* (2006) claim that local residents will benefit more when tourism development is in their own hands not those of the government, because when locals have more input they gain more of the benefits. Woodley (1999:298) stated:

If residents are going to endure the negative impacts that tourism brings, they should be given every opportunity to benefit from the positive impacts [through partnerships with operators], which are generally economic.

Nyaupane *et al.*'s (2006) findings suggested the level of community involvement in tourism management proportionally influenced a destination's impacts, including the degree of economic leakage, local control, and socio-economic inequity, all important factors in ecotourism operations. The local community of Kempsey in New South Wales transformed a rubbish tip into an ecotourism destination offering Aboriginal guided tours. Not only did the community project generate part-time work for local people, it created educational pathways and set up successful partnerships and long-term commitments amongst stakeholders. Several unique habitats and environments were restored including dry forest, wetlands, heath land, tropical and sub tropical environments, and an urban wildlife habitat was created. The broader community welcomed the project as it successfully incorporated the desires of all stakeholders, and previous negativity between stakeholder groups was lessened through as a result of the partnerships (Department of Environment & Conservation (NSW), 2004a).

In an attempt to find a balance between conservation needs and access for tourism and recreation, the Western Australian government released a draft 10-year management plan for the D'Entrecasteaux and Shannon national parks in 2005. In response, more than 1200 submissions were lodged from a range of stakeholders. The criticism given primarily referred to unfair restrictions to beach access, limited recreational trout and marron fishing, and the cessation of powerboat use on Lake Jasper (Lewis, 2005a). It should be recognised that the consequences of an unhappy public may lead to reduced park visitation, potentially leading to reduced funding that subsequently may affect conservation outcomes.

Nature-based tourism managers and national park managers need to work in partnership to find common goals to achieve desirable outcomes in their respective fields (Table 5.1). While the tourism manager requires access to national parks and other protected areas, the park manager has a responsibility to conserve the natural resources in these areas. A tourism manager also needs tenure and operational flexibility in order to develop and deliver quality, sustainable tourism products and services. A park manager wants visitors to enjoy the park, but inadequate resources often mean visitor services are given lower priority than conservation. While it appears the two managers have different agendas, there is a common goal leading to better outcomes for tourism and parks. The nature-based tourism operator has a business interest in protecting the areas upon which their livelihoods depend (which should also be a moral interest to them). The park manager has a business interest in pursuing partnerships which may lead to increased revenue or in-kind contributions or to shift some management burden to the private sector to alleviate budget pressures (Commonwealth of Australia, 2003). Partnerships such as these, which may be started by public agencies and engage professionals and local residents in an effort to set direction for a shared resource, are also practical as they offer genuine participation and the opportunity for full stakeholder consultation (Innes & Booher, 1999).

Table 5.1: Gains that can be achieved from partnerships between tourism operators and national parks managers

<p>NOTE: This table is included on page 85 of the print copy of the thesis held in the University of Adelaide Library.</p>
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Some ecotourism operations appear to be very successful yet when looked at closely, have not sufficiently complied with the principles of benefiting local communities (such as through supporting local communities or consulting with stakeholders), which are crucial for genuine ecotourism (e.g. Duffy, 2002; Fennell, 1999; Hvenegaard, 1994; Tourism Concern, 1992). The Maho Bay Camps in the Virgin Islands for example have been criticised for not following all ecotourism principles, despite winning awards including the British Airways Tourism for Tomorrow Award, the *Conde Nast Traveler* Ecotourism Award (1995), the ASTA/*Smithsonian Magazine* Environmental Award (1997), an environmental technology award from *Popular Science* and a Certificate of Appreciation with the President's Council on Sustainable Development. Yet they do not readily employ locals (despite locals seeking tourism employment on the Island), and for those who do gain employment, pay is less than at other hotels, tipping is not allowed, and staff are required to live on-site in tents. This one-sidedness led experts to conclude the operation is simply a 'green lodge not real ecotourism' (Reichert, in Honey, 1999:63)

Various tourism management models have now been developed to assist visitor-host relationships such as the Tourism Impact Model for Australian Local Government (for assessing the costs and benefits to the local community) and Edwards, Fernandes and Matos' (2003) RAINBOW Sustainable Tourism Development Model that promotes cooperation between local community agents as well as external supporting actors. On Kangaroo Island, tourism operations follow a model known as the Tourism Optimisation Management Model (TOMM). All stakeholders, from tourism marketing committees, operators, local government and state government bodies combine to try to achieve mutual goals, and according to these stakeholders, the model is proving to be beneficial and worthwhile (Hocking, 2003; Jack, 2000). TOMM (2003) stresses that community consultation is necessary in tourism's implementation, not only between operators and governments, as successful tourism management must be responsive to the changing requirements of the industry partners, the wider community, tourists and the environment.

Relationships are also important between the ecotourism industry and the public through marketing to ensure correct messages are being sent. Preece (1995) claims that consumers have made complaints to tourism commissions and other industry bodies regarding the confusion over the meaning of ecotourism when their expectations for ecotourism products have not been met as a result of inappropriate marketing and communications. Much of what is marketed as ecotourism is only soft ecotourism, or as Honey (1999) refers to it, ecotourism

lite, offering nature-based activities and minor environmental reforms. At the core of a commitment to ecotourism or sustainable tourism is the participation of an array of people, groups and agencies working interactively and adaptively to ensure compatibility, including positive relationships with the visitors to a region.

5.7 Recent Issues

Recent literature in the field is turning to a focus on the relationship between climate change and tourism, as well as a focus on ecotourism's true eco-efficiency levels (e.g. Becken & Patterson, 2006; Patterson, Bastianoni & Simpson, 2006; Viner, 2006). Viner (2006) pointed out that there was only a small amount of research examining the impacts of climate change on tourism and that studies by climate scientists have shown it is not only the magnitude of these changes that are increasingly unprecedented, but also the rate of change, reflecting on the importance of the relationships between tourism activities and anthropogenic climate change. Hunter and Shaw (2006) used an ecological footprint (EF) analysis to estimate the potential net EF of hypothetical international ecotourism scenarios involving air travel. Conservative resource use was assumed to be used at each destination, but net EF value estimates ranged from 0.02 to 4.26 global hectares for 14-day ecotourism holidays (Hunter & Shaw, 2006:294). It was only in the 21-day scenarios that negative net EF values were estimated, with the most noticeable component being air travel, supporting concerns regarding environmental impacts of long-haul flights to ecotourism destinations. It was also concluded that the EF of ecotourism holidays was likely to be considerably less than that of mass tourism.

Patterson *et al.* (2006) compared climate's influence on tourism with tourism's influence on climate, both of which were subsequently interpreted as primary limitations to the sustainability of tourism. It was argued that the global population driving the demand for tourism resources (threatened by climate change) is disproportionately responsible for increased radiant forcing. Becken and Patterson (2006) focused on an assessment of the tourism sector within the wider economy, with the purpose of comparing tourism's eco-efficiency with other sectors, such as through the notion of carbon charges. Most tourism activities require energy either in the form of fossil fuels or of electricity (often generated from petroleum, coal or gas), and its consumption consequently leads to the emission of greenhouse gases, mainly carbon dioxide. Becken and Patterson (2006) therefore stressed the importance of assessing tourism's carbon dioxide emission levels to enable the development of industry-based greenhouse gas reduction strategies.

Curtin (2005) addressed the complex relationships between humans and the environment, highlighting the impact urbanisation had on human psychological and physical relationships with nature, the ethnocentric and anthropomorphic attraction of animals, and the human desire to interpret animal behaviour. Understanding authenticity of tourism was seen as necessary to further explore the experiences of ecotourists. Cater (2006) also addressed the human-environment relationship, exploring how if there was no single nature, only 'natures', then nature tourism and ecotourism inevitably differ amongst societies, hence questioning the ability (and the need) to have one universally-used definition for ecotourism. If this is not acknowledged, Cater (2006) suggested ecotourism may be less successful in reaching its goals.

While ecotourism may mean different things to different people as proposed by Cater (2006), ecotourism must be subject to more rigid criteria of sustainability than mass tourism or variants such as nature-based or adventure tourism. It is increasingly distinct from nature-based tourism due to the fact nature-based tourism focuses on what the tourist does, while ecotourism focuses on the impact the tourist causes (Medina, 2005). This research adheres to the commonly accepted prerequisite that ecotourism must be more environmentally sustainable than typical mass tourism and it must benefit local communities, a principle with both ethical and pragmatic roots. Conservation is complex and involves more than simply preserving vast tracts of land as time, money and vision is needed. Tourists are drawn to an area often for its unspoilt beauty, so it is therefore in the tourism operator's interest to help maintain the region as this will preserve their primary asset. The growth of ecotourism has led to greater private sector investment associated with natural and protected areas. Although national parks, recreation reserves, and other protected areas have long been considered to be the responsibility of the public sector (of government), limitations with this approach (e.g. funding) have become evident particularly as public demand greatens. Given all these demands, the private sector now also has a role in the protection of the environment. As Figgis (1996:57) suggested one decade ago, ecotourism 'may act as an incentive for private land owners to conserve their lands'.

5.8 Conclusion

This chapter has reviewed the tourism literature relevant to this study. Ecotourism is a fast growing sector of a very large industry and is a major aspect of Australia's tourism operations, with high proportions of both domestic and international tourists participating in ecotourism

activities. It is obviously not *guaranteed* to be ecologically sensitive or sustainable, so it cannot be seen as the solution to all of tourism's ills, and indeed visitors may destroy the very resources they come to see if constraints are not set out clearly, but it does have the potential to help the environment where other industries may not. Well-managed ecotourism operations would generally agree that healthy environments have substantial economic benefits for local communities therefore they know it is in their best interests not to destroy or degrade them. The General Manager of Parks and Wildlife Service Tasmania put it plainly:

Good tourism is good conservation and good conservation is good tourism.

P. Mooney, pers. comm., 2005

The best outcomes for a community will be achieved when there is sound planning involving all aspects of social, cultural, economic and environmental factors (e.g. King *et al.* 2000; Nelson *et al.*, 1999; SATC, 2001a) because there are many complexities in involving local communities in ecotourism and conservation projects (e.g. Curtin, 2005; Honey, 1999; Nyaupane *et al.*, 2006). There are still flaws in the ecotourism ideology, but this chapter has shown that many of ecotourism's attributes have the ability to make it a valuable tool for conservation, such as the direct income it can generate for conservation, educational opportunities for the public, the economic value it places on ecosystems and subsequent incentives it creates for conservation in local communities. Being a relatively new sector, ecotourism's full potential may not yet be fully realised.

Section III: The Case Study

This section provides a case study of the Flinders Ranges of South Australia. The natural history of the region is described along with the primary land use activities undertaken and their related environmental impacts. The results of the study are then presented in two chapters, firstly with the results of the visitor opinion and awareness surveys, and secondly with the results of the tourism operator and landholder interviews.

6.0 THE FLINDERS RANGES

6.1 Introduction

The site for this case study research is the Flinders Ranges of South Australia. The following chapter introduces the reader to the region in terms of natural history, tourism activity and other topics relevant to the study.

6.2 Description of the Flinders Ranges

The Flinders Ranges (Figure 3.1), once the size of the Himalayas (Moon & Moon, 2000), today extend north from the Mount Lofty Ranges and stretch along the eastern shores of the Gulf of St. Vincent and Spencer Gulf. Rising in the south 250 kilometres north of Adelaide between Crystal Brook and Peterborough, they continue north for over 500 kilometres to Mount Babbage. Straddled by Lake Torrens and Lake Frome, the ranges are, for the most part, in a semi-arid zone with rainfall from 400mm in the south to 200mm in the north. Much of the Flinders Ranges is used for grazing stock, either as private property or pastoral lease, and tourism plays an important role with the region being a popular Outback destination (Barker *et al.*, 1995).

The Flinders Ranges are made up of several national and conservation parks and are divided into three sections; the southern, central and northern ranges. A total of eight percent of the Flinders Ranges are protected in these national and conservation parks (DEH, 2005a). The first evidence of multicellular animals on the planet, known as the Ediacaran Fauna, is found in fossils from the Rawnsley Quartzite west of Beltana. Discovered in 1946 by Dr Reg Sprigg, they are impressions of soft-bodied organisms that lived on the sea floor, preserved as hardened sand (now rock) and many resemble worms, starfish, anemones and jellyfish (Barker *et al.*, 1995).

The wide variety of landforms, rocks, soils and hydrological features that comprise the Flinders Ranges have been of great significance to South Australia's wildlife. From an evolutionary perspective, the Ranges have been a place of refuge where plants and animals could survive past climate changes including periods of aridity, particularly over the last 50 000 years. During wetter times, many species could expand out again from their refuge areas (Barker *et al.*, 1995)

due to the orographic effect combined with basin runoff. While the Flinders Ranges and their surrounding alluvial plains occupy only about four percent of the State's surface area, they support 45 percent of its indigenous flora (Table 6.1). Samphire, mallee and savannah plant formations are commonly seen, and while the peaks of the ranges boast Spinifex Grasses (*Triodia* species), the valleys are spotted with Eucalypts (*Eucalyptus* species), Sheoak (*Allocasuarina* species) and Native Pine (*Callitris columellaris*). River Red Gums (*Eucalyptus camaldulensis*) are restricted to the rocky creek beds where they tap water deep below the sand.

Table 6.1: Biological diversity in the Flinders Ranges

Species Group	Flinders Ranges	South Australia
Birds	200 (+)	398
Mammals	59*	107
Reptiles	88	210
Frogs	9	26
Native Flora	1416	3109

* Figure includes all those species known to have existed at the time of European settlement, many of which are now locally extinct. Today there are only 26 of the 59 species.

Sources: Barker *et al.*, 1995; Brandle, 2001; Hutchinson & Tyler, 1996

The wildlife of the Flinders Ranges is abundant in mammals, birds, reptiles, frogs and insects, with a high degree of species richness within each group. Throughout the open woodland and on the surrounding plains, Red Kangaroos (*Macropus rufus*) and Western Grey Kangaroos (*Macropus fuliginosus*) prevail. The Yellow-footed Rock Wallaby (*Petrogale xanthopus*) and the Euro (*Macropus robustus*) are more likely to be seen on the rocky slopes. The Short-beaked Echidna (*Tachyglossus aculeatus*) is widespread and four species of dasyurids survive, including the Fat-tailed Dunnart (*Sminthopsis crassicaudata*). While Possums (*Trichosurus* species) are declining and Bandicoots (*Isoodon*, *Perameles* and *Macrotis* species) are locally extinct, reintroduction programs are underway. There are several native rodents including the Water-rat (*Rattus chrysogaster*), Long-haired Rat (*Rattus villosissimus*) and three small species of mice. Nine species of bats are also present (Smith, 1996).

Birds abound, with more than 200 species recorded in the region, including Wedge-tailed Eagles (*Aquila audax*) gliding aloft on thermals, groups of Emus (*Dromaius novaehollandiae*) wandering the plains, and numerous smaller common birds (e.g. robins, whistlers, babbler, fairy wrens, magpies and finches) hiding in the shrublands and woodlands. The River Red Gums and watercourses support yet more birds such as doves, corellas, pigeons, parrots,

honeyeaters, kingfishes and kookaburras, and often nesting on cliff ledges are falcons including the Black (*Falco subniger*), Peregrine (*Falco peregrinus*) and Australian Hobby (*Falco longipennis*). Some raptors of rare status (such as the Black-breasted Buzzard, *Hamirostra melanosternon*) have also been seen (Reid, Carpenter & Pedler, 1996). Although European Starlings (*Sturnus vulgaris*) and House Sparrows (*Passer domesticus*) are common feral birds in the region (NPWSA, 1999), the abovementioned range of species demonstrates the Ranges have important conservation value due to the high species diversity they support.

There is a diverse and abundant range of lizards in the Flinders Ranges. Agamids or dragon lizards are widespread, and geckos and skinks also common. All three snake families of Australia are found along with nine species of frog (Hutchinson & Tyler, 1996). Contributing most to the animal biomass in the Flinders Ranges are the invertebrates, but the insect fauna is poorly documented with the exception of some ants and butterflies (Austin *et al.*, 1996). The information does however indicate it is typical of much of arid and semi-arid Australia, with a significant transition zone between the higher rainfall area of the southern Flinders Ranges and the much drier region from Wilpena heading north (Austin *et al.*, 1996).

Wilpena Pound, a large rock-rimmed amphitheatre that gently slopes towards the centre, dominates the central part of the ranges. It has steep outer walls that become high cliff peaks. The highest point in the range is St. Mary's Peak, rising to 1165 metres. With descriptions such as a photographer's paradise, an artist's mecca, and a sheer pleasure for nature lovers to experience, the Flinders Ranges are certainly not to be ignored as a tourist destination. There are also at least eight known karst-featured cave sites throughout the Ranges, primarily dry formations ranging from simple rock shelters to extensive limestone caverns (NPWSA, 1999).

Lampert and Hughes (1980) surveyed Aboriginal sites in the Flinders Ranges locating considerable evidence of ancient occupation in several environmental associations. Consequent archaeological research (Lampert & Hughes, 1987) showed that Aboriginal occupation in the Hawker Lagoon region began between 8000 and 15 000 years ago when climatic conditions were vastly different than today and the fresh waters of the lagoon were more permanent and at higher levels (Lampert & Hughes, 1987). Arkaroo Rock in Flinders Ranges National Park shows evidence of later occupation, beginning about 6000 years ago, typified by infrequent, low level use of the Rock for shelter. A second occupational phase, beginning about 4700 years ago, suggests heavy use of trimmed stone tools and campfires, and shows a large build-up of kitchen refuse around the site.

The Aboriginal people of the Flinders Ranges originally included individuals having genealogical connection with several formerly distinct but socially related groups including Adnyamathanha, Wailpi, Kuyani, Jaldiaura, Piladappa and Pankgala people who together relate to an area stretching from Port Augusta to Marree in the mid-north of South Australia. Today, the collective name Adnyamathanha is used, with the meaning 'hill's people' (Barker *et al.*, 1995; Tindale, 1974) or 'rock people' (Jones & McEntee, 1996).

At the time of pastoral settlement, accurate census figures of the Aboriginal population of the Flinders Ranges were not compiled, however, Black (1966) estimated there were 500 to 700 Aboriginal people associated with the Flinders Ranges in the 1950s and 1960s, and Mincham (1996) suggested there were at least 400 associated in the 1990s. Mincham (1996) attributed competition for favoured water supplies during drought between Aboriginal people and stock as a factor in population loss (attributed to the influx of European settlers during the 1850s), but Moon and Moon (2000) report that today there are 1000 people who identify themselves as Adnyamathanha. Dislocation from traditional dependence upon the land and economic pressure to join the pastoral movement led to noticeable changes in the demographic character of Aboriginal residential patterns. Despite this, cultural pride and an emotional link through spiritual expressions with the land remain unbroken. Evidence of this abounds through the telling of stories and recounting of mythical beings of the Dreaming, a vital and active part of young Adnyamathanha people's education. Community elders encourage the teaching and use of the language *yarta wandatha*.

Many different aspects of the Flinders Ranges contribute to the totemic relationships between the Adnyamathanha people and the land. Wilpena Pound is the central focus of a series of Dreaming stories that deal with the creation of the distinctive features of the Ranges. As older community members passed on however, certain stories, secrets and ceremonies became lost. Many Aboriginal people became Christians in response to the influence of missionaries and key aspects of ceremonial life were largely abandoned in the late 1930s (Jones & McEntee, 1996). The last full initiation ceremony took place in the late 1940s, and with its cessation came a fall in the flow of traditional knowledge between generations (Tindale, 1974).

The first European to explore the ranges was Matthew Flinders, during his circumnavigation of Australia in 1801 to 1803. When sailing up Spencer Gulf in 1802, he sighted the southern region of the ranges. Edward John Eyre further explored the Flinders Ranges in the late 1830s and 1840s, travelling north to Lake Frome (although mistakingly believing it joined Lake Torrens,

forming an impassable horseshoe-shaped lake preventing additional travel north²¹ (Mincham, 1996). Conflict inevitably arose with the pastoral settlement in the 1840s and 1850s of Adnyamathanha country²². There was conflict between both competing land uses and the control of the same resources. The stealing of sheep was a common occurrence, and the Flinders Ranges were subjected to cattle, sheep and rabbit grazing pressures. Traditional food items became harder to obtain as plants and animals were restricted in area due to fences erected barring access to lands that were customarily owned by Aboriginals. Numerous deaths and substantial cruel treatment was endured and the Aboriginals waged a guerilla war with all the effectiveness that their superior numbers and intimate knowledge of the land offered (NPWSA, 1999).

The battle fought was not purely a conflict over two groups wanting the same land. The Adnyamathanha people placed sacred significance on many features of the landscape, and due to their intricate relationships with the land, their belief system was affected. The Europeans invaded and greatly interfered with Aboriginal traditions and the consequences brought grave implications for the caretakers of the culture who were forced to adapt to future generations in diminishing numbers (Jones & McEntee, 1996).

Some of the richest mineral and precious stone deposits in Australia are found in parts of the Flinders Ranges (Sprigg, 1996), and miners soon joined the pastoralists in the region. Although the role of mineral exploration fluctuated with market demands, some mines made significant profits while others had signs of plentiful minerals but only small deposits were found (Moon & Moon, 2000). The first mineral discovered and mined in the Flinders Ranges was red ochre in the Parachilna region by local Aboriginal people, and continued by Europeans as late as the 1950s. Copper, silver and lead were the three most important metals mined, and malachite, chalcocite, iron oxide, gossan, asbestos and barite were the main minerals taken from the region. The praise for the northern Flinders Ranges' mineral content and wealth began by the 1860s, pronouncing it 'the most promising mining country in South Australia' and 'one of the greatest mineral countries in the world' (Flinders Ranges Research, 2005). During the droughts of the 1860s, copper production was at its highest in South Australia, representing a record value of \$1.6 million, at a time when many pastoralists lost so many sheep that they left the region forever after being severely affected. By 1900 there were 48 copper mines in the northern Flinders Ranges (e.g. Sliding Rock, Warra Warra and Lorna Doone) and iron was mined in the

²¹ Today Lakes Eyre, Torrens and Frome still appear like major expanses of water (on a map), but in reality they are dry salt pans, only occasionally filling in times of very heavy rain.

²² Indeed from the time Wilpena Pound was first discovered by Europeans it was seen with an eye to pastoralism, capable of securely holding hundreds of stock (Barker *et al.*, 1995).

Middleback Ranges. Successful long-term mining operations have been restricted to Leigh Creek brown coal (supplying the power stations at Port Augusta with over 2 million tones of coal per year), barite and talc (Mincham, 1996). Working mines today include magnesite near Leigh Creek and zinc at Beltana and Aroona, among the highest grade ore bodies in the world (Flinders Ranges Research, 2005).

The European settlers of South Australia headed a new order of social and economic forces and the transformation of the cultural map of the Flinders Ranges. Teams of explorers and surveyors were sent out by the government in search of revenue and natural resources upon which to build and service the new community. The initial reports from Eyre, Frome and Sturt in the late 1840s were optimistic in wealth and climate. However, adapting to the arid, rock-strewn lands was a challenge for farmers. Dense vegetation was cleared to grow feed, fences were constructed, and reliable drinking and stock water was needed. Pastoral life was labour-intensive particularly until the early 1900s when the dog fence was established (Barker *et al.*, 1995). Additionally, new types of farm equipment had to be developed to till the soil and cope with the rocky conditions. The homesteads at Oraparinna, Arkaba, Appealinna, Aroona and Wilpena of the late 1840s and the 1850s are examples of the achievements of pastoral settlement in this remote region of the state, and the ruins of Kanyaka and Farina are examples of the realities.

The reality that the Flinders Ranges was suffering as a result of land-use pressure is evident from any description of the region. The following section explores some of this environmental degradation in further detail.

6.3 Environmental Degradation in the Flinders Ranges

The new social and economic forces also contributed to the degradation of South Australia after being stripped of timber and ploughed in many areas, and from the havoc caused from the introduction of rabbits, goats, and other feral animals. Indeed it only took ten years after the founding of South Australia for pastoralists to reach Mount Remarkable in the southern end of the Ranges. In the 1870s and 1880s, wheat farmers cultivated great amounts of land only to be driven away by poor seasons, disease and famine. In the 1920s and 1930s, Oraparinna Station had 2500 sheep on one water and average stocking rates of 50 sheep per square mile (Davies *et al.*, 1996). The major on-site degradation from decades of overstocking on properties that have been too small on average is clearly visible to any visitor to the region. While severe and extended drought is not uncommon in the region, McKeon *et al.* (2004) concluded after

analysing major episodes of degradation that the most significant causes were the stocking rate and expectation (by both pastoralists and governments) that the land could carry high rates regardless of the climatic variation. Large sections of landscapes have been devastated and only a very small proportion has retained its original characteristics²³ (e.g. Davies *et al.*, 1996; DEH, 2005b). The majority of the remainder is either comprised of large areas of bare ground, or has suffered incursion of unpalatable shrubs (woody weeds).

The Flinders Ranges National Park was declared protected in the early 1970s and sheep were subsequently removed from the land. Originally, it was believed that the native vegetation would begin to regenerate and the soil conditions would improve once the land was de-stocked. However, the combination of the grazing impact from the large number of introduced animals and the effect of the native herbivores living along side them led to widespread degradation, and the recovery of the land was very slow (NPWSA, 1999).

The native species of the Flinders Ranges have consequently suffered from major ecological disturbances for many decades now (NPWSA, 1999). To save the region from continuing disaster is a 'daunting challenge' (Mincham, 1996:13). The first and foremost problem, already being addressed for some ten years now with the help of the Sporting Shooters Association of Australia and Operation Bounceback, is the control of feral animals, particularly with the push to control goat numbers since 1990. Both introduced animals and plants need to be placed under control or, if possible, eliminated from the region as they pose serious threat to the dwindling populations of native species. However, due to the altered ecology of the Flinders Ranges, it is not a simple task. Its complexity means that if, for example, rabbits were simply eliminated, the Wedge-tailed Eagle would consequently lose its primary source of food as its original food sources have already been exterminated (DEH, 2005b).

Foxes (*Vulpes vulpes*) have been widespread since about 1910 (Aitken, 1980 in Smith, 1996) and the Feral Cat (*Felis catus*) since even earlier. In the Flinders Ranges there are also two introduced species of rodent and, as well as rabbits, three other introduced mammals; the Donkey (*Equus asinus*), restricted to the Gammon Ranges, the Brown Hare (*Lepus capensis*) and the Goat (*Capra hircus*). The story of the rabbit and its introduction to Australia is well known, as detailed by Rolls (1969). Twenty-four English rabbits were released in 1859 near

²³ The original characteristics of the Indigenous Australians were also altered, and traditional tribal affiliations and social structures were largely destroyed by pastoral settlement (Jones & McEntee, 1996). Those in the southern Ranges were less able to retain a strong cultural identity than those in the northern Ranges, attributed to the fact Europeans settled the southern region earlier and more intensely than the north (Barker *et al.*, 1995).

Geelong and from these (and other less-publicised introductions) came the millions that spread throughout most of Australia, causing problems as they severely ‘nip back’ vegetation, ringbark trees and devour seedlings (Low, 1999).

The Yellow-footed Rock Wallaby has declined over most of its range since European settlement. It was considered one of the most abundant animals in the Flinders Ranges in the 1850s and 1860s (Copley, 1981 in NPWSA, 1999). Not only has their habitat been degraded by introduced grazing animals, but cats and foxes often take wallabies (especially the young who have newly emerged from the pouch), and originally they were hunted for their pelts. This eventuated in the species becoming legally protected from hunting in 1912 (Davies *et al.*, 1996). Within the Flinders Ranges National Park, where strict goat and fox controls are in effect, there was an estimated 432 Yellow-footed Rock Wallabies in 2000. In the surrounding area, with limited goat and fox controls, the population was estimated at only 106 (NPWSA, 2001a).

Mincham (1996) suggests other species once found in the region and now extinct may include the Great Ghost Bat (*Macroderma gigas*), the Tasmanian Wolf (*Thylacinus cynocephalus*) and the Tasmanian Devil (*Sarcophilus harrisii*). The dasyurid family was previously also represented by the Eastern Quoll (*Dasyurus viverrinus*), Western Quoll (*Dasyurus geoffroii*) and other species larger than the present dunnarts living in the Flinders Ranges (Smith, 1996). Also worthy of concern, a species of introduced Honey Bee has taken over many of the nesting and roosting hollows of certain bats and birds in River Red Gums (Mincham, 1996). In the 140 years proceeding European settlement in the Flinders Ranges, five of nine species of carnivorous marsupials have become locally extinct, as have five of nine wallabies and kangaroos, three of five native mice, four of five hopping mice, both species of stick-nest rats, all three species of bettongs and rat kangaroos, all three species of bandicoots, and the bilby, numbat and dingo (Barker *et al.*, 1995).

Adding further complexity to the ecology, 19 percent of the region’s total flora is now comprised of introduced species. The two most predominant plant species to be introduced are Salvation Jane (*Echium plantagineum*) and Rosy Dock (*Rumex vesicarius*), also known as Wild Hop (*Acetosa vesicarius*), both popular with tourists for the colour they add to the landscape (Mincham, 1996). The altered plant and animal compositions have contributed to the decline of several plant species, with the Balcanoona Wattle (*Acacia araneosa*), Camel Poison (*Codonocarpus pyramidalis*) and Quorn Wattle (*Acacia quornensis*) all now endangered (Barker *et al.*, 1995).

Extensive regions of the North East and Far North pastoral districts were identified as suffering from wind erosion as long ago as 1938 (Nance & Speight, 1986). The situation was particularly bad due to a run of dry seasons between 1922 and 1935, as these followed a more favourable period when stock numbers had built up. Much perennial plant cover was destroyed from overstocking, and rabbits also contributed to the problem by eating the annual plants, leaving only the perennial bush for the stock. The destruction of the soil cover was therefore accelerated because of the resulting overgrazing by stock (DEH, 2005b). Further erosion in the form of gullies has resulted since the removal of the old wooden sleepers from the unused railway line across much of the Flinders Ranges (F. Williams²⁴, pers. comm., 2002). Several towns in the northern Flinders Ranges, including Parachilna and Farina, were threatened by sand drift, and eventually soil conservation reserves had to be established around them for protection. Sufficient cover slowly re-established from the exclusion of stock and rabbit control, allowing the erosion problem to slow (Nance & Speight, 1986).

Yet the Flinders Ranges is one of the three regions of South Australia most susceptible to soil erosion (Yencken & Wilkinson, 2000). Along with a small pocket in the Eyre Peninsula and an area south of Adelaide through to Cape Jervis, the Flinders Ranges is classified as being 'subject to infrequent moderate damage if left bare' (Yencken & Wilkinson, 2000:231), while the majority of the state is classed as having 'nil to low damage'. (The only regions in Australia subject to regular severe damage are small coastal locations along the Queensland coast.)

It is not only pastoralism that has led to environmental degradation, but also mining that has made an impact. While mining had a dominating effect on the lives of settlers, and is accredited for its help in saving the young and bankrupt colony of South Australia (Flinders Ranges Research, 2005), it also impacted the biodiversity of the Flinders Ranges. While environmental impacts from mining are typically more localised than those from pastoralism (National Rangeland Management Working Group, 1994; Whitehead, 2001), apart from disrupting the immediate environment at a mine site and considerably reshaping the natural topography, mining impacts also include dust and noise, vegetation loss, contamination of off-site rivers, pollution of underground aquifers and ancillary impacts such as erosion caused by roads and tracks, power facilities, sewerage facilities and housing (Harrison, 2001). Runoff from mines may enhance levels of metals such as arsenic, copper, lead, iron and nickel, and uranium mines may lead to the exposure of radioactive materials at the surface (Whitehead, 2001). Mercer (1991) also reports the rapid spreading of exotic weeds into regions from access tracks in mining

²⁴ Mr Frank Williams, President, Friends of the Flinders Ranges.

areas that were formerly roadless. The biodiversity of a region is affected and the extraction and processing of ore deposits also produce large amounts of solid and liquid waste materials (Whitehead, 2001).

Traditionally once a mine became uneconomic it was simply abandoned and little or no attempt was made to rehabilitate the land, contributing to the negative image of neglectful practice by the industry. Today, there are usually guidelines ensuring the rehabilitation of mined areas. Mining in Australia only covers 0.02 percent of the land, representing less land than that which is covered by hotels alone if compared to the tourism industry (Whitehead, 2001). In comparing mining to farming practices, Whitehead (2001) states:

In comparison to the vast destruction of the natural habitats caused by agricultural practices, the effect of mining is virtually insignificant. A picture of a barren quarry wall has a greater impact than a picture of a wheat farm, however, so mining is an easier target for conservation groups. It is also generally accepted that farming is necessary – after all, we have to eat to survive. But it is not always recognised that modern society as a whole is also dependent on mineral resources for its survival.

Unused mine sites today are rehabilitated through the removal of mine infrastructure, revegetation programs and contours to rock dumps and capping of tailings dams. Waste systems are designed to store and treat waste in closed systems until they are clean enough to be released. As described by Whitehead (2001), the Ravenswood gold mine previously caused almost 100 bird deaths per year from the ingestion of cyanide, so various strategies were adopted to try to reduce these deaths. It was found the most effective method was firing irregularly timed gas guns, particularly during duck migration periods, and the number of bird deaths was reduced to less than 10 per year.

The final element of environmental degradation in the Flinders Ranges relates to tourism and the substantial increase in visitor numbers since the late 1940s.

Obviously, large numbers of people can have a marked effect on a sensitive arid environment.

NPWSA, 1999:2

Possible tourism impacts were discussed in detail in Chapter 5 to include positive outcomes (such as financial contribution to conservation, educational benefits to the public, enhanced value of natural features), as well as negative outcomes (such as pollution, flora and fauna disturbance, trail erosion). Negative environmental impacts in the Flinders Ranges have therefore been shown to result from a combination of tourism, pastoralism and mining. In

response, there have been efforts to reduce these impacts and protect the land for the future. The following section explores some of the environmental recovery efforts in more detail.

6.4 Environmental Recovery in the Flinders Ranges

National Parks and Wildlife South Australia staff in the Flinders Ranges express that there is now an encouraging commitment by the local community to environmental recovery efforts (despite the many difficulties posed by pest animal control in such rugged terrain) such as their involvement with Operation Bounceback and their changing pastoral practices (P. Watkins²⁵, pers. comm., 2003). Operation Bounceback is an environmental recovery program in the Flinders Ranges that has been in operation since 1992 in its present form. Due to its success, it expanded in size from the Flinders Ranges National Park further north to the Vulkathunha-Gammon Ranges National Park and many of the private properties throughout the region.

The culling of feral goats has been a necessary aspect of Operation Bounceback as they are one of the most environmentally destructive feral animals in Australia, introduced as early as the First Fleet in 1788 for their meat, milk and mohair values (Queensland Government, 2005). They compete with native animals and domestic livestock for food, water and shelter and cause 'environmentally devastating' effects as they eat almost all plant material less than 1.8 metres high, and have been blamed for the decline of the Yellow-footed Rock Wallaby (Queensland Government, 2005). The goat is one of the few feral animals for which complete eradication can be considered. In the time since helicopter goat control began in the early 1990s in the Gammon Ranges, the goat population was reduced from about 20 per square kilometre to about five per square kilometre in the late 1990s. This figure has been estimated to have halved again in more recent years (S. Kondylas, pers. comm., 2004).

Originally introduced to Australia to be hunted, the fox also spread remarkably fast and by 1893 some shires in Victoria even had a bounty on them. They are said to have led to the decline in smaller ground-dwelling mammals and if not controlled, Low (1999) claims it could lead to the extinction of the Numbat (*Myremecobius fasciatus*). Tasmania is fox-free and, as Low (1999) points out, is the only state that has not lost small mammals to extinction. Foxes are now controlled by shooting, trapping and poisoning with 1080 baits. Dingoes are now rare in the Flinders Ranges, having also been poisoned and prevented from re-entering the region by the dog-proof fence to the north (Smith, 1996).

²⁵ Mr Peter Watkins, Senior Ranger, Biodiversity Program, North Flinders District.

The vegetation management program of Operation Bounceback includes the components of pest plant control, revegetation works, land rehabilitation using local species, re-invasion management (buffer-zone) and vegetation monitoring including permanent monitoring sites, photopoints and the assessment of an overall Land Condition Index (LCI). Some small regions supporting endangered plant species are protected with rabbit- and goat-proof fences to enable greater chance of survival (Barker *et al.*, 1995) and grazing exclosures have shown the potential for native vegetation to recover at previously degraded sites once total grazing pressure is reduced (including both native and introduced animals) and the opportunity for soil rehabilitation (NPWSA, 2001a). Kangaroo culling (of Euros) was conducted in 1999 within an experimental framework to enable comparisons of vegetation recovery between cull and no cull areas, along with comparisons with the additional exclusion of rabbits, and results showed increased biomass of native grasses and chenopod sub-shrubs within the exclosures. Kangaroo culling for grazing management is now seen as essential to Operation Bounceback's success (P. Watkins, pers. comm., 2003).

In an attempt to manage introduced plant species, the Horehound Plume Moth (*Wheeleria spilodactylus*) was released as a biological control agent to target the weed Horehound (*Marrubium vulgare*) in 1999. While in the moth's initial introduction period it had little success in reducing the spread and impact of Horehound, it may be used in conjunction with other biological and conventional control agents in the future. The establishment of the Blinman Wheel Cactus Action Group in 1998 is trying to develop a control strategy for the Class One Status pest plant Wheel Cactus (*Opuntia robusta*), endemic to Central America. The Argentinean biological control agent *Cactoblastis cactorum* proved unable to effectively control the Wheel Cactus, but the herbicide *GrazonDS* has had noted success with infestations in the Flinders Ranges National Park and several pastoral properties (NPWSA, 2001a).

Of interest to many is the large scale of Operation Bounceback and the small on-ground workforce to implement the project. Funding for Operation Bounceback has remained a concern for staff, who hope to enable the active regeneration of flora to be expanded, and to at least maintain but preferably improve current predator control levels and herbivore grazing levels. Woody weed levels ideally would be controlled to maintenance levels and effective bio-control measures used for Horehound and Salvation Jane control (P. Watkins, pers. comm., 2003).

6.5 Diversification in the Flinders Ranges

In the present situation in the Flinders Ranges, the pastoral industry's growth potential is limited (but stronger wool prices could actually lead to higher income) and its contribution to economic activity in the region is now relatively static (Northern Regional Development Board Inc., 2005). Along with large parts of western Western Australia, the Flinders Ranges support the lowest stocking rates per hectare in Australia, and produce some of the lowest mean annual net primary production values (Lesslie *et al.*, 2006). A multifunctionality approach is important as some pastoral properties are regarded as sub-economic when placed against Australia-wide benchmarks, partly due to their relatively small size by pastoral zone standards (Barker *et al.*, 1995). Sheep in the lower rainfall regions yield less wool (and hardly any mutton or lamb) compared to sheep in the higher-rainfall sheep zones throughout Australia (Holmes, 1983). Arkaroola and Warraweena are two pastoral properties that converted to ecotourism and conservation, and it would be reasonable to expect further land use change of this kind in the future. Some other lessees continue their traditional pastoral activities but have also diversified into property-based tourism and recreation (including ecotourism), a trend that Barker *et al.* (1995:31) note can be expected to continue given the appeal of the Ranges and 'the economically marginal status of some of the stations'²⁶.

The combination of tourism and pastoralism is thought to be an appropriate mix as according to Delforce *et al.* (1986), only nine percent of pastoralists in the Flinders Ranges could definitely attribute any losses in production to the direct actions of tourists, and of these, only one pastoralist identified a significant monetary loss. For most pastoralists, any problems caused by tourists were not considered serious and it was concluded the problems overall were probably 'not very serious' from a regional viewpoint.

The Northern Regional Development Board's (NRDB) chief executive Andrew Eastwick agrees with the need for, and value in, diversifying into tourism in the Flinders Ranges. The 2001 Census showed that the region was more disadvantaged in terms of level of income, educational attainment and unemployment by comparison to South Australia's average

²⁶ Based on figures from the early 1980s, the assessment for the *Proposed Wilpena Station Report* by Williams and Associates (1988) however assessed pastoralism to be an economically viable industry in the central Flinders Ranges. Nevertheless they did admit that it was not always environmentally viable, noting some properties have become degraded through overstocking as a result of large families endeavouring to support themselves out of a single property, and in some cases, these properties became submarginal. But if the costs of environmental degradation were included in this assessment, overall viability would be questioned. Holder (1988) reported the cost of restoring land in the South Australian rangelands to be an estimated \$204 000 per property (equating to \$300 000 - \$340 000 in 2005 figures).

(NRDB, 2005). Eastwick stated (in Austin, 2001a) that:

People have to realise the pastoral industry isn't what it was in the past and should be used as a base for developing other industries such as tourism.

The NRDB's (2005) five-year strategic plan for the Outback stated there was great potential for diversified and value-added rural products such as marketed prime lamb and beef, specialty honey products, quandong products, flower products and land-based aquaculture. Eastwick reported (in Austin, 2001b) that the pockets doing the best in the Outback are those where people have changed and opened to new income sources, and those who are reluctant to change are generally fading away. Tourism is a major generator of economic wealth for the region and the strategic plan recognised every business or individual throughout the Flinders Ranges as benefiting either directly or indirectly from increased tourism numbers.

In the Flinders Ranges, the tourism market is continually growing and worth millions of dollars. Barker *et al.* (1995) attribute it with generating more income than pastoralism since at least the 1980s. The combined gross benefit of pastoralism and tourism in the Flinders Ranges was calculated to have been between \$13.22 and \$13.90 million around 1980, representing between approximately \$41.64 and \$43.78 million in 2005 dollars. In terms of minimum gross benefits, tourism (\$8.42 million) exceeded pastoralism (\$4.80 million) by about \$3.6 million (Delforce *et al.*, 1986). In 2005 dollars, this would represent \$26.52 million and \$15.12 million respectively (using an annual average rate of inflation of 4.7% as set by the Reserve Bank of Australia, 2006).

A description of the Flinders Ranges study site would therefore not be complete without a short history of tourism activity in the region. As seen in Chapter 5, tourism is closely connected to environmental impact and can play a role in both environmental degradation and recovery. The following is an outline of tourism endeavours from the early 1880s through to the present.

6.6 Tourism in the Flinders Ranges

A number of lessees of sheep stations have felt the need to diversify and cater for tourists or city dwellers in search of rural diversion in scenically exciting country.

Mincham, 1996:12

Travel to the Flinders Ranges for scenic purposes began when the railway moved from Port Augusta through the Pichi Richi Pass and north to Beltana and Leigh Creek before continuing to

Lyndhurst and Farina, and eventually reaching Marree in 1883 (Flinders Ranges Research, 2005). The journey was advertised by South Australian Railways for both the scenery and the excitement of a trip to the north. Hotels shortly opened to serve customers on the trains and several new towns were established such as Quorn and Hawker.

