

EVALUATION OF ORGANISED TOURISM INVOLVING WILD KANGAROOS



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EXECUTIVE SUMMARY

This report provides an evaluation of existing organised opportunities for viewing free-ranging kangaroos in Australia and provides recommendations for best practice. "Kangaroo" is used as shorthand for any of the 60 or so species of the superfamily Macropodoidea.

Objectives

The aims of this study were to:

1. Describe and classify the current scope of kangaroo-related tourism in Australia.
2. With respect to business management, visitors, interpretation, kangaroo management and environmental management:
 - Describe distinctive features of kangaroo-related tourism
 - Describe elements of current best practice
 - Identify weaknesses
 - Make recommendations regarding practices to enhance sustainability of kangaroo-related tourism.
3. Describe and evaluate facilities and tools available to support kangaroo-related tourism, and make recommendations for their appropriate development.

Methods

1. Existing Australian kangaroo-related tourism enterprises were described, based on a database of enterprises collated from promotional materials, specialist magazines, host farm guides and word-of-mouth.
2. A sample of 20 enterprises was selected as potentially providing best practice models of kangaroo-related tourism. Phone

interviews, visitor surveys, and site visits to 10 of these were used to collect information on business management, visitor characteristics and reactions, nature of kangaroo encounters and impacts, interpretation and environmental management. These enterprises were evaluated against best practice principles.

The data on which this study is based were collected in late 1999.

Findings

- There are at least 154 enterprises of widely differing types that provide organised opportunities for visitors to view free-ranging kangaroos.
- There is no such thing as "the kangaroo tourism industry"; kangaroos are one product among others within a range of types of tourism enterprises. About half of all tourism activities featuring kangaroos are tours in which the wildlife (including kangaroos) comprises only one component of a broader nature-based experience. The remainder comprise predominantly (in descending order of frequency): zoos and wildlife parks, accommodation (other than farms) featuring wild kangaroos, wildlife tours (mostly involving a variety of wildlife, not just kangaroos) and farm stays.
- National parks and other protected areas are important to kangaroo-related tourism: as sites for tours by private operators, by providing their own organised kangaroo viewing opportunities, and as sites for incidental tourist encounters with kangaroos.
- Most current visitors to such attractions and tours have a generalised interest in nature rather than a specific interest in wildlife or kangaroos.
- Visitors rated naturalness of their wildlife experience and provision of information as the most important features of the experience.
- The overall level of reported satisfaction with the kangaroo viewing component of our case studies was high. However, visitor satisfaction with the numbers of kangaroos and other wildlife seen and proximity to wildlife was only moderate.

- Visitor satisfaction with the kangaroo viewing component of the tourism experience was positively related to their overall satisfaction with their experience.
- Some tourism enterprises provide good models of business management and management of kangaroo encounters, but no one case could be considered as following best practice in all key respects, and best practice varies according to the type of organisation involved.
- Even in kangaroo-related tourism enterprises selected as most likely to exemplify best practice, common weaknesses were identified with respect to business planning (mainly by small operators), market research, relationships with protected area authorities, quality of interpretation, techniques used to find and observe kangaroos, and environmental management practices.
- Operators in our sample reported occasional problems with visitors harassing kangaroos, but generally seemed to use appropriate measures to minimise any negative impacts of their tourism-related activities on the animals.
- The most common reaction of kangaroos to visitors in the surveyed cases was to flee. However they behave in such a way that a skilled guide can anticipate when this is likely to happen and modify the visitors' behaviour to avoid significant disturbance to the kangaroos.
- Handfeeding of kangaroos occurs fairly widely in kangaroo-related tourism generally, and even in protected areas, and is a controversial issue.
- Some kangaroo-related tourism operators contribute to conservation goals, and this occurs in a wide range of ways.