Tourism as we know it today was pioneered as long ago as the 1930s although it was not until several decades later that its appeal became so widely known. Two separate settlers ran weekly winter and spring bus tours as far north as Blinman; Bond's Scenic Motor Tours and Bastin's Flinders Ranges Tours, the latter offering an all-inclusive seven-day trip for eighteen pounds and ten shilling (Flinders Ranges Research, 2005). After being dedicated a Forest Reserve in 1921, Wilpena Pound was reproclaimed a National Pleasure Resort in 1945 (NPWSA, 1999). In 1947 Bond built a chalet at the entrance to Wilpena Pound, of which Kevin Rasheed (1919 – 1992) and family have operated and expanded since 1959 (Mincham, 1983). This chalet was probably when the real development of the Flinders Ranges as a locality for tourism began.

A further aspect in the history of tourism in the region was the drive for the Heysen Trail, now a popular walking track spanning from the northern Flinders Ranges to the Mount Lofty Ranges and the Fleurieu Peninsula, making it Australia's longest dedicated walking trail. Its concept arose in the 1969 but initial progress ground to a standstill under the State Planning Authority in 1978 due to perceived logistical difficulties. The concept was later resurrected by a new Minister now in the Department of Tourism, Recreation and Sport, and with the cooperation of government agencies (e.g. NPWSA and the Woods and Forests Department), the trail was finally marked and sign-posted by the end of 1992 (Barker *et al.*, 1995).

One could say that tourism has been facilitated by the pastoral industry's graded tracks and watering points, and extended by the mining industry's improvements to these facilities. Numerous buildings and evidence of their endeavours have been left by both industries, which contribute to the growing number of tourists visiting the Flinders Ranges over other regions. Several pastoral properties have now opened their gates to visitors, whether with simple shearer's quarters, bed and breakfasts or more upmarket accommodation.

Today tourists come from overseas, interstate and within the State to visit the Flinders Ranges, with 290 000 overnight visits each year to the area. The existing tourism industry has gradually developed to the point where it is regarded as viable yet quite modest in nature (NPWSA, 2001b). The Flinders Ranges and Outback region is the second most visited part of South

Australia (after Adelaide) with 10 percent of visits in the State (SATC, 2004b:1). In 2000, the Bureau of Tourism Research estimated that the average spend per tourist per night was \$81 for the Flinders Ranges area (NRDB, 2005). Over the 1999 to 2000 financial year visitors collectively spent more than \$90 million (Flinders Ranges Research, 2005), but by 2003 this figure exceeded \$250 million²⁷ (SATC, 2004a:2). It is estimated that these visitors help support 3400 jobs in the State due to the high level of tourist expenditure (NPWSA, 2001b). The NPWSA Visitor Survey (2000/01) showed that more than half of the visitors to Flinders Ranges National Park itself were from interstate (Table 6.2).

Table 6.2: Place of origin of visitors to Flinders Ranges National Park in 2000/01

Origin of Visitors	Percent
SA Metro	23
SA Regional	7
Interstate	55
Overseas	15

Source: NPWSA Visitor Survey, 2000/01

Forty percent arrived by private car, 43 percent by four-wheel drive and only 7 percent on a tour. The most popular forms of accommodation in the Flinders Ranges from 2002 to 2004 were 'Caravan park/camping' (35%), 'Friend/relative property' (27%) and 'Hotel/motel' (21%) (SATC, 2004a). Occupancy rates in 2004 reached 49.1 percent for hotels/motels/serviced apartments with 15 or more rooms and 24.8 percent for caravan parks (camping and caravanning sites/cabins) with 40 or more powered sites (SATC, 2004a). There are also 45 bed and breakfast / farm stay / self-contained cottages registered in the Flinders Ranges and Outback region, of which no occupancy rates were available. The industry is rather seasonal however with very low visitation during the particularly hot summer months. Delforce *et al.*'s (1986) road-traffic counters showed substantial increases in visitor numbers during September school holidays and the October long weekend, and the four days over Easter averaged almost four times as many vehicles per day than other autumn periods.

The NPWSA 2000/01 survey showed the main purposes for visiting the national parks included sightseeing, enjoying the natural environment, active recreation and relaxation. The main activities undertaken in the parks were identified as walking (51%), sightseeing (26%) and camping (12%). The SATC (2004a) report that the Flinders Ranges and Outback have a higher

²⁷ This figure, estimated by Tourism Research Australia, does however include airfares and long distance travel costs.

rate of participation in experiencing Aboriginal art, craft or culture and Aboriginal sites or communities than any other region in the State .

Delforce *et al.* (1986) estimated monetary expenditures and net dollar benefits of tourism to the Flinders Ranges which, although conducted 20 years ago, can be used as a guide when inflation rates are considered. For most tourists, the Flinders Ranges was the sole purpose of their trip, with a round-trip from home averaging \$331.26 per group, or \$82.17 per person. Using CPI data series, this would equate to \$968.61 per group in 2006 figures, or \$226.67 per person (Reserve Bank of Australia, 2006). The original figures include expenditures outside the Flinders Ranges such as food or petrol bought in Adelaide and brought to the region, with the estimated proportion spent actually within the Flinders Ranges determined to be 41.8 percent of the average round-trip cost. This implied that visits to the Flinders Ranges bring benefits to a very widespread region. Extra willingness-to-pay (WTP) was also examined, measuring the amount in excess of the actual price paid that a consumer would be willing to pay for a particular good rather than do without it. The average WTP for the area as a whole was \$138.53 per group or \$35.88 per person per trip (\$382.15 and \$98.98 in 2006 figures).

WTP for the two specific sites of Chambers Gorge and Parachilna Gorge were also evaluated, with results showing that people at Chambers Gorge were willing to pay between \$0.60 and \$7.46 extra per night, compared to between \$0.30 and \$4.53 at Parachilna Gorge. Delforce *et al.* (1986) suggested this was because tourists value Chambers Gorge more than Parachilna Gorge due to its greater isolation (and people are more likely to be willing to pay more for things that give them greater satisfaction). Tourists also valued the pastoral heritage of the Flinders Ranges and when asked if they would prefer for grazing to continue ‘to varying degrees under Government guidelines to protect all interests (tourism, pastoralism and environmental conservation)’ as opposed to the ‘[removal of] grazing from all areas of major public interest and [designated] as national parks’, 66.7 percent preferred the former option, compared to 13.5 percent for the latter (Delforce *et al.*, 1986).

Three of the major groups involved in tourism promotion and planning in the Flinders Ranges are the SATC (to market the tourism product and set strategic direction), the DEH (largely through the management of the State’s public land and a Memorandum of Understanding with the SATC) and the Flinders Ranges Tourism Cluster. Supported by the Board of Business Vision 2010 and also associated with the SATC, the Flinders Ranges Tourism Cluster was established in 2002 with the aim to increase collaboration between tourism operators and

communities in the Flinders Ranges. It is an initiative of the NRDB to help bring about increased yield from tourism product in the region by the development of premium tourism product. One aim set by the NRDB (2005) is to increase the number of tourists to the Flinders Ranges and Outback to more than 500 000 during the course of the present *Strategic Plan 2005-2010*. To help achieve this, they aim to implement consistent tourism signage across the region and establish a system to track tourism impacts and numbers by 2008 to help support the growth of three new tourism products per year to 2010.

6.7 Study Site

As described in Chapter 3, only the central and northern Flinders Ranges were included in the study site (Figure 3.1) due to the large size of the region. The following section offers a more detailed description of the primary sites of interest to the research.

6.7.1 Flinders Ranges National Park and Wilpena Pound

Covering an area of 95 000 hectares (DEH, 2005c), the Flinders Ranges National Park occupies much of the central Flinders Ranges. An extremely popular park with an estimated annual visitation of 162 000 people (SATC, 2004a), its major attraction is Wilpena Pound, originally dedicated as Forest Reserve in 1921 and reproclaimed a National Pleasure Resort in 1945. It was not until the passage of the *National Parks and Wildlife Act* in 1972 that Wilpena Pound and Oraparinna Station amalgamated to form a national park. The station at Wilpena was later purchased by the Government in 1985 and proclaimed a reserve in 1988 (NPWSA, 1999).

Wildlife is abundant in both native and introduced species. Rabbits, brown hares and magpies frequent the campgrounds and feral goats and foxes are culled or baited regularly. Large portions of the park were previously heavily grazed when it was part of Oraparinna Station, and at the time of take-over, the land was dominated by Ward's Weed (*Carrichtera annua*) and other introduced herbs (Bonython, 1996). Some of the more common introduced plants today also include Salvation Jane, Wild Hop and Tobacco Bush (*Nicotiana glauca*), but with the cessation of grazing, native grasses and shrubland are now also common (NPWSA, 1999).

Aroona Valley, an open valley with wide views to the south, is where the popular landscape artist Sir Hans Heysen began painting the scenery of the Flinders Ranges in about 1927,

bringing its beauty to the public eye and consequently attracting numerous visitors to the region (Thiele, 1968). Visitors to the park today may choose to stay at the campgrounds (in tents or caravans) or at Wilpena Pound Resort, offering budget backpackers accommodation, family cabins, and luxury five star rooms. The original Wilpena Station (homestead) was identified by Williams and Associates (1988) as the most complete group of buildings surviving in South Australia in an authentic pastoral landscape, as almost all other significant stations with such a comparable history are in ruins.

6.7.2 Vulkathunha-Gammon Ranges National Park

The Vulkathunha-Gammon Ranges National Park covers an area of 128 228 hectares (NPWSA, 1999) and forms the far northeast of the Flinders Ranges. It is one of the most rugged areas in Australia but also includes a section of the surrounding plain leading to the salt expanse of Lake Frome. After being exposed to nature's elements for millions of years, the mountains have been worn down to spectacular chasms, gorges, sheer bluffs and overhangs, with waterfalls occasionally found plunging down into pools of water. The region consists mainly of heavily dissected granites and allied rocks rich in minerals. A major highlight of the Vulkathunha-Gammon Ranges National Park is Italowie Gorge, where near-perpendicular cliff faces of red quartzite compete with the River Red Gums growing along the creek bed.

The park is located 750 kilometres north of Adelaide and 110 kilometres east of Leigh Creek. In this northern section of the study site it is drier and harsher than the more southerly part. There are consequently fewer eucalypts and more acacias and cassia bushes, being typical of semi-arid and arid zones of Australia. After the unpredictable rains, these bushes and other flowering plants brighten the otherwise green and brown land, a strong draw-card for tourists to the region. The majority of the vegetation on the plains and the low hills comprises blue bush, salt bush, bindyi and spear grass, compared to the rocky slopes which grow mallee scrub, native pine and spinifex grass. As well as the gum trees scattered along the valleys, there are coolibahs, wattles, melaleucas, hakea and cassias. The popular Sturt's Desert Pea (*Swainsona formosa*) and the Sturt's Desert Rose (*Gossypium sturtianum*) also occur in the park.

The variety of animal life includes Euros, Red Kangaroos and Yellow-footed Rock Wallabies, and the bird life is diverse and typical of dry range country. Evidence of early pastoralists and miners include Grindell's Hut in Weetootla Gorge, built by the first landowner to take up land in the early 1900s, and the Bolla Bollana smelter and brick kiln built in 1873 (Bonython, 1996).

6.7.3 Rawnsley Park Station

First settled in 1851, Rawnsley Park Station was originally part of Arkaba Station, one of the first pastoral leases settled in the central Flinders Ranges. During the late nineteenth century, political forces and the 'great wheat drive' led to the development of the property for farming and in 1895 parts of Arkaba Station were subdivided for farming allotments. From this time until 1919 was the period of greatest farming activity, however, the farmers suffered a range of natural disasters including drought, grasshoppers and rabbits along with fluctuating prices, resulting in many struggles in the fight to be viable in a region well north of Goyder's Line of Rainfall (MM Rawnsley Park, 2005).

In 1963 Clem Smith named a 7453-acre allotment of land Rawnsley Park Station in reference to Rawnsley Bluff, the southern tip of Wilpena Pound. The Bluff was named after HC Rawnsley, who falsely claimed to be a surveyor from England and spent three months supposedly surveying the region before the Colonial Government recalled him. Tourism was originally developed as a secondary activity to grazing, with the first cabin constructed and sheep shearing demonstrations beginning in 1968. The changing state of affairs however resulted in tourism becoming the main undertaking at Rawnsley Park and today it offers a range of activities and accommodation including cabins, caravan and camping sites and modern luxury eco-villas that opened in early 2006 (Rawnsley Park Station, 2006).

6.7.4 Blinman

The township of Blinman began with the acquisition of a copper mining lease in 1860 after a great mineral outcrop was observed atop a hill in 1859 by a shepherd named Robert Blinman. A hotel was built by 1863 and by 1869, the Blinman mine supported a population of 1500 people and the notion of a railway to the Far North became increasingly important both for the transport of copper and of provisions (Flinders Ranges Research, 2005). Today Blinman is a tiny isolated settlement consisting of a small number of historic buildings, a cemetery and the old mines. To the south of Blinman is a natural attraction known as the Great Wall of China (unusual rock formations in lines along hill-tops) and the surrounding area boasts popular four-wheel drive routes. Since 2004, Blinman has hosted the annual Cook Out Back (camp oven cook off) where the population swells from about 20 to 250 for a cooking competition. Accommodation in Blinman is offered through the Blinman Hotel and Campground and several bed and breakfast cottages.

6.7.5 Parachilna

Arthur B. Cooper surveyed Parachilna in February 1863 and, expecting it to be a small town, only pegged out 24 blocks. Primarily developed because of the closeness to a well sunk by the government to make transport in the northern Flinders Ranges possible, small blocks of land became available for lease in early 1873 for the building of public accommodation houses and to supply travellers and their stock with well water (Flinders Ranges Research, 2005).

To the disappointment of many, when the railway was later built from Port Augusta to Farina, the line passed on a plain more than 10 kilometres to the west of the town. Requests were made for a goods platform and office to be constructed at Parachilna Creek and soon after, the Blinman miners also requested a branch line to be built through the gorge to their mine. However, this was never built and goods were often lost or damaged after being left on the platform and then having a further 30 kilometre trip to Blinman (D. Hill, pers. comm., 2003). Over time, people moved closer to the railway siding, and in 1890 the site for a new town was surveyed at the siding and very few people stayed at the old site near the well (Flinders Ranges Research, 2005). Consequently, Parachilna was sometimes referred to as the town that moved (but where time stood still).

Parachilna now boasts the famous Prairie Hotel for 'bush cuisine' and regular evening passing of the coal train from Leigh Creek south to Port Augusta. There is various types of accommodation as well as the Angorichina Tourist Village and Camping Area, located at Parachilna Gorge, an area of spectacular gorges between Parachilna and Blinman. The region has also hosted major Outback events and concerts and been the setting for many Australian and international films.

6.7.6 Arkaroola Wilderness Sanctuary

Arkaroola is a small tourist village located just outside the far northeast corner of the Vulkathunha-Gammon Ranges National Park's boundary, converted from pastoralism to tourism and conservation by the Sprigg family. Previously leased as the Mount Painter Pastoral Lease, in 1970 all stock was withdrawn from the property to concentrate on its focus on ecological sustainability and conservation. It covers 61 000 hectares and offers visitors a wide range of activities as well as accommodation, a caravan and camping ground, fuel and limited supplies (Owner/Operator M. Sprigg, pers. comm., 2006). There is a Visitor Information Centre with details of walking trails and scenic drives, scenic flights, guided four-

wheel drive tours and an astronomical observatory. The main attraction is the Ridge Top Tour, a four-hour journey with panoramic views across the plains towards Lake Frome and the Beverley Uranium Mine. The Aboriginal Dreaming story of the region refers to the journey of a powerful serpent called Akurra and how he drained Lakes Frome and Calabonna (Barker *et al.*, 1995). It is a remote part of the Ranges where the landscape becomes a tangled mass of rocky ridges and gorges before it meets complete desert. Arkaroola is unusual because of its hot springs, suggesting volcanic activity (rarely seen in Australia) and is the home of the Sutton Institute seismograph station for earthquake monitoring and a world weather station.

6.7.7 Aboriginal Sites

The Flinders Ranges are steeped with Aboriginal sites and legends. Evidence of their former lifestyle can be found in many locations throughout the region. Stone markings around towering granite peaks, in the gorges, on sheer rock faces and especially near creeks and waterholes, all recall and record mysteries and tales of the Dreaming such as Wilpena Pound, Arkaroo Rock, Bookartoo Ochre Mine and Dingley Dell.

Compiled by the Aboriginal Heritage Branch (SADEP), a register of Aboriginal sites in South Australia lists 230 sites being located within the Flinders Ranges. This is the only register compiled in compliance with the *Aboriginal and Historic Relics Act* of 1965 and the *Aboriginal Heritage Act* of 1988 (NPWSA, 1999). Of particular note are the rock art sites Arkaroo Rock, Red Gorge, Mount Chambers Gorge, Yourambulla Caves, Minniniti Springs and Sacred Canyon, each listed on the register of the National Estate.

Aboriginal sites in the Flinders Ranges are significant. Aboriginal occupation of the region spans at least 500 human generations and involved tens of thousands of people. Considerable cultural adjustments as a result of the changing environmental conditions of the period led to population fluctuations and socio-economic complexity (Mincham, 1996). Today, Aboriginal sites provide a focus for interpreting lifestyles, cultural identification and spiritual belief systems, and are the material manifestation of an ancient tradition. They have economic, social and spiritual significance to the Adnyamathanha people, the non-Aboriginal local residents, and a variety of visiting groups of people from throughout Australia and overseas. The former mission settlement of Nepabunna is still used today by the Nepabunna community of the Flinders Ranges, where there is a small school and a large locally-owned tourism business called Iga Warta, and the surrounding land comprising

Mount Serle and Nantawarrina Stations are now run by Adnyamathanha people once again (Moon & Moon, 2000).

6.8 Conclusion

The regions of the central and northern Flinders Ranges comprise the site of this case study research. This chapter has illustrated how the geographical characteristics of the Ranges vary dramatically between round contoured foresty hills and jagged desert peaks and ridges. The colourful, semi-arid mountains and valleys form a unique, world-class attraction and the primary use of the land includes pastoralism, tourism and mining. Since settlement began in the Flinders Ranges, there has been widespread environmental degradation, which has led to the implementation of environmental recovery efforts particularly in recent years such as the Operation Bounceback program. The native and introduced flora and fauna of the Flinders Ranges is varied and complex and the geology offers records of sequences in time possibly spanning 150 million years. The climate is highly variable and the challenge for the future is to manage the landscape offering all of its indigenous elements the protection they so greatly deserve.

7.0 VISITOR OPINIONS AND AWARENESS

7.1 Introduction

In order to address the research question as outlined below, this chapter presents the results from the Visitor Opinion Surveys and Visitor Awareness Surveys conducted by the author:

Could the growth of ecotourism assist ecological recovery in the Flinders Ranges?

The surveys generated a large amount of data which helped assess the visitor market and ecotourism potential in the Flinders Ranges. With a wide range of questions included in the surveys, the analysis explored a range of relationships that assisted with familiarisation of the study site and visitor characteristics and opinions.

7.2 Visitor Opinion Surveys

The Visitor Opinion Surveys included Visitor Survey One (VS1) and Visitor Survey Two (VS2), conducted in 2002 and 2003 respectively. Two surveys were used to enable a greater number of questions to be included and to ask several questions from slightly different perspectives (Appendix IV). A total of 377 Visitor Opinion Surveys were completed throughout the central and northern Flinders Ranges for the study. The following sections present the results from the structured questions of the surveys; Appendix V shows additional insight into the results through a summary of comments provided by visitors to the open-ended option of writing any further comments related to the survey.

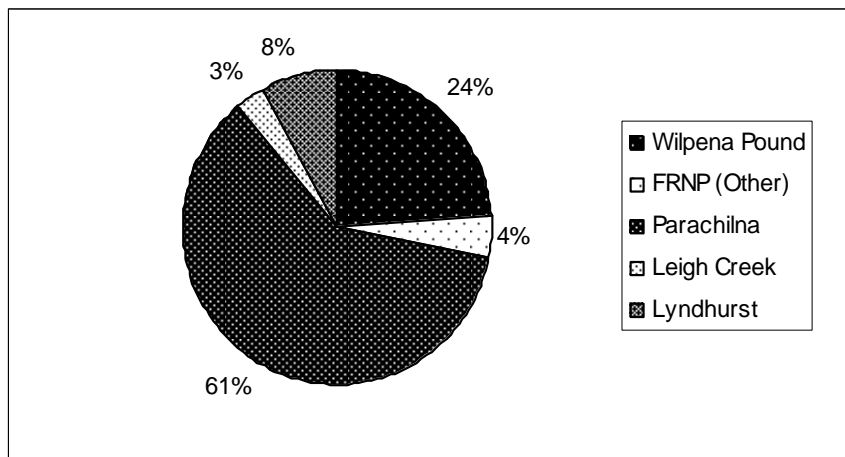
7.2.1 Visitor Survey One: Demographics

Visitor Survey One (VS1) comprised 231 visitor surveys conducted over the period of the Solar Eclipse in December 2002. This astronomical event was widely publicised and both Australian and international visitor numbers increased substantially in the northern Flinders Ranges. Lyndhurst in particular experienced a huge population increase associated with a

Solar Eclipse Party held over several days and the town was promoted as the best place to see the eclipse. For convenience in the ability for the author to intercept such a high number of visitors to the study site, it was deemed a valuable time to conduct surveys, and it additionally provided the opportunity to capture the opinions of a higher proportion of younger visitors and international visitors, recognised as important segments in recent marketing promotion of the region.

The majority of VS1 (61%) was conducted at Parachilna (Figure 7.1). The Prairie Hotel in Parachilna was a major stop en-route to Lyndhurst (the site for the best viewing of the solar eclipse) for many visitors, and most were willing to complete the survey while awaiting their meals and enjoying the ‘Outback Pub’ atmosphere. Despite the large influx of visitors to the town, a relatively low proportion of respondents completed the survey in Lyndhurst itself as visitor demographics were less representative of typical visitor demographics in the region.

Figure 7.1: Location of respondents undertaking Visitor Survey One



Source: Visitor Opinion Surveys

There was a noticeable imbalance in gender of participants completing VS1 with 61 percent being male, and three-quarters of respondents were under 36 years of age (Table 7.1).

Table 7.1: Age of VS1 respondents

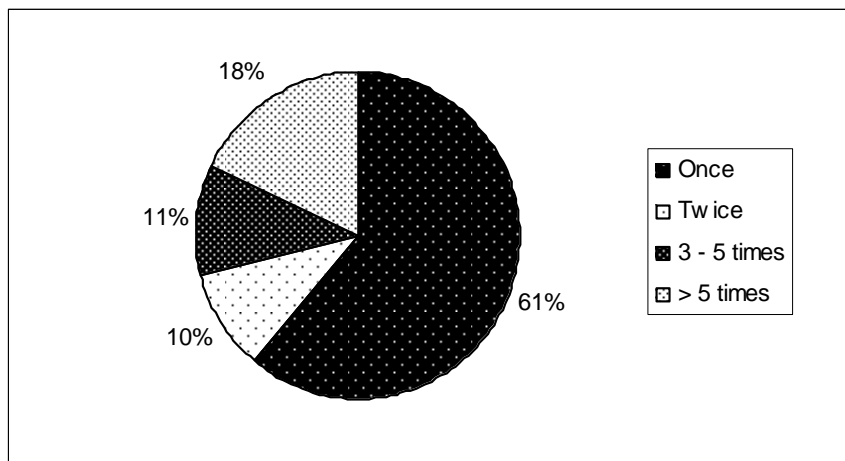
Age Group	No. of Respondents	Percent of Respondents
25 and Under	75	32.5
26 – 35 years	97	42
36 – 45 years	26	11.3
46 – 55 years	16	6.9
56 and Over	16	6.9
Total	230	99.6

Source: Visitor Opinion Surveys

A high proportion of VS1 respondents were international visitors (28.1%), with the majority (49.2%) from the European mainland and the United Kingdom (21.5%). There were also representatives from New Zealand (12.3%), North America (7.7%), Israel (6.2%) and Japan (1.5%). One-quarter of total respondents were from Adelaide and only 8.2 percent of respondents from other parts of South Australia. Visitors from interstate comprised 19.9 percent of respondents, with more than half (61.6%) from Victoria, 22.1 percent from New South Wales, and small numbers from Queensland, Australian Capital Territory, Northern Territory and Western Australia.

VS1 was also completed by a high proportion of first-time visitors to the Flinders Ranges, not unexpected considering the higher than usual number of international visitors. Figure 7.2 depicts the proportion of visitors having visited once, twice, or three or more times.

Figure 7.2: Number of visits to Flinders Ranges by VS1 respondents



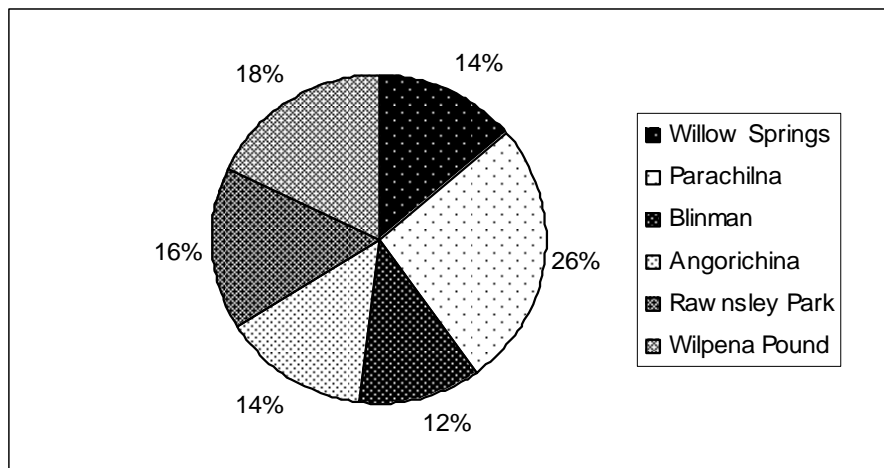
Source: Visitor Opinion Surveys

The abovementioned demographics, particularly the large proportion of international visitors and visitors under 36 years of age, are not representative of typical visitors to the Flinders Ranges when compared to previous visitor surveys (e.g. NPWSA Visitor Survey 2000/01; SATC, 2004a) and the demographics of respondents to VS2 as presented below. While the two samples therefore differed, VS1 enabled the author to collect larger amounts of data on sub-groups of visitors that would otherwise be more difficult to obtain during typical days or weeks. Surveying a high number of international visitors was important to assist with exploration of the ecotourism market potential from an international perspective, and surveying a high number of younger visitors for example was important to enable comparisons of environmental viewpoints and behaviours between age groups.

7.2.2 Visitor Survey Two: Demographics

Visitor Survey Two (VS2) was completed by 146 visitors between April and June 2003. The difference in the number of respondents to VS1 and VS2 is largely due to the influx of people to the region for the solar eclipse (enabling a large number of visitors to be surveyed with ease in December 2002). VS2 questionnaires were completed at a range of locations, with a more even distribution over all locations than VS1 (Figure 7.3).

Figure 7.3: Location of respondents undertaking Visitor Survey Two



Source: Visitor Opinion Surveys

In contrast to VS1, VS2 comprised a higher percentage of females (52% compared to 39%). The ages of respondents also differed to VS1 respondents, with a much more even spread of visitors in each age group (Table 7.2).

Table 7.2: Age of VS2 respondents

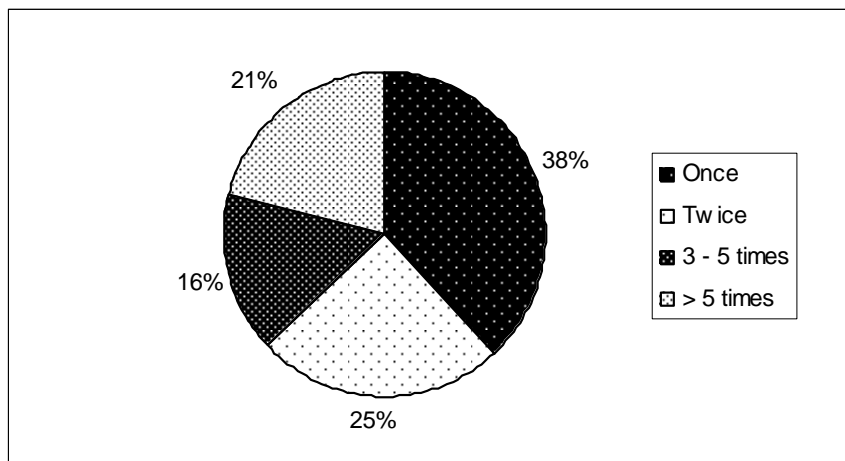
Age Group	No. of Respondents	Percent of Respondents
25 and Under	21	14.4
26 – 35 years	30	20.6
36 – 45 years	31	21.2
46 – 55 years	37	25.3
56 and Over	27	18.5
Total	146	100.0

Source: Visitor Opinion Surveys

Of the visitors surveyed, 32.9 percent were from Adelaide (compared to 25% in VS1), 15.8 percent were from other parts of South Australia, 35.6 percent were from interstate and 15.8 percent were from overseas (with 84.7% from Europe). Ninety six percent of interstate visitors were from Victoria and New South Wales (48% each), and the remaining four percent were from Queensland.

Figure 7.4 shows that there were substantially fewer first-time visitors to the Flinders Ranges completing VS2 than VS1, with VS2 comprising 38.4 percent first-time visitors and 61.6 percent return visitors (compared to only 39 percent for VS1). This is likely a reflection of the difference in the proportion of international visitors between the two sample populations.

Figure 7.4: Number of visits to Flinders Ranges by VS2 respondents



Source: Visitor Opinion Surveys

Also clearly different to the results of VS1 was the length of stay for visitors. Table 7.3 shows the difference in length of stay between visitors of VS1 and VS2, with VS1 respondents typically staying for a shorter amount of time than those of VS2.

Table 7.3: Length of stay of respondents from VS1 compared to VS2

Length of Stay	% of VS1 Respondents	% of VS2 Respondents
1 – 2 days	41.1	11.6
3 – 5 days	42.0	45.2
About a week	13.0	28.7
More than a week	2.3	14.4

Source: Visitor Opinion Surveys

In examining the reasons given for visiting the Flinders Ranges (Table 7.4), it is clear that there are numerous attractions in the region and that this influences trip characteristics such as length of time spent at a location. Other than the solar eclipse, which coincidentally placed the Flinders Ranges as a suitable viewing location, popular responses included visiting for the ‘landscape or scenery’, to see ‘the Outback’, for the region’s ‘beauty’ and due to recommendations from other people.

Table 7.4: Reasons for visiting the Flinders Ranges: VS1 and VS2 respondents

Reason*	% of VS1 Respondents	% of VS2 Respondents
Landscape / Scenery	27.3	19.0
The Outback	10.2	11.4
Beauty	12.7	8.7
Camping	2.0	8.2
Holiday / Tour	0.0	8.2
Geology	2.0	7.6
Four-wheel Driving	3.0	7.1
Nature / Wildlife	8.6	5.4
Recommendation	7.7	8.9
Work	6.0	1.4
Other	5.6	0.7

* Not all respondents offered reasons and some listed more than one reason, so figures do not equal 100 percent. Excludes those who gave their reason as the solar eclipse as this was only coincidentally in the Flinders Ranges.

Source: Visitor Opinion Surveys

7.2.3 Visitor Survey One and Two: Opinion Questions

Respondents of both VS1 and VS2 were asked the extent to which they agree or disagree with various statements, with 1 representing ‘strongly disagree’ and 5 representing ‘strongly agree’.

The statements were:

- a) I care a lot about conservation in the Flinders Ranges;
- b) I try to reduce negative impacts on the environment while here;
- c) By using an ecotourism operator, I would expect not to damage the environment in any way at all; and
- d) The tourism operator I am using helped shape my opinion on conservation and its importance.

Table 7.5 shows the results for statements (a) and (b) as listed above. The proportion of respondents in disagreement varied little between VS1 and VS2. The proportion of respondents selecting *either* 4 or 5 in VS1 and VS2 was also very similar, but when compared individually, a higher proportion of VS1 respondents strongly agreed that they care a lot about conservation and try to reduce negative environmental impacts in the Flinders Ranges than the proportion of VS2 respondents strongly agreeing.

Table 7.5: Percent of respondents who agree and disagree with statements (a) and (b)

Survey	(a) Care about Conservation					(b) Try to Reduce Impacts				
	1 Strongly disagree	2	3	4	5 Strongly agree	1 Strongly disagree	2	3	4	5 Strongly agree
VS1	2.2	0.4	12.6	17.3	67.1	0.4	2.2	10.8	18.2	68.0
VS2	0.7	1.4	13.0	30.1	54.8	2.1	2.1	11.6	33.6	50.7
Total	1.6	0.8	12.7	22.3	62.3	1.1	2.1	11.2	24.2	61.4

Source: Visitor Opinion Surveys

These results show almost two-thirds of all respondents both care a lot about conservation in the Flinders Ranges and also try to reduce negative impacts on the environment. A very small proportion of respondents said they did not care a lot and did not try to reduce negative impacts. The percentage of respondents indicating a medium to moderate care for conservation in the Flinders Ranges (3 or 4) and a fair to reasonable attempt at reducing negative impacts, was just over one-third. With very similar corresponding figures for each statement, it could be seen to suggest that people try to reduce their negative impacts to a degree analogous to their level of care for conservation in the Flinders Ranges.

The statement (c) relating to the use of an ecotourism operator was included to determine the extent to which tourists believe ecotourism operators damage or do not damage the environment. The results showed that 33.2 percent of respondents were of the opinion ecotourism operations do not damage the environment in any way, whereas 6.1 percent were of the opinion they do damage it. Almost sixty percent of respondents said it damages the environment very little or not at all, compared to only 14.9 percent who disagreed with this, and almost one-quarter (23.1) who were equivocal.

The statement (d) referred to whether tourists thought the tourism operators that they used influenced their opinions on conservation or not (Table 7.6).

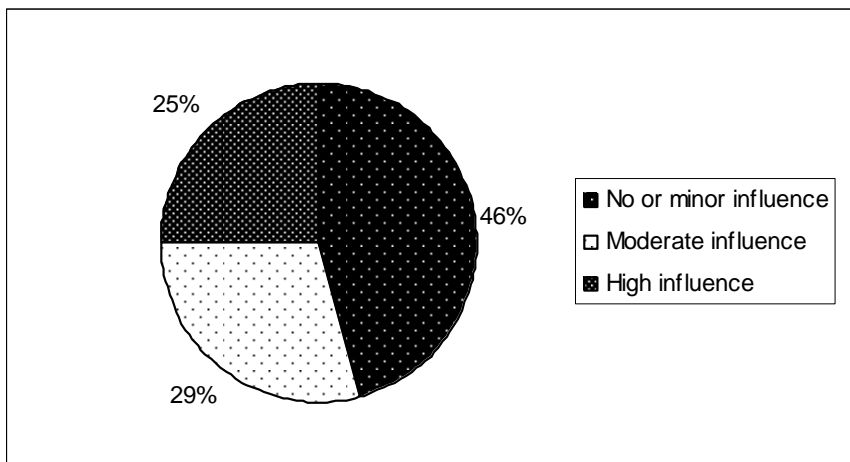
Table 7.6: Responses to statement (d): The tourism operator I am using helped shape my opinion on conservation and its importance

Answer	No. of Respondents	Percent of Respondents
1 (no influence)	91	24.1
2 (minor influence)	78	20.7
3 (moderate influence)	107	28.4
4 (medium-high influence)	38	10.1
5 (high influence)	54	14.3
Not answered	9	2.4

Source: Visitor Opinion Surveys

The most common answer was 3 ('moderate influence' from tourism operators) with 28.4 percent, followed by 1 ('no influence') and 2 ('minor influence'). Figure 7.5 shows that while close to half of respondents did not believe they were influenced or were only influenced in a minor way, more than half (52.8%) claimed to be influenced moderately or more.

Figure 7.5: Proportion of respondents under various degrees of influence from tourism operators



Source: Visitor Opinion Surveys

It has already been seen that 61.4 percent of respondents claim to try to reduce their negative impacts as much as possible. Respondents were further asked whether or not they acted in particular ways to help reduce impacts, including:

- Disposing of all waste as recommended;
- Not removing any plant material;
- Staying on marked roads and tracks;

- Reading about the best ways to reduce damage; and
- Telling others how to help protect the environment.

The majority (95%) said that they dispose of all waste as recommended, and a high proportion (83%) did not remove any plant matter at all (relevant particularly within national parks). Almost three-quarters (73.1%) claimed not to leave marked roads and tracks, but just over one-quarter (26.9%) admitted to doing so. More than half (54.3%) of respondents read about ways to help protect the environment and almost 40 percent tried to help by telling other people about ways to reduce impacts.

To help assess how aware visitors were regarding conservation efforts in the region, they were asked if they had heard of Operation Bounceback or not. The results were noticeably different between VS1 and VS2, presumably due to the high number of international visitors in the region for the solar eclipse during the interviewing of VS1. Table 7.7 shows a comparison between the two surveys, revealing less than one-quarter of all visitors had heard of the conservation program. There was little difference in the awareness levels between South Australian and the rest of Australian respondents (29.4% and 25.8% respectively had heard of it), but there was a noticeably lower awareness with international respondents (only 10.3%).

Table 7.7: Proportion of respondents aware of Operation Bounceback

Survey	Percent of Respondents
VS1*	10.0
VS2	42.5
VS1 & 2	22.6

* VS1 included two blank responses, representing 0.5 percent of the combined total.

Source: Visitor Opinion Surveys

If they were aware of Operation Bounceback, respondents were asked to specify where they originally heard about it. The most common response was on the noticeboards at the Wilpena Visitor Centre (31.8%), followed by in the media (15.3%) and Flinders Ranges National Park entrance and trail signs (15.3%), National Parks and Wildlife South Australia (NPWSA) staff members (8.2%) and at Arkaroola Wilderness Sanctuary (5.9%). Other reasons included NPWSA information (e.g. leaflets), previous visits to the region, family and friends, and students. As well as being a result of the higher percent of international visitors, the lower awareness rate of Operation Bounceback seen in VS1 may be related to the apparent lower proportion of visitors stopping at the Wilpena Pound Visitor Centre as many travelled directly

to Lyndhurst to view the solar eclipse (due to time constraints with only staying in the region for a short period of time) rather than exploring sites en-route to their final destination.

Visitors who were unaware of Operation Bounceback were directed to a brief description of the conservation program written at the end of the survey. All respondents were then asked if it is important to them that programs such as Operation Bounceback were undertaken. Table 7.8 shows that two-thirds of respondents indicated it was very important to them, and none indicated that it was unimportant.

Table 7.8: Level of importance that conservation programs are in operation

Answer	No. of Respondents	Percent of Respondents
Yes, very important	250	66.3
Yes, important	97	25.7
Neutral	30	8.0
No, not important	0	0.0

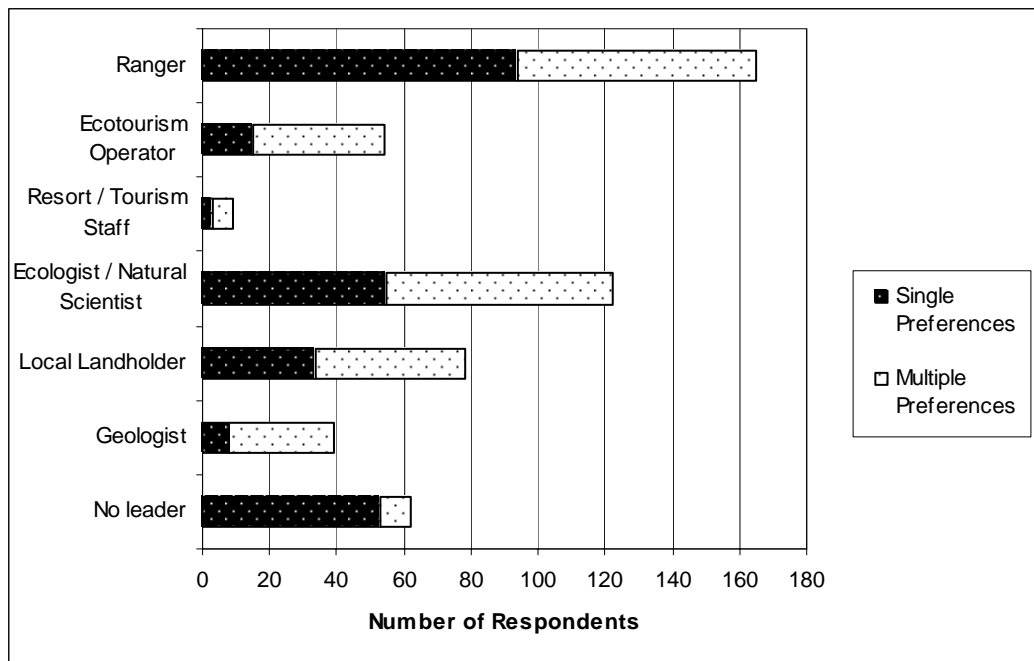
Source: Visitor Opinion Surveys

Tourists were asked if they would spend extra time to locate and use a tourism business that participated in conservation or was more environmentally-friendly than other tourism businesses in order to help the environment. Approximately half (51.5%) of respondents said they would do so, provided it was easy to find. A further 21.8 percent said that they would do so (regardless of the amount of time it took), but about the same number (22.3%) of respondents also said that they would not spend any extra time to do so. A small number (4.5%) did not respond to the question or wrote the question was not applicable to them, presumably as they do not seek tourism operators.

In comparing how important it is that conservation programs are in operation and whether or not respondents would spend time to look for a more environmentally-friendly business, it was found that respondents who thought conservation programs were very important were more likely to spend as much time as needed finding environmentally-friendly businesses. While 78.4 percent of those claiming conservation programs were very important would spend the time to find and environmentally-friendly business, only 46.7 percent of those who answered they were neither important nor not important would do so.

The surveys showed that the most popular preference for a tour leader in the Flinders Ranges was a ranger and the least popular was a resort or tourism staff member (Figure 7.6). With multiple preferences included, almost half of the respondents chose a ranger (both for VS1 and VS2). Ecologists or natural scientists and local landholders were also popular choices for both sample populations.

Figure 7.6: Tour leader preferences, as given by respondents



Source: Visitor Opinion Surveys

Tourists often support privately run tourism activities as they offer a variety of advantages including access to places they could not normally visit, learning about the environment in a face-to-face situation, meeting other people with similar interests and meeting the local residents and experiencing their daily lives. Many tourists commented they preferred to stay away from the crowds at Wilpena Pound, for example:

We're so glad we came here instead of Wilpena because here we get our own little piece of the Outback; quiet, peaceful, can talk to farmers and ask them about the area.

Also:

This is a wild place, a fragile environment, where the balance of nature is so easily destroyed. Thanks to the pastoralists and park rangers who care for the land and allow us to share in its wonders. May we who are visitors, while we stand in awe of the magnificent beauty around us, remember our responsibility to care for the earth too.

There were also many comments in guest books implying similar messages:

Thank you for allowing us to experience your beautiful property. You made us feel part of the place. It is much better than staying at a tourist resort because this is a working station and staying in the shearer's quarters makes you feel really involved.

The scenery, vegetation and wildlife are superb... We were delighted to be allowed to join in the shearing and have so much explained to us about running a station.

Only about 60 percent of respondents answered the question of why they chose the operator they did, possibly because they did not consider their accommodation provider to be an operator if they were camping or caravanning, or because they may not have actually been staying overnight within the Flinders Ranges. Of those who answered, one quarter (26.1%) claimed to choose their operator either based on a recommendation or because of the activities offered, and 44.7 percent stated it was due to their location. Only 8.8 percent stated it was due to their environmentally-friendliness, 4.9 percent for their price and 12.8 percent for 'other' reasons (some respondents gave multiple answers).

To determine the level of interest in observing plants and animals on their holiday, tourists were asked what proportion of their visit to the Flinders Ranges was spent specifically observing plants and animals. Approximately one-third of respondents spent half their time viewing plants and animals, and almost one-quarter (23.6%) of respondents spent 75 percent or 100 percent of their time doing so. With 40.9 percent spending 25 percent of their time viewing wildlife, only 3.7 percent claimed to spend none of their time specifically doing so.

On average, respondents to both surveys said it is fair to cull feral animals (with a score of 4 representing the opinion 'it is fair to cull'). However, the average score for feral animal culling by VS1 respondents was 4.38 whereas for VS2 respondents it was noticeably higher at 6.07²⁸. While 55.5 percent of VS2 respondents greatly agreed with feral animal culling, only 23.4 percent of VS1 agreed. In the case of kangaroo culling, 15.8 percent of respondents to VS2 said they greatly agreed with it compared to only 5.2 percent of VS1 respondents. On average, respondents to VS1 thought it was slightly unfair to cull kangaroos, but respondents to VS2 thought it was slightly fair to cull kangaroos. Additionally of note, less than five percent of VS2 respondents answered 1 or 2 to both feral animal and kangaroo culling, whereas up to 20 percent answered 1 or 2 from VS1. This difference is explored further in Chapter 9 when

²⁸ The reader is reminded that the wording of the animal culling questions differed between VS1 and VS2 to explore whether or not giving additional information about the reasons for culling would influence respondents, as described in Appendix IV.

examining visitor opinions on conservation. It is acknowledged that the wording of the questions may not be the sole determinant in the difference in results, but the timing of the surveys may have had an influence. It is also noted that despite the different visitor samples of the two surveys, higher acceptance of culling for respondents to VS2 is evident for both Australian and international respondents (refer Table 9.2).

The visitor surveys also explored what tourists think ecotourism is and what it should incorporate in one of two ways. Respondents of VS1 were asked how important they believed particular aspects were to ecotourism, and respondents to VS2 were asked to select the statement that was closest to their personal definition of ecotourism.

VS1 respondents were asked to rate on a scale of 1 to 5 the importance of the following aspects of ecotourism:

- a) Being based on nature;
- b) Teaching tourists about the environment;
- c) Reducing negative environmental impacts;
- d) Participating in conservation efforts;
- e) Involving and supporting local communities; and
- f) Following a set of guidelines

Choosing 1 on the scale implied it was not necessary to ecotourism, and choosing 5 implied it was very important to ecotourism. All features received at least three-quarters of respondents rating them either 4 or 5. Reducing negative environmental impacts was seen as the most important feature (80.3% chose either 4 or 5), followed by teaching tourists about the environment (79.5%), being based on nature (77.4%), participating in conservation efforts (73.1%), involving and supporting local communities (71.5%) and following a set of guidelines (68.4%). Correspondingly, reducing negative impacts also had the lowest proportion of respondents (2.1%) selecting either 1 or 2 on the scale, but the second-lowest rated feature was being nature-based (3.2%), followed by teaching tourists about the environment (4%).

To approach the concept of ecotourism from a second perspective, respondents of VS2 were asked to identify their preferred definition of ecotourism from five pre-selected options (or an 'other' option if they did not agree with any of those presented). More than half of respondents (56.9%) selected (e) 'Tourism that is nature-based, educational and uses minimal impact

practices’, with the second most popular response being (b) with 26 percent (‘Tourism that uses minimal impact practices like reducing waste and conserving energy in daily activities’). Option (c) ‘Tourism where people can observe and learn about plants and animals through activities like bushwalking and camping’ was chosen by 8.9 percent of respondents, followed by (d) with 4.8 percent (‘Tourism with activities about the local culture and environment, helping people understand and appreciate a particular region’). Only 3.4 percent selected (a) ‘Any tourism that is nature-based (occurs in a natural setting’, indicating the vast majority of tourists were of the opinion there is more to ecotourism than just being in a natural setting.

7.2.4 Visitor Opinions by Characteristics of Respondents

In this section, relationships of particular interest to the research question are presented.

The first opinion question, asking the respondent to what extent they care about conservation in the Flinders Ranges, produced an interesting result. While seventy percent of females answered 5 (implying ‘very high’ care for conservation in the Flinders Ranges), only 56.6 percent of males answered in this way. Related to this, a slightly higher proportion of females had heard of Operation Bounceback (25.5%) than males (20.3%). The second opinion question, asking the respondent to what extent they try to reduce negative impacts from tourism in the Flinders Ranges, also showed a similar difference between males and females, although less marked.

In terms of specific ways in which respondents try to reduce negative impacts from tourism, females were more likely to stay on marked roads and tracks than males (78.2% of females compared to 68.9% of males). The proportion of males and females disposing of waste as recommended, not removing plant matter from national parks and reading about how to reduce impacts each differed by less than one percent however. Expectations on the levels of damage an ecotourism operator may or may not cause were similar between males and females, but males were less likely to be influenced by an operator on their environmental opinions (almost thirty percent of males were not influenced or only mildly influenced, compared to twenty percent of females).

Males were less likely to spend as much time as females specifically viewing plants and animals on their visit to the Flinders Ranges (30.9% of females spent 75 or 100 percent of their time viewing plants and animals, compared to only 17.9% of males). More than half of males

(52.4%) spent either none or 25 percent of their time viewing plants and animals compared to 34.6 percent of females.

Almost half of the female respondents would be happy for a ranger to take them on a tour (47.3%), as would 42 percent of males. Females were almost twice as likely to choose an ecotourism operator as males, and just over 13 percent more females than males chose a local landholder (40% compared to 26.4%). Remaining tour leader options were approximately equal between males and females.

The average rating given for all respondents' support or lack of support for feral animal culling was 5.18, indicating they thought it was more than fair to cull (being a figure higher than 4). While over 60 percent of males clearly supported feral animal culls, only approximately 45 percent of females did. The average acceptance level for kangaroo culling dropped (when compared to feral animal culling) from 5.18 to 4.17, but still represented an overall acceptance that it is fair to cull. Females averaged 3.83 (leaning towards not supporting culling) and males averaged 4.24, therefore supporting kangaroo culling on average.

Almost 60 percent of respondents were 35 years old or less. The majority of respondents less than 25 years old were on their first visit to the Flinders Ranges (71.9%), as were slightly more than half in the 26 – 35 years age group (54.3%). Not surprisingly, a higher proportion of people in the older age groups had been to the Flinders Ranges more times than the younger age groups. It appeared that a higher proportion of respondents between 36 and 55 years came from Adelaide (almost 40%, compared to an average of 24.8% for all other age groups).

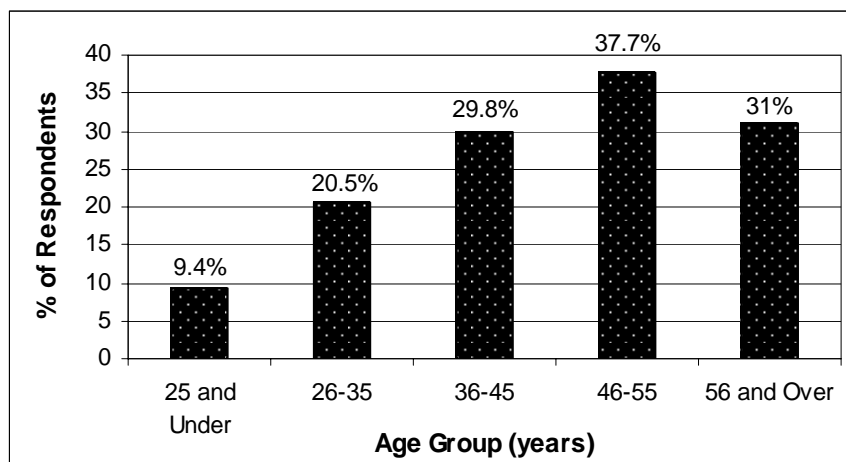
Almost half of respondents aged 35 years and under (48%) indicated a ranger would be most preferred to lead them on a tour of the Flinders Ranges (including multiple responses), compared to 38.6 percent of those aged over 36 years. Respondents less than 56 years of age averaged about 15 percent for choosing an ecotourism operator, but those aged 56 and over only averaged 2.3 percent. Local landholders were most popular with the 46 – 55 years age group (50.94% in this group chose landholders as an option), and ecologists and geologists with the 36 – 45 years group (also reasonably popular with the 25 – 35 years group). The category of 'other', which was often used to suggest a visitor would prefer to take themselves on a tour, was most popular with those aged between 36 and 45 years.

While the 46 – 55 year age group were most likely to tell others ways to help protect the environment, they were also the most likely group to remove plant matter, with a high 30.2 percent admitting they do so. This compares to 24.5 percent saying they remove plant materials in the 36 – 45 year age group, and an average of only 12.8 percent of all other respondents.

The younger respondents (aged 45 or less) said they were less likely to be influenced by tourism operators in regard to their opinions on conservation and its importance. They had an average of 46.8 percent of respondents claiming no or minimal influence of operators helping shape their environmental opinions, compared to only one-third of those over 45 years. Those with the highest percentage of respondents selecting high influence from operators were 56 years and over, with 18.6 percent.

While the average of all age groups was 22.7 percent, only 9.4 percent of respondents 25 years or younger had heard of Operation Bounceback (Figure 7.7). The proportion of respondents who had heard of Operation Bounceback was highest in the 46 – 55 years age group (37.7%), followed by the 56 years and over age group.

Figure 7.7: Respondents who had heard of Operation Bounceback, by age



Source: Visitor Opinion Surveys

The proportion of people saying it was very important that conservation programs are in operation ranged from 54.5 percent for those aged 25 or younger to 86.8 percent in the 46 – 55 years group. While nobody said it was not important at all, 15.6 percent of those aged 25 or younger said it was neither important nor unimportant, compared to an average of 5.36 percent for all other ages.

The level of acceptance of feral animal culling increased progressively from an average of 4.15 in the youngest age group to an average of 6.04 in the second-oldest age group (the oldest age group's average acceptance score was slightly lower than this). The same pattern existed for kangaroo culling, with the youngest age group averaging 3.65 and the oldest two age groups averaging 4.53. It is however interesting to note that while 58.5 percent of respondents in these older age groups completely supported feral animal culling, only 11.3 percent completely supported kangaroo culling, suggesting that it is still harder to accept kangaroo culling than feral animal culling even when it is acknowledged as being necessary.

The majority (85.6%) of South Australian respondents were repeat visitors to the Flinders Ranges. In contrast the vast majority of interstate and overseas visitors were on their first visit (74.8% and 90.9% respectively), as would be expected. Repeat visitors showed a greater care for conservation in the Flinders Ranges, with 92.2 percent claiming high or very high levels of care. Only 77.7 percent of first time visitors claimed these levels. Half of all overseas visitors stayed for up to two days, and only 11.7 percent stayed more than one week. Of South Australian visitors, one-third stayed up to two days, another third stayed between three and five days, and the remaining third stayed one week or more. Half the interstate visitors stayed three to five days.

South Australians showed a slightly higher level of care for conservation in the Flinders Ranges than interstate and overseas visitors (66.3% compared to 60.4% and 57.1% respectively). However, the South Australians who did not live in Adelaide showed a much higher level than those living in the capital city (75% compared to 62%). Country South Australians also showed the highest level of trying to reduce negative impacts on the environment, with 92.3 percent selecting high or very high attempts. The second highest group was the interstate visitors (87.8%), followed by overseas visitors (84.4%) and finally Adelaide visitors (80.6%). In regard to specific ways to reduce these impacts, the interstate visitors were slightly more likely to dispose of waste as recommended, and more than ten percent more likely to refrain from removing plant material and stay on marked roads and tracks. South Australian visitors were most likely to remove plant matter (28.7% would do so, compared to only 10.7% of other visitors) and leave marked tracks (39.4% compared to 17.1%). South Australian visitors were however more likely to read about ways to help the environment and tell others about how to help.

Operation Bounceback was better known amongst South Australians than non-South Australians, and amongst South Australians it was more known by those not living in Adelaide. Twenty one percent of interstate visitors had heard of Operation Bounceback (compared to almost one-third of South Australians), but only 10.4 percent of overseas visitors had heard of it. South Australians had the highest proportion of people saying conservation programs such as Operation Bounceback were 'very important' (almost three-quarters), whereas only two-thirds and half of interstate and overseas visitors respectively agreed. Overseas visitors were half as likely to be encouraged to use a particular operator if a logo was used to identify them as participants in Operation Bounceback. Another noticeable difference between overseas and Australian respondents was that two-thirds of overseas visitors stated they would most like to be led by a ranger on a tour, compared to less than 40 percent of Australians. Local landholders and ecotourism operators were much more popular with Australian respondents than overseas ones.

There was little difference between Adelaide, other South Australian, and interstate respondents regarding acceptance levels for feral animal culling (between 5.22 and 5.44). Overseas respondents in contrast produced an average of 3.84, representing a non-acceptance. Australians also agreed on average that it is fair to cull kangaroos, but overseas residents produced an average of 3.23, stating that such culling would negatively impact their visit.

Respondents who had previously been to the Flinders Ranges had a much higher awareness of Operation Bounceback (28.9% compared to 16.8% for first time visitors). There was also a noticeable difference in acceptance levels of animal culling between first time and repeat visitors. The average level for first time visitors for feral animal culling was 4.58, compared to 5.49 for repeat visitors. For kangaroo culling, the average level for first time visitors was 3.75, but 4.39 for repeat visitors.

Visitors staying one week or more had a much higher average acceptance of feral animal culls than visitors staying two days or less (5.83 compared to 4.61). This followed the same pattern for kangaroo culling, with visitors staying two days or less averaging 3.79 and those staying one week or more averaging 4.8. Visitors staying one week or more also claimed a much high level of care for conservation in the Flinders Ranges, however, they more often admitted to leaving marked roads and tracks (only 56.7% stay on roads

compared to 78.6% of those staying less than one week). Longer stay visitors were however more likely to tell others how to reduce impacts than shorter stay visitors (53.6% compared to 38.9%), and to be influenced by the tourism operator they used in regard to conservation attitudes.

The longer the stay in the Flinders Ranges, the more likely respondents were to have heard about Operation Bounceback. While only 7.1 percent of visitors staying two days or less had heard of it, 20.2 percent of those staying three to five days had. This rose to 38.9 percent for those staying about one week, and 53.3 percent for those staying more than one week. Longer stay visitors also spent 75 to 100 percent of their time viewing plants and animals more often than shorter stay visitors.

Wilpena primarily had visitors staying up to five days (73.2%), as did Parachilna (83.2%) and Rawnsley Park (70.8%). The locations of Willow Springs, Blinman, Angorichina Village and Lyndhurst had higher proportions of visitors staying more than five days. This may be related to the profile, cost or specific location within the Flinders Ranges of the various places. The lowest levels of care for the Flinders Ranges were seen at Wilpena Pound, Angorichina Village, Rawnsley Park and Leigh Creek, with between only 50 and 58.5 percent claiming high levels of care. The highest figures were seen at Lyndhurst (84.2%), Blinman (77.8%), and Willow Springs (65%). Respondents surveyed at smaller-scale locations averaged higher proportions of respondents trying to reduce negative impacts (Blinman and Willow Springs compared to Wilpena Pound, Rawnsley Park and Leigh Creek). There was a large variation in whether or not respondents stayed on marked roads and tracks. As few as 45.8 percent at Rawnsley Park and 52.4 percent at Angorichina Village stayed on marked roads and tracks, compared to as many as 85 percent at Willow Springs, 84.2 percent at Lyndhurst and 80.3 percent at Parachilna. Those at larger establishments also were less likely to read about ways to help protect the environment and to tell others about how they can help the environment, and it was those surveyed at the larger establishments of Wilpena Pound, Rawnsley Park and Parachilna who were less likely to be influenced by the operator they used in regard to environmental opinions and attitudes. While up to 50 percent of respondents surveyed at smaller-scale locations stated they were likely to be influenced, only between 15 and 25 percent at larger establishments thought they would be influenced.

The highest proportion of respondents who had heard of Operation Bounceback were those surveyed at Blinman (72.2%), Willow Springs (55%), Rawnsley Park (37.5%) and Wilpena

(29.3%). The lowest proportion of respondents who had heard of it were those surveyed at Parachilna (12.36%), Angorichina Village (14.29%) and Leigh Creek (16.67%). Visitors at Willow Springs, Blinman and Angorichina Village were most accepting of feral animal culling, whereas visitors at Rawnsley Park and Blinman were most accepting of kangaroo culling.

With the exception of those respondents who said they did not spend any of their time specifically viewing plants and animals, respondents' level of care for the Flinders Ranges, and efforts to reduce negative impacts, increased as they spent more time viewing plants and animals. Interestingly, the more time spent viewing plants and animals, the more likely the respondents were to remove plant material. Two possible reasons for this could be that the visitors are removing weeds, or that they enjoy the plants so much that they want to take samples for themselves. Additionally, those spending more time viewing plants and animals were more likely to leave marked roads and tracks. This may be to gain better access to wildlife viewing or to feel they are fully surrounded by nature. Visitors spending 75 to 100 percent of their time viewing plants and animals were more likely to read about how to reduce impacts than those spending up to 50 percent of their time doing so (two-thirds compared to half of respondents).

Respondents who spent higher amounts of time viewing wildlife more often considered conservation programs 'very important'. While 68.5 percent of those spending up to one-quarter of their holiday specifically viewing wildlife answered 'very important', almost 80 percent of those spending 25 to 50 percent of their time doing so said 'very important' and 90 percent of those spending 100 percent of their time doing so answered 'very important'. The same pattern was seen in regard to whether or not visitors would spend extra time to locate and use an operator involved in conservation, and use a logo to identify operators involved in Operation Bounceback. These findings are of relevance because it supports that tourists with a greater focus on viewing nature (many ecotourists) are more environmentally-conscious than other tourists, hence there is greater potential for ecotourism to be less environmentally damaging than other tourism and recreational activities in the Flinders Ranges. However it is also these tourists who, in pursuit of wildlife viewing and experiencing nature, are often likely to act in ways (although possibly unconsciously) that may not be as environmentally-friendly (such as leaving marked roads and tracks and removing plant material) because it might be perceived by them as enhance their tourism experience.

Table 7.9 reveals that those respondents spending more time viewing animals had higher average acceptance scores of feral animal culling than those spending less time viewing wildlife, but in contrast, had lower acceptance of kangaroo culling. This is an interesting point and may have implications when providing environmental interpretation for ecotourists.

Table 7.9: Average acceptance scores for feral animals compared to kangaroos

Average Acceptance Score	Time Spent Viewing Plants and Animals		
	None / Some	Half	Most / All
Feral Animals	4.92	5.03	5.20
Kangaroos	4.01	4.26	3.79

Source: Visitor Opinion Surveys

If eclipse visitors were excluded from the analysis due to this atypical nature of visiting, the main reasons for visiting were landscape or scenery (20.7%), the Outback (12.3%), camping / holiday (10.3%), beauty (11.1%) and by recommendation (8.8%). The most common reasons for Australians were landscape or scenery, the Outback, work or study and beauty, compared those of international visitors being by recommendation, nature and the Outback. The groups most likely to try to reduce negative impacts from visiting were those travelling for nature, landscape or scenery and beauty (each with over 90% selecting high or very high levels), and those with the lowest levels (less than 75%) were work or study and four-wheel driving.

All groups had at least 90 percent of respondents saying they dispose of waste as recommended apart from those naming four-wheel driving as their purpose of visit (78.6%). The four-wheel driving group, Outback group and camping or holiday group also had noticeably lower levels of respondents saying they stay on marked roads and tracks. The group most likely to remove plant materials were those naming nature as their reason for travel, again suggesting it may be either weeds or souvenirs they are removing. Those in the work or study group were, not surprisingly, those most likely to tell others how to help the environment.

Groups with the highest proportion of respondents having heard of Operation Bounceback were four-wheel driving visitors (57.1% had heard of it), landscape or scenery (40.7%) and the Outback (40.6%). Table 7.10 compares the percent of respondents who had heard of Operation Bounceback from each group, and the percent of respondents who would use an operator if a logo was used to identify their involvement in Operation Bounceback.

Table 7.10: Comparison between purpose of visit, awareness of Operation Bounceback, and likely use of a logo for Operation Bounceback

Purpose of Visit	Percent of Respondents	
	Had heard of Operation Bounceback	Would use a Logo
Four-wheel driving	57.1	28.6
Landscape / Scenery	40.7	63.0
The Outback	40.6	62.5
Nature	33.3	80.0
Work / Study	31.6	50.0
Camping / Holiday	29.6	51.9
Recommendation	21.7	47.8
Beauty	20.7	55.2
Other	16.1	61.3
Eclipse	6.0	62.9

Source: Visitor Opinion Surveys

Conservation in the Flinders Ranges was either 'important' or 'very important' to at least 70 percent of respondents in all groups, but notably to 100 percent of respondents coming for nature and for beauty. It was also very high for those visiting for the Outback. Those who were least likely to spend extra time to locate and use an operator involved in conservation were the four-wheel driving group, and those most likely to spend extra time were the nature, landscape or scenery and Outback groups.

The percent of holiday time spent specifically viewing plants and animals varied depending on purpose of travel. As many as 60 percent of respondents spent 75 to 100 percent of their time viewing plants and animals (nature visitors), but as few as 7.1 percent did so (four-wheel driving visitors). Visitors listing nature, beauty and landscape or scenery as their purpose for visiting were the least accepting of kangaroo culling. This is interesting because ecotourism is typically associated with viewing nature, and kangaroo culling is conducted as an important part of ecosystem management. If the abovementioned (eco)tourists do not support kangaroo culling, this could have important implications if Operation Bounceback was used to promote local ecotourism operations. If the activities of Operation Bounceback are not well received by nature-based visitors then ecotourism may not be as viable in the Flinders Ranges as predicted.

As would be expected, a higher proportion of visitors who indicated they care a lot about conservation in the Flinders Ranges said they try to reduce negative impacts on the environment. This was also proportional for whether or not visitors dispose of waste as

recommended, remove plant materials, stay on marked roads and tracks, read about ways to help the environment, and tell others how to protect it. Furthermore, there were higher expectations amongst those who had a very high level of care for conservation that an ecotourism operator would not damage the environment through their activities. Those who had very high care were also more likely to be influenced by an operator in regard to environmental attitudes. These findings are in keeping with the notion that ecotourism is less environmentally damaging than other forms of tourism and that it has the potential to actually contribute to ecological recovery (not simply only be based on nature).

Of visitors claiming to have a medium level of care for conservation in the Flinders Ranges, 12.5 percent had heard of Operation Bounceback. More than twice this many respondents with a high to very high levels of care had heard of it in comparison. While 82.1 percent of visitors claiming a very high level of care were of the opinion it was 'very important' conservation programs such as Operation Bounceback were in operation, less than 50 percent of other respondents agreed. Almost one-third of those with a very high level of care for conservation would spend as much time as needed to locate an environmentally-friendly tourism operator, compared to 14.3 percent of those with high level, and 2.1 percent of those with medium level. Sixty five percent of those with high and very high levels of care said they would use a logo that identifies operators involved with Operation Bounceback, suggesting there may be potential to incorporate the conservation program into regional tourism marketing, but it appears this is only likely to be relevant for those visitors with already higher than average levels of care for the environment.

Twice as many visitors with a very high level of care spent 75 to 100 percent of their time viewing plants and animals as those with a medium to high level of care. The visitors with a very high level of care had the lowest acceptance level for kangaroo culling, which being less than 4 indicated a non-acceptance. For feral animal culling, this was reversed, and those with a very high level of care for the Flinders Ranges were most supportive of culling. This is an interesting result as it suggests visitors are not fully aware of the need to control kangaroo numbers for conservation purposes. It could also be related to the fact that visitors who care a lot about conservation programs, and those who selected nature, landscape or scenery and beauty for their reasons for visiting, visit the Flinders Ranges to see typical Outback wildlife, so it could be thought of as illogical to cull one of their main attractions.

Almost one-third (31.2%) of those who try to reduce negative impacts on the environment as much as possible said they would spend as much time as needed to locate and use an

operator who participated in conservation or is more environmentally-friendly than other operators, indicating there is indeed a market for ecotourism operations. It may not be a large market however as less than 12 percent of other respondents agreed. The majority in all groups (51.6% to 63.4%) would spend extra time only if it was easy to find, suggesting other factors are more important to visitors (whether they be price, location, recommendations or other factors). It is positive that more than half of respondents would take environmentally-friendliness into some form of consideration however (but only if they did not need to put a lot of time into researching this information).

Whether or not visitors believed that by using an ecotourism operator there would not be any damage to the environment was compared to how important they thought various elements of ecotourism were. These included:

- a) Being based on nature;
- b) Teaching tourists about the environment;
- c) Reducing negative environmental impacts;
- d) Participating in conservation efforts;
- e) Involving and supporting local communities; and
- f) Following a set of guidelines.

A larger proportion of respondents who believed an ecotourism operator would cause no damage to the environment said that all six aspects of ecotourism were very important more than any other group. They very rarely said any of the aspects were not necessary or only of slight importance. The aspects they felt were most important were that they reduced negative environmental aspects (68.1% said it was very important), that it teaches about the environment (67.3%) and that it follows a set of guidelines (64.7%). Involving and supporting local communities was regarded as very important by the fewest number of respondents.

Respondents who were of the opinion an ecotourism operator would damage the environment most commonly said that teaching about the environment was the most important factor (44.2% said it was very important). This was followed by being based on nature (40.4%) and being low impact (40.4%). These respondents possibly were of the opinion it is very difficult to reduce or avoid direct negative environmental impacts, therefore education is often seen as an important tool in sending general environmental messages and contributing in a more indirect way.

Respondents who believed ecotourism operators would not damage the environment or would damage it only a little chose *Tourism that is nature-based, educational and uses minimal impact practices* as best describing what they thought ecotourism is approximately 60 percent of the time, suggesting the incorporation of education and minimal impact practices is seen to help reduce environmental damage from tourists. Respondents who felt an ecotourism operator would actually damage the environment chose this sentence only about 40 percent of the time, preferring *Tourism that uses minimal impact practices like reducing waste and conserving energy in daily activities* as what they thought ecotourism should be, chosen by approximately only 20 percent of other respondents. This may suggest those who think ecotourism operators do damage the environment are of the opinion ecotourism is about direct and physical impacts (as opposed to being about general environmental values and education) and more focus is needed on improving these minimal impact practices to achieve environmental goals as presently they are insufficient. Alternatively it may suggest those who think operators do not cause damage are of that opinion due to the different perspective they have of ecotourism (that it involves nature, education, minimal impact practices, and an overall move away from mass tourism, not simply minimal impact practices).

Visitors who were most likely to be influenced on environmental matters by a tourism operator thought the two most important aspects of ecotourism were that it taught visitors about the environment (84.3% answered this was 'very important') and that it was low impact (84.6%). The two aspects they least often answered 'very important' for were that it was based on nature and that it followed a set of guidelines. For those not influenced by an operator, the most important factors were that it was low impact (64%) and based on nature (52.3%). The least important factors were that it involved and supported local communities, it was actively involved in conservation and it taught visitors about the environment (all less than 50%). This is interesting as those more likely to be influenced by operators were of the opinion education was an important feature but those who were less likely to be influenced were less concerned in the educational aspect (therefore already less receptive to potential education and consequent influence from operators). Respondents with a higher level of influence from an operator most often chose *Tourism that is nature-based, educational and uses minimal impact practices* as best describing what they thought ecotourism meant (62.5%), again emphasising a combination of features is deemed necessary for ecotourism to be successful.

7.2.5 Visitor Opinion Surveys: Summary

The Visitor Opinion Surveys, conducted in 2002 and 2003, comprised two variations of the survey to enable a greater number of questions to be asked. The surveys asked respondents demographic questions and opinion questions regarding environmental inclinations and tourism preferences. Approximately two-thirds of respondents considered it 'very important' there are conservation programs such as Operation Bounceback, and more than 60 percent claimed to try to reduce negative impacts from their travels. More than half of respondents spent 50 percent or more of their time specifically viewing plants and animals, and the most popular reasons for visiting included the 'landscape or scenery', to see 'the Outback' and for the region's 'beauty'. The most popular choices for tour leaders were (in order of preference) a ranger, ecologist or natural scientist, and local landholder. The Opinion Surveys were subsequently complimented with Awareness Surveys, conducted during 2003 and 2004, to further broaden the exploration of the visitor market (with a focus on travel behaviour, aspirations, opinions and knowledge) in the Flinders Ranges.

7.3 Visitor Awareness Surveys

The Visitor Awareness Surveys were broken down into three separate versions in order to explore more areas of the visitors' awareness (Appendix IV), conducted to help assess visitor interest in environmental education, visitor receptiveness to interpretation and the level of knowledge visitors had about the Flinders Ranges. Having three versions enabled 21 different statements to be used for True or False questions as seven statements were deemed a suitable number to include per survey (not too many, not too few). Other than when specified or when making distinct comparisons between the three versions, the following results refer to a combination of all Visitor Awareness Surveys. The surveys were conducted because education is an important aspect of successful ecotourism (e.g. Charters *et al.*, 1996; Duffy, 2002), and for it to be a sustainable land-use option in the Flinders Ranges it must consider environmental, social and economic dimensions. If visitors are not interested in environmental education, this will have an effect on the potential size of the ecotourism market, influencing the economic success as well as an impact on the effectiveness of interpretation efforts, which in turn influence the environmental success.

Awareness Survey One (AS1) had 134 respondents, Awareness Survey Two (AS2) had 147 respondents and Awareness Survey Three (AS3) had 131 respondents. They were conducted

between June 2003 and May 2004 over three separate field trips, with a random dispersal of the three versions to visitors. The total number of Awareness Surveys completed was 412. An attempt to complete 150 surveys of each version was made but due to time constraints this was not possible.

Slightly more than half of the surveys were completed at Wilpena Pound as this location had the highest turnover of visitors, many of whom were approachable as they often spent a reasonable amount of time at the Visitor Centre and surrounding picnic tables. Other locations used were Blinman (17%), Parachilna (13.6%), Arkaroola (9.7%) and Willow Springs (7%).

7.3.1 Visitor Awareness Surveys: Demographics

In total, 210 males and 202 females completed a questionnaire. The majority of respondents were aged between 40 and 65 years (37.4%), and 31 percent were 25 to 39 years, while only a small percent were younger than 25 or older than 65 years. Almost half (47.1%) were from Adelaide and 7 percent from overseas. Of particular note, almost two-thirds were return visitors. The main reasons given by respondents for visiting the Flinders Ranges are outlined in Table 7.11 (for all 412 respondents), with the most common reasons being scenery or landscape, camping, nature and the Outback.

Table 7.11: Main reasons given by respondents for visiting the Flinders Ranges

Reason*	% of Respondents
Landscape / scenery	22.3
Camping	19.1
Nature / wildlife	14.8
The Outback	13.3
Four-wheel Driving	11.2
Walking	10.2
Holiday / tour	9.9
Peaceful / relax	8.5
Beauty	4.4
Recommendation	2.7
Work / study	2.4

* Multiple responses were given by some respondents.

Source: Visitor Awareness Surveys

Respondents to all three versions were asked to estimate the percent or proportion of time spent specifically observing plants and animals during their visit to the Flinders Ranges to help assess the true level of interest in observing wildlife and being amongst nature, a key feature of ecotourism. The most common answer was 50 percent (Table 7.12).

Table 7.12: Amount of time respondents spent specifically viewing plants and animals

Amount of Time	% of Respondents
0 / None	1.2
25 / Some	34.5
50 / Half	44.9
75 / Most	17.2
100 / All	2.2

Source: Visitor Awareness Surveys

7.3.2 Visitor Awareness Surveys: Awareness Questions

Visitors were also asked to identify which animals they saw during their visit from a list of native, introduced and domestic animals. The majority of respondents (more than 90%) saw grey kangaroos and emus, with smaller numbers seeing other native animals such as red kangaroos and yellow-footed rock wallabies. Over one-third (35.9%) identified sightings of one or more species of feral animal, and 94.2 percent identified domestic sheep, cattle or horses. The proportion of respondents seeing 10 or more of the listed animals was 16.3 percent. Over half saw between seven and nine types of animal, a further 27.4 percent saw four to six, and only 4.5 percent saw less than three types of animal. While eleven respondents did not answer the question as they stated they had only recently arrived in the region, Table 7.13 shows specifically which animals were identified by the remaining 401 respondents.

Table 7.13: Animals seen in the Flinders Ranges, as identified by respondents

Animal	% of Respondents seeing Animal
Red Kangaroo	35.4
Grey Kangaroo	90.0
Yellow-footed Rock Wallaby	24.7
Euro	24.7
Echidna	6.7
Possum	9.5
Fox	7.7
Feral Cat	4.5
Goat	28.9
Emu	90.0
Eagle	69.8
Corella	57.4
Horse	49.5
Sheep	90.5
Cow	53.9
Snake	19.0
Lizard	66.6
Other: Rabbit	7.0
Other: Bat	2.0

Source: Visitor Awareness Surveys

It is clear that a wide variety of animals can be seen by visitors to the Flinders Ranges, and it is positive for the ecotourism market that more than two-thirds of respondents saw at least seven different types of animal. It is also positive that the animals most commonly seen were Australian native animals and domestic animals rather than feral introduced species. With only 4.5 percent of visitors seeing three or less animal species, this suggests even if visitors are not actively looking for animals they typically see a variety of them during their holiday. It is also noted that some visitors may be unfamiliar with certain animal names (such as corellas and euros) or be unaware of the difference between certain animals (such as red and grey kangaroos), therefore the figures may indeed be higher than the survey shows.

The True or False statements give an insight into the general environmental knowledge of visitors to the Flinders Ranges. Table 7.14 ranks the statements in order from the highest to lowest proportion of respondents answering correctly.

Table 7.14: Respondents' answers to True or False statements (Responses marked with an asterisk indicate correct answers. See Appendix IV for references for each statement)

Statement	% True	% False	% Unsure
j) High stocking rates in early pastoral settlement altered plant communities in the Flinders Ranges.	*95.2	0.7	4.1
d) Some places in Australia cull goats and rabbits for conservation reasons.	*91.8	4.4	3.7
u) Goat, rabbit and fox numbers are controlled within the Flinders Ranges National Park.	*90.8	2.3	6.9
b) Overgrazing by domestic stock contributes to loss of native vegetation in the Flinders Ranges.	*89.6	4.5	6.0
t) Parts of the Flinders Ranges have been dated to more than 1.5 million years old.	*88.6	5.3	6.1
n) The Flinders Ranges National Park is land that was not altered by early European settlement.	8.2	*88.4	3.4
q) The wheel cactus is a weed commonly found near Blinman and Parachilna.	*83.2	7.6	9.2
e) Some places in Australia cull kangaroos for conservation reasons.	*80.6	7.5	11.9
h) The Yellow-footed Rock Wallaby is an endangered animal.	*79.6	3.4	17.0
k) Aerial baiting is used to control fox numbers in the Flinders Ranges National Park.	*77.6	13.6	8.8
i) Salvation Jane is a small purple native Australian flower.	12.9	*75.5	11.6
p) Red kangaroos and grey kangaroos do not both live in the Flinders Ranges.	13.7	*74.8	11.5
l) Kangaroos are sometimes culled in the Finders Ranges due to excessive population numbers.	*72.8	15.7	11.6
f) Rabbit warrens are bulldozed to help control rabbit numbers.	*69.4	6.7	23.9
a) Kangaroos (incl. Euros) in the Flinders Ranges are endangered.	13.4	*64.9	21.6
g) National Parks are pristine and untouched environments.	29.9	*62.9	6.7
o) There are more than 200 bird species found in the Flinders Ranges.	*58.8	20.6	20.6
s) Tourists do not need to ask for permission to use roads on pastoral lands in the Flinders Ranges.	28.2	*55.0	16.8
m) There are no more rabbits in the Flinders Ranges due to the Calici virus.	29.9	*50.0	19.1
r) The Indigenous Australians of the Flinders Ranges are known as the Kaurna people.	30.5	*45.8	23.7
c) Yellow-footed Rock Wallabies live only in the Flinders Ranges.	42.5	*30.6	26.9

Source: Visitor Awareness Surveys

The lowest proportion of respondents knew that Yellow-footed Rock Wallabies do not only live in the Flinders Ranges, and less than half of respondents were aware that the Indigenous

people of the Flinders Ranges are not known as the Kaurna people and that the Calici virus did not remove all rabbits from the Flinders Ranges. Fifty-five percent were aware tourists could not access pastoral land without permission from the landholders. Respondents appeared to be most aware of issues regarding domestic stocking rates and feral animal culling. More than two-thirds had some knowledge of weeds and the methods of kangaroo, rabbit and fox population control, but less was generally known about the difference between and details of various macropod species, bird species, and Indigenous people of the region.

Most commonly, respondents answered either five or six statements (out of a total of seven) correctly (58% did so). Thirteen percent answered all seven correctly, but eleven percent answered three or less correctly. With close to three-quarters answering at least 71 percent of the statements correctly, a reasonable degree of environmental knowledge can be seen. This may suggest a reasonable interest in environmental issues, which is applicable in the determination of the size and sustainability of the ecotourism market.

The Awareness Surveys also incorporated a section regarding environmental opinions. Some statements differed between the three survey versions in order to use a larger number of statements. Table 7.15 shows the proportion of respondents agreeing and disagreeing with each statement; the results showed a high concern for the environment, a high desire to know more about it, and a relatively high desire to do more to help it.

Table 7.15: Proportion of respondents agreeing with the environmental statements

Statement	Percent Agree	Percent Disagree
a) I would like to do more to help the environment (404)*	87.9	10.2
b) I feel very concerned about the state of the environment (406)	76.9	21.6
c) I would like to know more about the environment (404)	85.0	13.1
d) I think environmental issues are given too much attention (397)	10.0	86.4
e) I don't do more because I do not have time (275)	31.7	67.3
f) I don't do more because it is too hard to help (128)	12.7	82.8
g) I don't do more because it costs too much (115)	36.6	51.2
h) I think other people don't care about them as much as I do (139)	55.1	39.5
i) I don't think about the state of the environment very much (137)	59.9	33.3
j) Tourists' actions are bad for the environment (135)	65.3	26.5

* Figures in brackets represent the number of respondents per statement.

Source: Visitor Awareness Surveys

7.3.3 Relationships between Characteristics of Respondents

The most popular reasons for visiting among males were for camping and four-wheel driving, whereas for females they were landscape or scenery and camping. Females were more inclined to spend more of their time specifically viewing plants and animals (22.8% spent 75 to 100% of their time, compared to 16.2% of males). Far less females spent up to 25 percent of their time viewing plants and animals than males (25.3% compared to 45.7%). Almost half of the male respondents answered either six or seven True or False statements correctly, compared to only a little over one-third of females.

Older respondents said their reason for visiting the Flinders Ranges was for the Outback much more often than younger respondents (3.3% of those younger than 25, compared to 17.7% of those older than 65 years). This may have implications for ecotourism marketing. Additionally at least 10 percent more respondents aged over 65 years spent 75 percent of their time or more specifically viewing wildlife (29% of them claimed to do so) when compared to younger respondents. This may also be of interest when evaluating the ecotourism market as possibly there is a greater market for older visitors when considering an Outback ecotourism activity in the Flinders Ranges.

This is also a possibility because it was those respondents aged over 40 years old who most often claimed they would like to do more for the environment (81.8%), followed by those aged 25 – 39 years (77.8%) and those under 25 years (72.6%). However, those aged 65 years and over had the lowest level of concern for the environment, with 82.6 percent declaring their concern compared to almost 90 percent of all other age groups. Yet those younger than 25 years surprisingly admitted most commonly to not thinking about the state of the environment very much, with almost one-quarter confessing so. It is interesting then that more than one-third of this group were also of the opinion that other people did not care about the environment as much as they did. Those who most often stated they would like to do more for the environment (40 – 65 years) also thought about the state of the environment the most.

Those aged 65 years and over, which were those who had the least concern for the environment, most often believed that environmental issues were overrated (14.5%). Other age groups showed approximately half this value. Those 65 years and over also differed from the other age groups in regard to why they do not do more to help the environment; noticeably less in this age group stated it was because they did not have time or that it was too expensive (20% less in both cases).

Almost half of the respondents who were under 40 years old believed their actions as tourists were damaging to the environment, but only 29.3 percent of those who were 40 years and over believed this to be the case. The combined abovementioned results may have important implications for ecotourism; older visitors, who spend the most time viewing wildlife (and therefore potentially having an impact on it), actually have the least concern for the environment and are of the opinion their actions as tourists do not damage the environment. The younger tourists, who more often accept their actions may be damaging, appear to be less interested in the Outback experience of viewing wildlife, and are actually less concerned by these damages even though they are more aware of their potential seriousness.

Respondents most often answering either six or seven True or False statements correctly were those aged between 40 and 65 (over 43%). South Australian visitors were more likely to answer a higher number of True or False statements correctly. While 17 percent of South Australians answered six or seven correctly, only 8.5 percent of other Australians and 6.9 percent of international visitors did. Visitors on their first trip to the Flinders Ranges answered either six or seven True or False statements correctly in only 31.4 percent of surveys, compared to 48.7 percent on their second visit, 47.2 percent on their third to fifth visit, and 53.9 percent of those visiting more than five times. Those on their first visit correspondingly had a higher proportion of respondents answering only one to three correctly (14.7%) than those visiting twice (9.6%), three to five times (9%) and more than five times (5.8%). These results may indicate that the level of environmental knowledge is independent of the availability of interpretive signs; the knowledge appears to be gained through proximity to the site (location of residence) and familiarity with the site (number of visits). Alternatively, repeat visitors may simply spend more time learning about a region than first-time visitors (who may be more preoccupied with relaxing or exploring for example).

On average, respondents spending longer in the Flinders Ranges more often answered that they would like to do more to help the environment, with 70.5 percent of those spending up to two days, 74.2 percent of those spending three to five days and 85.3 percent of those spending a week or more wanting to do more to help. Respondents staying two days or less answered six or seven True or False statements correctly 31.2 percent of the time, compared to 46.7 percent for those staying three to five days and 40.2 percent for those staying a week or more.

Visitors spending three to five days in the Flinders Ranges were just as likely to see 10 or more types of animals as those spending a week or more, but visitors spending up to two days

were noticeably less likely to see this many. If examining the proportion of respondents seeing seven types of animals or more, those staying up to two days were just as likely to see as many as those spending a week or more.

Respondents visiting the Flinders Ranges for four-wheel driving and camping saw 11 or 12 types of animals much more often than any other group. Respondents visiting for work or study and beauty generally saw the fewest types of animals. Almost one-quarter of camping visitors saw nine or more types, as did almost 20 percent of those four-wheel driving and visiting for landscape or scenery. While the four-wheel driving visitors saw the highest variety of animals, they were also the most likely to agree their actions from visiting the Flinders Ranges were damaging to the environment (61.9% compared to an average of 36.6%).

There was little variation in the environmental opinion of respondents between survey locations. Of note however, 85 percent of respondents at Arkaroola claimed they wanted to do more to help the environment, compared to between 73 and 77 percent at other locations. Ten types of animals were more commonly seen by respondents at Arkaroola and Blinman than at other locations, and the fewest number of animals (four or less) were most commonly reported by respondents in the southern-most locations of Willow Springs and Wilpena. These results may indicate that the northern locations of the Flinders Ranges are more suitable for ecotourism activities due to the higher likelihood of seeing more animals and the fact that those who are willing to travel a longer distance (from Adelaide) appear to be more concerned with actually helping the environment (a crucial aspect for sustainable ecotourism).

More than half of the respondents surveyed at Arkaroola and Willow Springs answered either six or seven True or False statements correctly (58.6% and 52.5% respectively). At Wilpena, 38.7 percent answered six or seven correctly, as did 38.6 percent at Blinman and 46.4 percent at Parachilna. This is interesting as Arkaroola and Willow Springs are family-run businesses where the owners have a strong focus on environmental issues (pers. comm., 2006), either removing or reducing the number of stock to encourage environmental recovery, and with tourism operations that enable visitors to personally speak with and ask questions to landholders.

Whether visitors spent one-quarter, half, or more than half of their time specifically viewing plants and animals, approximately 30 percent saw nine or more types of animals and a further 60 percent saw between five and eight types of animals. The only noticeable difference was that 40 percent of those spending none of their time specifically viewing plants and animals saw four or less types of animals, compared to less than 10 percent in all other groups. It was not seen that those spending more time viewing wildlife answered more True or False statements correctly; similar proportions answered either six or seven correctly regardless of spending either 25 percent or 75 percent of their time viewing plants and animals.

The fewer the number of True or False statements answered correctly, the higher the proportion of respondents wanting to know more about the environment, a positive sign in encouraging the education aspect of ecotourism. While half of respondents correctly answering four or less questions believed that their actions from tourism were damaging to the environment, a much higher 85.4 percent of those answering five, six or seven statements were of the opinion tourism can damage the environment. This suggests if visitors are more aware of the level of environmental damage the region has already suffered, they may become more aware of their own personal actions of being a tourist. Those answering six or seven correctly also had a noticeably higher rate of believing other people did not care for the environment as much as they did.

7.3.4 Visitor Awareness Surveys: Summary

The Visitor Awareness Surveys, completed by 412 visitors to the Flinders Ranges between June 2003 and May 2004, examined visitor characteristics including demographics, environmental inclinations and environmental awareness, such as awareness of the animals surrounding them local environmental knowledge of the region in which they were holidaying. The results showed that different demographic segmentations had differing levels of environmental knowledge and slightly different environmental opinions. The majority of respondents claimed to be concerned for the state of the environment and the majority answered more than half of the True or False statements correctly.

7.4 Conclusion

The aim of the Visitor Opinion Surveys and Visitor Awareness Surveys was to examine how viable ecotourism is in the Flinders Ranges through an evaluation of the present tourism market in regard to what tourists desire and expect from their visit and how interested and aware they are in environmental issues. The surveys revealed that there is not only a market for nature-based tourism (as shown for example by the high proportion of respondents visiting for the Outback landscape and associated nature-based activities, and the large number spending more than half their time specifically view plants and animals), but there is also a market for ecotourism, as among other reasons, many visitors showed concern for the environment, interest in tourism operations conducted by rangers, ecologists and local landholders, a desire for environmental education and an appreciation of the importance of the primary features of ecotourism.

8.0 INTERVIEWS WITH LANDHOLDERS AND TOURISM OPERATORS

8.1 Introduction

This chapter presents the results from the interviews of the research project beginning with the tourism operator interviews and finishing with the landholder interviews. It provides the reader with an overview of the characteristics of those individuals who were interviewed and offers examples of answers given by respondents in an attempt to describe the various opinions they held.

8.2 Tourism Operator Interviews

Tourism operators and tourism staff servicing the Flinders Ranges were interviewed to both gain an insight into their opinions on environmental impacts of tourism and an understanding of tourism market characteristics in the region. Appendix II shows the semi-structured interview guide used. A total of 48 operators were approached for interviews via letter, with 21 accepting responses, representing a 43.8 percent return rate. This rate is deemed to be relatively reflective of the population as according to Wellman *et al.* (1980), only minor variations occur after 50 percent of questionnaires are answered and almost no differences exist after 70 percent are answered in regard to recreation-based surveys. While this study is clearly not a pure leisure-based study, the tourism operator interview component falls within the leisure and recreation-management field. Although a high response rate may be important where a population is very heterogenous, in outdoor recreation such as ecotourism the population is usually quite homogenous, therefore it is less crucial to obtain higher response rate (Wellman *et al.*, 1980). Interviews were conducted during 2003 and 2004, either in person, on the telephone, or by mail survey if necessary, depending on the base location of the business and the operator's availability.

8.2.1 Nature of Tourism Operations

The operators interviewed ranged from accommodation-only providers to fully catered four-wheel drive and camping tour providers. While some operators employed in excess of 20 staff, others comprised only one or two people. Base locations were either in South Australia, Victoria or New South Wales. The shortest amount of time an operator had been in business was one year and the longest amount of time was 39 years. For those who gave estimates of annual visitor numbers using their business, the highest figure was 2300 tourists and the lowest was 14 tourists. A wide range of activities were offered to these visitors by operators, the most common being four-wheel drive tours (and tag-along tours) and bushwalking (Table 8.1).

Table 8.1: Activities offered by interviewed tourism operators

Activity	% of Respondents
Four-wheel drive tours	33.3
Bushwalking	28.6
Camping	23.8
General sightseeing	23.8
Bicycle riding	19.1
Ecotourism	14.3
Nature tourism	14.3
Accommodation only	9.5
Adventure activities	9.5
Station tourism	9.5
Coach touring	4.8
Cultural touring	4.8
Photography	4.8

Note: Total percentages do not equal 100 as most operators listed more than one activity.

Source: Interviews of tourism operators

Operators entered the tourism industry for a number of reasons, but primarily as they enjoy working with people, they enjoy travel themselves, they want to show and teach people about their local area, and for the positive outlook the industry offered.

I enjoy showing people the Outback and the pleasure they get from the experience.

An interest in seeing the Outback and other natural attractions and [ensuring] that others have the same opportunities in the future.

A love for Australia and a desire to [teach others about it].

For the lifestyle, the ability to own a business, and it's good money.

The most common suggestion given as a factor being necessary to succeed in a tourism business in the Flinders Ranges was having knowledge of the local area and having access to certain areas. The desire to share this knowledge with others and liking the job were also deemed very important.

Having access to national parks and private property, maintaining high standards and leaving no trace when we leave.

Access to areas, working with the environment whilst enjoying that access, education.

Knowledge of the area and utilising other available resources as and when required.

Operators need to be very good communicators, with the ability to educate their clients through local knowledge and passion.

Being able to answer all types of questions and if you don't know the answers being able to find out. Or not just able to find out, but happy to find out for them.

Other factors given as being necessary for success include offering excellent and flexible service for strong customer satisfaction, and the ability to reach the market.

Attention to detail, flexible tour itineraries, appreciation of wildlife and wild places, general knowledge.

Customer satisfaction, the ability to offer tourists a unique experience while ensuring that our tours are operated in an ecologically sustainable fashion.

Having a high quality product, providing value for money, honest and quality interpretation.

Customers. Our biggest problem is letting people know we exist and how much they can see and enjoy.

Suspension of disbelief when business is bad.

Operators rated on a scale (with 1 representing 'low' and 5 'very high' importance) how important they believed their clients considered seven different aspects of ecotourism to be (Table 8.2). Of these aspects, operators perceived the standard of the tourism service to be of the highest importance, followed by the operator's knowledge of the region in which they are travelling. The operators believed tourists would be concerned about how they impact the local communities in which they travel to a lesser extent than any other listed aspect.

Table 8.2: Aspects that operators perceive tourists to consider most and least important in ecotourism

Aspect	Score*
Standard of service	3.5
Guide's knowledge of region	3.4
Interpretation of the environment	2.9
Standard of environmental practices	2.6
Number of animals seen	2.3
Variety of plant life seen	2.0
How they impact the local community	1.5

*A higher figure represents a higher degree of importance.

Source: Interviews of tourism operators

Also for comparison purposes with the responses to the Visitor Opinion Surveys, operators were asked to select which definition of ecotourism they most agreed with, or to write their own definition. The options included:

- a) Any tourism that is nature-based (occurs in a natural setting);
- b) Tourism that uses minimal impact practices like reducing waste and conserving energy in daily activities;
- c) Tourism where people can observe and learn about plants and animals through activities like bushwalking and camping;
- d) Tourism with activities about the local culture and environment, helping people understand and appreciate a particular region;
- e) Tourism that is nature-based, educational and uses minimal impact practices; and
- f) Other

More than half of the respondents (52.4%) selected (e) as their preferred definition, but almost one-third (28.6%) chose option (f), to write their own definition instead. No operators chose (a) and only one chose each of (b) and (c) and (d). Operators' own definitions included:

Nature-based tourism that offers tourists a unique experience involving local culture and wildlife, in an ecologically sustainable fashion. True ecotourism must be small-group.

Option (e) but it doesn't have to be nature-based, it can just be culture-based if desired.

Ecotourism is about encouraging client involvement in environmentally-friendly practices, usually in a natural setting. This is generally done through interpretation. Yes, we have to use minimal impact practices to teach the clients, but I think the key is trying to spread the word and getting them to take messages home, not just while they are on holiday.

I think there are two types of ecotourism; hard and soft. Most operators would say it is any tourism where they have made at least some effort to reduce negative impacts, but it should really only be when impacts are reduced almost completely, not just a bit of recycling here and there.

Interviewees were asked for their thoughts on the local tourism market based on their own experiences, such as whether it was increasing or decreasing in size, if there was room for new operators, or if it was moving toward certain forms of tourism. The general consensus was that there is a large enough market for more operators, but reaching this market is difficult when the well-known sites already have established businesses attracting a large portion of visitors.

With tourist numbers rising at least ten percent a year (I think), there's room for more operators yes, but I personally want more of the business myself!

I saw a niche... there are still some types of tourism that could be explored in the Flinders, like my tours for older people, or food tourism, or art and craft holidays, which I believe would be popular.

More people are more environmentally aware these days, and we can offer this in the Flinders Ranges, so yes I think the market's looking good...

I think the market's looking good. But Wilpena have a huge portion of this market with their environmental plans, but not all people want to go to large-scale campgrounds. We just need to tell those people to come to us instead!

I guess I don't want new operators coming in because I need the business myself, it's hard enough getting tourists to choose us over [other stations].

Operators were slightly reluctant to talk about how they felt towards the South Australian Tourism Commission (SATC) and National Parks and Wildlife South Australia (NPWSA). Some thought their services were fair but they needed more funding to improve while others thought they were 'appallingly bad'. Some comments from different individuals included:

[The SATC] aren't realistic about Outback and touring safaris in these areas.

[The SATC is] disjointed...participates with favourites too much. [They] are easily seduced by operators who are on their doorstep because they operate from the city [and they] know little of their country cousins.

All they do is sell us.

[The SATC are] OK but staff probably need to get into the country areas more. It's not necessarily their fault.

The service [from the SATC] is of high standard...but they need to do more to promote the small operators.

[NPWSA] are, by normal standards, back in the 50s.

I think National Parks and Wildlife are too regimented, they're unrealistic. But this varies in different areas.

[NPWSA] aren't willing to give out information. They don't put up signs easily.

There are improvements occurring in most areas, updating / modernising facilities without losing the general feel of the Outback.

[NPWSA's work with] conservation is excellent, recreation access is too restrictive, for example we'd love to be able to mountain bike on walking / fire trails. We have applied for off trail walking access before and been denied, even though I believe environmental impact was nil, they just seem to come up with any excuse, environmental, Aboriginal, whatever.

Parks have been getting more involved in ecotourism which is good, but the SATC need to help market this in the whole Flinders, not just the parts they already favour.

Services and facilities by [NPWSA] is very good with the Central Flinders Ranges, but too much is centred on Wilpena.

Operators were asked if they believed the '2002 Year of the Outback' positively or negatively influenced their operations. There was a mixed response, with some claiming it helped and others it hindered their business. Positive responses included:

It increased sales and hire equipment bookings.

Generally passengers were interested in tours travelling further Outback.

Yes, it provided awareness / promotion, which led to more bookings.

Negative responses included:

I'd say it had no effect whatsoever. SATC didn't market to [our main customers].

It had a negative impact as all tourists seemed to be following events which were on different road to us. Normal traffic was diverted away from us – that year numbers were down on the year before.

It reduced activity – a concentrated promotion in one area always draws customers away from another. One-off events are of limited value. We have to survive for 365 days, not 5.

Mixed responses referred to operators who valued the renewed interest in the Outback but did not see noticeable impacts to their own business:

For the environment, yes, people were more aware and asked more questions. But in terms of numbers and dollars, no.

It raised awareness, but no discernable increase in activity level during the year. But 2003 already is looking better, maybe because of the increased interest.

It was a good idea; it certainly promotes real Outback and working conditions etc. I would support another similar program, but there wasn't much impact on my business last time.

Only one operator in the sample was accredited in the National Ecotourism Accreditation Program (NEAP) (with Advanced Ecotourism Accreditation), but a further two operators intended to join in the near future. The reason for the delay was stated that there was not enough time to arrange it. For those who were not members, some reasons were because they were already accredited tourism operators with other schemes (and there were '*too many schemes to become members of*'), that it was '*too expensive*' (and the '*scheme does not give a true representation of the industry*'), that ecotourism was not a large part of their operation or in one case that they were '*not aware of the program*'.

We're already aware of the issues, without having to be a member. We've been operating for 39 years... there's too much government interference.

It appears quite easy to become 'accredited' with any organisation, providing you pay the annual fee, whilst giving the public the false impression of a particular standard obtained and retained.

We have permits and fees that are compulsory in order to operate in our chosen areas [e.g. national park permits]. Then there are voluntary fees for becoming members of additional organisations... There are far too many voluntary organisations that we are asked to join, always with a fee, and no consideration is given to the small tour operator that must shoulder this financial burden. We are expected to join in order to become more acceptable to the tourism industry, so that we can have a sticker to put on our brochures or vehicles etc.

People who take tours don't care about a piece of paper that says 'ecotourism accredited'.

Overall the majority of operators conducted their activities with little assistance from or communication with larger bodies or organisations. It may be due to the smaller size of their operations (in comparison to the larger Wilpena Pound complex) and the general agreement that such organisations were primarily concerned with assisting the better-known operators, and the fact that to gain benefits from some organisations (e.g. those with accreditation schemes), there are considerable registration fees. Operators regarded having local knowledge and access to areas, and providing a high quality service, as more important than accreditation.

8.2.2 Environmental Practices and Opinions

A NPWSA Seasonal Events program staff member talked about the high potential for sustainable environmental tourism in the region:

...Provided it is done properly and consistently from the start. People visit the Flinders Ranges for its natural and cultural values. It is an environment that naturally sparks interest in understanding the surrounding environment.

This proved true when looking through comments written in guest books from local operators:

Fantastic views, beautiful picturesque scenes, how wonderful, a most interesting learning experience about the Flinders Ranges and countryside. Thanks for the experience on your property.

Staying here has been very therapeutic. The impacts of human beings i.e. the rubbish we make really hits home in a place like this when you have to constantly see the things left over in the way of packaging etc. It's a pity more city people don't have this experience to learn about the environment.

Operators expressed their desire and ability to send messages to visitors regarding environmental sustainability:

At an individual level, we can help people to see the difference they can make. We have a small system where you can see the functioning of water supply, power and sewerage.

People are in a receptive frame of mind when on holiday, and we hope that they take away a lasting impression.

Some operators stressed that it was indeed necessary to send these messages, not simply an option for those who have particular interest in educating visitors, stating ‘visitors are education tools, not just money’, and that ‘the only way to protect is to promote’. Indeed the majority (85.7%) of operators had specific environmental objectives or policies, including:

Take only pictures, leave only footprints.

Protect National Parks.

Keeping in touch with Parks management so that all National Park regulations and relevant matters are kept up to date.

Minimum impact behaviour, recycle where possible, have small groups.

Assessing environmental risks associated with each activity we conduct. Identifying these risks and the measure put in place to avoid environmental emergencies and appropriate response to environmental impacts or emergencies. At the end of each tour we record notes on Environmental Impact Sheets...We rate each impact and note the action required...Never purchase or use disposable items...Compost all food scraps...Respect wildlife ‘escape distances’ to avoid stress to wildlife

Leave the country as you find it (or even better!) We pick up any rubbish, often left by other people before us!

We attend EPA Small Business Eco-Efficiency seminars...the over competitive, deregulated condition of the State and some Government Departments' attitudes makes it difficult to upgrade standards, such as Euro motors in vehicles (for cleaner fuels).

...Striving to achieve something sustainable economically and environmentally.

Interviewees were asked whether they included various ecotourism-related aspects in their operations:

- a) Employing people from local regions
- b) Purchasing goods / services from local regions
- c) Encouraging visitor interest in the local environment
- d) Encouraging visitor involvement in conservation projects
- e) Financial or material contributions to conservation projects
- f) Monitoring environmental conditions and impacts where operating

Table 8.3 shows that all interviewed operators try to encourage visitor interest in the local environment, and ninety percent purchase local goods or services. While one-third of operators encourage visitor involvement in conservation projects, slightly fewer operators contribute either financially or materially to such projects. Close to half however are involved in monitoring environmental conditions and impacts where they travel.

Table 8.3: Environmental practices of tourism operations

Aspect	% of Operators
a) Employing people from local regions	60.0
b) Purchasing goods / services from local regions	90.5
c) Encouraging visitor interest in the local environment	100.0
d) Encouraging visitor involvement in conservation projects	33.3
e) Financial or material contributions to conservation projects	28.6
f) Monitoring environmental conditions and impacts	42.9

Source: Interviews of tourism operators

Several operators commented that employing people from local regions was a very good idea when practical. Goods were regularly ordered from local shops, but products were not necessarily locally-made or Australian-made. Those who monitored environmental conditions and impacts did so in various ways including casual observations, bird watching and recording, photography for comparisons and note-taking at specific sites. Operators would not hesitate to report anything to the relevant authorities if they were at all concerned.

Operators identified both environmental benefits and detriments from their tourism operations:

Word of mouth is great for environmental concerns... We may cause some minimal damage, but my hope is that environmental issues will be helped in the big picture.

We make people aware of environmental issues... I could see this benefiting conservation... to keep it for future generations the same as it is today... If some developments become too big [there could be problems]. Environmental problems commonly relate to tourism development, or any new development, because the politicians do not listen to the scientists, only the development dollar.

Visitors ask about things like water availability and revegetation – so they learn about the environment but at the same time I guess you could say they use our resources and damage plants if they go four-wheel driving.

Many (61.9%) believed tourism, when conducted sensibly, could help improve the condition of the Flinders Ranges. Some (19.1%) thought it could help in a number of ways but not in others, while 9.5 percent did not believe it could help (and the remaining were undecided). The following comments were offered regarding tourism's ability to aid ecological recovery:

Yes because we don't just do things to stop it from getting worse, we do things to help it get better. Not all industries can do that.

We are the observers, travelling through remote areas. We can help by showing people the environment and actually protect it to make sure it is still there for the next group.

Most tourists are very aware of environmental issues. They ask many questions and are very interested. They always remove rubbish and clean camping areas... The main reason people come up here is to see the beautiful clean environment and wish to leave it as they find it, or better than they found it.

Financially we contribute to the restoration of local historical sites.

Interestingly one operator suggested it had the potential to help depending on whether ecotourism was 'the main game, or the mainstream game'. This refers to whether or not ecotourism is fully embraced as a means of reaching sustainability goals, or if it is simply used for any tourism related to nature, hence becoming mainstream through incorrect marketing. The sustainability of tourism was often compared to pastoralism, with operators saying:

Tourism can do more [to help the environment] because we can reach thousands of people. There aren't many people living out here so even if communities are doing the right thing, you need some sort of way to let the public know what needs to be done.

Well it's not us who cleared the trees and ruined the soil. We are helping by teaching people what not to do and how to help for the future. Pastoralists can certainly do things to help too, but we can get the public interested and more people can act on it.

People don't eat plants, but agriculture and pastoralism do, so they must keep stock balanced according to fauna and flora competition.

There were three operators (14.3% of interviewees) who admitted that while ecotourism ideally eliminates negative environmental impacts, pastoralists may have a greater ability to actually contribute to ecological recovery. Their argument was that pastoralists have access to land (e.g. space to plant native seedlings), financial incentives and sometimes also access to volunteers and government schemes for further contribution. Landholders may also become involved with programs such as Operation Bounceback where they not only help conservation efforts (for a reduced price), but their pastoral enterprise as well.

Operators were asked if they thought establishing a connection between ecotourism operations in the Flinders Ranges and the environmental recovery program Operation Bounceback could potentially help both tourism operators and conservationists achieve their goals. Many operators, although environmentally-friendly in many ways, were unaware of the project asking ‘*what does it entail?*’ and not knowing exactly what it does. There was accordingly a mixed response by the partnership idea, with some operators of the opinion it could encourage further interest in Outback conservation and sustainability, and others viewing it as another unnecessary marketing scheme or simply thinking tourists would not be interested.

We have planted hundreds of trees with grants from LAP and Greening Australia, and tourists are very keen to know about it. It could work with Operation Bounceback.

Well it might help the real ecotourists decide which operator to use, and more operators might then act in more sustainable ways if the tourists are interested enough. It comes down to money so if the tourists like it, it will help the industry.

Public involvement in any way is important, but not all realise what they can do. Any way to help tourists get involved, especially in a hands-on project, can only be good.

I'm not sure if it would encourage that many people – most people choose which company they use based on other factors like price and word of mouth.

I don't know if enough people have heard of [Operation Bounceback] to let it have any impact. People are more interested in big media issues like saving the pandas or stopping whaling, and a small project unfortunately doesn't get the attention.

I don't think it would help all that much – it's sort of just like adding another logo on a pamphlet – people don't really pay that much attention to them.

8.2.3 Operator Interview Summary

Whether or not the operator would actually be able to gain accreditation as an ecotourism business, all interviewees had qualities suggesting environmental issues were important to them, as seen by their environmental policies and attitudes. As one operator said:

All operators should be ecotourism-wise, no matter what type of operation. Like farmers, they want to go back to same areas to be sustainable.

The key theme was that operators hoped their operations increase environmental awareness, influencing future actions towards the environment in a positive manner. They maintained that environmental education is a key factor in reaching sustainability goals, and while tourism operations may cause some negative impacts, it was generally upheld that the positive outcomes far outweighed the negative ones. They acknowledged there are some tourists who do not respect the environment, but these are usually visitors who do not use registered operators. Whilst operators did have environmental objectives, they were of the opinion education was more important than engaging in the very strictest minimal-impact procedures. In summary operators need to be dedicated, interested in the local environment and have both business sense and environmental goals. They believe that through ecotourism, people have the opportunity to realise they can (and must) be part of the actual solution.

8.3 Landholder Interviews

Seventeen landholders were interviewed for the study. While the pastoralist community of the Flinders Ranges is numerically small, it controls vast areas of land. The interviews were designed primarily to gain insight into pastoralists' perceptions of the grazing industry and local land degradation, and explore attitudes toward the tourism industry by investigating the cohabitation of the two industries on a landscape that has suffered from severe environmental degradation since early European settlement.

The landholders interviewed primarily ran sheep stations, or in some cases, combined sheep and cattle stations. The length of time that the landholders' families had been working the property or holding the lease varied between about 20 years and almost 120 years. On average, properties engaged between two and five full time equivalent workers, with additional seasonal workers employed as required. They often also referred to one to two additional unpaid family members casually working on the property as needed.

Overall, the landholders presented a different attitude to the pioneer mentality whereby natural resources were seen *only* in terms of their potential for economic exploitation. The landholders of the Flinders Ranges did largely express the desire to utilise the land and its resources to achieve the highest amount of economic gain possible, but this was within an ecologically

sustainable framework. Any exceptions to this were when landholders followed the majority of environmentally sound practices but ignored a few seemingly minor factors (but ones that would influence overall conservation efforts). One local NPWSA staff member commented:

Generally pastoralists in the region have come a long way and many are doing some fantastic conservation/preservation work, only a few are still using unsound practices.

One landholder admitted:

I can tell you that some of my neighbours do a few things they shouldn't, but you can get good money for a big goat so they let them feed for a while on their land.

The strongest message sent by landholders was that they do care about the environment and that they do try to use environmentally-friendly methods when practical. A few landholders were very conservation-minded:

There is already enough farming land, so now we need more conservation land.

Conservation is what counts. Without it, there is no reason for existing.

Native vegetation should be retained to keep the Flinders unique and to protect wildlife in the area, like the bilby and the yellow-footed rock wallabies.

Others implied their conservation efforts were largely related to economic gains and that if they did not participate it would simply be damaging their own business:

I find I actually have to look after some native vegetation, whether I would want to or not, so my livelihood doesn't suffer in the long-term.

I've fenced off one of my paddocks to let it revegetate – because I might not have enough feed down in this paddock in the future.

You're only a fool to yourself if you don't [contribute to conservation efforts].

Other landholders wanted to do more for the environment but due to economic constraints found it difficult:

You know the saying 'It's hard to be green when you're stuck in the red'?

I'd like to help some of the smaller natives and rock wallaby populations 'bounce back', but when we're providing the food for them which could have been used by our stock, in that sense it costs a lot.

The less versatile people [economically] have to put more pressure on the land.

A large number of landholders commented that native vegetation was important for farm production, providing shelter for stock and reducing soil erosion. However, the landholders

also noted that native vegetation is a refuge for vermin and feral animals. One landholder mentioned that some land should be cleared for fire control reasons, and another commented that although they try to follow environmental planning, '*land planning goes out the window with a good drought*' (with sheep numbers reduced by one-third in a year, showing the unstable nature of the industry).

Although not all landholders agreed pastoralism provided an unreliable income (37.5% claimed it was reliable), those who did tended to stress its unreliability throughout the entire interview. Numerous factors contributed to this unreliability, including the nature of the season (influencing feed availability and carrying capacity), product demands and commodity prices. During the interview period, five of seventeen landholders additionally had off-farm incomes.

There are so many factors that affect your success, ones that we can't control ourselves – the economy, the weather, labour availability.

Commodity prices and the influence of drought make it very unpredictable. Our income can vary a lot from year to year.

As a family, we have done a Grazing for Profit course, which gave us more information about grazing stock and looking after pastures than anything else we had done.

Ten years ago the prices were well below the cost of production. We actually lost about \$10 000 a year for several years in a row in the 90s. But then suddenly there'll be a surge and the price will rise by 20 percent.

It's unreliable, but is sustainable by adapting to new markets and diversifying, though it is a hard slog. The poor seasons have had the largest impact as you're not able to keep as many stock as in higher rainfall seasons.

Last year we got \$4.20/kg; we need \$7/kg to be viable.

Indeed it is not only recently that pastoralism has been unreliable in terms of income; the property of Arkaroola was bought from '*a broke pastoralist*' in 1968 who had been through a bad drought since 1960 and '*had no money left to manage the land*' (M. Sprigg, pers. comm., 2006). Rawnsley Park Station also encountered unpredictable revenue from wool production in the 1960s, first diversifying into tourism with a single cabin in 1968. Wool revenue varied between a peak of \$40 000 (in 1991) and a low of \$10 000 (in 2000), and although stock numbers had been reduced by this stage, MM Rawnsley Park Station (2006) states this was due to a necessary result of financial planning.

Landholders were asked to name any factors that had negatively affected the success of their pastoral business (in the past approximate decade). All landholders listed drought as a factor.

Other factors were the demand for product (50%), low commodity prices (28.6%) and the overall economy (35.7%), heat wave (28.6%), grass hoppers (14.3%) and locusts (14.3%). Two landholders said availability of labour was a factor, and a further two each said frost and quality of land. One also referred to the quality of water, and another to the effects of flood. Government levies, increased council rates, fuel costs and goods associated with shearing needs were also mentioned as relevant factors that could not be forgotten.

Factors that may have positively affected their pastoral business were also discussed. From year to year these changed with market fluctuations, but at times the increase in the price of sheep and cattle was a positive factor (and therefore at other times a negative factor). The ‘2002 Year of the Outback’ was offered as a positive factor by three landholders due to the awareness it brought for Outback regions, although the financial benefits from this were largely related to the tourism side of the business, not pastoral. Positively influencing one landholder’s success was joining a Bestprac group (sheep graziers), sponsored by Australian Wool Innovation Limited and FarmBiz, to focus on benchmarking and effective marketing. Also becoming a member of a Board monitored and instigated by Resource Consulting Services enabled in-depth business analysis to improve profit margins, encourage off farm investments for retirement, and meeting family needs for succession purposes.

Environmental recovery programs were also offered as positive factors by three landholders. For example, the joint effort between the Northern Flinders Soil Conservation Board, NPWSA, the Sporting Shooters Association of Australia and landholders helped reduce goat numbers so only small pockets remain, and the introduction of the Calici virus removed ‘about 90 percent of the rabbits’ according to one landholder. Three landholders had no positive factors to offer apart from diversification. When discussing this increasing trend of diversification, all agreed it was a necessity, giving a variety of personal examples:

[Diversification is becoming necessary] – diversification into tourism as we have done is an option for some, but it also demands a lot of time [and] has to be balanced with the rest of the pastoral work.

Through tourism we’ve utilised buildings not being used on the property for self-contained cottages, put in a four-wheel drive track used by tourist operators and for the customer to self-drive.

The sustainability of pure merino flocks is questionable. Fortunately there is the option to change part of the flock over to breeding cross-bred lambs.

Yes. Both partners have worked off-farm. [One] teaches part-time, [the other does] truck work or other pastoral related work off-farm.

Diversification was (for us) necessary to protect the land and geology. The only way to do this was through tourism... we had to enter the industry to support conservation.

[We have put] more money into shares.

I'm always looking for ways to get more money. For eight months of the year I'm working somewhere else... earth moving, or up north at [a property interstate].

With diversification becoming a necessity, one landholder said:

The Government in general could do more to help pastoralists make the transition, for example help to link providers to markets and provide greater security of returns on investments in the crucial early years of the new enterprise.

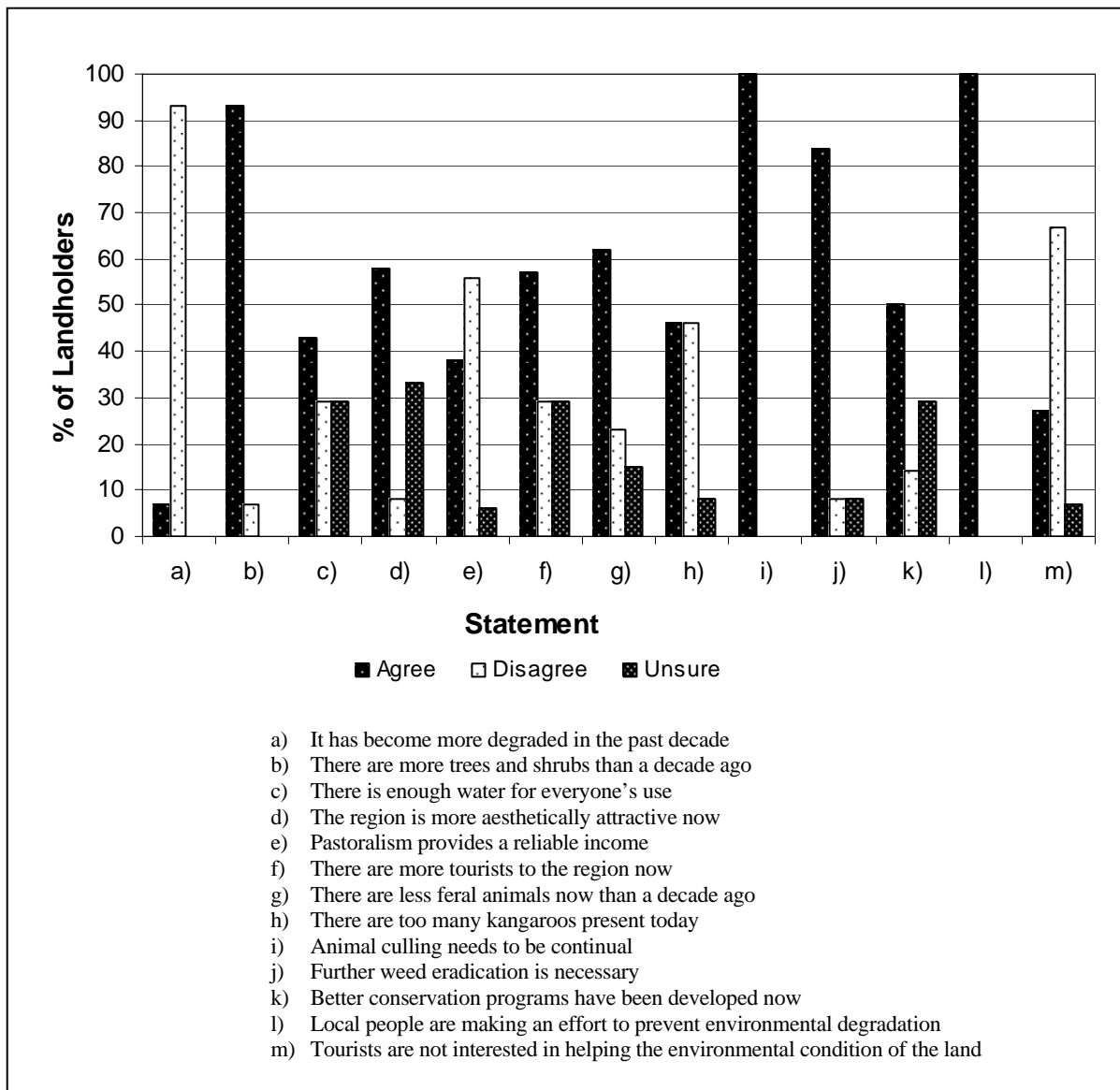
The interviews also asked landholders whether they agreed or disagreed with a list of statements primarily regarding the environmental condition of the Flinders Ranges but also about visitors to the region. The statements read as follows:

- a) It has become more degraded in the past decade
- b) There are more trees and shrubs than a decade ago
- c) There is enough water for everyone's use
- d) The region is more aesthetically attractive now
- e) Pastoralism provides a reliable income
- f) There are more tourists to the region now
- g) There are less feral animals now than a decade ago
- h) There are too many kangaroos present today
- i) Animal culling needs to be continual
- j) Further weed eradication is necessary
- k) Better conservation programs have been developed now
- l) Local people are making an effort to prevent environmental degradation
- m) Tourists are not interested in helping the environmental condition of the land

Many of the statements received mixed responses while some received unanimous agreement by landholders (Figure 8.1). All landholders agreed that (i) animal culling needs to remain continual and (l) local people are making an effort to prevent environmental degradation. Statements with a high proportion of uniformity (where the majority either noticeably agreed or disagreed) included (a) that the land has *not* become more degraded in the past decade or so, (b) that there are more trees and shrubs than a decade ago, (j) that further weed eradication is necessary, and (m) that tourists *are* interested in helping the environmental condition of the land. More than half of interviewees agreed that (e) pastoralism *does not* provide a reliable

income. Topics receiving less uniformity in agreement included (c) that there is enough water for everyone's use and (k) that there are too many kangaroos present today.

Figure 8.1: Extent that landholders agree with environmental statements



Source: Interviews of landholders

To gain further insight into the landholders' opinions, they were asked to rate the extent to which they agreed with eight supplementary statements. The statements and responses are shown in Table 8.4, with 1 representing 'strongly disagree' and 5 representing 'strongly agree'.

Table 8.4: Extent to which landholders agree or disagree with given statements

Statement	Ratings given by Landholders (%)				
	1 (strongly disagree)	2	3 (neutral)	4	5 (strongly agree)
I care a lot about land conservation where I live.	0.0	0.0	6.3	0.0	93.8
I use methods that help reduce negative environmental impacts whenever I can.	0.0	0.0	6.3	12.5	81.3
I think other people do not bother to help protect the environment as much as they should.	0.0	13.3	66.7	13.3	6.7
I don't do as much for the environment as I could because the costs involved are too high.	12.5	12.5	25.0	37.5	12.5
I am not provided with enough relevant information and/or advice on land care possibilities and how to change.	25.0	43.8	18.8	6.3	6.3
Financial incentives for conservation do not work.	33.3	16.7	33.3	8.3	8.3
The damage has already been done; pastoralism today is not making the environmental condition any worse.	14.3	0.0	28.6	28.6	28.6
Tourism is more environmentally damaging than pastoralism.	7.1	21.4	57.1	7.1	7.1

Source: Interviews of landholders

It is clear that the vast majority (93.8%) claim to care a lot about conservation, and a high proportion (81.3%) claim to use methods to help reduce negative environmental impacts whenever possible. The majority were uncertain as to their thoughts on other people's environmental actions; only one-fifth claimed other people do not help as much as they should.

Fifty percent admitted that the high cost of helping the environment restrained them from doing more, compared to 25 percent who were of the opinion the cost did not restrain their efforts. The remaining 25 percent were uncertain as to the influence of cost. Fewer claimed that the reason they do not do more was because they are not given enough information or advice on how to help the environment; only 12.5 percent answered this was the case. There

was some uncertainty as to whether financial incentives for conservation are successful or not, with half implying incentives do work, one-third being unsure, and 16.7 percent thinking they do not work. The difficulties in answering this statement are suggested with the comment:

If they improve your property, of course they'll work. But you can't do too much to put yourself under pressure as you don't know if there'll be a drought next year.

The suggestion was put forward that pastoralists who manage biodiversity should receive financial recognition in the form of credit because the presence of sustainable natural resource management systems have great public benefit and should be recognised.

Landholders were largely of the opinion that the damage from pastoralism has already been done and that continuing with the industry will not make the condition any worse. More than half were of this opinion, however, 28.6 percent were uncertain and 14.3 percent strongly disagreed. The following quotes from landholders show the primary opposing opinions:

We don't feel we're making it any worse.

You can't say sheep don't hurt the land.

Landholders were unsure in comparing the impacts of tourism with pastoralism, with more than half (57.1%) answering that they were unsure, 30 percent of the opinion tourism is less damaging, and almost 15 percent of the opinion pastoralism is less damaging. Landholders said '*really they're impacting the same way*' and '*both need to be run properly*'. One landholder, with pastoralism comprising 67 percent of the property's income and tourism the remaining 33 percent, said:

Tourism development may lead to environmental problems where the impacts of 'too many people' are not addressed. Provided these impacts are addressed and managed, tourism will be more likely to be sustainable than other land-uses that are disruptive to the landscape.

On the other hand one landholder not involved in tourism calculated that he would need about 5000 visitor nights a year at \$50 per night to earn the potential that they could earn from pastoralism, and believes that this many visitors would certainly cause more ecological damage than his 11 200 sheep, referencing the case of Coongie Lakes where unmanaged tourism has contributed to enhanced protection needs in the region.

Ten of the 17 landholders had already diversified into some form of tourism operation on their property. Reasons given for entering the tourism industry included:

- For economic gain / more consistent income (100% of respondents involved in tourism);
- To reduce the reliance on pastoralism (70%);
- For meeting people (50%);
- As they have always been interested in the industry (30%);
- To educate people about the Flinders Ranges (30%);
- For more variety in lifestyle (20%); and
- To reduce the pressure on the land and for conservation reasons (20%).

One landholder also said their reason was because *'tourists don't need rain'*. Many landholders felt diversification into tourism was *'not too risky'*, with further comments suggesting less drought-related risks than pastoralism such as tourists not worrying about the weather too much and just being happy to be out in the country. In relation to why they diversified into tourism, other landholders said:

A few years ago a journalist wrote 'we're lucky we farm tourists as well as sheep'. During the driest times, we certainly are glad to have the tourist trade – they come even when it's dry and dusty.

The land was in poor environmental condition from drought and stock, so we had to use tourism to protect [the environment].

Tourist accommodation was the best option because we can work from home and be available for work [on the property] when we need to. I also like to show people what it's like here compared to their life in the city.

Having an income from tourism has meant we've been able to reduce the number of stock grazing and increase our revegetation efforts, particularly through removing feral goats.

Some landholders said the '2002 Year of the Outback' influenced their tourism operations:

We believe it had a major influence... it started going through the floor after.

[It] had a significant effect on the numbers of people travelling through the Outback – especially around the time of major events. There is no doubt that [its] publicity for the Outback in overseas publications, media and press reports will have a marked benefit in bringing international tourists to the Australian Outback in the future.

We advertised with the SATC and it helped, but this is expensive and difficult for smaller businesses to get into.

If you...are willing to push for information, advice and help, [the SATC] are helpful, but if you are not pro-active they won't hand their information to you on a plate. You...have to work for it.

Landholders involved in tourism offered some advice to those who were not involved, suggesting that the tourism industry is not suitable for everyone. It was acknowledged that landholders must be willing to spend more time than initially expected running the tourism business, and that there are several challenges to overcome:

It isn't possible to move into tourism overnight, there is a necessary period of looking, learning and understanding a different industry.

[I would only recommend it] if you are located in the right location, otherwise it's not economical and you don't help yourself or the industry.

It's a round circle which will never stop. During our summer seasons there are too many businesses and not enough tourists. During April and October and during some months of winter, too many tourists and not enough businesses. More facilities are needed after hours and on weekends when the tourists are around.

I would recommend diversification into tourism – although there are some times when the two enterprises (grazing and tourism) both demand labour inputs and this can lead to difficulties – such as the Spring holiday season when shearing or crutching coincides with high tourist visitation. This needs to be carefully planned with arrangements made well in advance. Given the difficulties, there is no denying the benefits of broadening the business base on the property.

Tourism is fraught with difficulties but there's more money in tourism.

The difficulties referred to include access routes (and consequent environmental impacts of having less wilderness areas left), liability if someone is on your property, and the issue of freehold land versus leasehold land (some landholders may not be allowed to work in tourism and legally they cannot change their lease). In one instance damage from tourism included gunshots fired at water tanks and damage to a windmill fan, and occasional comments were made regarding rubbish disposal and indiscriminate camping.

If involved with both tourism and pastoralism, landholders approximated the split of their business between the two industries both in terms of financial gain and time spent working on each enterprise (Table 8.5). Landholders generally noted that this was a difficult figure to approximate. It was suggested that these proportions are largely dependent on the stage of tourism development on the property, as if still in the preparation stage, less financial gains are received from tourism compared to the time involved. It is also largely dependent on the season, as during shearing more time will be spent on the pastoral side, and issues arise when time intensive pastoral periods coincide with peak tourist seasons. Overall proportions were approximately equal, or tourism operations required up to 10 percent more time proportionally for the income they generated.

Table 8.5: Comparison between pastoralism and tourism in terms of financial rewards and time spent in each industry (for individual properties)

Financial Rewards	Time Involved
Pastoralism: Tourism (Ratio)	Pastoralism: Tourism (Ratio)
95:05	90:10
80:20	75:25
80:20	70:30
67:33	67:33
50:50	50:50
40:60	40:60
40:60	38:62
10:90	10:90
0:100	0:100
0:100	0:100

Source: Interviews of landholders

Four landholders said that they would not enter the tourism industry. In some cases this was due to the lack of privacy it would bring, and in other cases it was due to the initial costs involved and the time-consuming nature of the tourism industry. One suggested they did not have time as ‘*you have to be hands on with tourism*’, but they would be happy to form a partnership with a bordering property for a four-wheel drive track. Another commented that, apart from the development efforts involved, the lease system does not encourage tourism diversification:

A property needs the same infrastructure and staff for 100 tourists or just one tourist, and is not viable because even if successful, cannot be sold as a business to realise on the effort spent because it is on a pastoral lease...It is very hard to charge someone to look around your backyard.

One landholder was concerned more tourism operations would put too much pressure on the tourist centres of Wilpena, Rawnsley Park and Blinman. Another commented that some pastoralists feel ‘*sold out*’ by the politicians, referring to the South Australian Government’s high investment in marketing the Outback, which has led to some landholders believing they have no option other than becoming involved in tourism (such as through the Outback Cattle Drive) whether they want to or not, in order to maintain their lifestyle.

The remaining three landholders would consider entering the industry, with reasons given being for greater financial stability, to meet people and to educate visitors about the Flinders Ranges. It was also suggested that diversification was very restricted in the Flinders Ranges

due to the limited versatility of the rangelands, so tourism was possibly the only viable option. One landholder was of the opinion the potential to earn from grazing was higher for them than the tourism potential, but due to drought they had not earned as much in the past few years, again suggesting tourism is more economically sustainable in the long term.

Landholders acknowledged both tourism and pastoralism must be well-managed and controlled to best contribute to sustainability goals for the rangelands:

Pastoralism was certainly very damaging 100 years ago, but now people know better, know how to manage land. Sometimes tourists don't understand this, and they don't always respect revegetation areas, riding trail bikes all over the place.

As long as you don't have mass tourism all the time, and you actually get people to experience the environment here, I think tourism can help. If we had more money, we could do more to help [as pastoralists]. But it's not just the stock, it's the goats and kangaroos that cause damage too.

Pastoralism is not necessarily bad. Blame the past government for setting stocking rates, making farmers clear the land, as neither knew better. Landholders would have lost their leases if they didn't have enough stock... But ecotourism is the last chance now to help the Flinders. It can encourage responsible behaviour, and fostering good public relations is better than enforcement. It can help avoid irresponsible behaviour... But people still need to eat!

Tourism, correctly managed, can relieve grazing pressure and can aid in rejuvenation of perennial plants. Most tourists are at pains (especially four-wheel drive clubs) to stick to tracks, and are very conscious of how they leave the campsites and the tracks.

Anywhere humans are, will cause problems [of environmental degradation].

Some tourism operations claim to be eco-friendly, but when looked at properly you see this is not necessarily the case, such as through building accommodation on top of kangaroo tracks thereby restricting animals' access to water.

Through talking to local people, the extent of the region's environmental problems were very clear. Only one landholder denied this, claiming 'I am afraid I don't see damage on our property!' In contrast, another interviewee talked about the landholder locally regarded as having 'the best paddock in the district', who was in fact referring to the local hospital where his wife was the matron. One landholder with accommodation provisions commented:

[It] was always our opinion that the Willochra Plain ... should never have been subdivided into 640-acre blocks in the 19th century. This was the starting point of appalling degeneration of topsoil and degradation of natural flora and, one assumes, some considerable harm to the fauna. Even today most of the properties, which are now much larger due to aggregation of those properties deserted or lost by departing farmers are, I think, very marginal.

Another landholder commented that feral animal problems were so important to address that they offer shooters and helicopter pilots free accommodation and food so they will incorporate their property into the regional culling. Stories of problems with feral animals were common, such as the landholder who lost his chickens to foxes. The following night the landholder *'dragged a dead kangaroo around [his] paddocks behind a Ute and shot 120 foxes in one night'*. Landholders also discussed the high and low cycles of rabbit numbers, influenced by myxomatosis, warren destruction efforts through Operation Bounceback, and the introduction of the Calici virus, specifically mentioned by several landholders as reducing rabbit numbers by more than half. Despite these efforts, several landholders and tourism operators noticed rabbit numbers to be increasing around 2003 and 2004. One landholder simply could not believe some tourists thought there were no more rabbits in the Flinders Ranges, due to the large increase they had noticed on their own property in recent years.

Not only were environmental degradation problems an issue in land management and consequent diversification, but communication was also identified as an issue:

It is very important that when you do a conservation project or diversify into tourism that you work with your neighbours and the locals. One such conservation group is not communicating in this area and only making life difficult for everybody.

Communication is important because in many cases, landholders work in cooperation with NPWSA. For example one property has a Heritage Agreement with NPWSA, donating 1000 hectares to NPWSA in support of public and private partnership opportunities. A large number of interviewed landholders work with NPWSA in other ways, particularly through Operation Bounceback where rabbit, cat, fox, goat and weed control programs overlap onto their properties. Some landholders do not wish to participate in NPWSA baiting programs because they have *'good working dogs'*, and instead they perform their own separate fox shoots. Others hinted that they do not give conservation shooters the opportunity to cull on their property as they can use the goats themselves for extra income, because they graze different bush to sheep therefore do not compete with one another.

Most of the landholders were satisfied with the work and assistance of NPWSA, saying they are *'generally adequate'* and *'overall do pretty well'*. One landholder described their relationship as offering *'mutual assistance'*. In some cases a few suggestions were made however, with comments including they do not readily offer information, and:

They could do more to encourage diversification.

If they were really serious Bounceback should provide materials with yards [for landholders to trap feral animals]. They need to drink – we could trap them in yards and sell them.

Landholders involved in tourism tended to be more supportive of NPWSA as they recognised the partnership benefits both for themselves and for the environment. One said ‘*we can work with National Parks to raise the public’s awareness*’, and another stated that ‘*being involved with local governments enable a lot of valuable information exchanges*’. Two landholders expressed that without the positive publicity NPWSA had given them through their involvement with regional ecological recovery and as sites for viewing native wildlife, they would receive noticeably less tourism bookings.

The idea that landholders involved in Operation Bounceback could advertise their participation in the project in an effort to attract ecotourists was further discussed. Some thought this idea had potential while others did not think that tourists were as interested as conservationists hoped.

Yes, because they do want to learn – nine out of ten people stop to ask us about what we are doing. Give people a bit of information to get them interested and they'll want to know more and more. We can offer them this.

Yes, the Flinders is different because we have degraded landscapes to show people – other places just show tourists the good bits. So we can teach people the real impacts and they can see for themselves how we need to help protect the environment, sort of by threatening them that this is what will happen otherwise.

Even Steve Irwin from Australia Zoo follows the ecotourism vision of ‘protection through education’. It goes to show that we can ‘make conservation fun’ and yes people are interested in helping.

With guidance [tourists] can see the benefits and appreciate the conservation efforts, and maybe contribute to an increased effort... Bounceback itself needs better advertising though because not enough people know about it.

The Bounceback project is a slow process that one has to explore to find the results, few tourists take the time to look no further than the bonnet of their car.

If they could get volunteers to get involved and help it might work, but public safety, insurance and training issues restrict the amount that can physically be done on the ground.

Some members of the Friends of the Flinders Ranges (who are not local landholders) disapproved of the concept however, questioning the motivations:

First it was from rabbit damage, now from a tourist attraction? Has there been a change of goals?

What does the word 'Bounceback' actually suggest? Bouncing back from what?

Bounceback is meant to 'keep the future alive' – whose future does this mean? The tourists' future? I think it should focus on the native plants and animals, not the tourists.

The comment of one landholder is particularly interesting in relation to the above opinion, proposing that the tourists' future may actually be the key to the plants and animals' futures:

National Parks wanted to shut off Bunyeroo Gorge for the yellow-footed rock wallaby, but the problem was it was too popular. You need to show people what is there, to get them to relate to it, so people can give it a value. That's why tourism can work for conservation.

This relates back to ecotourism being able to help reach sustainability goals. Education was acknowledged by both landholders and tourism operators as a major factor (both for the success of operators, their reasons for working in the industry, and as an important quality to offer tourists so they can learn about the environment, potentially leading to reduced negative environmental impacts). The suggestion of encompassing Operation Bounceback into tourism operations would merely be to increase the chance for native plants and animals to recover through the education and involvement of tourists, not to change the focus of the program to tourism management. The landholders largely supported tourism in this context and as a promising approach within the scope of multifunctionality to encourage diversification and foster environmental and social values. Tourism was also largely supported as it provides a more reliable income, with operations generally not as time consuming as first perceived to be.

8.3.1 Landholder Interview Summary

The landholders interviewed for this study, comprising primarily of owners or managers of working pastoral stations, collectively control a large amount of land in the central and northern Flinders Ranges. Individually they aim to run sustainable enterprises (largely focusing on the economic aspect) but as a group they also consider the environmental aspect, with the aim to improve the ecological sustainability of the wider region of the Flinders Ranges. As one landholder said,

'Eco' is definitely the way to go for the Flinders Ranges.

The interviews showed that there is a considerable amount to take into account in planning land management in the Flinders Ranges, incorporating elements of pastoralism, tourism, ecotourism, drought survival, social well-being and most noticeably, income protection and

environmental degradation. It was clear that climatic variability and the condition of the environment are not the only factors affecting the viability of pastoral businesses, but declining commodity prices also play an important role. Indeed many landholders expressed a concern over the desire of wool as a commodity in the future. While there was some level of agreement amongst landholders regarding the interview topics, particularly the importance of environmental recovery, there were some issues of debate such as the true impacts of tourism and pastoralism. Overall the environmental risks of pastoralism and the educational potential of ecotourism were certainly acknowledged, but most importantly the interviews helped the researcher gain further insight into the daily lives of landholders in the Flinders Ranges.

Some of the key aspects are summarised by the following landholder's comment:

The pastoral lease system could do more to encourage or enable lessees to diversify, with tourism being the major opportunity. Less dependence on grazing will reduce the risk taking in that area that is associated with high dependence. Less risk taking in the grazing enterprise will result in greater gains in land condition over time.

Another landholder's comment shows the recognition of the need for change, and the identification of ecotourism in assisting this change:

Ecotourism isn't the last chance for conservation, but it is a big part of it. We have to change slowly and changes must be soft but focused. We have the opportunities here in the Flinders Ranges.

8.4 Conclusion

This chapter presented the results of the interviews with both tourism operators and local landholders, deemed important because they are two of the primary groups holding interests in the environmental condition of the Flinders Ranges. It is essential to examine their points of view to determine whether or not such multiple users are able to plan and manage the land in cooperation with each other. This is necessary if a multiple use model is suggested as a way to increase ecological recovery efforts, such as through a reduction of pastoral activity and an increase in appropriate tourism operations. The following chapter further explores this question of whether or not the different stakeholders can cooperatively plan and manage the Flinders Ranges under a multiple use model.

Section IV: Discussion and Conclusions

This section analyses the combined results of the visitor opinion and awareness surveys, landholder interviews and tourism operator interviews within the framework of the aims and objectives of the study. Conclusions are then presented, including some recommendations for achieving a successful balance between ecotourism and pastoral activities in the Flinders Ranges for optimal conservation goals.

9.0 DISCUSSION OF FINDINGS

9.1 Introduction

This chapter discusses the results from the visitor surveys and tourism operator and landholder interviews (as presented in Chapters 7 and 8 respectively) in conjunction with secondary data obtained from the literature review. It concentrates on those results deemed most relevant to the research question set out in the introduction chapter and incorporates general observations made by the researcher whilst obtaining such results.

The focus of this study was to examine the relationship between tourism (specifically ecotourism) and ecological recovery in the pastoral setting of the Flinders Ranges, with the central research question asking:

Could the growth of ecotourism assist ecological recovery in the Flinders Ranges?

The specific objectives, guided by the research question, were to:

1. Evaluate the extent of environmental degradation in the rangelands of Australia that has resulted from pastoralist activity since European settlement, and explore whether or not continuing with this land-use practice would be advisable in environmental and economic terms (Chapter 4).
2. Explore the nature of the tourism industry and the characteristics of the ecotourism market in Australia and within the Flinders Ranges, focusing on reported environmental and social impacts of tourism to determine the viability of ecotourism in respect to the potential to contribute to sustainability in the region (Chapters 5 and 6).
3. Examine visitor aspirations, opinions and knowledge of ecotourism and evaluate visitor awareness of ecological degradation, recovery and conservation in the Flinders Ranges and wider Outback Australia (Chapter 7). Do visitors want to learn more about environmental issues and are ecotourism messages actually reaching visitors?

4. Examine pastoralists' opinions on the rise in popularity in ecotourism (Chapter 8). Do landholders think ecotourism could be a solution to local economic and environmental issues?
5. Explore local tourism operators' opinions regarding ecotourism's potential, and their present environmental strategies (Chapter 8).

9.2 Background to Discussion

Both the ecological and cultural values of the rangelands of Australia are important aspects of management, influenced by societal and economic demands forcing a change to multifunctionality (e.g. Holmes, 2006). For multifunctional land-use to be successful and sustainable, common sense would tell us that each of the multiple users must be able to cooperate, plan and manage a particular region together. This discussion explores and compares the various thoughts and opinions of visitors, tourism operators and landholders in the Flinders Ranges with regard to tourism development and environmental attitudes. With a detailed picture of the motivations and satisfaction determinants of tourists and specifically ecotourists, landholders and operators are better able to understand their visitors and target their products more effectively and in a more sustainable manner. Similarly, with an understanding of what landholders and operators each want, land managers and development committees are better able to plan for environmental and economic sustainability of a region.

The primary observations made through the analysis of the results is that some differences, but not conflicts, of opinions do exist between various stakeholders involved or potentially involved in ecotourism operations in the Flinders Ranges. Overall, stakeholders envisage similar expectations for the possibilities tourism can bring. The literature (e.g. Foggin & Munster, 2000; Honey, 1999; Nelson *et al.*, 1999; Woodley, 1999) suggests positive relationships between local communities, tourism operators and tourists are important if a tourism industry is to be sustainable, such as the aspiring philosophy of ecotourism. It also largely suggests well managed ecotourism can contribute positively to environmental goals (e.g. Department of Conservation (NZ) 2005; Drumm & Moore, 2005; Green & Higginbottom, 2000; Harris & Leiper, 1995; Thompson, 2005; van Oosterzee, 2000). The analysis from this research supports the literature that tourism operations can potentially aid environmental recovery and conservation efforts, but also stresses that it must be well managed for this opportunity to be made possible. This may however be dependent on

whether or not visitor claims of being interested in sustainable activities and environmental education are converted into more environmentally-friendly behaviours in reality. Any decisions made must not simply be convenient choices based on external declarations, but wise choices based on regional sustainability analyses.

9.3 Environmental Degradation

This section addresses the first specific objective of the research study:

Evaluate the extent of environmental degradation in the rangelands of Australia that has resulted from pastoralist activity since European settlement, and explore whether or not continuing with this land-use practice would be advisable in environmental and economic terms.

The literature review has shown that pastoral activity in the Australian rangelands significantly accelerated human impacts on the land (e.g. Adamson & Fox, 1982; Dixon, 1892; Flannery, 1999; McKeon *et al.*, 2004). With 70 percent of the rangelands used for pastoral activity (Campbell, 1997a) conducted largely in an unsustainable manner (Robertson, 2003), it is estimated that 55 percent of the rangelands are now degraded (Rose, 1996) and biodiversity loss is still continuing (Woinarski & Fisher, 2003).

The Flinders Ranges have been exposed to pastoral activity for over 160 years, with stocking rate policies enforced by governments from the early years (Nicolson, 1982). The irregular nature of the success of the industry was identified as early as the 1860s when drought caused stock losses of up to ninety percent, and many landholders abandoned their holdings (Webster, 1973). Following such losses, management practices were often altered, such as intentionally reducing stocking rates, sinking wells, constructing dams and controlling dingoes and rabbits, and the industry began to recover. However when pastoralists pushed further north past Goyder's Line of Rainfall, the hardships were once again realised, and the result was 'the ruin of most farmers, some pastoralists and almost all the land' (Flinders Ranges Research, 2005). Messer and Mosley (1982) bring particular attention to the Flinders Ranges, claiming it is one of the primary areas of Australia's rangelands where pastoralist activity caused degradation.

Interviewed landholders in the Flinders Ranges acknowledged past actions of early pastoralists led to land degradation, and were very conscious of managing their properties today within an

ecologically sustainable framework, both for environmental and economic reasons. However this does not imply all pastoral practices are individually conducted in the *most* environmentally-friendly manner. In many cases landholders admitted their practices were not environmentally-friendly options due to financial barriers. Like business owners in other industries, landholders do not always have the financial means to spend extra money on less environmentally damaging options. This analysis consequently also examines the landholder interviews within the context of the potential for landholders to diversify into ecotourism to financially aid their pastoral business and environmental recovery efforts.

Rural tourism operations are certainly not a new concept, but in recent years not only has there been significant growth in the number of properties diversifying into tourism throughout the world (Sharpley & Vass, 2006), there has also been greater academic attention to the trend. Tourism provides income and diversification to rural communities (e.g. Rural Information Centre, 2004), but very little research can be found examining landholders' attitudes to tourism (the majority of the literature relates to financial and marketing challenges). This reiterates the need for this examination of the way in which landholders, tourism operators and visitors to the Flinders Ranges relate to each other and their respective industries. From a conservation viewpoint, land cannot be seen as individual parcels each managed separately. Rather, there must be a cooperative effort with links between stakeholders to prevent land or other resources becoming impoverished and to enable an environmentally and economically sustainable future.

Private landholders (including leaseholders) may be the key to ensuring ecological recovery efforts remain ongoing. This is because owners of private property have exclusive possession of the land or resource they own, whereas in contrast, communal property is manifest in the exercise of individual rights of exploitation by a number of owners acting in common with each other. As illustrated by Des Jardins (2001), communal property is the worst possible form of land ownership as in the words of Aristotle, 'That which is common to the greatest number has the least care bestowed upon it'. Nature is neither conquered to advantage nor conserved in richness. Therefore private landholders in the Flinders Ranges may be very influential in the success of improving the condition of the land, provided they have the incentive (both financial and non-financial) to do so. Landholders of at least two properties (Arkaroola and Warraweena) have already begun this process with significant changes in land-use by removing stock from the properties to encourage conservation. The following section consequently examines the relationships that became apparent in the interviews between landholders (as influential land-use managers) and ecological recovery.

9.3.1 Conservation and Pastoralism

All interviewed landholders valued sustainability highly as a crucial feature of their land management plans, with some landholders leaning toward pure environmental reasons for its importance and others toward largely economic reasons. The majority of landholders also referred to the inability of being a pastoralist without contributing to conservation efforts in some way or form. Bias and Chapman (2005) agreed, showing that 65 percent of farmers who reported degradation ‘intended’ to take conservation action within the following year, concluding that farmers were indeed trying to address the issue (whether for economic or ecocentric reasons).

Landholders are independent people who, as private landowners, see themselves as having the right to make decisions as they see fit with regard to their own land. It is not wrong that landholders, whose main focus is usually on making a living, may desire financial incentives to increase conservation efforts. Only 18.6 percent of landholders interviewed were of the opinion these incentives did not work. In protecting remnant vegetation, culling feral animals, or contributing to revegetation projects, a landholder is essentially providing a public conservation service, often to their own financial detriment (in the short-term).

The Department of Natural Resources and Environment (2000) surveyed rural landholders and found that the values they regarded most highly in life were well-being, sustainability and wealth. Landholders often find it difficult to align their farm business priorities with broader environmental goals, especially without spare cash, despite admitting they generally have the right tools and relevant information for doing so (only 12.6% of interviewed landholders disagreed). Landholder comments included:

I would say almost all of us know how to manage land, but we have to have our priorities for the business.

You shouldn't force us to provide native vegetation at our cost. When we bought the land we expected to be able to use it all for farming.

Slee (in Yencken and Wilkinson, 2000:211) argued that:

In the absence of financial incentives, the majority of landholders are likely to remain disinterested in the protection and management of remnant native vegetation on their properties...such practices in today's farming climate are not a high priority.

A major pressure on the land base has indeed been caused directly or indirectly by growing economic difficulties for farmers throughout Australia²⁹. By the early 1990s, despite an increase in production and a levelling out or reduction of the costs of some farm inputs such as fuel and interest rates, Australian farmers were worse off in real terms than they were a decade earlier. According to Cribb (1991, in Conacher & Conacher, 1995), the terms of trade were at their lowest point since the Great Depression. While commodity prices increased by 53 percent, farm costs doubled on average in the decade to 1990 (Conacher & Conacher, 1995:107). In the following decade, declining product prices resulted in a further increase in farm costs proportional to gross proceeds, contributing to the fluctuating economic nature of the rural sector being regarded by many as one of the worst ever faced (National Farmer's Federation, 2005). Between 1990 and 1999, profit at full equity in the Australian wool industry fell from an average of \$25 311 in profits to \$14 103 in losses (ABARE, 2006a).

The most noticeable aspect arising from the landholder interviews was the influence of an unreliable market on the landholder's life. In the majority of cases it led the landholder to diversify their business or increase the reliance of off-farm income. ABARE (1999:129) reported that the average South Australian landholder or manager worked on the farm for 49 hours per week. Their spouse worked on average 21 hours, contributing towards a total of 95 hours of labour per week for the farm (including other workers). In addition to these hours, an extra five hours per week were worked by the landholder off-farm for wages, and another eight by the spouse. The family therefore spent 14 percent of their labour time in off-farm employment, which supplied them with 32 percent of their total income. This shows how disproportional farm work can be in terms of time spent and income received, and is further evidence questioning the economic viability of pastoral activity. However, a landholder's willingness to work off-farm or blend a new venture into core pastoral activity will vary according to a variety of factors. These include not only economic needs, but demographic and lifestyle factors, perceptions of tourism, and the physical and geographical characteristics of the property including proximity to other key tourism sites and major roadways.

Due to the noticeable number of landholders entering the tourism industry primarily for economic reasons (compared to the reasons why tourism operators entered the industry), one might argue (as indeed some interviewees did) that some of the ecotourism or nature-based tourism operations run by landholders may be using the growing interest in the environment to

²⁹ The 1986 Australian Bureau of Statistics Census showed household incomes in the Flinders Ranges to be generally classed in the middle-income bracket, with a noticeably low proportion in the high-income bracket (Williams & Associates, 1988).

market a product. But if that product sells (contributing to the economic sustainability of a region) and some of this economic benefit is used to protect, conserve or recover the environment because the product is well-managed from an environmental perspective, it can help a community reach the broader goal of overall sustainability. Provided conservation goals are not threatened in the long-term (which they should not be, as landholders understand the need to protect the resources upon which they rely), tourism should be encouraged. Very few environmental problems were noted by landholders to result from tourist behaviour on their properties, and no landholders identified tourism activity as a factor negatively affecting the economic success of their pastoral business. With pastoral activities now increasingly viewed as part of Australia's heritage and environment rather than just a means for survival (Robertson, 2003), multifunctionality offers the opportunity to incorporate pastoralism, nature conservation and diversification into tourism. Landholders may not only become leisure-providers (e.g. as per Burton in Sharpley & Vass, 2006), but they may become nature conservers or public custodians of the countryside, integrating society's expanding values of the rangelands today.

In regard to conservation efforts, the information from the interviews helped the author gain insight into pastoralists' actions toward on-farm land degradation that may help in providing information to assist with conservation management and evaluation. All interviewed landholders acknowledged that the actions of pastoralism have caused notable environmental degradation, although most were quick to note that the damage was caused many years ago largely due to high stocking rates (enforced by governments to avoid losing the lease). The majority of landholders now contribute to Operation Bounceback to assist the environmental recovery efforts of the region, whether actively through feral animal control, weed removal or monitoring of species, or passively through allowing Operation Bounceback staff to enter their property to perform the restoration work themselves.

Indeed Operation Bounceback is believed to be working very successfully largely due to the fact that it embraces partnerships with local community groups, individuals and other government agencies. Reviews of the program have indicated positive attitude changes amongst participating pastoralists, with landholders finding that as well as protecting biodiversity values, the program has improved the land condition of their property (DEH, 2004b). Only 7.1 percent of landholders interviewed for this study were of the opinion the condition of the land was worse now than it was one decade ago, but all agreed local people were more interested in contributing to environmental recovery now than in the past.

Many pastoralists commented that the region is in a drought period, putting increased pressures on their livelihood and causing greater environmental problems. In 2005 one landholder said it was *'the worst year so far'*. An example given by one pastoralist of a pressure relating to the extended drought was that it made it more difficult to fence off an area to allow it to regenerate. Because there was not enough feed in other paddocks, the paddock in need of regeneration had to be used for extra fodder despite its condition. The National Water Commission (2005 in Lewis, 2005b) warned pastoralists to expect longer dry periods, with climate change compounding existing water problems for rural Australia, and suggested the present dry period may in fact be the normal, not a drought. If this is the case land managers will need to factor this into their conservation plans. Indeed the drought has continued since the time of the landholder interviews (Bureau of Meteorology, 2007), and in 2007, a landholder said *'it is now 4 or 5 bad years, where normally we would only have 1 [bad year] in 10'*. Another referred to the need to have willpower to protect the paddocks in good years so they are ready when drought comes.

All landholders agreed it is important to act in ways that will not further degrade the environment, but the motivations behind this varied from pure conservation reasons to pure economic reasons (with various degrees in between). While some landholders wanted to encourage ecological recovery for the sake of nature, others wanted to because it could help make their enterprise more viable. It was agreed that having an area fenced off from stock was an asset, which could be used in several different ways, whether for enabling environmental recovery, to attract ecotourists, or to reopen in the future for more feed for stock. Ongerup farmer Peter Meade (Landline, 2003) said:

I think several years ago people would have looked negatively at having a large area of bush next to them, as against their own farming enterprise. But the way things are today, people look at the bush and see that it's actually an asset and not a liability.

A large number of landholders in the Flinders Ranges commented that native vegetation was important for farm production, providing shelter for stock and reducing soil erosion. However, some also agreed with the surveys of Jennings, Clarke and Sheahan (1989) that native vegetation is a refuge for vermin and feral animals. Two landholders said it reduced farm productivity in the short term and two claimed it was timely and costly to maintain. The general consensus was landholders felt they had to follow some form of conservation measures or maintain native vegetation whether they would like to or not, so that their livelihood does not suffer in the long-term.

As long as the 'bush' is given a value that is high enough for it to be conserved, maybe it does not matter what the reason is behind the value. If financial rebates are the primary reason behind a pastoralist's motivation for conservation actions, as was the case in 89 percent of landholders in the study by Jennings *et al.* (1989), people should accept and appreciate that this is the reason. For example, is it in fact important whether Seal Bay (Kangaroo Island) exists primarily to protect the sea lions or to display them? Orangutan ecotourism in Indonesia was developed equally to raise government revenue, save the animals and stop the forest destruction (Drewry, 1997). In the case of tourism, maybe it is more important that conservation measures are at least taking place than for us to question the operator's motivations behind it. Similarly, in the case of pastoralism, maybe it is more important that conservation is simply happening than for us to question a landholder's reasons or in fact whether or not they actually *want* to protect the land for any reason other than financial gain. Conservation's evolution to include the human component has given it a better understanding and appreciation of these economic and cultural values and it has inescapably expanded to include multiple and sustainable use schemes. We now know that social concerns in conservation can no longer be overlooked. Whether it is directly or indirectly, and knowingly or unknowingly, people will play roles in resource management.

It is also worth exploring tourist opinions on land-use practice. Delforce *et al.* (1986) asked tourists their preferred options for the Flinders Ranges, finding the most popular options to be the middle-range environmental-quality options (as opposed to the poor or best environmental-quality options). The best environmental-quality option of 'removal of grazing from all areas of major public interest for designation as national parks' (with remaining areas remaining for grazing but under limitations) was less popular than 'continued widespread grazing under Government guidelines to protect the pastoral productivity of the land', which was in turn less popular than 'widespread grazing under Government guidelines for a balance between all users' interests (pastoralism, tourism and environmental conservation)'. Least preferred was the poor environmental-quality option of unrestricted grazing, but the second least preferred choice was the designation of more national parks. The author acknowledges Delforce *et al.* (1986)'s surveys were conducted two decades ago, and the media of recent times may have influenced how tourists today would order such options. For this study, the general consensus arising was that unrestricted grazing is still the most undesirable option and government guidelines are desirable as they would also help the interests of non-pastoral users. Tourists did not however suggest additional national parks would be at all undesirable as they did in Delforce *et al.* (1986)'s study.

9.3.2 Environmental Degradation Summary

Land degradation has resulted from pastoral activity (as reviewed in Chapter 4), but landholders are now working in partnership with government and non-government organisations to become more sustainable. This is sometimes for egocentric reasons and other times for ecocentric reasons, or often a combination of both. The level of environmental effort depends largely on financial obstacles to the landholder.

Despite the unpredictability of pastoralism and the costs involved in either preventing further land degradation or undertaking ecological recovery initiatives, it appears that some level of continued pastoral activity is desired in the Flinders Ranges (both from a landholder and tourist perspective). Bartholomaeus (1982) supports that it is in the long-term interest to maintain the industry and improve the condition of the land, claiming there is much evidence to show that for a family business on leasehold land large enough to provide reserves of pasture and finance, there is a direct ongoing interest to preserve that land³⁰. Landholders of the Flinders Ranges agree; unlike the past, they have not abandoned their properties, but rather looked at ways of diversification to move toward economic and environmental sustainability.

Landholders possess detailed knowledge of their local areas. Pastoralists today are more aware of environmental issues and the need to consider them whilst managing a property. Financial sustainability is very important for landholders; diversification into other industries is a viable option. If the assets that ecotourism promotes and hopes to protect are given an economic value, it may certainly enhance their chance of survival. By having strategies based on ecotourism, one can hope that landholders (as well as public agencies and governments) are encouraged enough to ensure that conservation is financially sustainable on their properties so that it can be undertaken to a greater extent than it presently is.

9.4 The Nature and Characteristics of the Tourism Industry

This section, along with the literature review of Chapter 5, addresses the second specific objective of the research study:

Explore the nature of the tourism industry and the characteristics of the ecotourism market

³⁰ There are of course many reasons other than making money for protecting nature, including biodiversity, education, research, spiritual value and aesthetics.

in Australia and within the Flinders Ranges, focusing on reported environmental and social impacts of tourism to determine the viability of ecotourism in respect to the potential to contribute to sustainability in the region.

Visitor characteristics (based on the responses of 789 respondents as the total figure of both the Visitor Opinion Surveys and Visitor Awareness Surveys) are considered and compared to other survey findings to explore the nature of the tourism and ecotourism industries. The visitor market is then considered and responses to opinion questions are discussed in the context of environmental impacts, and response patterns are related to issues of interest for this research in terms of ecotourism's potential to contribute to sustainability in the region as a viable option for assisting ecological recovery.

9.4.1 Visitor Characteristics

In both the Visitor Opinion Surveys and Visitor Awareness Surveys, details of gender, age, place of residence, length of stay and number of visits to the Flinders Ranges were obtained from respondents. This discussion therefore incorporates the overall characteristics of 789 visitors to the study site between December 2002 and December 2003. The surveys were completed at a range of locations frequented by visitors including information centres, pubs and accommodation providers, with the majority being completed at the Wilpena Pound Visitor Centre (37.9%), the Parachilna Prairie Hotel (29.7%) and at Blinman (11.2%).

Males represented 53 percent of all survey respondents, therefore the questionnaires were completed by six percent more males than females. The South Australian Tourism Commission's (SATC) visitor profile (2002 to 2004) suggests there were two percent more males than females to the Flinders Ranges and Outback, commonly referred to as Outback South Australia (OSA) within the industry (SATC, 2004a:2). However, a six percent difference '*actually better reflects the general tourism market in OSA today*' (P. Coates³¹, pers. comm., 2006). While it is interesting to analyse differences between male and female survey responses, such research investigating the relationship between gender and environmental concern yields ambiguous results (Fransson & Garling, 1999) and is beyond the scope of this study.

Twenty percent of respondents were aged less than 25 years, the majority were 25 to 65 years and only 8.8 percent were over 65 years. The majority of respondents (38.3%) lived in

³¹ Ms P. Coates, Head of Research, South Australian Tourism Commission.

Adelaide and in total half of all respondents (50.8%) were from South Australia. Almost twenty percent (19.9%) were from Victoria, 11.5 percent from New South Wales, 4.1 percent from other states of Australia and 13.6 percent from overseas. The questionnaires were distributed to individuals intercepted by chance (not at random, as the total number of visitors to the study area is impossible to determine). National Parks and Wildlife South Australia (NPWSA) (2001b) surveyed 486 visitors to the Flinders Ranges National Park (FRNP) during the year 2000 and found 15 percent of visitors arrived from overseas (c.f. 13.6% percent for this study). However, while their results showed 23 percent were from 'SA Metro', this study surveyed 38 percent from Adelaide. Accordingly, 20 percent less of the respondents in this study were from interstate than NPWSA's (2001b) survey. Nevertheless, the three-year time gap, the '2002 Year of the Outback' and the state government's push for greater domestic travel may all have influenced these differences.

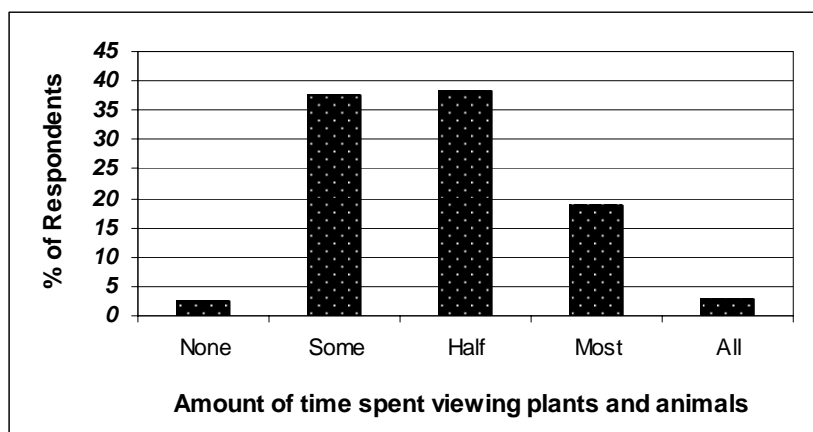
More than half of respondents (56.4%) had previously been to the Flinders Ranges. Close to 40 percent of these visitors were on their second visit, and approximately one-third had been either three to five times or more than five times. Ten percent more repeat visitors than first time visitors stayed one week or more, supporting Alegre and Pou's (2006) study that found that repeat visitors were most likely to stay more than one week, and that those on their third visit were more likely to spend longer on holiday than those on their first or second visit. The repeat visit rate for respondents completing the Opinion Surveys was 39 percent compared to 62.1 for those completing the Awareness Surveys. This difference is possibly largely concerned with the timing of many of the Opinion Surveys coinciding with the solar eclipse when approximately twice as many international visitors toured the Flinders Ranges than they do on average. With this taken into account, the figure of 62.1 percent is deemed to be more reflective of the actual repeat visit rate. This high repeat visit rate is also typical of other surveys in outdoor recreation areas (SATC, 2001a), such as Welford (1977) in Innes National Park and Clay, Hingston and Aslin (1988) in Coorong National Park.

The Awareness Surveys also more closely reflected the age group characteristics of visitors when compared to SATC (2004a) than the Opinion Surveys did. SATC (2004a:2) showed that 13 percent of visitors in 2002 to 2004 were 65 years old and over, compared to 16.8 percent for this research, and 14 percent were less than 25 years old, compared to 15.1 percent for this research. The remaining age categories in both the Awareness Surveys and Opinion Surveys are also comparable, with this research seeing 37.4 percent fall into the older groups (c.f. 39%) and 30.8 percent in the younger groups (c.f. 34%).

Approximately half of respondents stayed between three and five days in the Flinders Ranges, with a further 21 percent staying either two days or less, or for one week. This is comparable to the SATC's (2004a:1) OSA market structure showing the average length of stay to be 3.4 nights (with 3.9 nights averaged for interstate visitors). Alegre and Pou (2006) show supporting evidence of a strong trend toward shorter holidays, and data highlights the role the tourist's sociodemographic characteristics might play (in addition to purely economic factors) in determining a chosen length of holiday. It is a trend that cannot be easily reversed because it is partly a consequence of new consumer behaviour patterns. Nevertheless, some tourist segments are less sensitive to this trend, with the youngest age group (under 30 years old) in Alegre and Pou's (2006) study presenting the lowest percentage of stays of more than one week, and the over 60 year olds presenting the highest percentage. For visitors to the Flinders Ranges, those aged under 40 years old were more likely to stay less than one week than those aged over 40, who were much more likely to stay for over one week.

When purpose for travel is compared to NPWSA (2001b), a similar pattern is seen between the two surveys. In both cases the 'natural environment' or 'landscape' was chosen noticeably more than 'wildlife' (by 29 percent more in both surveys). This suggests the Flinders Ranges may be seen largely as a package of both plants and animals in their natural landscape setting (such as the representation of the Outback), rather than purely as a wildlife destination, especially as the other national parks surveyed by NPWSA (2001b) received substantially higher proportions of visitors naming 'wildlife' as their purpose for travel. The majority of visitors (59.8%) said they spent either half or more of their time viewing plants and animals, therefore about 40 percent spent some or none of their time doing so (Figure 9.1).

Figure 9.1: Proportion of visit that tourists spend specifically viewing plants and animals



Source: Visitor Awareness and Opinion Surveys

If the Awareness Surveys are regarded as more reflective of the actual visitor population (because the demographics of these respondents better match those of SATC (2004a) and NPWSA (2001b), then slightly more visitors could be said to spend half or more of their time viewing plants and animals (64.3%). Overall, 21.4 percent of all respondents said they spent at least 75 percent of their time specifically viewing plants and animals. This is a large proportion of tourists and is interesting because as previously mentioned, ‘wildlife’ itself was not a particularly common reason given for travel (listed by less than 10 percent of visitors). This suggests even if the main reason for visiting is not for wildlife viewing, it is a popular activity to undertake. NPWSA (2001b) found that only 12 percent of visitors surveyed within FRNP spent less than five hours in the park; 82 percent spent more than ten hours there. With many of those surveyed not staying overnight within FRNP, this suggests that even visitors staying on private property enjoy spending a large amount of time amongst the wildlife of the FRNP, which could have important implications for both developing the local tourism market and ensuring protection of the attraction.

9.4.2 Visitor Market

There is certainly no shortage in tourist demand and the market is expected to increase continuously in South Australia (e.g. Department of Industry, Tourism and Resources, 2004; SATC, 2001a, 2005a). The following trends suggest potential to increase visitor numbers in the Flinders Ranges:

- the strong interest in the unusual and beautiful natural environment of the Flinders Ranges (as shown by results for purpose of travel and amount of time specifically viewing wildlife, and the opinions of present local tourism operators);
- the high proportion of repeat visitors enjoying returning to the Flinders Ranges (62.1% repeat visitors as per the Opinion Surveys), indicating an element of site loyalty and revisitation potential;
- the success of local tourism operations such as Arkaroola winning the 2005 and 2006 South Australian Tourism Award Category 5 ‘Ecotourism’ and 2006 ‘Sustainable Tourism’ category, and its induction into the Tourism Hall of Fame in 2007;
- the popularity of short holidays especially for intrastate or nearby interstate visitors (as seen by the increase in domestic and interstate visitor nights (SATC, 2005a) and the proportionally high number of visitors surveyed staying only two days or less in this

study), suggesting the Flinders Ranges is located in a position indeed suitable for short holidays (as well as longer ones);

- the increased and sophisticated marketing techniques used (the greater coordination between the SATC and NPWSA to showcase South Australia's ecotourism product, and techniques being used by the Northern Regional Development Board);
- the recorded increase in visitation to natural and perceived natural areas in Australia, especially national parks (Eagles, 2004) and the growth in wilderness-based tourism, given the interest in special interest travel products and tourists' desire to engage with nature (De la Barre, 2005);
- the demand for authentic natural and cultural experiences, with visitors wanting to interact with local people and customs whether it be Indigenous Australians or local landholders (of which the Flinders Ranges can offer both);
- the increasing market for tourism operations on private land (as shown by Opinion Survey results), especially ecotourism products that engage people in scientific field research and/or education (e.g. interviews with operators; Earthwatch Institute, 2006);
- an apparent overall high level of satisfaction with travel to the Flinders Ranges, as per visitor comments and discussions with the author and the high level of visitation to the region compared to other parts of South Australia (SATC, 2004b); and
- a world-wide increase in long-haul travel to Australia (Department of Industry, Tourism and Resources, 2004), particularly with the interest of seeing kangaroos (Benson, 2001; Croft, 2000; Scott, 2001).

NPWSA (2001) showed that visitor satisfaction with FRNP was generally high, with all experiences and facilities receiving at least four out of five when rated by tourists. Those with the lowest ratings were park signage (both directional and information) with 16 percent of visitors being dissatisfied, and park publications with 14 percent dissatisfied. Respondents to the Opinion Surveys and Awareness Surveys who chose to give comments (through the open-ended option of providing further comments related to the Flinders Ranges) often wrote about signage and access to information, whether interpretive or directional, with 15.4 percent expressing a desire for more information to be provided about the region, and 17.3 percent expressing other forms of disappointment.

A number of comments relating to tourist facilities were received, although there was a balance in the number of respondents desiring upgrading of facilities and those believing it was already over-developed. Past research by Delforce *et al.* (1986) reported almost 84 percent

of respondents surveyed did not want *abundant* tourist facilities to be provided throughout existing national parks and areas of major public interest on pastoral lands in OSA. Slightly more tourists said they would like to leave facilities as they are now (45.8%) than those who said they would like *some* more tourist facilities (40.2%) than presently exist.

The Flinders Ranges is possibly the most popular part of the State for driving a four-wheel drive (given by 11% of respondents as their main reason for visiting). Of all the national parks surveyed (Belair, Cleland, Coorong, FRNP, Innes, Murray River, Morialta, Naracoorte Caves and Seal Bay) by NPWSA (2001b), twenty-seven percent more of the visitors to FRNP chose four-wheel driving than at other parks. Increased fuel prices are however primarily acknowledged with causing a 25-30 percent decrease in the number of tourists to national parks in OSA largely during the time of this research (NPWSA, 2005). This was especially evident in those parks used more often by South Australian visitors than interstate or overseas visitors. However, several landholders commented on the noticeable increase in interstate visitors (mainly from Victoria and New South Wales) proportionally to South Australian visitors, and it was proposed (and indeed confirmed by some visitors) that this was largely because these interstate tourists did not want to pay for fuel to drive as far as central Australia but were willing to buy less fuel to explore the Flinders Ranges (being closer to their home states). South Australian visitors also shortened the distance of their holidays to counteract increased fuel prices; they largely excluded travel to the northern Flinders Ranges and chose to explore the areas closer to Adelaide. Regardless of their place of residence, tourists overall did not drive as far from their homes, causing a change in the patterns of destinations visited.

While a low proportion (13.5%) of respondents actually said they would like an ecotourism operator to take them on a tour in the Flinders Ranges, the most popular choices suggest ecotourism-style experiences are sought judging by the guides' occupations. Park rangers were popular choices (with 44.3%), as were local landholders (32.4%) and ecologists (20.4%). General tourism operators were least favoured with less than two percent, so it can be said that tourists in the Flinders Ranges *do* want more than mainstream tourism experiences, and it implies that there is potentially a large ecotourism market to be utilised. Interestingly, Sharpley's (2006) study found that there was little evidence to suggest that ecotourism's growth has been demand led; its supply has grown significantly but it is merely assumed that the tourists are demanding the more environmentally-friendly products and services. Sharpley (2006) compared the behaviours of ecotourists and mass tourists, concluding that the motivations behind their travels differed little. In the context of this research, this may suggest

that while visitors do not necessarily use effort to seek ecotourism operators, as seen in Chapter 7 by admitting to not spending as much time as needed to locate such an operator, they do participate in nature-based tourism and educational tourism activities when they encounter them. The vast majority of visitors claim to want to learn more about the environment, reduce the impacts they cause, and in 60 percent of cases, spend half or more of their time specifically viewing wildlife whilst on their holiday. So even if the values and motivations do not differ greatly between mass tourists and ecotourists, there are a large proportion of tourists on holiday that enjoy participating in ecotourism-based activities.

Cater (2006) discusses how ecotourism is largely a Western-construct and suggests that just as nature means different things to different people, it should similarly be acceptable for ecotourism to be different for different groups of people. As a result of 'multiple natures', not only will different nations have different nature tourism and ecotourism constructs, but even on an individual scale people will construct their own ecotourism. Cater (2006) contends that if this is not recognised, it will only serve to reinforce (as opposed to reduce) the very inequalities that it typically attempts to reduce. Chrigwin and Hughes (1997) surveyed tourists at the artificially created wetland of Fogg Dam in the Northern Territory, a site that attracts wildlife in numbers rarely seen in most natural venues. This site, although created by humans, was regarded as an ecotourism site by 90 percent of visitors, suggesting that it is not necessary to the ecotourist to have a pristine site, as long as the area is aesthetically pleasing and it provides opportunity for viewing and learning about wildlife. With this in mind, if ecotourism can indeed be represented by a range of tourism activities from 'hard' to 'soft' environmentally, and even if only 13.5 percent of respondents wanted to participate in a tour with an ecotourism leader, the almost 65 percent desiring park rangers or ecologists can also be said to be in search of a type of ecotourism activity.

Visitors to the Flinders Ranges claimed they want to participate in environmental education whilst on holiday and that they try to reduce negative impacts on the environment, two important factors further suggesting there is a market for ecotourism not just tourism in the Flinders Ranges. Armstrong and Weiler's (2002) study also found similar results of national park visitors; they wanted to participate in activities that did not adversely affect the environment in which they were touring (mean score 4.4 out of 5) and wanted to learn more about the environment on their tour (4.3 out of 5). However it was inconclusive as to the influence of price to their desired ecotourism experience; similarly, this study cannot comment on whether or not visitors would pay top-price for ecotourism products in the Flinders Ranges.

Preece (1995) claims travellers *are* very price conscious, therefore all-inclusive, high quality and cost, small group tours, such as those offered by many ecotour operators, may have a disadvantage in Outback Australia³². While market research indicates that consumers concerned about the environment claim to be willing to pay increased tariffs for goods and services that provide assurances of environmental responsibility (Wearing *et al.*, 2002), it must be remembered that what one claims to do may not be how one acts in reality. Fransson and Garling (1999) note that environmental concern is positively related to income levels. It is also worth noting that the visitor surveys revealed those over 65 years old, who showed the least concern for the environment, most often gave financial cost as the reason they did not do more to help, again reinforcing the connection between environmental claims, actions and income.

However, Rawnsley Park Station (2006) report that 48 percent of their visitors would be willing to spend \$20-25 for a 1.5 hour guided ecotour, and 17 percent would be willing to spend \$25-30 (only slightly lower than interstate equivalent products). The conclusion drawn from their feasibility study was that because there are few true ecotourism products on offer in the Flinders Ranges, tourists *would* be willing to pay extra to have the ecotourism experience. If ecotourists therefore *are* willing to spend more for environmentally-friendly products and services, not only is there the potential for the private sector to be further involved, but there is the potential for higher-visited Australian national parks to adapt their management strategies to replicate the successful cost recovery model of Ontario Parks in Canada. This refers to the adoption of higher entrance fees, which have achieved improved return rates for park maintenance via the user-pays system, notably increasing in recovery rates between 1990 and 2001 (Table 9.1).

Table 9.1: Cost recovery from entrance fees at Ontario Parks

<p>NOTE: This table is included on page 195 of the print copy of the thesis held in the University of Adelaide Library.</p>

Source: Eagles, 2004

There is a widespread trend in Australia that national parks are not receiving enough money to cover the increases in park area, numbers and visitation, and with diminishing resources and

³² Tourists do not often consider all hidden costs when planning a holiday so do not often realise the total cost they will be paying, so when pricing an all-inclusive holiday may they tend to think it is overpriced.

aging infrastructure, they exceed the current park management capabilities. Approximately only 30 percent of Kakadu National Park and 10 percent of the Tasmanian Wilderness region's costs are recovered through the Australian system, and even less for the majority of protected areas (Commonwealth of Australia, 2000). Over 13 percent of comments given by respondents directly suggested that either staffing of national parks in the region was inadequate or that funding overall was inadequate for management. Additionally, a further 15.4 percent indirectly suggested this inadequacy through their comments. Unfortunately for tourists wanting improved facilities, inadequate resources may mean visitor services will be given low priority.

The cost recovery model used in Australia is not reaching its full potential and as evident, governments do not often have enough funding for both park maintenance and conservation efforts. This reinforces the possibility for the private sector to help supply tourism facilities and activities as well as help fund conservation efforts through such ecotourism operations desired by visitors. One example of an alternative land management system to National Parks is Warraweena Conservation Park, managed by a private conservation trust (Wetlands and Wildlife) and conserved as a special ecotourism zone. The property was de-stocked and set aside for conservation, with approximately 6000 goats removed from the land, helping native vegetation to regenerate. Another is Arkaroola Wilderness Sanctuary, a previous pastoral property that fully converted to tourism and conservation, run as a private sanctuary as opposed to National Parks. The potential for other similar models, including partnerships between public and private agencies, should be further explored by the private sector as the market clearly exists.

9.4.3 Tourism Industry Summary

The analysis of this research supports that the Flinders Ranges is a popular tourist destination largely due to its Outback qualities, encompassing the well-liked holiday aspects of being amongst nature, in an attractive landscape and a peaceful setting encouraging relaxation. It is enjoyed as a place that enables tourists to be surrounded by the environment and gain a taste of Outback life. Being on a holiday where work is typically separated from play, tourists may enjoy a destination for a short period of time and then leave, therefore remaining isolated from any negative impacts to the site at the local level. As tourists, they may feel that they can suspend common sense and codes of conduct without being accountable for what is damaged or who is hurt. This is the frame of mind that needs to be overcome if tourism is to truly contribute to environmental recovery and conservation efforts. Yet it appears that tourists to this part of the rangelands do largely appreciate the environment of the Flinders Ranges, and it

does at least offer the opportunity for people to reconsider their impacts on the environment. One tourist made this noticeable when they recited the Asian proverb:

Tourism is like a fire, you can use it to cook your soup, but it can also burn down your house.

The analysis also suggests it would be worthwhile asking tourists further questions regarding environmental interpretation in the Flinders Ranges (not only in the national parks), such as whether or not they would like to see more signage about the local plants, animals and geology, or whether or not they read books on the Flinders Ranges before visiting. Detailed exploration of tourist wants would be beneficial as they claim to want to know more about the environment and how to help it, but their actions and sometimes lack of environmental knowledge appear to contradict this claim in many instances. Figgis (1999:46) wrote:

It is ironic that while humanity has relentlessly decimated wildlife and natural lands, it has simultaneously grown to value them more highly.

This value, embracing all types of values from economic to aesthetic, and the philosophy behind the above-quoted statement, is extremely influential for the ecotourism industry. Tourists do appear to value the Flinders Ranges' environment in theory (as per the Visitor Surveys), but further research is needed to assess how well their actions support this in practice as this research only touched on behavioural actions (i.e. staying on marked roads and tracks or not removing plant material). Local operators also agree that visitors do value the Flinders Ranges for their natural qualities (as per interviews of tourism operators), hence the popularity of ecotourism and nature-based tourism operations in the second most visited region of South Australia (SATC, 2004b). The literature review shows that in some cases, tourism can indeed lead the business of sustainability, provided it is well-managed and planned according to a balance between both tourist and local community needs, as this research also maintains.

9.5 Visitor Opinions and Knowledge of Ecotourism and the Environment

This section addresses the third specific objective of the research study:

Examine visitor aspirations, opinions and knowledge of ecotourism and evaluate visitor awareness of ecological degradation, recovery and conservation in the Flinders Ranges and wider Outback Australia. Do visitors want to learn more about environmental issues and are ecotourism messages actually reaching visitors?

Just as knowledge of the present and potential tourist market is crucial to any tourism development, knowledge of visitor attitudes is essential to the formulation of sound management objectives.

A major characteristic of our conception of tourism is that it is not work (Australian National Training Authority, 1997; Gnoth in Duffy, 2002). It is part of what we term recreation, which theoretically renews us from the workday world. Therefore it is probably not surprising that when a tourist is holidaying they may be less concerned with the everyday responsibilities they face in life such as conservation and waste reduction, and consequently destroy the very resources they come to see. Drumm and Moore (2005) list the common examples of litter, trampled vegetation and trail erosion, and the sometimes overlooked problems such as subtle changes in animal behaviour (such as eating habits, migration and reproduction). Tourists are also likely to use more resources than a local, particularly in regard to water (UNESCO, 2000).

Being a form of recreation, it is also very popular for tourism to be nature-based as being in pristine areas (or perceived pristine areas) is thought to help rejuvenate us, and being in an environment that we are not typically in helps us feel we are 'getting-away-from-it-all'. SATC (2005b:2) report that 72 percent of Australians prefer a holiday where they can 'see nature or be in a natural setting'. Ecotourists typically rank being in untouched areas and avoiding crowds as very important attributes of a destination, and Eagles (2004) predicts national park visitation will continue to increase in Australia. However this can create a dilemma if the more popular national parks and reserves become overcrowded as more and more people seek this experience (which may cause the less popular and less conveniently located parks to lose funding as a result of under-use). Furthermore, first time visitors and repeat visitors have different aspirations to each other, and while first time visitors may seek variety through a unique or novel experience, repeat visitors may be more commonly motivated by a want for relaxation (Hughes & Morrison-Saunders, 2002), bearing in mind that a high proportion of visitors to the Flinders Ranges are repeat visitors.

Also related to the fact that tourism is not work, Preece (1995), an ecotourism operator in Outback Australia, found that more people desire only a limited amount of lecturing and hard information while on a tour. Tourists only want to spend a few days in one location and prefer a tour with a pace that enables them to experience a range of landscapes, flora and fauna without involving lengthy educational presentations. As Preece (1995:144) writes, 'after all they are on a holiday'. This is supported by some Flinders Ranges tourism operators, agreeing

on the importance of not over-interpreting the environment, but disagreed upon by others, who believe providing more interpretation is the best way to make visitors change their behaviour. While about 15 percent of visitors commented on a lack of interpretive signs, no visitors commented on too many signs. Hughes and Morrison-Saunders (2002) suggest a lack of signs may correlate with a lack of enrichment and stimulation in the environment, implying additional signage would be beneficial in most circumstances if they are to encourage environmental interest and more environmentally-friendly behaviour.

However, this study found that almost three-quarters of tourists said they were only moderately or less than moderately influenced by the operator they used. This may suggest visitors already have well set opinions, and that to an extent operators are 'preaching to the converted' and not actually reaching those less well versed in conservation issues. Using the environmental values theory known as the New Environmental Paradigm (NEP) scale, Kim, Borges and Chon (2006) measured the public's fundamental views about nature and human's relationship to it with a group at a special environmental film event in Brazil, and found that the majority of viewers were already pre-disposed to environmentally-friendly behaviours, concluding that the film was unlikely to influence their actions any further. It could be questioned whether this is also applicable to the ecotourism industry.

It may not be that operators are only reaching those already well aware of conservation issues, but it may be they are not getting the 'right' message across. Armstrong and Weiler's (2002) study found that messages visitors received were most commonly general conservation messages and messages about heritage values of a natural area. However, these messages were not necessarily the messages the tour operators or guides were trying to deliver. While 43 percent of visitors were under the impression the key message being sent was a general conservation message, only 17 percent of operators reported the key message they tried to send was as such. The most common messages were in fact about minimising visitor impacts at the specific site (only identified by nine percent of visitors). This supports Duffy's (2002:54) statement that tour guides often complain 'ecotourists do not heed their environmental advice'.

Studies show that people do not behave in predictable patterns related to their attitudes (Dickinson & Dickinson, 2006; Wearing *et al.*, 2002). While the majority of respondents to the visitor surveys claimed they care a lot about the environment (62.3%) and that they try to reduce negative impacts (61.4%), it may be that while minimising negative impacts is desirable, it is simply not as important as enjoying a holiday and escaping work. One in six

visitors admitted to removing plants, and one in four admitted to driving off roads or wandering off tracks, which should be worrying for managers. Woinarski and Fisher (2003) argued that rangeland users should be more aware of and concerned about rangeland environmental problems. Duffy's (2002) interviews of visitors to Belize revealed ecotourists were more concerned with how their holiday affected themselves as individuals on a journey of self-development rather than the negative effects they had on their destination. Newhouse (1990) and Roberts and Bacon (1997) also show that environmental concern does not always convert into environmentally responsible behaviour. Sharpley (2006) argues that the consumption practices of ecotourists are actually little different to those of mass tourists. This research also found that those who think they are more environmentally-conscious may not in fact act in the most environmentally-friendly ways. Visitors under 25 years believed they cared more for the environment than other people, and were more aware of the potential damage from tourism activities, but actually behaved in less sustainable ways than other age groups.

Understanding the environmental values of tourists has become increasingly important as environmental issues have become a central concern for policy makers, business owners and the general public. Aesthetic qualities of nature are commonly invoked to justify preservation of natural areas (as opposed to preserving them for their own sake or so the animals living there have a home for example). However we do not know whether every aesthetic response to nature can actually be regarded as an appreciation of nature or not. The implications for this in the tourism industry are that in reality, we do not know how much a tourist wants to know about a site, or how much they really appreciate it. They may be primarily concerned with seeing its beauty and nothing more. The results of the visitor surveys showed that the most popular reasons for visiting the Flinders Ranges were for the landscape / scenery (17.4%), camping (11.5%) and the Outback (11.4%). These reasons imply an aesthetic affection to the destination, but do not necessarily suggest a deeper appreciation of nature. The tourists themselves may even be unaware of their level of environmental appreciation and their environmental viewpoint.

Krippendorf (1987) suggested that the way for tourism to become more sustainable lies with individuals (not operators) who must become more aware of their motivations for travel, personal desires and concerns of other people. As commented on an Awareness Survey:

Most people probably choose not to acknowledge that tourism causes problems too.

This reintroduces the notion of how people's attitudes influence the degree of their environmentally responsible behaviour. The 2007 Australian of the Year Tim Flannery,

instrumental in helping increase environmental awareness in Australia, wrote (in Pollack & MacNabb, 2000:155):

Changes for the good come not from politicians and decision-makers but from within the hearts of ordinary Australians.

Whilst it is clichéd, it may also be true that it is the public who can help make change possible. If people are aware that their own individual actions can make a difference, they may start to change their behaviour. The trouble in sending the message that change is needed returns to the fact that, like climate change, the impacts of tourism are difficult to measure. Without proof, people may not really accept how important it is. It is also difficult to evaluate environmental attitudes because it relies on self-assessed behaviour, and people tend to over-report the extent of this behaviour to be perceived as having more environmentally-friendly attitudes and be seen to act in more socially desirable ways (Scott & Willits, 1994). Duffy (2002:41) states that 'being environmentally aware is an important signifier of social position'. If it is indeed the case that people over-report the extent of their behaviour, this would suggest that the results to the self-assessed environmental behaviour questions are an underestimate, indicating even more tourists ignore environmental advice. Therefore the author acknowledges there may be potential biases in relation to the survey questions regarding ways in which visitors reduce negative impacts on the environment because the questions are self-assessed.

Respondents may have said they dispose of waste correctly or stay on marked roads or tracks because that is what could be seen to be acceptable, but in reality they may not do so. They may not want to be seen as doing 'the wrong thing'. In theory therefore even more than the 27 percent of respondents (of the two Visitor Opinion Surveys) may break protected area regulations (but not admit to it). With at least one-quarter of respondents clearly breaking environmental regulations, we could ask ourselves if this proportion is acceptable or not for any group of people being asked or ordered to follow rules and regulations. For example, the question could be asked whether or not the police would be happy with one-quarter of people travelling in cars not wearing a seat belt, stealing a car, or even simply being unaware of common laws. The answer would be 'no'; in the same manner that having one-quarter of drivers not wear a seatbelt is unacceptable, so too is having one-quarter of tourists not follow environmental regulations.

While messages sent by operators are not always the messages that visitors take in from their holiday, it is possible that environmental education in ecotourism could provide the opportunity for visitors to at least reassess their attitudes. This could potentially contribute to

more responsible behaviour in the future by influencing tourists to 'think green', and visitors with pre-existing environmental concerns may be more likely to act in more environmentally responsible ways as a result of an operator's additional influence. Some studies have indeed shown ecotourists do not just want to relax but also want to be educated whilst away (Ballantine & Eagles, 1994). Almost 85 percent of respondents to the Awareness Surveys claimed they would like to learn more about the environment. Saltzer's (2002) report showed that tourists to Kangaroo Island not only wanted to learn but *did* learn a lot about wildlife during their holiday, with a mean rating of 7.05 out of 10 (with 0 being learning nothing at all and 10 being learning a great deal) for their level of learning.

Pollack and MacNabb (2000) maintain that raising environmental awareness through means of tourism, film, media and song for example can influence people provided the interpretative materials are effectively communicated. According to Pollack and MacNabb (2000:60), effective communicators make us think about what we are doing:

They make us care about what we are doing. Then they make us do something about [it]. In their individual and collective ways they affect our hearts and minds forever.

Ballantyne, Packer and Beckman (1998) found that on Fraser Island, repeat visitors commonly took part in relaxation activities such as fishing and snorkelling, whereas first time visitors concentrated on activities based on exploration and learning. It is suggested that the familiarity and improved conceptual knowledge that repeat visitors have of their destination plays a role in their perceived lack of needing to learn and explore. In the Flinders Ranges a high proportion of visitors are repeat visitors, so communication must be an important factor to continue to engage repeat visitors in environmental education, not only to improve the likelihood of an enjoyable experience, but also to serve as an important reminder to visitors of suitable behaviour (Moscardo, 1998). The visitor surveys have shown that repeat visitors certainly represent an important aspect of tourism in terms the ongoing viability of tourist attractions in the Flinders Ranges, representing more than half of all visitors.

While some respondents commented that they wanted a higher number of interpretive signs in the region (summarised in Appendix V), others did not appear to read those that already exist, as concluded from the lack of environmental knowledge and awareness of Operation Bounceback in particular. Tourism sites often try to find a balance of the most desirable intensity of interpretative media, to avoid overload while still ensuring that intended messages are sent. Further study by Hughes and Morrison-Saunders (2005) highlighted the necessity of

having a site design that reflects the interpretive media design, to ensure visitor activities and consequent effects on attitudes are consistent with conservation objectives.

While visitors to the Flinders Ranges had some degree of environmental knowledge, it was not diverse, so it reminds us that many tourists want the 'getting-away-from-it-all' experience, possibly with the desire to forget about environmental issues in their pursuit of enjoyment and relaxation. Only 22.6 percent of respondents had heard of Operation Bounceback. While one-third of visitors who were aware of it first heard about it through signs at the Wilpena Visitor Centre, more than 20 percent heard of it before their holiday (such as through media, whilst planning their holiday, from family or friends, or through academic studies). This could explain the higher rates for South Australian awareness levels compared to other Australian and international levels, indicating that locally-based visitors may not be any more likely to want to know more about their destination's environment than visitors from further away; it may be more related to chance encounter. There was also higher awareness of Operation Bounceback among repeat visitors; repeat visitors may be seeking supplementary information about a site as a means of enriching their experience.

Operation Bounceback competes for media coverage with other environmental conservation and recovery projects be they local, interstate or international.

Sometimes you get the feel that the public's view on conservation ebbs and flows, they have heard too much and interest turns towards health or education and other issues they see as more important. Their interest will only be jogged when it hits their pockets in the years to come, not unlike the salinity issue.

P. Watkins, pers. comm., 2003

One way of evaluating visitor interest in environmental matters is to determine their level of awareness regarding local issues. While 89 percent of respondents answered at least half of the True or False Statements correctly, only 42 percent answered six or seven correctly (out of seven). First time visitors answered six or seven correctly 31.5 percent of the time, compared to 48.4 percent of repeat visitors. More than half (53.9%) of those repeat visitors on their third to fifth visit answered six or seven correctly. This was also consistent with those answering only one or two correctly; 14.7 percent of first time visitors only answered one or two correctly compared to 5.8 percent of those visiting more than five times. This may be in part because first time visitors are unaware of the additional information available to them through a lack of experience with a site.

South Australian respondents from outside of Adelaide answered the most True or False statements correctly, followed by Adelaide respondents, interstate respondents and lastly international respondents. Whilst this is not surprising, and most likely suggests people know their local area better than anywhere and anyone else, it could be argued that it also suggests many visitors are not interested in learning whilst on holiday (despite claiming to be interested). This may be another case of not acting upon claims, which could be related to the notion of holidays not being 'work'. However it may also be the case that the South Australian respondents had higher awareness because more than three-quarters were repeat visitors compared to less than one-quarter of interstate and overseas visitors being repeat visitors. Repeat visitors may have greater awareness as a result of passive learning just by being there and observing, not actually through specific interpretation activities as these are less typically sought (as per Ballantyne *et al.*, 1998; Hughes & Morrison-Saunders, 2002). With 100 percent of international visitors claiming to want to know more about the environment (compared to three-quarters of Australians), it is likely that proximity to destination also has an influence on the degree to which a tourist wants to incorporate interpretation into their holiday.

Respondents tended to be more aware of the negative environmental statements of degradation issues relating to European settlement (pastoral activity, rabbit³³, fox and goat introduction) than the positive environmental features of the Flinders Ranges (such as the number of bird species, the local Indigenous Australian people's heritage and the occurrence of yellow-footed rock wallabies and kangaroos). With almost 30 percent of visitors thinking that national parks are pristine, untouched environments, the researcher wonders if this is a naïve or idealistic thought, and what the implications for this belief may be. If they compare the FRNP, believing it has not suffered any environmental degradation, with nearby pastoral leases, will they then believe that none of the land has suffered, and consequently not see the need for more sustainable activities? How will their attitudes and subsequent actions differ to those visitors who have seen the damage that has been done? As Holmes (1983) described it, it may appear to be a natural landscape to the inexperienced eye, but the changes are in fact more often far-reaching than suggested at first glance. It is not expected *all* visitors would have this knowledge, but from an environmentalist's point of view, it would be hoped a high proportion of people were aware of the level of degradation. Maybe people simply do not associate environmental damage with the Outback because it is an open, harsh landscape to begin with.

³³ The author acknowledges that a higher number of respondents may have correctly answered the True / False statement claiming that rabbits were eradicated from the Flinders Ranges due to the Calici virus if 'rabbit' had been listed as an option when asking visitors to identify which animals they had seen in the Flinders Ranges.

Because animal culling raises community concerns about valuing natural heritage, visitor surveys included questions regarding the topic so that the study could further explore opinions regarding environmental management practices. The survey results showed two patterns. The first pattern is that visitors were more accepting of the culling of feral animals than native animals (specifically kangaroos)³⁴, and the second pattern is that when more information was given on why animals may need to be culled, visitors were more likely to be accepting. These patterns are evident irrespective of the higher number of international visitors surveyed in Visitor Survey One (VS1) during the solar eclipse being included in the sample (Table 9.2).

Table 9.2: Average acceptance of animal culling by place of residence

	Sample	Feral Animal Culling	Kangaroo Culling
VS1 (less information given about reasons for culling)	Australian respondents	4.71	3.84
	International respondents	3.52	2.89
	All respondents	4.38	3.58
VS2 (more information given about reasons for culling)	Australian respondents	6.15	4.8
	International respondents	5.16	4.69
	All respondents	6.07	4.79
VS1 & VS2	All respondents	5.03	4.04

Source: Visitor Opinion Surveys

The results showed that the average level of acceptance for kangaroo culling was 4.04 out of seven (where one represents strongly disagreeing with it, four represents a belief that it is ‘fair to cull’, and seven represents strongly agreeing with it). In contrast, the average score for feral animals was 5.03 out of seven. This shows visitors have more concerns with native animal culling than that of introduced species, and questions the extent to which culling for conservation in the region should be promoted to tourists.

Respondents to Visitor Survey Two (VS2), who were given more information regarding the reasoning behind culling, produced an average score of 6.07 for feral animal culling and 4.79 for kangaroo culling. These figures are notably higher than the respective figures of VS1 respondents. This suggests that visitors are more accepting of kangaroo culling when environmental education is provided – in an ecotourism setting, it therefore may not be a

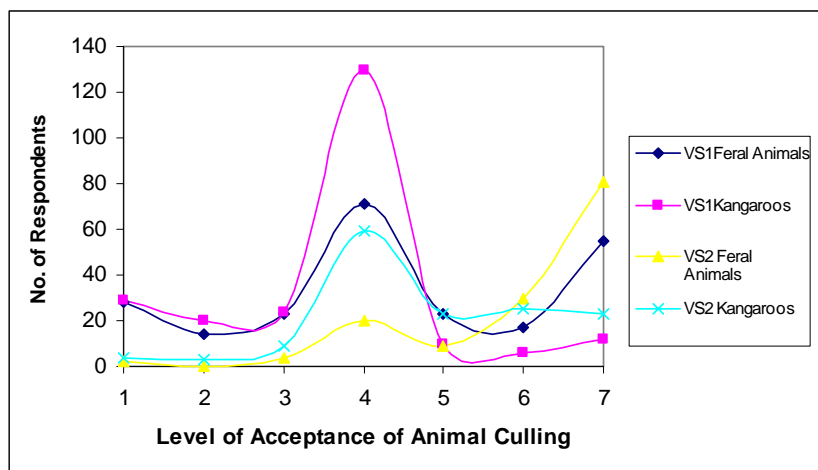
³⁴ Kangaroo culling began as a means of keeping numbers down in areas where kangaroos compete with domestic stock for food and water. The quotas are often as high as 10 to 12 percent of the estimated population, but almost always the actual harvest is well below the quota figure (Department of Environment and Heritage, 2004).

negative to include discussion of such a topic. An Operation Bounceback park ranger, who helped construct the questions regarding feral animal and kangaroo culling, said '*if people are educated to the reasoning behind its necessity they understand*' and agree with it, but '*there will always be people that disagree*'. Contributing to the difficulty for some visitors to accept kangaroo culling as part of a land management plan lies with the fact that the kangaroo is a great Australian icon and international tourism drawcard. With evidence that wildlife-tourism based on free-living kangaroos in the rangelands is both feasible and in demand (Croft, 2000), it is an important topic to consider. Kangaroos and koalas are equally the most enjoyed native animal for international tourists to see on their visit to Australia (Scott, 2001). Croft and Leiper (2001:2) identified kangaroos as providing a sense of the 'real' Australia:

The view of kangaroos in the landscape undoubtedly authenticates the Australian experience.

Scott (2001) examined the possibility of using native animals, especially kangaroos, to influence travel to Australia, reporting that native animals were an important influence for travel for around 60 percent of visitors surveyed. Higginbottom *et al.* (2001) evaluated various sites throughout Australia for the feasibility of kangaroo-based tourism, stating that with visitors interested in a high abundance of the larger, well-known kangaroos, the most suitable sites are found in the pastoral zones of Queensland, New South Wales and South Australia, each offering a different range of species diversity. It was also noted that some pastoral properties could exploit this asset, as large populations commonly reside off surrounding national parks and reserves, and abundance is an important attraction (Scott, 2001).

While the average scores indicate acceptance of culling, care must be taken in analysis as Shaughnessy and Zechmeister (1990) describe such a regression toward the mean as a phenomenon similar to the expression 'things will even out', referring to the notion that extreme experiences tend to be balanced by less extreme experiences. In the context of this study, this suggests that while the average may suggest a majority acceptance of culling, there may have been many respondents who answered '1' or '2', and many who answered '6' or '7', either strongly against or strongly for the practice. This reinforces that there are difficulties in using averages for such analyses. To examine the extent of this phenomenon in this study, total numbers of respondents selecting '1' through '7' were also examined, concluding the majority did not in fact select either extreme end of the scale (Figure 9.2).

Figure 9.2: Acceptance levels of animal culling

Source: Visitor Opinion Surveys

9.5.1 Visitor Opinions and Knowledge Summary

The results show complex relationships between visitors and ecotourism as a concept. It is unclear whether nature enhances the holiday or if it is crucial to it from the visitors' point of view. What is clear is that visitor aspirations, opinions and knowledge of the environment are inextricably linked and cannot be separated. One is unable to fully explore visitor aspirations without an understanding of their opinions, which are derived from their existing knowledge of environmental topics. The analysis has shown the difficulties involved due to the way in which people may not act in accordance with what they claim.

The majority of respondents claim that they would like to increase their environmental knowledge. Close to two-thirds claim to care a lot about conservation in the Flinders Ranges, yet people do not always behave in predictable ways related to their attitudes (Dickinson & Dickinson, 2006). Respondents were largely of the opinion they were behaving environmentally responsibly (e.g. over 60% claimed to reduce negative impacts whilst holidaying) and recognise the importance of conservation programs.

9.6 Pastoralist Aspirations and Opinions

This section addresses the fourth specific objective of the research study:

Examine pastoralists' opinions on the rise in popularity in ecotourism. Do landholders think ecotourism could be a solution to local economic and environmental issues?

9.6.1 What the Pastoralists Say

Recently tourism, particularly tourism-based farm diversification, has increasingly been considered an effective catalyst of rural development and regeneration (e.g. Rural Information Centre, 2004; Sharpley & Vass, 2006). The interviews of this study were designed to assess if pastoralists in the Flinders Ranges agreed with the notion that ecotourism could be one approach to help achieve a balance between the biological concerns of conservation and the socio-economic concerns of the people involved.

In regard to socio-economic concerns, the interviews helped identify the extent to which financial considerations, specifically a lack of income, influenced the decision to diversify, as well as examine how positively or negatively tourism is viewed as a diversification option. It is not surprising that diversification was primarily undertaken for the potential additional income it offered; 100 percent of landholders agreed some form of diversification was necessary, and while all landholders said financial reasons were a primary factor in entering the tourism industry, sixty percent specifically claimed that tourism offered the *best* opportunity for generating extra income. Interestingly, thirty percent specifically wanted to make use of redundant buildings. Sharpley and Vass's (2006) study of farmers in north-eastern England also found that income generation was undoubtedly the dominant reason for developing on on-farm tourism business, and in most cases, this replaced previous off-farm work. In the Flinders Ranges it did not appear that tourism operations replaced other forms of off-farm income however. Economic viability plays a large factor in the Flinders Ranges, with one landholder simply stating '*pastoralism is a hard business*'. Indeed the Farghers of Nilpena station diversified into hospitality with the purchase of the Prairie Hotel in 1991 due to the uncertainties of life on the land (Larkin, 2005). The hotel has since become a tourist attraction and won numerous tourism awards, proving to be a successful diversification choice.

Most landholders did not appear to be against the prospect of tourism unless it was in the form of mass tourism. Different landholders are perceived as seeing tourists in different ways to each other, according to one member of the Friends of the Flinders Ranges. While '*some see the tourists just as money*', others see them as bringing the opportunity to teach others about their local environment, with the consequent aim of them acting in more environmentally-friendly ways in the future. It is possible most landholders only diversify into tourism out of financial necessity, but each of the 10 landholders who had already diversified into tourism (from a total of 17 interviews) saw tourism in a positive light and wanted to be involved in the

industry. It would be interesting to examine what proportion of landholders chose tourism above other possible diversification options, and what proportion deemed they had no other reasonable opportunities apart from tourism (for example, one landholder had suggested bush tomatoes and other native produce as an option they would like to explore).

Indeed by and large, the present tourism industry in the Flinders Ranges is comprised of small family owned businesses and cooperatives, complemented by a range of ventures developed and operated by communities throughout the region (such as volunteer groups or local councils). About eight of the stations are earning significant money from their tourism operations. Only two landholders reported problems from tourists. Delforce *et al.* (1986) reported similar results, with only 9.1 percent of pastoralists surveyed in the Flinders Ranges attributing any losses in production to the direct actions of tourists, and of these, only one identified a significant monetary loss. For most pastoralists any problems caused by tourists were not considered serious and it was concluded the problems were probably not very serious from a regional viewpoint. Interviewed landholders suggested that over the past 20 years or so tourists have become more responsible in general, with tourists not purely seeing the Outback as somewhere they can have their 'freedom'.

Delforce *et al.* (1986) found that while few of the Flinders Ranges properties encountered problems from tourists, the most common problem was litter, followed by gates being left open (and resultant unwanted stock mixing), stock being frightened from watering points, bogged tourists and damage or theft. The results did not indicate the seriousness of the problem, but do suggest the problems (other than litter) were largely economic in nature rather than environmental. The problems did not happen throughout the whole year, but in response landholders took various actions. The most common action was to erect 'no trespass' or other warning signs to try to deter tourists (67.7%). Others included regularly monitoring tourists (60%), collecting litter (46.7%) and replacing gates with ramps (31%). Visitors need approval before leaving the public road for camping or other recreational use, and are advised to keep away from stock as sheep may be lambing or cows calving and carelessness can cause stock to suffer losses. Today they are also urged to respect gates and private roads, and leave mills, tanks and water troughs alone. It is important that they respect the privacy of the locals and do not abuse their welcome to prevent hostility in the future.

Another issue that arose during the course of the interviews was that roads can become dangerous if too many people use them if there has not been enough rain, adding extra dirt and

dust to the air. While most landholders thought it would be good to become involved in tourism, it was revealed ‘*there are still many farmers who believe tourists are “terrorists”*’. This refers to a play on words with ‘tourist’ and ‘terrorist’ sounding similar, and suggests tourists are inclined to destroy the tourist destination through behaviour that is considered inappropriate by local communities, altering the meaning of the word to refer to environmental terrorism through inconsiderate behaviour that threatens species and ecological processes.

Delforce *et al.* (1986) asked tourists if they thought they could carry out certain activities (such as going bushwalking, driving on and off tracks and camping anywhere) on pastoral leases without landholders’ permission. Many tourists thought it was acceptable to drive on tracks on a pastoral lease (56.6%) or walk on them (53.3%) without permission. Eleven percent incorrectly thought they could drive off-tracks on pastoral leases. The majority of tourists were aware they could not camp anywhere (86.3%) or go shooting (94.6%), but many people (64.9%) were unaware they were permitted to light a fire (unless in total fire ban season) or bring their pets (with the exception of National Parks) (86.3%).³⁵ This shows there was confusion over which activities were permitted, and poses the question whether or not with more knowledge of regulations tourists would be perceived as damaging the environment to the same extent (as it could be expected with more knowledge of such regulations, more tourists would adhere to them).

The environmental impacts from tourists are difficult to measure (e.g. Buckley and King, 2003). Carlsen, Getz and Ali-Knight (2001) surveyed 198 families in rural tourism operations in Western Australia about their environmental goals and concluded that about half had implemented a range of sustainable management practices. Landholders involved in tourism in the Flinders Ranges typically only put such practices in place when financial barriers were absent. Costs relating to environmental recovery and conservation are high, and landholders are very aware of this. While some have been able to take advantage of government incentives and rebates (e.g. high percentage rebates on solar power installation), further efforts are needed in regard to direct land-use (especially grazing pressures).

Cameron, Elix and contributing authors (1991) suggest one of the main reasons for the difference in the measures that *could* be taken to help alleviate land degradation and the measures that actually *are* undertaken lies in the value of pastoralism per hectare and overall property income. It is shown that it would not be economically worthwhile to counteract

³⁵ Delforce *et al.* (1986) used current laws and historical precedent to determine what tourists were permitted to do and what they were not permitted to do on pastoral leases in the Flinders Ranges.

land degradation in the semi-arid woodland of southwest Queensland because of the extremely low income per hectare. If a higher income per hectare was achieved, incentives could more successfully be used towards environmental recovery. Tourism (when sustainable) offers landholders a possibility for extra income, and it is also favourable because most money generated from outside visitors stays within the local community in rural regions (Rural Information Centre, 2004).

Tourists often support privately run tourism activities as they offer a variety of advantages including access to places they could not normally visit, learning about the environment in a face-to-face situation, meeting other people with similar interests and meeting the local residents and experiencing their daily lives. Many tourists commented they preferred to stay away from the crowds at Wilpena Pound. One stated that '[As] *Canadians, we're thrilled with the authentic rural experience capped by wonderfully hospitable people*'. Another wrote (in a Visitor Guest Book, 2003):

Thank you for allowing us to experience your beautiful property. You made us feel part of the place. It is much better than staying at a tourist resort because this is a working station and staying in the shearer's quarters makes you feel really involved. The scenery, vegetation and wildlife are superb... We were delighted to be allowed to join in the shearing and to have so much explained to us about the running of the station.

A member of the Friends of the Flinders Ranges commented:

Wilpena is like Woolworth's but everything is marked up 120 percent.

Local Keith Rasheed, whose father Kevin was the first to bring tourists up the Birdsville Track in the late 1950s, said the following whilst talking about the Great Australian Cattle Drive (in Austin, 2001a:27):

This could be the future for many of these people in the Outback – tourism and pastoralism.

The combination of tourism and pastoralism is not only a diversification issue but an employment issue (Sharpley and Vass, 2006). Landholders in the Flinders Ranges expressed the opinion that the size and potential of the tourism market in their region was increasing (although difficult to break into) and about three-quarters of local tourism operators believed there was room for more tourism operations. Visitor figures (e.g. DEH, 2001; SATC, 2004a, 2005a) also suggest the visitor market is increasing in OSA.

Many tourism ventures, rural tourism in particular, are entered into with a vague belief that making use of an under-utilised resource on a property will reap economic reward as a type of subsidiary income. One OSA property that began tourism operations in 1999 claimed (in interview with the author) that international tourists spend \$10 000 to \$15 000 for a 10 to 15 day 'Outback safari' as they are looking for the authentic station experience with the 'real people' who have been there for four or five generations. This experience is not strictly an ecotourism experience but does show the price some tourists are willing to pay. Other tourists pay \$500 per day to participate in the Outback Cattle Drive, which takes place over six weeks with tourists each spending up to one week on the Drive.

There is not a great deal of information on exactly how rewarding other ventures may be, but a New Zealand survey conducted by the Ministry of Agriculture and Forestry (MAF) in 1993 showed that the majority (84%) of pastoral landholders who diversified into tourism grossed less than \$5000 per annum from their tourist ventures (MAF, 2002). In 2006 dollars, this equates to \$6250 (Reserve Bank of Australia, 2006). While this may not be as financially rewarding as many operators hoped, some commented favourably on the unexpected social benefits such as developing friendships and widening their children's horizons. This was often considered to outweigh the lack of immediate financial return.

Bartholomaeus (1982) wrote about the loneliness of the Outback being beaten with better roads and transport. Today these factors have been enhanced with the increase of tourism on pastoral properties – children are generally less isolated and communications improvements (especially the internet) allow for greater interactions. This is also a reason why 50 percent of the interviewed landholders diversified into tourism – to meet other people. Tourism diversification can therefore largely be considered a social issue as well as an economic (employment) issue.

9.6.2 Pastoralist Aspirations and Opinions Summary

A very low portion of landholders interviewed were unhappy with the rise in the popularity of ecotourism. While 10 of 17 landholders had already explored the option to diversify into tourism for either economic, environmental or social reasons (or a combination of all three), five of the remaining seven were also of the impression ecotourism could be part of the solution to achieving rural sustainability, despite some minor problems arising from the behaviour of tourists. The majority of landholders in the Flinders Ranges did not attribute

production losses directly to tourists, and overall, ecotourism was seen as offering an opportunity to increase profits and decrease reliance on pastoralism (both influencing economic and environmental goals).

9.7 Tourism Operators' Aspirations and Opinions

This section addresses the fifth specific objective of the research study:

Explore local tourism operators' opinions regarding ecotourism's potential, and their present environmental strategies.

9.7.1 Ecotourism's Potential and Operators' Environmental Strategies

The tourism operators interviewed comprised a range of businesses including sole-operators, family businesses and medium-sized companies, and had been in operation in the Flinders Ranges between one and 39 years, commonly offering a combination of four-wheel drive tours, bushwalking activities and accommodation. Sixteen percent specifically said they offered ecotourism, nature tourism or cultural tourism activities, although the majority appear to offer some form of low-impact activities such as camping or bicycle riding, within environmentally-conscious frameworks.

Tourism operators had various motivations for operating an ecotourism business ranging from personal interests in nature or natural history, the desire to run their own business and share their love and knowledge of the outdoors with other people, the potential to work with environmental education, and the potential to utilise a niche market, whether expanding from a general tourism business or being new to the industry. This contrasts to the motivations for landholders, who entered the nature-based tourism industry largely influenced by financial gains (100%) and the opportunity to meet people (50%).

Operators considered the most important aspects in a successful tourism operation to be local knowledge, the desire to share this knowledge, and having access to certain areas. They were of the opinion tourists would consider the guide's knowledge levels and overall standard of service to be the most important features, followed by interpretation of the environment. The operators believed tourists were less concerned with their impact on the local community (i.e.

the people) than their impact on the natural environment. These results are relatively consistent with Finucane's (1993, in Preece & van Oosterzee, 1995) survey of ecotourism operators, which showed operators regarded the most important aspect of ecotourism to be an interest in observing and learning about the components and processes of the natural environment. Of lesser importance were being low-impact and contributing to the local community and sustainable development.

The tourists however showed an opposite preference to the guides' expectations. They thought it was more important that an operator enabled them to participate in low impact activities than to teach them about the environment through interpretation. While many respondents ranked both aspects as high to very high importance, a larger portion ranked participating in low impact activities as of very high importance than they did for learning about the environment. The tourists' answers did prove the operators right however when they said they were less concerned with their impacts on the local community than they were with other aspects of ecotourism.

The combined results of this research and that of Armstrong and Weiler (2002) and Finucane (1993, in Preece & van Oosterzee, 1995) suggest a difference between ecotourism operators or guides and ecotourists; the operators have a desire to teach about the natural environment, therefore presumably this is what they do. Consequently, according to Armstrong and Weiler (2002), messages encouraging visitors to actually change their behaviour to benefit the environment are rarely delivered (such as encouraging donations, participating in revegetation or weeding activities, undertaking domestic recycling or composting) as they are busy sending messages about what comprises the local natural environment. Yet interestingly, the ecotourists thought it was more important that the operator taught them about ways to reduce their negative impacts by changing their behaviour than to teach them about the local environment through interpretation.

Tourists most commonly chose the definition for ecotourism to be tourism that is 'nature-based, educational and uses minimal impact practices', followed by tourism that 'uses minimal impact practices like reducing waste and conserving energy in daily activities'. No visitors chose to write their own definition, whereas almost one-third of operators did. This may suggest many operators have their own strong opinion on what an ecotourism operation should involve and would prefer to describe it in their own words from their own experience. Tourists in contrast may be less familiar with the concept and not have encountered their own

ecotourism experiences to compare the definition with. Slightly more than half (52.4%) of operators chose the definition of ecotourism to be 'nature-based, educational and uses minimal impact practices'. With 56.9 percent of tourists choosing this option, guides and tourists had a reasonably similar understanding and expectation of what ecotourism in general should be. It is also worth noting that tourism products may be sustainable without being labelled ecotourism, as is the case in Canada's Yukon Territory where the term is little used in the culture yet tourism operators have still given considerable thought to the sustainable use of tourism products in a wilderness area (De la Barre, 2005).

The tourism operators' opinions tend to support the conclusions made in this study based on visitor surveys and secondary data that there is further potential for ecotourism in the Flinders Ranges. The perceived problem for many operators is actually reaching the market when there are already a few large businesses in the industry that stand out, and that it is difficult for a new, small business to use the SATC for assistance. Competition was welcomed in most cases as it was recognised that operations can specialise in different activities and tourists tend to travel to different parts of OSA not just one town or property.

Operators, unlike landholders, did not necessarily see the need to work in partnership with governments and other agencies (as per operators' comments regarding the SATC and NPWSA in Chapter 8). They largely felt that governments were not interested in helping them unless they were one of the biggest tourism operators already with a familiar name to tourists (for example, they '*participate with favourites too much*', are '*selective*' and '*aren't willing to give out information*'). Many claimed that government efforts (such as the '2002 Year of the Outback') had no positive effect on their business, only negative ones ('*it reduced activity*', '*it didn't help us*' and '*in terms of numbers and dollars, no*'). Landholders in contrast felt that it could only be beneficial to work in partnership and utilise government grants, incentives and other assistance as best they could (only 16.6% were of the opinion such incentives did not help, and comments included '*we can work with National Parks to raise the public's awareness*' and '*being involved with local governments enable a lot of valuable information exchange both ways*').

Operators do want to teach tourists about the environment (Section 8.2.1 presented reasons for entering the industry as including to show and teach others about the local environment; comments such as '*visitors are education tools*'; and the majority of operators defined ecotourism as having an element of education in it). A strong message was that they differ

from mass tourism operators, and that they are conscious of ways to reduce their impacts and contribute to environmental education. As Green (2005), a tourism operator herself, asks; who is to say that the bonding people may feel when feeding wildlife does not lead to stronger conservation interest in the future? The consensus was that environmental strategies are in place from operator to operator, and although they may not strictly follow every principle of ecotourism, the net benefits, particularly though exposing visitors to first-hand experience of a region and educating them, were positive for the environment.

Their environmental strategies, as presented in 8.2.2, perhaps showed a greater focus on educating visitors and helping them understand that even their individual actions can make a difference, rather than on the operator not causing any damage at all whilst conducting tourism activities. (They did draw upon minimal impact practices, but did not see this as their primary goal.) This is reflected in the fact that 100 percent of operators had the objective to encourage visitor interest in the local environment, but less than half encouraged or actively participated in conservation projects and monitoring of their own impacts (as per Table 8.3). The primary benefit operators felt they had to offer was environmental awareness, acknowledging the use of communication and visual stimulation to make positive environmental changes.

9.7.2 Tourism Operators' Aspirations and Opinions Summary

The different definitions for ecotourism, as previously discussed, suggest different focuses exist for any operation. Many present tourism operators in the Flinders Ranges may be said to be undertaking ecotourism activities due to their emphasis on interpretation, learning and experiencing nature, as well as low-impact actions. From the viewpoint of the interviewed operators, these actions are enough to cause only minimal damage (only 9.5% were of the opinion their actions could not help the environment), and they were of the opinion that this damage is to a lesser extent than that of pastoral activity (but 14.3% admitted they thought ecotourism caused more environmental damage than pastoralism). The primary benefits of tourism were identified largely as its ability to promote protection values and its educational component. Most operators accordingly showed a great passion for educating visitors about the Flinders Ranges and using it as an environmental management strategy to help reach sustainability goals (e.g. 61.9% were of the opinion ecotourism could help improve the condition of the land).

9.8 The Future of Ecotourism

Opportunities for tourism operations, particularly with a focus on nature, certainly appear to be available for private landholders, especially as visitors typically enjoy exploring regions away from crowds of other tourists. Since about the 1970s, the Australian Government has tried to complement rather than compete with the private sector as a result of a changing economic and social climate of Australia. South Australia's economic growth was largely developed with the dependence on a strong partnership between public enterprise and the private sector. Armitage (1975) claimed that Australian people want to spend the major part of their incomes on goods and services that are provided by the private, not public, sector. The visitor surveys and feedback from this research do not appear to contradict this, with many visitors to the Flinders Ranges enjoying a holiday exploring private land rather than public land (e.g. *'I've very much enjoyed the serenity of staying at [a private property]'*, *'we're glad we came here...we get our own little piece of the Outback...can talk to farmers'* as listed in Appendix V).

Further supporting the potential for landholders to diversify into ecotourism is the fact that tourism operators, already familiar with the industry in the Flinders Ranges, considered the most important aspects in a successful tourism operation to be knowledge of the local area, a desire to share this knowledge with others, and having access to certain areas. Furthermore, 32.4 percent of tourists themselves chose a local landholder as a preferred person to lead them on a tour. With survey results showing a high interest in spending time specifically viewing wildlife, and a diverse range of reasons being listed for the purpose of travel to the Flinders Ranges (more than 16 reasons were given over VS1 and VS2), opportunities are wide and varied for landholders. One local operator (in Austin & Williams, 2006:29) said that 'the challenge for the Flinders Ranges is to make much better use of its natural assets'.

Involving the local community in tourism planning and development is very often promoted to reduce social and environmental impacts (e.g. Southgate, 2006). As demonstrated by Margerum (1997), integrated approaches successfully emerged as a new paradigm in environmental management and planning. Local communities are increasingly being asked to be the custodians of places of natural heritage significance (Figgis, 1999). An important factor in relation to this, often overlooked, is access to and control over resources, and Southgate (2006) suggests external inputs can also have important roles in protecting the interests of local residents, as external agencies, whether commercial or governmental, can enhance the effectiveness of the community-based ecotourism model (Section 5.3 e.g. the definition of

ecotourism of the Canadian Ecotourism Society, and the African and Latin American models of ecotourism). Ecotourism has the ability to help conservative rural communities cope with the confronting land-use changes occurring in the relatively isolated regions such as the Flinders Ranges (local ecotourism operator Edmunds, in Austin & Williams, 2006), not only in developing countries where traditionally there has been little regard for local communities in environmental management (with preference given to hunters, scientists and tourists; Honey, 1999).

The public and private sectors can not only form partnerships to increase positive relationships between tourism and conservation (e.g. Buckley, 2002), but public ecotourism operations (national parks) and private ecotourism operations can learn from each other, whether about environmental protection, business management or visitor marketing. Both sectors are needed if we are to achieve our conservation goals (the area set aside in national parks is not large enough alone) and the private sector can contribute extra funding to biodiversity and conservation. With budget issues to consider, national parks increasingly need more professional approaches to visitor management, as offered by the private sector. Encouraging local communities to participate in maintenance of natural areas is particularly of benefit as governments commonly operate under conditions of financial withdrawal (Figgis, 1999).

The process undertaken in coordinating such partnerships is of significance to ensure a successful result. Booher and Innes (2002) assert that feasible actions are best produced through collaborative policy processes, which also enable innovative problem solving and an improved capacity to work together. To avoid failure in such collaborative planning it is essential that all stakeholders are involved regardless of their level of power, that a mutual understanding of interests is presented and that there is accessible information fully shared amongst all. This helps a power that all participants can share, which is particularly effective in cases where there is both diversity and interdependence amongst stakeholders, such as the case study of this research.

There is already community engagement in the ecological maintenance of the Flinders Ranges through the conservation program Operation Bounceback (e.g. 31 properties are involved with the program; DEH, 2007), and the conversion of previous pastoral properties (Arkaroola and Warraweena) into private conservation areas open to visitors. To determine whether or not Operation Bounceback can be incorporated into a greater range of tourism operations in the Flinders Ranges, market research into branding would be beneficial. Landholders and tourism

operators in this study were divided regarding how effective it may be as a marketing tool for those in the tourism industry to advertise their involvement in order to attract ecotourists, and were also uncertain if it would serve as a means of encouraging tourists to become more actively involved in conservation. They were however of the opinion the relationship would enhance educational opportunities to visitors. Tourist awareness of the program was relatively low, particularly for those interstate and overseas visitors (25.8% and 10.3% respectively, compared to 29.4% for South Australians), but the visitor surveys revealed most tourists want to learn more about the environment, so there remains scope for ecotourism operations to combine with Operation Bounceback in the form of public and private sector partnerships with a focus on environmental education. Education is viewed by operators as crucial to both ecotourism (Section 8.2.2) and to visitors (Table 8.2 'Guide's knowledge of region' perceived as having the highest importance after 'Standard of service'), by visitors as the second-most important aspect of ecotourism (79.5% claimed it was 'very important'; Section 7.2.3), and 30 percent of landholders entered the tourism industry in order to educate people about their local region (Section 8.3). From an Operation Bounceback viewpoint, the partnership would help communication and education of the program, as although media and promotions are identified goals, until now 'much effort has gone into direct liaison with landholders and partners, with comparatively less public promotion and extension' (DEH, 2007).

The Australian Government's contribution of \$920 000 in federal funding in 2005 for tourism conservation projects (Section 5.5.1) supports the concept that partnerships between the public and private sectors have the potential to contribute to our environmental and economic goals, and is 'a win-win combination all round' (Australian Department of Industry, Tourism and Resource, 2005). The importance of the potential in combining tourism and conservation should certainly not be ignored. International associations and forums on nature conservation and pastoralism largely overlook the role tourism could play (D. MacKenzie, pers. comm., 2004) and may be 'missing out' on a valuable tool to aid their environmental goals. Of note, the Australian Government showed interest in promoting tourism in the Flinders Ranges with the allocation in 2001 of \$66 000 in funding for a Flinders Ranges Tourism Development Officer (based in the southern township of Quorn for two years), with the aim to help introduce sustainable tourism to the pastoral region (Littely, 2001).

In regard to sustainable wildlife tourism possibilities in the Flinders Ranges, high abundance is an important attraction, and Croft and Leiper's (2001) study found that the best quality sites to experience macropod viewing were those with large kangaroos and wallabies that are easily

seen, abundant, and habituate to human presence if not hunted. It found that some of the most abundant populations of large kangaroos reside off protected areas, and that some surrounding pastoral properties could exploit this asset. Scores (for the average quality of the wildlife experience with macropods) for the 113 sites assessed throughout Australia ranged from 9 (lowest) to 22 (highest), with a possible high of 25, with all sites in the Flinders Ranges receiving between 18 and 22.

As Croft and Leiper (2001:2) wrote,

Wildlife authorities and other land management agencies need to recognise that ‘big mobs of roos’, and all the diversity of their kind, are important assets in the natural estate.... [Landholders] might be encouraged to contribute to wildlife conservation through incentives to develop and support wildlife tourism.

For sustainable tourism to be successful in the Flinders Ranges, it should be planned and managed and ideally matched to the scale of the local community. Factors to consider include positive trading and social links between the tourists and the locals, and a high proportion of small scale, locally owned operations. This form of integrated development (as opposed to enclave development, or development that is separated from the host community) reduces the need to import foreign capital and therefore stimulates the local economy if it remains small scale. It is also typically absorbed with greater acceptance if the host community controls the development (ANTA, 1997). In the case of the Flinders Ranges such integrated development may be advisable to ensure that social, cultural and environmental authenticity is retained and the possible associated adverse public perceptions are avoided.

Kim *et al.* (2006) found that a social marketing approach may provide a useful framework for tourism activities. This would involve applying commercial marketing techniques to the analysis, planning, execution and evaluation of programs designed to influence voluntary behaviour of audiences in order to improve their personal welfare and that of their society. This concept of social marketing is very rarely discussed within a tourism context (Buhalis, 2000; Kim *et al.* 2006). With local environmental and cultural resources becoming increasingly valued, and their sustainability seen as crucial to ecotourism activities and marketing, the social marketing strategy could aid the long-term prosperity of a destination. The rationale for applying a social marketing plan is therefore to balance a host community’s ongoing environmental interests, socio-cultural structures, and the expectations of customers (King *et al.* 2000).

9.9 Conclusion

One could argue that attempting to integrate two potentially conflicting management strategies can only result in a 'win-lose' outcome whereby only one strategy perceives the outcome as positive, but tourism and pastoralism do not appear to be in conflict with each other in this part of Australia. Accordingly the development of increased partnerships between and among key actors in the rangelands is necessary to see a shift from a pastoral emphasis to a tourism and conservation emphasis. Pastoralists provide a vital management presence in most of the sparsely populated Outback areas and if ecotourism is to be a component in reaching sustainability goals, community participation is vital. The wisest land-use will be under conditions that offer economic opportunity, flexibility and stability to the landholders and users, but most importantly, they must also be ecologically based. In a region economically dependent on an increasingly unreliable source of income (pastoralism), it makes business sense to increase the efforts for a growing industry (tourism). Galston and Baehler (1995:266) summarise the importance of the need to include local landholders in the assessment of ecotourism's potential to encourage such efforts by writing:

To be successful, efforts to rejuvenate the rural countryside must rest on genuine local preferences.

While it is evident there are hurdles to overcome in achieving ecotourism's ideal, there is potential for successful ecotourism operations in the Flinders Ranges. It is certainly being recognised that appropriately controlled ecotourism has the potential to make a range of significant contributions to conservation and resource management (e.g. Higginbottom, *et al.*, 2001; Thompson, 2005; Section 8.2.2 financial or other contribution to conservation projects by almost 30% of operators; Section 8.3 the majority of interviewed landholders acknowledge the potential). Tourists to the Flinders Ranges are seeking travel experiences that involve areas of natural beauty, information and learning, minimal impact activities and some level of interaction with the environment.

One of the problems however lies with the inconsistencies between environmental concern and behaviour (e.g. over 85% of VS1 and VS2 respondents claimed to try to reduce environmental impacts but only 21.8% would go out of their way to find an operator who was more environmentally-friendly, and while 85% would like to know more about the environment, only 22.7% had heard of the major conservation program Operation Bounceback). This inconsistency is a pattern that has been seen before (e.g. Newhouse, 1990; Roberts & Bacon, 1997; Wearing *et al.*, 2002) and may be related to the view that tourism is not 'work', with a

consequent apparent abandonment of environmental responsibility by tourists whilst on holiday. It may also be related to the lack of evidence of negative impacts from tourism due to the difficulty in measuring them, hence visitors may not think their actions are causing any 'real' damage. Ecotourism encourages people to recognise natural values of land (e.g. van Oosterzee, 2000), and if environmental education (which visitors say they want) can send the appropriate messages (that tourism can cause impacts, that an individuals' actions *can* make a difference, and that this can be achieved even whilst enjoying a holiday) it can play an influential role in the Flinders Ranges, benefiting the local landholders as well as all other stakeholders.

Decisions made regarding future land-use in the Flinders Ranges must be based on research not convenience. This discussion has explored the interactions between various stakeholders (tourists, operators and landholders) to help make these decisions for the best possible environmental and economic outcomes. It has integrated each of the dimensions (economic, environmental and social) of sustainable tourism in the analysis of quantitative and qualitative results from tourists, tourism operators and the local community.

10.0 CONCLUSIONS

10.1 Introduction

This chapter provides a summary of the study and concentrates on the questions that the research has addressed. A number of recommendations are suggested as necessary for a successful balance between ecotourism and pastoralism activities in the Flinders Ranges in order to achieve optimal conservation goals. Further research possibilities are also identified for future consideration.

10.2 Synopsis of the Study

This study lies within the field of Environmental Studies which, simply put, is the systematic study of human interaction with the natural environment. The central research question asks:

Could the growth of ecotourism assist ecological recovery in the Flinders Ranges?

The framework of the study is positioned from within the view that our basic environmental problems stem from both social problems (Bookchin, 1990; McNeely, 1998; Rose, 2005; Smith & Wishnie, 2000) and economics (Damania, 2001; Doyle, 2005; Graetz, 1995; Wilcox & Thomas, 1990). The social cannot be separated from the ecological just as nature cannot be separated from humanity if we are to try to resolve our land-use problems. People have the ability to alter nature and there is no part of the world that has not been profoundly affected by human activity. While this research is not an environmental economics study, it cannot overlook the economic aspect as economics is a strong driving factor behind land-use, and the nature of human society has traditionally favoured increased production levels over environmental conservation. Environmental economics provides a valuable framework to analyse the fundamental causes of environmental problems and suggest possible solutions. Business ventures (such as ecotourism) that enable conservation to be financially sustainable by valuing the environment as an economic resource have been identified as potentially able to help the problem. However different stakeholders may place different values on the environment, therefore the research methods in this study aimed to approach the land-use question in the study

site from the perspective of three major stakeholders; the landholders, tourists and tourism operators of the Flinders Ranges.

As case study research is used to explain a situation, explore and describe (Yin, 2002), it was suitable for the aim of this research to explore whether or not ecotourism is a viable option in the Flinders Ranges. The visitor questionnaires, in the form of opinion surveys and awareness surveys, enabled large amounts of data to be summarised in evaluating the ecotourism market and environmental opinions of tourists. They facilitated in discussing the research question from the visitor's point of view, while the in-depth, more qualitative interviews assisted in 'telling the story' from landholder and tourism operator viewpoints, providing the rich descriptive detail that sets quantitative results into their human context (Strauss & Corbin, 1994).

Australia's unique Outback quality attracts numerous tourists to the rangelands, contributing to local economies and offering alternatives to traditional rural commodities. The tourism industry is an inevitable economic phenomenon that is expected to increase in size throughout the world whether planned or not. Adverse impacts on the environmental, social and cultural conditions at tourism sites can result without appropriate management, so it is from this point of view that the research has been deemed important to determine the viability of the growth of ecotourism in the Flinders Ranges.

10.3 Pastoralism as a Land-use

The rangelands comprise three-quarters of Australia's land (Lesslie *et al.*, 2006). More than half of the rangelands (not including lands used by Indigenous Australians) are degraded, with 13 percent possibly never able to recover due to the severe extent of the damage (Rose, 1996). A combination of fire suppression, rabbit plagues eating vegetation bare and exposing soils, and overgrazing by sheep and cattle (especially in times of drought) are believed to have greatly exacerbated Australia's environmental problems (e.g. Flannery, 1999; Lines, 1991; Rolls, 1981; Stafford Smith *et al.*, 2000). While part of the overstocking problem was due to greed and the pursuit of profit, part was insufficient knowledge and government policy. Currently, and for many years now, it has been profit maximisation behaviour that has led to the incremental enlargement of the area lost to scalded land, proliferation of non-fodder vegetation and non-productive weed infestation. Australia's rangelands have carried 18 to 40 million sheep and 8 to 14 million cattle since 1956 (McKeon *et al.*, 2003) and the benefits that

would result from improving rangeland management would be great. With much of Australia's pastoral zone privately owned, encouraging landholders to become partners in conserving the environment and local biodiversity is therefore imperative. One hundred and fifteen years of land degradation has occurred since Dixon (1892) wrote:

The destructive effects of settlement upon the indigenous flora of Australia is nowhere more apparent than in the purely pastoral districts where the rainfall is decidedly scanty. Throughout the immense region known as the Riverina, and to the extreme western and northern runs of South Australia, the injury to the original vegetation by overstocking has assumed so great a magnitude as to entail a national loss... and the pecuniary loss to Australia has already amounted to many millions of pounds sterling.

Dixon, 1892:235-236

Land managers need to have the funds to maintain their land and its natural resources. When it is managed for economic production, landholders also expect to be able to cover their operating costs. It is apparent that in the present situation, landholders in the Flinders Ranges are not able to do this considering the often unreliable fluctuating income that pastoralism typically offers. Wool is no longer the economic driver, and pastoral activity alone is unable to offer considerable assistance in increasing ecological recovery. This is in part due to financial pressures (as per landholder interviews; Yencken & Wilkinson, 2000) but also due to the typical slow recovery of the landscape that is highly dependent on subsequent interactions with the environment (Liddle & Kay, 1987), the continued loss of land cover from grazing (Barson *et al.*, 1999) and the large extent of revegetation presently needed in the rangelands (Williams, 2001). To enable the concept of multifunctionality to bring together the productivist role of pastoralism with the environmental goals of biodiversity conservation, pastoral activity needs to be reduced to open up the study site region for other, multiple uses.

10.4 Ecotourism as a Land-use

Ecotourism is growing quickly (Section 5.4.1) while natural environments are increasingly scarce and degraded (Section 4.6). The Bruntland Report (WCED, 1987) largely fuelled the increased concern on the environment and helped stimulate changes designed to mitigate some of the growing negative impacts from tourism (Genot, 2004). The agreed program for action of Agenda 21 (and Rio Declaration on the Environment and Development) prompted global attention to the concepts of sustainable tourism and ecotourism. The ecotourism industry needs to be able to satisfy its customer while ensuring it has a reasonable chance of staying economically viable in the long-term. To be economically viable it must protect its resource-

base, which is the natural environment upon which it relies. If an operator does not have environmental sustainability, it cannot have economic sustainability in the long-term (e.g. Green, 2005; Honey, 1999).

This concept creates a land-use with the potential to increase ecological recovery efforts at a local level in order to protect its own interests. Analysis of the literature (e.g. Buckley & King, 2003; Budowski, 1976; Bushell, 2003; Drumm & Moore, 2005; Green & Higginbottom, 2000) supports that ecotourism is recognised as having the possibility of becoming a positive incentive for conservation, but careful attention needs to be paid to the structure of the tourism policies and practices to ensure that it acts in support of biodiversity and not to its detriment. Figgis (1993:80) states that the fundamental principle that will determine whether tourism can ever truly be sustainable is its 'willingness to take second place to nature'.

Green and Higginbottom (2000) suggest the literature on the positive effects of tourism indicate that there is *substantial* unrealised potential for ecotourism to provide sizeable conservation benefits. As environmentalist Professor David Bellamy said at the 2005 Ecotourism Australia National Conference, 'Ecotourism is spearheading conservation'. Indeed in reviewing the literature there is a great deal more suggesting positive impacts from ecotourism than pastoralism.

10.4.1 Ecotourism in Assisting Ecological Recovery

There are direct benefits evident from well-managed ecotourism operations (e.g. Harris & Leiper, 1995; Thompson, 2005; interviews with tourism operators; Table 8.3) such as payments to maintain natural areas through entrance fees, concessions, conservation taxes and donations, but it is the indirect benefits which, although hard to measure, may ultimately be more important (a concept widely expressed by interviewed tourism operators and landholders).

One key indirect way in which ecotourism can help to be part of the solution for conservation is through its educational power (part of the broader ecotourism ethic that aims to influence visitor awareness and understanding). Tourism operators are important vehicles for sending environmental messages about minimal impact behaviour and conservation and heritage values. The trend seems to have already begun, but tourists need to be further encouraged to become more aware of the environmental implications of their holidays. The messages that operators and guides deliver may influence how visitors think, feel and behave in the short

term and possibly also the long-term once they have returned home (Armstrong & Weiler, 2002). In seeking an enjoyable holiday emotions are involved, and when interpretation is emotional as well as intellectual, it is more than pure education. Some question the effectiveness of sending these messages to tourists (e.g. Hughes & Morrison-Saunders, 2005) as messages sent may not equal messages received, but in the rapidly growing large-scale industry of tourism, all opportunities to increase environmental awareness should be attempted. The success of authors such as Rolls (1981) and Flannery (1999) show the importance of effective communication in reaching wide audiences, giving publicity and interest to many vital issues that need to be raised. Similarly ecotourism can raise awareness of the environment and its natural and cultural values. No learning experience is more stimulating and lasting than the first-hand experience obtained by studying natural life and natural processes in their environment.

A second way in which ecotourism can help be part of the solution for conservation is by reducing the reliance on other, less sustainable, land-uses. This may be through the creation and maintenance of private nature reserves and regions (contributing to conservation and biodiversity preservation), the creation of jobs and local income minimising other pressures on natural resources (such as grazing and agriculture) and the potential economic benefits generating political support for conservation. Tourists have long played an important role in the establishment and management of protected areas in North America and Europe, and in some cases, particularly in less developed countries, national parks would not exist were it not for tourism so less sustainable land-uses would still be heavily relied upon. Ecotourism has the potential to provide additional income to contribute to the economic sustainability of a community, and play a role in the transition already at hand of Australia's rangelands into multifunctional land-use regions. It can also contribute economically to local environmental programs by channelling part of its revenue to environmental protection (e.g. Genot, 2004).

10.4.2 Ecotourism in Assisting the Flinders Ranges

This research accordingly suggests that ecotourism operations in the study site can be beneficial to the wider region covered by this research for several reasons, with the primary reasons being that it has the ability to:

- minimise negative impacts to the environment when compared to pastoral activity, and when well-managed, additionally produce positive impacts to the environment;

- increase awareness and understanding of the region's natural and cultural systems and the subsequent involvement of visitors in issues affecting these systems;
- direct economic and other benefits to local people that complement rather than replace traditional practices (both farming and social systems). The traditional narrow pastoral production base combined with highly seasonal conditions and market fluctuations has often caused adverse impacts on income levels and consequent enterprise viability. It also assists by diversifying regional economies through strengthening existing industries and even creating opportunities for new industries; and
- contribute to the conservation and management of both legally protected areas and other areas in the Flinders Ranges. Compared to grazing which modifies habitats and clearing which destroys it, the impacts of ecotourism are likely to cause fewer effects on biodiversity. The more humanity intensifies land-use to meet short-term needs, the more likely we are to destabilise the system and the riskier it becomes from a sustainability point of view.

Of course ecotourism cannot simply be seen as the solution to all environmental, economic and social problems, but rather it needs to be looked at as *part* of the solution for conservation in the rangelands.

10.5 Co-existence of Ecotourism and Pastoralism

Keller (2000) argued that diversity of land-use is the only way to remain viable. In the case of this study site, the author proposes this to be interpreted as a reduction in pastoral activity and an increase in ecotourism activity to facilitate a successful transition to a regional land-use pattern whereby scope is provided for present societal values and financial demands to be met.

It is concluded that there is scope for the growth of ecotourism in the Flinders Ranges as discussed particularly in Section 9.4 from a visitor market perspective, the literature review (Chapter 5) for the potential to encourage ecological recovery, and the interviews with landholders and operators for an educational point of view. From the standpoint of area affected, land degradation in Australia is a problem of overgrazing of rangelands (Dregne, 1986) therefore the corresponding reduction of pastoral activity is suitable. With minimal stakeholder opposition amongst landholders, tourism operators and visitors, the two industries have the potential to simultaneously coexist in the study site. When well-managed, the shift in land use will offer greater potential to encourage ecological recovery in the Flinders Ranges.

Ecotourism operations offer landholders a secondary source of income. It is not expected to wholly replace pastoralism as a source of income (although it could be said this has successfully occurred at Arkaroola Wilderness Sanctuary and Warraweena Conservation Park with the assistance of private conservation trusts). Rather, ecotourism provides an income that is, although somewhat dependent on tourist peak and off-peak seasons, less unreliable than that of pastoralism which is highly subject to price risk and climatic production risk. Contrary to expectations, interviewed landholders who had already diversified into tourism estimated that when compared to pastoral activity, tourism activity required an average of only 2.8 percent more time input to receive the same financial gains. This further supports the successful co-existence of the two industries.

It is also concluded that ecotourism and pastoralism may coexist in the study site of the Flinders Ranges because there is no considerable societal disagreement between the three important stakeholders of landholders, visitors and tourism operators and ecotourism offers landholders additional income to conduct activities (whether ecotourism-related, pastoral or purely for conservation) using less environmentally damaging methods. It is not cheaper to manage land for wallabies than it is for sheep, so there must be an income if increased ecological recovery efforts are to be made. Active land management is an expensive business. The Flinders Ranges produce some of the lowest mean annual net primary production values in Australia (Lesslie *et al.*, 2006) and pastoralists of the Flinders Ranges cannot financially afford to contribute to conservation efforts unless they supplement their pastoral income with other forms of earnings (e.g. ecotourism) and off-farm activities.

10.6 Recommendations

Land management is not a simple task. The way society is constructed means that land management views are often subsumed by economic views of the world which, while they may be seen as shallow, are necessary and very influential views. Ecotourism is considered an important, growing niche market with the potential to provide income and employment particularly in regional country areas, and aid in the restructuring and revitalisation of local economies by acting as an 'environmentally-friendly' replacement industry.

This research suggests that it would be more efficient to manage land within a regional plan for ecological recovery and conservation in such a way that it contributes to economic activity appropriate to the Flinders Ranges, as opposed to for pure conservation reasons. Landholders

almost always need financial benefits, and tourists appear to be satisfied with nature-based activities that are environmentally-conscious, yet not necessarily the most environmentally-friendly options possible. The bottom line is tourism is a tool that can be used for various purposes including education and economic and social development, and now with the emergence of ecotourism, for various forms of conservation. With this and the preceding conclusions of this study in mind, a number of recommendations are necessary for a successful balance between ecotourism and pastoralism activities in the Flinders Ranges to achieve optimal conservation and community sustainability goals.

Recommendation 1

The extent or intensity of pastoralism should be reduced in the Flinders Ranges. To counteract this probable loss in production, landholders should be offered greater assistance with diversification into sustainable tourism operations, as the need for additional sources of income other than grazing enterprise is clear even without reduced scales of operation (as evident in the interviews of landholders). As Ledger and Stafford Smith (1996) suggested, sustainable land-use in the rangelands relies on converting some present pastoral sites into tourism sites. Environmental problems are a contributing factor in the economic viability of whole communities. The uncertainty of pastoral income means the Flinders Ranges community should embrace multiple land-use principles in an effort to remain economically and ecologically viable, with new societal values in relation to such sustainability now playing a role in the transition to multifunctionality (e.g. Holmes, 2002). Diversification, as human ecologists say, means stability – the basis for sustainable development. With diversification into ecotourism recognised by the Australian Conservation Foundation as something that may be an incentive for private land owners to conserve their lands (Figgis, 1996), it is likely to benefit both environmental and economic sustainability (e.g. Department of Industry, Tourism and Resources, 2005; Buckley, Pickering & Weaver, 2003; Foggin & Munster, 2000; Novelli, Barnes & Humavindu, 2006; van Oosterzee, 2000).

Recommendation 2

All those involved in nature-based tourism and ecotourism should ensure high-quality environmental education and interpretation is offered along with a high standard of environmental management (as evident in the interviews with tourism operators). Many visitors are unaware of the extent of environmental change that has occurred in the Flinders

Ranges (as shown through the Visitor Awareness Surveys) and some need to know the importance of changing their behaviours to be more environmentally-friendly (as agreed by tourism operators and landholders, who identified that there are still some tourists to the region who do not act appropriately, and as discovered in the self-assessment questions of visitor behaviour in the Visitor Opinion Surveys). The visitor surveys showed there is a need for active and ongoing education in local environmental issues and in ecotourism and conservation principles. Operator interviews also supported this need for education in ecotourism and conservation principles. In a positive response to this, the visitor surveys also identified that tourists do indeed want to learn more about the environment, suggesting the incorporation of high-quality environmental education would be a feature contributing to both tourist satisfaction and potentially environmental impact reduction.

Recommendation 3

In line with the *Tourism Australia Act*, local tourism industries must ensure they help foster sustainability in tourism operations (while it was evident operators do embrace general environmental philosophies, they were often only broad statements to be environmentally conscious). To do this, research and monitoring of tourism products in the Flinders Ranges should be given higher priority and encompass both the quality of the visitor experience and the biophysical impacts of tourism activities. Tourism operators could play a large role in this monitoring as it is recognised that this can be beneficial for environmental studies (Theberge & Dearden, 2006). Every tourist destination within the Flinders Ranges will not be impacted in the same way and monitoring will assist management in ecological viability, and consequently in the implementation of establishing acceptable limits for tourism in the region. This research also suggests that case studies on environmental impacts of tourism on land tenures other than public parks and reserves would be beneficial.

Recommendation 4

Policy and planning should have a stronger focus on partnerships between and among public and private individuals and organisations (e.g. Honey, 1999; Masberg & Morales, 1999) and consequently be able to engage members of the public directly with decision makers (Innes & Booher, 1999). Presently in the Flinders Ranges there only appears to be strong partnerships between the South Australian Tourism Commission and a few landholders with large, well-established tourism operations, and it is difficult for other operators to become involved. While

National Parks and Wildlife South Australia have some involvement with landholders, there is the scope, interest and need for enhanced partnerships (as evident in landholder interviews; Figgis, 2004). A greater focus on partnerships will not only assist with overall ecological and economic planning (e.g. Byron, 2000; Ecotourism Australia, 2005) but in matters related to funding, especially for national parks and reserves such as a tourism levy. Partnerships may enable various individuals or groups to capitalise on each other's activities, for example local landholders and operators may be able to capitalise on the work already undertaken as part of Operation Bounceback. Additionally these cooperative methods of public involvement are better able to allow multi-way communication around tasks and issues, involve all stakeholders with planning and decision making, and facilitate learning and change on all sides (Innes & Booher, 1999).

Recommendation 5

Further research is required into mechanisms for integrating conservation and minimal impact practices into all forms of tourism. All tourism should be a form of sustainable tourism (a view expressed by tourism operators interviewed for this research). Ecotourism is a niche market, and at best, it can only be a part of the solution for conservation and sustainable development. But it can be an important part of a multifunctional land management approach (e.g. Lesslie *et al.*, 2006) and if it sets an example for mass tourism, it assumes a much greater importance than by its size alone. The tourism industry has a significant responsibility to contribute to the management of the natural resources on which it is dependent.

10.7 Conclusion

The products of the early pastoralists' toil were exported to the world and brought wealth to the nation, but unfortunately, their toil was mining a limited resource. Pastoralism is known to have caused significant environmental degradation in the rangelands since its inception onwards due to both mismanagement and existing climatic conditions, leading to some of Australia's most pressing conservation problems (e.g. McKeon *et al.*, 2004; Messer & Mosley, 1983; Stafford Smith *et al.*, 2000; Webster, 1973).

Australia's semi-arid and arid lands are traditionally well vegetated when compared to other arid regions of the world (Buchanan, 1989). To prevent a barren landscape we need to encourage ecological recovery and conservation efforts in pastoral regions because if no action

is taken the landscape will continue to suffer. Rangeland vegetation typically takes decades to start to rejuvenate, and stock numbers have traditionally been well above sustainable grazing limits. To achieve economically optimum production, pastoralism may not always support the long-term sustainability of the local ecosystems and processes (Lesslie *et al.*, 2006).

Given the huge potential benefits, the detriments of ecotourism are often drowned out, and it is difficult to determine the overall outcome of ecotourism activity. If it is ensured that there is not an incompatibility between the core ecotourism criteria of offering nature-based attractions and the imperative of environmental sustainability, ecotourism operations will aid ecological recovery efforts. What is clear is that in rural or remote communities such as the Flinders Ranges, depending on how tourism is managed, the potential both for causing negative impacts on the environment and creating positive contributions to the environment is great.

The landholder interviews have shown that pastoral communities are increasing their reliance on off-farm income despite their relative isolation. The evident shift in focus towards sustainability suggests that a new economic and social paradigm is needed for pastoral zones (e.g. Holmes, 2006) to strengthen regional economies while having the ability to reach environmental goals. Because evidence suggests voluntary conservation is rare, often due to financial reasons (e.g. landholder interviews; Smith & Wishnie, 2000), various options are needed to initiate landholder efforts. This research has found that landholders cannot financially afford to increase their ecological recovery efforts within the present pastoral framework.

Indeed the early pastoralists of Australia overestimated the potential for meat and wool production. When the first settlers entered the rangelands seeking to establish grazing properties based on early explorers' reports, they were under a false impression of what level of exploitation the land would support. Arid and semi-arid Australia's normal state is one of severe drought and it is also one of severe extremes, and the prosperity gained from the sheep's back came with a substantial ecological cost; only relics of pre-European environment remain intact. The primary goal for a sustainable future for the rangelands should be the advancement of ecological recovery efforts and consequent maintenance of ecological integrity of the land used for pastoralism (along with the surrounding lands), as without such environmental management, economic risks are likely to increase as productivity and quality of product may decrease.

Due to the present extent of the environmental degradation in the Flinders Ranges (as described in Chapter 6), our responses to environmental problems should be corrective (seeking to correct root causes) rather than antidotal (addressing the symptoms). Changes to correct root causes such as reduced stocking rates, fencing off areas for revegetation and the elimination of feral animals can contribute to environmental recovery as shown by the success of Operation Bounceback. With much of rural Australia already experiencing a multifunctional transition in land-use, influenced by a combination of production, consumption and protection goals, diversification is not only encouraged, but often necessary (Holmes, 2006). To achieve ecological sustainability, a restructuring of the pastoral industry is 'vital' (Ledgar & Stafford Smith, 1996).

Ecotourism enables us to use the economic component of sustainability to compliment the environmental (biophysical) and social (ethical) components. There are many reasons for undertaking sustainable practices and protecting nature, but money is usually the most effective reason for convincing people for doing so, and tourism generally is the top earner for this (of the 17 interviewed landholders, 10 had entered the tourism industry, all of whom cited 'income' as their reason). An important factor often lacking in implementation is the integrated approach, requiring that input should be sought from all different stakeholders in any tourism development process (Honey, 1999; Masberg & Morales, 1999; Ziffer, 1989).

It is not a simple equation. The Flinders Ranges are valued in different ways by different people. They are valued for a number of economic uses and for their beauty, as well as for their tourism and recreational opportunities. Management therefore needs to consider each of these values not just one of them at a time. For tourism activity to be sustainable and successful in the Flinders Ranges, it must be planned and managed and ideally matched to the scale of the local community as evidenced through the many interrelated complexities explored in this case study research. The development must be integrated to stimulate the local economy, as it is generally absorbed with greater acceptance this way. This will also help ensure social, cultural and environmental authenticity is retained (ANTA, 1997). The majority of the local community is not opposed to having more tourism operations, as long as they are sustainable. The majority of visitors enjoy the scenery and peacefulness of the Flinders Ranges, and want to know more about this part of Australia, returning for repeat visits.

In recent years conservation has been evolving. On the one hand, it is improving its scientific understanding of human beings as components of ecosystems and moving away from an

exclusive focus on the scientific aspect of biodiversity towards a better understanding and appreciation of its economic and cultural values. On the other, conservation is expanding its practice to include — besides traditional protected area management skills — a variety of participatory approaches, new institutions and multiple-use schemes. Encouraging reduced pastoral activity in the Flinders Ranges and increased low-impact or no-impact tourism activity will help manage this part of the rangelands at the important regional scale. Regional scale management is deemed important because having a few large national parks alone is insufficient for conservation in the variable rangelands. The impacts of feral weeds and animals must be controlled, as well as the impacts of kangaroos on total grazing pressure, and grazing-sensitive decreaser species must be provided for by retaining a regional network of areas in which grazing is very light or absent.

If people act wisely, we will not have to make the ‘hard choice’ between economic growth and environmental protection, but we will be able to achieve both goals through the most appropriate land-uses. From a conservation management perspective, the Flinders Ranges cannot be viewed purely as a resource. Whether ecotourism is developed for ecocentric or egocentric reasons may not be the most important factor. Rather, it is that the land is being managed and conserved to prevent further environmental degradation. As long as the environment is not exploited for the tourism dollar – the tourist can be exploited for conservation though! As remarked by Figgis (1994:130),

Tourism must adjust to nature’s needs, not nature to tourism’s needs.

The thesis has reinforced that it is crucial to achieve a balance between the biological concerns of conservation and the socio-economic and equity concerns of the people involved, which is why there is now the capacity for multifunctionality as a unifying concept. Land cannot be managed as individual parcels alone so landholders, tourism operators and tourists must all be included in an integrated approach to achieve both environmental and economic goals. The complex problems relating to the maintenance of both an economically and environmentally sustainable pastoral industry cannot be simplified, but seeking input from all stakeholders is a crucial step in the land management process.

The findings of this research suggest that a combination of local community members, local businesses and authorities, as well as governments, will be the best way to develop the strategic planning base clearly needed for successful multiple land-use in the Flinders Ranges. The need for all stakeholders to be involved further supports that it is the best way to ensure

the needs of all industries as well as environmental considerations are assessed. Borrini-Feyerabend (1997) wrote that resource users possess detailed knowledge of local biodiversity and can be effective in monitoring it and suggesting how to preserve it locally. Importantly, they are often the most determined defenders of local resources against exploitation by external interests. Therefore partnerships should be encouraged as they can help resolve conflict between stakeholders on the use of tourism areas, providing knowledge by drawing on the special capacities of each partner (Genot, 2004). If every stakeholder's interest lies in either protecting the environment or income generation, they should work together because it is good business sense to use good environmental management. Pastoralists and tourism operators alike must protect and conserve the environment for their futures, and other local authorities and governments will have the same requirements if they are to ensure sustainable communities.

It all comes down to sustainability, both environmental and economic. As said by Northern Territory Parks and Reserves staff member Wayne Gaston (pers. comm., 2005),

We are a business agency, but conservation is our business.

This thesis proposes that if well managed, ecotourism can be the business behind the conservation that will contribute to environmental recovery in the Flinders Ranges.

10.8 Final Thoughts

Pastoralism is part of Australian heritage. Australia would be a 'poorer place culturally and financially' if the pastoral industry were to abandon the arid zone (Bartholomaeus, 1982). The pastoral industry can be unreliable and incomes generated fluctuate over time, whereas tourism is a growing industry, particularly in the nature-based and ecotourism sectors, generating an increasing amount of revenue as it expands continually. The rangelands of Australia are becoming more multifunctional (Holmes, 2006) and combining pastoral activity with tourism activity is an increasing trend.

Tourism is traditionally integrated, meaning it is part of a complete system comprised of the environment, community, industry, economy and the legislative environment (Jack, 2000). Accordingly, tourism planning and management should involve agreements between all stakeholders and it should contribute to a community's sustainability both in environmental and economic terms. This research suggests it is in the best interest for tourism to be used to

help protect nature, and for nature in return to be used to promote tourism. It should be seen as a local resource to help the local community and environment. Any ecotourism development in the Flinders Ranges must be planned to meet the diverse, long-term interests of the popular majority (the combination of all stakeholders including local landholders, tourism operators, tourists, conservationists and regional planners, and all others with an interest in the long-term sustainability of the Flinders Ranges) rather than the immediate goals of the minority.

The landscape of the Flinders Ranges comprises colourful gorges, rugged hills, glowing sunsets and an abundance of plants and animals, both native and introduced. Millions of years of mountain building, erosion, climate change and evolution have brought upon this scenery that we see today. It is not surprising the level of inspiration and impression that the Flinders Ranges leave on visitors, with such a diverse array of habitats for a rich diversity of species. As Ceballos-Lascurain (in Honey, 1999:13) argued:

[T]he person who practices ecotourism will eventually acquire a consciousness that will convert him into somebody keenly interested in conservation issues.

In the words of the geologist and Antarctic explorer Sir Douglas Mawson (Department of Communications, Information Technology and the Arts, 2006):

Mountains never grow old, they simply fade away.

Let us do everything we can to prevent the diverse range of native plants and animals that call the mountains of the Flinders Ranges their home from fading away too. Embracing the emerging trend of multifunctionality through encouraging diversification into ecotourism operations and reductions in pastoral activities is one way to contribute to reaching this sustainability goal.

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APPENDIX I

Semi-Structured Interview Guide for Local Landholders

Interviewee's Name, Station, Interview Date, Time.

Introduction: *Greet the landholder and reintroduce research topic, express appreciation for time and help with the study.*

First, I'd like to ask you some general questions about your property.

1. What type of property do you run? *If pastoral*: How many stock do you have? Approximately how many years have you been on the property? Approximately how many full-time workers work on the property?
2. Have any of the following negatively affected your success in the last decade?
 - Drought
 - Flood
 - Demand for product
 - Overall economy
 - Quality of land
 - Quality of water
 - Heat wave
 - Frost
 - Introduced species
 - Other
3. Are there any specific events / factors that you could name as having positively affected the success of your business in the last decade?
4. Have you diversified to aid your income in the recent past? If so, how?
5. Are you involved in tourism in any way?

If yes:

a) Please describe your involvement with tourism. What factors encouraged you to become involved in it?

- | | |
|---|--|
| <input type="checkbox"/> Economic gain | <input type="checkbox"/> Reliable income |
| <input type="checkbox"/> Meeting people | <input type="checkbox"/> Educating people about the region |
| <input type="checkbox"/> Reducing the reliance on pastoralism | |
| <input type="checkbox"/> Always been interested in the industry | |
| <input type="checkbox"/> More variety in lifestyle | |
| <input type="checkbox"/> Other _____ | |

b) What emphasis do you place on environmental education and interpretation in your operations? Do you feel visitors are interested in learning more?

c) What percentage of your time would you estimate to be spent with the pastoral side of things compared to the tourism side of things?

d) How does this compare to the income they generate? For example, if you spend 10% of your time with tourism operations, does it correspondingly provide 10% of your income?

e) Have you had any correspondence with the South Australian Tourism Commission? What is your opinion on their service?

If no: Why not? What factors might encourage you to become involved in the future?

6. Have you diversified in any other ways? If so, how?
7. Have you encountered any problems (whether environmental, economic or social) from tourists to the region? Please describe.
8. How would you compare the environmental impacts of tourism with those of pastoralism in the Flinders Ranges? Do you think tourism is making things worse for the condition of the land? Do you believe tourism could, in part, substitute pastoral activity and help relieve some of the pressures on the land, therefore actually help conservation?
9. Are you involved with Operation Bounceback in any way? Please describe. What is your opinion of National Parks and Wildlife in the region?
10. Please rate the extent to which you agree with the following statements on a scale from one (strongly disagree) to five (strongly agree):
 - a) I care a lot about land conservation where I live. 1 2 3 4 5
 - b) I use methods that help reduce negative impacts on the environment whenever I can. 1 2 3 4 5
 - c) I think other people do not bother to help protect our environment as much as they could. 1 2 3 4 5
 - d) I don't do as much as I could for the environment because the costs involved are too high. 1 2 3 4 5
 - e) I am not provided with enough relevant information and / or advice on land care possibilities and how to change. 1 2 3 4 5
 - f) Financial incentives for conservation do not work. 1 2 3 4 5
 - g) The damage has already been done; pastoralism today is not making the environmental condition any worse. 1 2 3 4 5
 - h) Tourism is more environmentally damaging than pastoralism. 1 2 3 4 5

11. Please tick the appropriate responses in the following statements, in regard to your property and the land surrounding your property:

STATEMENT	AGREE	DON'T AGREE	DON'T KNOW
It has become more degraded in the past decade			
There are more trees and shrubs than a decade ago			
There is enough water for everyone's use			
The region is more aesthetically attractive now			
Pastoralism provides a reliable income			
There are more tourists to the region now			
There are less feral animals now than a decade ago			
There are too many kangaroos present today			
Animal culling needs to be continual			
Further weed eradication is necessary			
Better conservation programs have now been developed			
Local people are making an effort to protect environmental degradation			
Tourists are not interested in helping the environmental condition of the land			

12. Some conservationists believe ecotourism is 'the last chance' for protecting the environment. Do you agree with this? Can we reach our environmental goals without land use change in the Flinders Ranges?

13. Do you have any further comments relating to pastoralism, tourism and conservation in the Flinders Ranges you would like to share?

Conclusion: Explain this completes the interview, express appreciation once again. Offer to provide a copy of results once completed study. Provide contact details for possible future questions or comments.

APPENDIX II

Semi-Structured Interview Guide for Tourism Operators

Interviewee's Name, Business, Interview Date, Time.

Introduction: *Greet the operator and reintroduce research topic, express appreciation for time and help with the study.*

First, I'd like to ask you some general questions about your tourism operations.

Nature of Tourism

1. Background of operation:
 - a) What is the nature of your tourism operation?
 - b) How many years have you been in operation?
 - c) How many employees work here?
 - d) Approximately how many tourists do you have per year?
 - e) Would you consider your business an ecotourism business?

2. What are the main types of activities your business offers?
 - Accommodation only
 - General sightseeing
 - Cultural heritage tours
 - Nature tours
 - Ecotours
 - Adventure activities
 - Camping
 - Bushwalking
 - Four-wheel drive touring
 - Horse riding
 - Bicycle riding
 - Scenic flights
 - Other _____

3. What were the main factors influencing your decision to enter the tourism industry?

4. What do you think are the most important factors in running a successful nature-based tourism operation?

5. What are your thoughts on the tourism market in the Flinders Ranges? Is the market growing? Is there room for more operators?

6. Do you communicate with the South Australian Tourism Commission and National Parks and Wildlife? If so, please describe. What is your opinion of them?

7. Do you believe the 2002 Year of the Outback had any impact on your operations?

I'd also like to ask you a bit about your environmental practices and ecotourism.

8. Do you have any specific environmental objectives or policies?
9. Would you say you create any environmental benefits from your tourism operation?
10. Do you cause any environmental detriments from your tourism operation?
11. What factors do you think are most important in ecotourism?
12. Do you think ecotourism can help improve the environmental condition of the Flinders Ranges?
13. How would you best describe ecotourism?
 - a) Any tourism that is nature-based (occurs in a natural setting)
 - b) Tourism that uses minimal impact practices like reducing waste and conserving energy in daily activities
 - c) Tourism where people can observe and learn about plants and animals through activities like bushwalking and camping
 - d) Tourism with activities about the local culture and environment, helping people understand and appreciate a particular region
 - e) Tourism that is nature-based, educational and uses minimal impact practices
 - f) Other (own definition)

Lastly I'd like to ask you about what you think tourists want.

14. Please rate on a scale of one (not at all important) to five (very important) how important you think tourists would rate the following aspects:
 - a) Standard of service
 - b) Standard of environmental practices
 - c) Interpretation of the environment
 - d) Guide's knowledge of a region
 - e) Number of animals seen
 - f) Variety of plant life seen
 - g) How they impact the local community

Conclusion: Explain this completes the interview, express appreciation once again. Offer to provide a copy of results once completed study. Provide contact details for possible future questions or comment.

APPENDIX III

Regional Degradation Episodes

NOTE: Appendix III is included in the print copy of the thesis held in the University of Adelaide Library.

Source: McKeon *et al.*, 2003

APPENDIX IV

Visitor Survey Questions

This appendix lists the questions used in the Visitor Opinion Surveys, of which there were two versions, and the Visitor Awareness Surveys, of which there were three versions. It then provides the references used for composing the True or False statements and offers additional information regarding the construction of the questions concerning animal culling.

Visitor Opinion Survey One (VS1)

1. How many times have you visited the Flinders Ranges region?

- | | | | |
|------------------------|--------------------------|-------------------|--------------------------|
| This is my first time | <input type="checkbox"/> | About 3 -5 times | <input type="checkbox"/> |
| This is my second time | <input type="checkbox"/> | More than 5 times | <input type="checkbox"/> |

2. What attracted you to visiting?

3. Approximately how long is your stay here?

- | | | | |
|-----------|--------------------------|------------------|--------------------------|
| 0 -2 days | <input type="checkbox"/> | About 1 week | <input type="checkbox"/> |
| 3 -5 days | <input type="checkbox"/> | More than 1 week | <input type="checkbox"/> |

4. Please tick the appropriate boxes below:

- | | | | | | |
|----|---------------------|--------------------------|----|--------------------|--------------------------|
| a) | Male | <input type="checkbox"/> | b) | 24 years and under | <input type="checkbox"/> |
| | Female | <input type="checkbox"/> | | 25-35 years old | <input type="checkbox"/> |
| | | | | 36-45 years old | <input type="checkbox"/> |
| | | | | 46-55 years old | <input type="checkbox"/> |
| | | | | 56 years and over | <input type="checkbox"/> |
| c) | Live in Adelaide | <input type="checkbox"/> | | State | _____ |
| | Live in regional SA | <input type="checkbox"/> | | Country | _____ |
| | Live interstate | <input type="checkbox"/> | | | |
| | Live overseas | <input type="checkbox"/> | | | |

5. What proportion of your holiday will be/was spent specifically observing plants and animals? Please circle.

None Some (25%) Half (50%) Most (75%) All (100%)

6. Please rate the extent to which you agree with the following statements on a scale from one (strongly disagree) to five (strongly agree):

a) I care a lot about conservation in the Flinders Ranges 1 2 3 4 5

b) I try to reduce negative impacts on the environment whilst here 1 2 3 4 5

- | | | |
|---------------|--|--------------------------|
| I do this by: | Disposing of all waste as recommended | <input type="checkbox"/> |
| | Not removing any plant matter at all | <input type="checkbox"/> |
| | Staying on the tracks and roads at all times | <input type="checkbox"/> |
| | Reading about the best ways to help reduce damage | <input type="checkbox"/> |
| | Telling others how to help protect the environment | <input type="checkbox"/> |

- c) By using an ecotourism operator, I would expect not to damage the environment in any way at all 1 2 3 4 5
- d) The tourism operator / campsite I am using helped shape my opinion on conservation and its importance 1 2 3 4 5

7. Have you heard or read about Operation Bounceback?

- Yes Where? _____
- No ** last page of survey has information about Bounceback

8. Is it important to you that conservation programs are in operation?

- Yes, very important
- Yes, important
- Neutral
- No, not important

9. Who would you prefer to be lead by on a tour of the Flinders Ranges?

- Park Ranger
- Ecotourism staff
- Resort / tourism staff
- Local resident / landholder
- Ecologist / natural scientist
- Geologist
- Other _____

10. If relevant, what made you choose the tourism operator you are holidaying with this time?

- Recommendation
- Price
- Activities offered
- Environmental-friendliness
- Location
- Other _____

11. Would you spend extra time to locate and use a tourism business who participates in conservation / is more environmentally friendly than other tourism businesses?

- No, I wouldn't
- Only if it was easy to find
- Yes, as much time as needed

12. If a logo was used to identify tourism businesses active in Operation Bounceback, how likely would you be to holiday with them?

- Very much more likely
- More likely
- No more or less likely
- Less likely

13. Are there any strong messages that you have learnt from your stay here? If so, what are they?

14. How do you feel about feral animal culling (the humane killing of animals for conservation purposes) to help the native plants and animals survive?

1	2	3	4	5	6	7
greatly dislike			it is fair to cull			greatly agree with it

15. Kangaroo numbers are also too high in some areas. How do you feel about kangaroo culling?

1	2	3	4	5	6	7
greatly dislike			it is fair to cull			greatly agree with it

16. Please rate the following components according to how relevant you think they are to an ecotourism business / operation.

	Not Necessary			Very Important	
	1	2	3	4	5
It is based on nature	1	2	3	4	5
It teaches tourists about the environment	1	2	3	4	5
It reduces negative environmental impacts	1	2	3	4	5
It participates in conservation efforts	1	2	3	4	5
It involves and supports local communities	1	2	3	4	5
It follows a set of ecotourism guidelines	1	2	3	4	5

17. For research purposes alone, which tourism operators are you using in the Flinders Ranges?

18. If you would like to, please make any comments regarding the survey, tourism and the Flinders Ranges' environment.

** Operation Bounceback is a multi-award winning ecological restoration program (conservation project) in the Flinders Ranges. It aims to enhance local biodiversity, restore the natural processes across the region, and improve environmental management practices. Key issues include the removal of feral animals and weeds, and helping the native species return (e.g. Bilbies, Bettongs, Yellow-footed Rock Wallabies and various threatened plant species).

Visitor Opinion Survey Two (VS2)

1. How many times have you visited the Flinders Ranges region?

- | | | | |
|------------------------|--------------------------|-------------------|--------------------------|
| This is my first time | <input type="checkbox"/> | About 3 -5 times | <input type="checkbox"/> |
| This is my second time | <input type="checkbox"/> | More than 5 times | <input type="checkbox"/> |

2. What attracted you to visiting?

3. Approximately how long is your stay here?

- | | | | |
|-----------|--------------------------|------------------|--------------------------|
| 0 -2 days | <input type="checkbox"/> | About 1 week | <input type="checkbox"/> |
| 3 -5 days | <input type="checkbox"/> | More than 1 week | <input type="checkbox"/> |

4. Please tick the appropriate boxes below:

- | | | | | | |
|----|---------------------|--------------------------|----|--------------------|--------------------------|
| a) | Male | <input type="checkbox"/> | b) | 24 years and under | <input type="checkbox"/> |
| | Female | <input type="checkbox"/> | | 25-35 years old | <input type="checkbox"/> |
| | | | | 36-45 years old | <input type="checkbox"/> |
| | | | | 46-55 years old | <input type="checkbox"/> |
| | | | | 56 years and over | <input type="checkbox"/> |
| d) | Live in Adelaide | <input type="checkbox"/> | | State | _____ |
| | Live in regional SA | <input type="checkbox"/> | | Country | _____ |
| | Live interstate | <input type="checkbox"/> | | | |
| | Live overseas | <input type="checkbox"/> | | | |

5. What proportion of your holiday will be/was spent specifically observing plants and animals?
Please circle.

None Some (25%) Half (50%) Most (75%) All (100%)

6. Please rate the extent to which you agree with the following statements on a scale from one (strongly disagree) to five (strongly agree):

- a) I care a lot about conservation in the Flinders Ranges 1 2 3 4 5
- b) I try to reduce negative impacts on the environment whilst here 1 2 3 4 5
- I do this by:
- | | |
|--|--------------------------|
| Disposing of all waste as recommended | <input type="checkbox"/> |
| Not removing any plant matter at all | <input type="checkbox"/> |
| Staying on the tracks and roads at all times | <input type="checkbox"/> |
| Reading about the best ways to help reduce damage | <input type="checkbox"/> |
| Telling others how to help protect the environment | <input type="checkbox"/> |
- c) By using an ecotourism operator, I would expect not to damage the environment in any way at all 1 2 3 4 5
- d) The tourism operator / campsite I am using helped shape my opinion on conservation and its importance 1 2 3 4 5

7. Have you heard or read about Operation Bounceback?

- Yes Where? _____
- No ** last page of survey has information about Bounceback

- b) Kangaroo culling is also necessary in many areas where their numbers are too high to protect native vegetation and allow the recovery of degraded habitat. How do you feel about kangaroo culling?

1	2	3	4	5	6	7
greatly dislike			it is fair to cull			greatly agree with it

15. Which description best describes ecotourism?

- a) Any tourism that is nature-based (occurs in a natural setting)
- b) Tourism that uses minimal impact practices like reducing waste and conserving energy in daily activities
- c) Tourism where people can observe and learn about plants and animals through activities like bushwalking and camping
- d) Tourism with activities about the local culture and environment, helping people understand and appreciate a particular region
- e) Tourism that is nature-based, educational and uses minimal impact practices
- f) Other

16. For research purposes alone, which tourism operators are you using in the Flinders Ranges?

17. If you would like to, please make any comments regarding the survey, tourism and the Flinders Ranges' environment.

** Operation Bounceback is a multi-award winning ecological restoration program (conservation project) in the Flinders Ranges. It aims to enhance local biodiversity, restore the natural processes across the region, and improve environmental management practices. Key issues include the removal of feral animals and weeds, and helping the native species return (e.g. Bilbies, Bettongs, Yellow-footed Rock Wallabies and various threatened plant species).

Visitor Awareness Survey One (AS1)

1. How many times have you visited the Flinders Ranges region?

- | | | | |
|------------------------|--------------------------|-------------------|--------------------------|
| This is my first time | <input type="checkbox"/> | About 3 -5 times | <input type="checkbox"/> |
| This is my second time | <input type="checkbox"/> | More than 5 times | <input type="checkbox"/> |

2. What attracted you to visiting?

3. Approximately how long is your stay here?

- | | | | |
|-----------|--------------------------|------------------|--------------------------|
| 0 -2 days | <input type="checkbox"/> | About 1 week | <input type="checkbox"/> |
| 3 -5 days | <input type="checkbox"/> | More than 1 week | <input type="checkbox"/> |

4. Please tick the appropriate boxes below:

- | | | | | | |
|----|---------------------|--------------------------|----|--------------------|--------------------------|
| a) | Male | <input type="checkbox"/> | b) | 24 years and under | <input type="checkbox"/> |
| | Female | <input type="checkbox"/> | | 25-39 years old | <input type="checkbox"/> |
| | | | | 40-64 years old | <input type="checkbox"/> |
| | | | | 65 years and over | <input type="checkbox"/> |
| e) | Live in Adelaide | <input type="checkbox"/> | | State | _____ |
| | Live in regional SA | <input type="checkbox"/> | | Country | _____ |
| | Live interstate | <input type="checkbox"/> | | | |
| | Live overseas | <input type="checkbox"/> | | | |

5. What proportion of your holiday will be/was spent specifically observing plants and animals?
Please circle.

- None Some (25%) Half (50%) Most (75%) All (100%)

6. Which of the following animals have you seen during your visit to the Flinders Ranges?

- | | | | | | |
|---------------|--------------------------|-----------|--------------------------|--------|--------------------------|
| Red Kangaroo | <input type="checkbox"/> | Dingo | <input type="checkbox"/> | Horse | <input type="checkbox"/> |
| Grey Kangaroo | <input type="checkbox"/> | Fox | <input type="checkbox"/> | Sheep | <input type="checkbox"/> |
| Koala | <input type="checkbox"/> | Feral Cat | <input type="checkbox"/> | Cow | <input type="checkbox"/> |
| Rock Wallaby | <input type="checkbox"/> | Goat | <input type="checkbox"/> | Snake | <input type="checkbox"/> |
| Euro | <input type="checkbox"/> | Emu | <input type="checkbox"/> | Lizard | <input type="checkbox"/> |
| Echidna | <input type="checkbox"/> | Eagle | <input type="checkbox"/> | Rabbit | <input type="checkbox"/> |
| Possum | <input type="checkbox"/> | Corella | <input type="checkbox"/> | Other | _____ |

7. Please circle the answer you think is correct for each of the statements below:

T = True F = False ?? = Don't know

- | | | | |
|---|---|---|----|
| a) Kangaroos (incl. Euros) in the Flinders Ranges are endangered. | T | F | ?? |
| b) Overgrazing by domestic stock contributes to loss of native vegetation in the Flinders Ranges. | T | F | ?? |
| c) Yellow-footed Rock Wallabies live only in the Flinders Ranges. | T | F | ?? |
| d) Some places in Australia cull goats and rabbits for conservation reasons. | T | F | ?? |
| e) Some places in Australia cull kangaroos for conservation reasons. | T | F | ?? |
| f) Rabbit warrens are bulldozed to help control rabbit numbers. | T | F | ?? |
| g) National Parks are pristine and untouched environments. | T | F | ?? |

8. Please select whether you agree or disagree with the following statements regarding general environmental issues:

- | | Agree | Disagree |
|--|--------------------------|--------------------------|
| a) I would like to do more to help the environment | <input type="checkbox"/> | <input type="checkbox"/> |
| b) I don't do more because it is too hard to help | <input type="checkbox"/> | <input type="checkbox"/> |
| c) I feel very concerned about the state of the environment | <input type="checkbox"/> | <input type="checkbox"/> |
| d) I would like to know more about the environment | <input type="checkbox"/> | <input type="checkbox"/> |
| e) I think environmental issues are given too much attention | <input type="checkbox"/> | <input type="checkbox"/> |

9. For research purposes alone, which tourism operators are you using in the Flinders Ranges?

10. If you would like to, please make any comments regarding the survey, tourism and the Flinders Ranges' environment.

Visitor Awareness Survey Two (AS2)

1. How many times have you visited the Flinders Ranges region?

- | | | | |
|------------------------|--------------------------|-------------------|--------------------------|
| This is my first time | <input type="checkbox"/> | About 3 -5 times | <input type="checkbox"/> |
| This is my second time | <input type="checkbox"/> | More than 5 times | <input type="checkbox"/> |

2. What attracted you to visiting?

3. Approximately how long is your stay here?

- | | | | |
|-----------|--------------------------|------------------|--------------------------|
| 0 -2 days | <input type="checkbox"/> | About 1 week | <input type="checkbox"/> |
| 3 -5 days | <input type="checkbox"/> | More than 1 week | <input type="checkbox"/> |

4. Please tick the appropriate boxes below:

- | | | | | | |
|----|---------------------|--------------------------|----|--------------------|--------------------------|
| a) | Male | <input type="checkbox"/> | b) | 24 years and under | <input type="checkbox"/> |
| | Female | <input type="checkbox"/> | | 25-39 years old | <input type="checkbox"/> |
| | | | | 40-64 years old | <input type="checkbox"/> |
| | | | | 65 years and over | <input type="checkbox"/> |
| f) | Live in Adelaide | <input type="checkbox"/> | | State _____ | |
| | Live in regional SA | <input type="checkbox"/> | | Country _____ | |
| | Live interstate | <input type="checkbox"/> | | | |
| | Live overseas | <input type="checkbox"/> | | | |

5. What proportion of your holiday will be/was spent specifically observing plants and animals?
Please circle.

None Some (25%) Half (50%) Most (75%) All (100%)

6. Which of the following animals have you seen during your visit to the Flinders Ranges?

- | | | | | | |
|---------------|--------------------------|-----------|--------------------------|-------------|--------------------------|
| Red Kangaroo | <input type="checkbox"/> | Dingo | <input type="checkbox"/> | Horse | <input type="checkbox"/> |
| Grey Kangaroo | <input type="checkbox"/> | Fox | <input type="checkbox"/> | Sheep | <input type="checkbox"/> |
| Koala | <input type="checkbox"/> | Feral Cat | <input type="checkbox"/> | Cow | <input type="checkbox"/> |
| Rock Wallaby | <input type="checkbox"/> | Goat | <input type="checkbox"/> | Snake | <input type="checkbox"/> |
| Euro | <input type="checkbox"/> | Emu | <input type="checkbox"/> | Lizard | <input type="checkbox"/> |
| Echidna | <input type="checkbox"/> | Eagle | <input type="checkbox"/> | Rabbit | <input type="checkbox"/> |
| Possum | <input type="checkbox"/> | Corella | <input type="checkbox"/> | Other _____ | |

7. Please circle the answer you think is correct for each of the statements below:

T = True F = False ?? = Don't know

- | | | | |
|---|---|---|----|
| a) The Yellow-footed Rock Wallaby is an endangered animal. | T | F | ?? |
| b) Salvation Jane (Paterson's Curse) is a small purple native Australian flower. | T | F | ?? |
| c) High stocking rates in early pastoral settlement altered plant communities in the Flinders Ranges. | T | F | ?? |
| d) Aerial baiting is used to control fox numbers in the Flinders Ranges National Park. | T | F | ?? |
| e) Kangaroos are sometimes culled in the Finders Ranges due to excessive population numbers. | T | F | ?? |
| f) There are no more rabbits in the Flinders Ranges due to the Calici virus. | T | F | ?? |
| g) The Flinders Ranges National Park is land that was not altered by early European settlement. | T | F | ?? |

8. Please select whether you agree or disagree with the following statements regarding general environmental issues:

- | | Agree | Disagree |
|---|--------------------------|--------------------------|
| a) I would like to do more to help the environment | <input type="checkbox"/> | <input type="checkbox"/> |
| b) I don't do more because I don't have time | <input type="checkbox"/> | <input type="checkbox"/> |
| c) I feel very concerned about the state of the environment | <input type="checkbox"/> | <input type="checkbox"/> |
| d) I would like to know more about the environment | <input type="checkbox"/> | <input type="checkbox"/> |
| e) I think environmental issues are given too much attention | <input type="checkbox"/> | <input type="checkbox"/> |
| f) I don't think about the state of the environment very much | <input type="checkbox"/> | <input type="checkbox"/> |
| g) Tourists' actions are bad for the environment | <input type="checkbox"/> | <input type="checkbox"/> |

9. For research purposes alone, which tourism operators are you using in the Flinders Ranges?

10. If you would like to, please make any comments regarding the survey, tourism and the Flinders Ranges' environment.

Visitor Awareness Survey Three (AS3)

1. How many times have you visited the Flinders Ranges region?

- | | | | |
|------------------------|--------------------------|-------------------|--------------------------|
| This is my first time | <input type="checkbox"/> | About 3 -5 times | <input type="checkbox"/> |
| This is my second time | <input type="checkbox"/> | More than 5 times | <input type="checkbox"/> |

2. What attracted you to visiting?

3. Approximately how long is your stay here?

- | | | | |
|-----------|--------------------------|------------------|--------------------------|
| 0 -2 days | <input type="checkbox"/> | About 1 week | <input type="checkbox"/> |
| 3 -5 days | <input type="checkbox"/> | More than 1 week | <input type="checkbox"/> |

4. Please tick the appropriate boxes below:

- | | | | | | |
|----|---------------------|--------------------------|----|--------------------|--------------------------|
| a) | Male | <input type="checkbox"/> | b) | 24 years and under | <input type="checkbox"/> |
| | Female | <input type="checkbox"/> | | 25-39 years old | <input type="checkbox"/> |
| | | | | 40-64 years old | <input type="checkbox"/> |
| | | | | 65 years and over | <input type="checkbox"/> |
| h) | Live in Adelaide | <input type="checkbox"/> | | State | _____ |
| | Live in regional SA | <input type="checkbox"/> | | Country | _____ |
| | Live interstate | <input type="checkbox"/> | | | |
| | Live overseas | <input type="checkbox"/> | | | |

5. What proportion of your holiday will be/was spent specifically observing plants and animals?
Please circle.

- None Some (25%) Half (50%) Most (75%) All (100%)

6. Which of the following animals have you seen during your visit to the Flinders Ranges?

- | | | | | | |
|---------------|--------------------------|-----------|--------------------------|--------|--------------------------|
| Red Kangaroo | <input type="checkbox"/> | Dingo | <input type="checkbox"/> | Horse | <input type="checkbox"/> |
| Grey Kangaroo | <input type="checkbox"/> | Fox | <input type="checkbox"/> | Sheep | <input type="checkbox"/> |
| Koala | <input type="checkbox"/> | Feral Cat | <input type="checkbox"/> | Cow | <input type="checkbox"/> |
| Rock Wallaby | <input type="checkbox"/> | Goat | <input type="checkbox"/> | Snake | <input type="checkbox"/> |
| Euro | <input type="checkbox"/> | Emu | <input type="checkbox"/> | Lizard | <input type="checkbox"/> |
| Echidna | <input type="checkbox"/> | Eagle | <input type="checkbox"/> | Rabbit | <input type="checkbox"/> |
| Possum | <input type="checkbox"/> | Corella | <input type="checkbox"/> | Other | _____ |

7. Please circle the answer you think is correct for each of the statements below:

T = True F = False ?? = Don't know

- | | | | |
|---|---|---|----|
| a) Kangaroos (incl. Euros) in the Flinders Ranges are endangered. | T | F | ?? |
| b) Overgrazing by domestic stock contributes to loss of native vegetation in the Flinders Ranges. | T | F | ?? |
| c) Yellow-footed Rock Wallabies live only in the Flinders Ranges. | T | F | ?? |
| d) Some places in Australia cull goats and rabbits for conservation reasons. | T | F | ?? |
| e) Some places in Australia cull kangaroos for conservation reasons. | T | F | ?? |
| f) Rabbit warrens are bulldozed to help control rabbit numbers. | T | F | ?? |
| g) National Parks are pristine and untouched environments. | T | F | ?? |

8. Please select whether you agree or disagree with the following statements regarding general environmental issues:

- | | Agree | Disagree |
|--|--------------------------|--------------------------|
| a) I would like to do more to help the environment | <input type="checkbox"/> | <input type="checkbox"/> |
| b) I don't do more because I don't have time | <input type="checkbox"/> | <input type="checkbox"/> |
| c) I don't do more because it costs too much | <input type="checkbox"/> | <input type="checkbox"/> |
| d) I feel very concerned about the state of the environment | <input type="checkbox"/> | <input type="checkbox"/> |
| e) I would like to know more about the environment | <input type="checkbox"/> | <input type="checkbox"/> |
| f) I think environmental issues are given too much attention | <input type="checkbox"/> | <input type="checkbox"/> |

9. For research purposes alone, which tourism operators are you using in the Flinders Ranges?

10. If you would like to, please make any comments regarding the survey, tourism and the Flinders Ranges' environment.

Visitor Awareness Surveys: True or False Statements

This section is to provide the reader with examples of references supporting the answers for the True or False statements used in the Visitor Awareness Surveys.

- a) Kangaroos (incl. Euros) in the Flinders Ranges are endangered.
FALSE: Department for Environment & Heritage (2002)
- b) Overgrazing by domestic stock contributes to loss of native vegetation in the Flinders Ranges.
TRUE: National Parks and Wildlife South Australia (2001a)
- c) Yellow-footed Rock Wallabies live only in the Flinders Ranges.
FALSE: Earth Sanctuaries Limited (2000), Gordon, McGreevy & Lawrie (1978)
- d) Some places in Australia cull goats and rabbits for conservation reasons.
TRUE: National Parks and Wildlife South Australia (2001a)
- e) Some places in Australia cull kangaroos for conservation reasons.
TRUE: Department for Environment & Heritage (2002)
- f) Rabbit warrens are bulldozed to help control rabbit numbers.
TRUE: National Parks and Wildlife South Australia (2001a)
- g) National Parks are pristine and untouched environments.
FALSE: Davies *et al.* (1996), National Parks and Wildlife South Australia (2001a)
- h) The Yellow-footed Rock Wallaby is an endangered animal.
TRUE: Earth Sanctuaries Limited (2000), National Parks and Wildlife South Australia (2001a)
- i) Salvation Jane is a small purple native Australian flower.
FALSE: South Australian Research and Development Institute (2005)
- j) High stocking rates in early pastoral settlement altered plant communities in the Flinders Ranges.
TRUE: National Parks and Wildlife South Australia (2001a)
- k) Aerial baiting is used to control fox numbers in the Flinders Ranges National Park.
TRUE: National Parks and Wildlife South Australia (2001a)
- l) Kangaroos are sometimes culled in the Flinders Ranges due to excessive population numbers.
TRUE: Department for Environment & Heritage (2002), National Parks and Wildlife South Australia (2001a)
- m) There are no more rabbits in the Flinders Ranges due to the Calici virus.
FALSE: National Parks and Wildlife South Australia (2001a)
- n) The Flinders Ranges National Park is land that was not altered by early European settlement.
FALSE: Davies *et al.* (1996), National Parks and Wildlife South Australia (2001a)

- o) There are more than 200 bird species found in the Flinders Ranges.
TRUE: National Parks and Wildlife South Australia (2001a), Reid, Carpenter & Pedler (1996)
- p) Red kangaroos and grey kangaroos do not both live in the Flinders Ranges.
FALSE: Davies *et al.* (1996), Department for Environment & Heritage (2002)
- q) The wheel cactus is a weed commonly found near Blinman and Parachilna.
TRUE: Brandle (2001)
- r) The Indigenous Australians of the Flinders Ranges are known as the Kaurna people.
FALSE: Clarke (1990), Tindale (1974)
- s) Tourists do not need to ask for permission to use roads on pastoral lands in the Flinders Ranges.
FALSE: *Pastoral Land Management and Conservation Act (1989)*, Section 45
- t) Parts of the Flinders Ranges have been dated to more than 1.5 million years old.
TRUE: Davies *et al.* (1996)
- u) Goat, rabbit and fox numbers are controlled within the Flinders Ranges National Park.
TRUE: National Parks and Wildlife South Australia (2001a)

Visitor Opinion Surveys: Animal Culling Questions

The questions on feral animal culling and kangaroo³⁶ culling were conducted with variations in the wording between VS1 and VS2 to see whether or not it made any noticeable difference in the way people responded. In VS1 respondents were asked:

- a) How do you feel about feral animal culling (the humane killing of animals for conservation purposes)?

1	2	3	4	5	6	7
greatly dislike			it is fair to cull			greatly agree with it

- b) Kangaroo numbers are also too high in some areas. How do you feel about kangaroo culling?

1	2	3	4	5	6	7
greatly dislike			it is fair to cull			greatly agree with it

Visitors completing VS2 were given surveys with extra information about culling³⁷. They read:

High grazing pressure on the land leads to vegetation damage, habitat destruction and prevents regeneration of native plant communities. In the Flinders Ranges, the major grazing animals include kangaroos, feral goats, rabbits and domestic stock.

- a) How do you feel about the culling (humane killing of animals for conservation purposes) of goats, foxes, rabbits and other feral or introduced species?

1	2	3	4	5	6	7
greatly dislike			it is fair to cull			greatly agree with it

- b) Kangaroo culling is also necessary in many areas where their numbers are too high to protect native vegetation and allow the recovery of degraded habitat. How do you feel about kangaroo culling?

1	2	3	4	5	6	7
greatly dislike			it is fair to cull			greatly agree with it

³⁶ For the purpose of this study, the term kangaroo is used in its broadest sense, to cover the group of large macropodid marsupials including red kangaroos, grey kangaroos and euros (wallaroos).

³⁷ The questions in VS2 were worded with the assistance of D. Pearce, a National Parks and Wildlife South Australia staff member involved with Operation Bounceback.

APPENDIX V

This appendix provides information about comments made by visitors from both the formal visitor surveys and the informal visitor discussions that occurred during the course of the research.

a) Categorisation of Additional Comments on Surveys

In total, only 52 of the 789 respondents to the visitor surveys chose to write any additional comments upon completion of their questionnaire, representing a low 6.6 percent. Their comments have been categorised (see below) to examine the main topics commented on, and are given as the number of comments per category from a total of 52.

1. Comments about the survey	
a) General qualification of answers	2
b) Criticism of survey	2
c) Positive comments about survey	3
2. Comments about national parks in the Flinders Ranges	
a) Appreciation of parks	6
b) Appreciation of rangers	3
c) Need to improve facilities	2
d) Minimise facilities / don't commercialise	3
e) Need for information / signposting	5
f) Staffing / funding inadequate	4
g) Comparison with private property / other region	2

Example:

We need to ensure the parks are adequately supervised and maintained, more government funding needed for extra rangers and infrastructure upgrades.

Our visit has been exceptional and given us an understanding of the 'Ranges environment'. I would like to say that track notes provided on many walks are non-existent and let the park down.

3. Comments about Flinders Ranges in general	
a) Minimise facilities / don't commercialise	1
b) Need for more information / publicity	3
c) Need for public education	2
d) Need to improve roads	3

Example:

Results achieved through Operation Bounceback show what can be achieved if governments are committed and public are aware of the threats. This approach should be widely promoted throughout Australia. Still obviously big weed problem in park – conservation, threatening processed and balanced management are well promoted to visitors - I think this is why people visit – it's a fantastic opportunity to educate the four-wheel drive public while they try out their vehicles.

It's a beautiful area – I'd not like to see it any more developed than at present.

4. Comments about tourism
- | | |
|------------------------------------|---|
| a) Positive comments about tourism | 3 |
| b) Other comments about tourism | 2 |

Example:

The tourism industry here operates with a conscience and is aware of the fragility of the local, and wider, environment.

Need more tourism with ecotourism and local conservation flavours – how to handle water conservation, waste controls, self-sustaining. Watch out for the crows, they are taking over in SE Asia.

Our 7th trip to the Flinders as equally as inspiring as the very first.

5. Comments about pastoralism
- | | |
|--|---|
| a) Positive comments about landholders | 4 |
| b) Other comments about landholders | 2 |

Example:

Ecotourism may be a useful adjunct to grazing pursuits, if not a replacement for grazing. The involvement of Parks and other lands in a ‘regional’ approach to tourism and natural appreciation is good. Visitor accommodation beyond any National Park seems a good idea to me.

Thank Heaven there are still places in Australia which are still untouched and untainted. No golf courses, no 5 star hotels, bulk people, I’ve very much enjoyed the serenity of staying at [a private property].

We’re so glad we came here instead of Wilpena because here we get our own little piece of the Outback. – Quiet, peaceful, can talk to farmers and ask them about the area.

[Having a private four-wheel drive track] is a good idea, I wish more pastoralists realised the potential as an extra income source. It would be so good for all of us, city and country.

b) Selected Additional Comments on Surveys

1. Comments regarding Environmental Impacts (from mixed categorisations above)

Staying here has been very therapeutic. The impacts of human beings i.e. the rubbish we make really hits home in a place like this when you have to constantly see the things left over in the way of packaging etc. It’s a pity more city people don’t have this experience. If time was a commodity we had much of we can see that we could easily spend 3 weeks (instead of 4 days) here and not get bored.

This is a wild place, a fragile environment, where the balance of nature is so easily destroyed. Thanks to the pastoralists and park rangers who care for the land – and allow us to share in its wonders. May we who are visitors, while we stand in awe of the magnificent beauty around us, remember our responsibility to care for the earth too.

What a fantastic experience. The views, the wild flowers and the fauna. The SA Government could learn a lot from the pastoralists in weed control. So far we have not seen any Paterson's Curse, unlike the National Parks that are covered in this obnoxious weed.

Not enough [conservation] being done – but slowly increasing.

2. Comments regarding Tourism Operations

Our natural environment can be a well managed tourism and income earning activity. The money earned can then provide monetary support for ongoing conservation and education.

[Ecotourism is] good because it is tourism involving education about the environment and with as few negative impacts on the environment as possible.

c) Extracts from Visitor Discussions

This section gives the reader an idea of the type of comments visitors made while in conversation with the researcher. Some are direct quotations and others are paraphrased.

1. Comments regarding Visitor Enjoyment

The following is a selection of comments showing the enjoyment found in experiencing the Flinders Ranges.

I like four-wheel driving because of all the hazards like potholes, and the thrills like the dust clouds when you can't see for a while because someone just came past the other way.

I love the weather – it can start spitting gently and then five minutes later it's pouring down like crazy.

Sometimes you see those little whirl-winds out in the open space and they are great to watch, the kids love them.

There are some really nice towns along the way from Adelaide, like Burra and Quorn, with nice old buildings, antique shops, just a friendly feel to them.

Dirt roads are great, they just make you feel you're further away from home and having more of an adventure.

The only bad thing is the bugs, and the flies when it's hot, they get really annoying. But it's part of the 'outback experience', plus it is amusing for the kids too!

I learnt what a 'mozzie' is, and I don't mind at all if I never see one again!
Wilpena Pound is amazing, this great bowl shaped landform with excellent walking tracks. So different to the tracks where I live [USA]. But all those creeks? I'm yet to see water in any of them!

It's such an adventure to be here, what with getting flat tyres, reading bushwalking maps, sleeping in tents.

It really is a natural playground for children.

I like the space and the silence here. It's just so barren and beautiful.

2. Comments regarding Ecotourism

The following is a selection of comments showing various opinions tourists had regarding the concept of ecotourism.

Nature-based tourism that helps protect the environment.

Tourism involving education about the environment and with as few negative impacts on the environment as possible.

...when there are smaller groups and you are taught about the environment you are seeing. The main aim of the tour is often to see plants and animals in a way that doesn't damage their homes.

3. Comments regarding Visitor Opinions on Tourism Accreditation Schemes

The following is a selection of comments showing various opinions tourists had regarding the use of accreditation in the industry.

I'd rather judge it for myself than by a logo someone else has given it.

The accreditation program is a good idea but only if it actually benefits the environment by helping protect it and the tourists by giving them a better product.

If a business wasn't accredited it wouldn't stop me from using it – things like tour details, price and recommendations from friends are more important.