Best Practice Guidelines for Kangaroo-Related Tourism

The following is a summary of best practice guidelines recommended for kangaroo-related tourism enterprises on the basis of this study:

Business management

- Use a documented business plan as an integral part of their management system; this need not be a complex or expensive process.
- Conduct ongoing market research and integrate that into planning; again this can be done in relatively simple and inexpensive ways.
- Undertake effective risk management practices.
- Develop effective teamwork within your organisation to cover the range of skills required for high quality kangaroo-related tourism.
- Build strong relationships with other groups with an interest in nature-based tourism, such as protected area staff and regional or local tourism associations.
- Work to build positive relationships with local competitors.

Kangaroo interpretation

- Develop an integrated interpretive program following established best practice principles for interpretation.
- Integrate your interpretation with your marketing.
- Interpretation should address a range of issues relating to kangaroo natural history and management, as well as minimal impact guidelines.

Planning and managing kangaroo encounters

- Provide as natural an experience for the visitors as possible.
- In general, avoid handfeeding or handling of kangaroos living in natural areas.

- Where handfeeding of kangaroos occurs, ensure that the food is tailored to the animals' nutritional needs that it provides only a small proportion of the animals' diet so that dependency does not occur, and that it is not sufficient to lead to aggression towards humans or other kangaroos.
- Maximise your visitors' satisfaction with kangaroo encounters by developing better techniques for finding and getting close to kangaroos, and using interpretation to make visitor expectations more realistic.
- Do research on your local kangaroo species and populations by observing them and reading about them. This will help you to find the animals when required, and to provide more interesting interpretation.
- Find out what technology is available to assist you in providing satisfying kangaroo encounters and learn to use it properly.
- Plan for flexibility in your tours and do what you can to adjust the tour to your guests' interests.
- Take steps to habituate the kangaroos without use of food or other rewards.
- A good principle for minimising disturbance to kangaroos as well as providing satisfying visitor experiences is that you should not cause them to hop away.
- Learn to anticipate the kangaroos' behaviour so that you can ask your group to back way or remain still to prevent the kangaroos taking flight.
- Contribute to the conservation of your local area and wildlife; use this in your promotion and where possible involve your visitors.
- Build positive relationships with wildlife researchers and protected area managers working in the area based on mutual benefits.

- In providing an interesting kangaroo experience for visitors, it is not only the kangaroos themselves that may be of interest, but also their signs.
- Remind your guests to drive slowly and keep their eyes open for wildlife, especially in the dusk and dark.
- Encourage visitors to use zoom or telephoto lens on their cameras so they do not need to approach closely for photography.

Environmental management

- Adopt published guidelines for best practice environmental management for nature-based tourism operators and use this in your marketing.
- On walking tours, keep your visitors on the track
- While in road transport, avoid driving off road in areas of natural habitat.
- In your interpretation, tell your guests about the importance of habitat for kangaroos and other animals.
- Where feasible, get involved in habitat restoration and protection. Integrate this into your presentation.
- Seek advice from managers of natural areas you are using on how best to reduce environmental impacts.
- Use a relatively small group size.
- Consider becoming accredited with the National Ecotourism Accreditation Program, and follow their guidelines.

Directions for Future Development of Kangaroo-Related Tourism

- The emphasis in future kangaroo-related tourism development should probably be in enhancing existing experiences rather than setting up of new enterprises.
- In order to expose the greatest number of visitors to positive kangaroo experiences, the emphasis of efforts to develop kangaroo-related tourism should probably be on protected areas, although more research is needed on their role.
- In relation to private commercial kangaroo-related tourism, there should be a focus on enhancing the use of kangaroos within broader nature-based tours, as these comprise the largest number of businesses involved in kangaroo-related tourism.
- Adequate resources are needed for effective protected area management to ensure sustainability of kangaroos and the natural environment in these areas.
- The emphasis in organised kangaroo-related tourism should be on providing high quality experiences that are as "natural" as possible.
- The larger kangaroo species are likely to provide the greatest potential for tourism.
- The tourism industry and protected area authorities should cooperate to improve sustainability of kangaroo-related tourism and develop more secure access to protected areas by environmentally responsible tour operators.

Tools to Facilitate Sustainable Kangaroo-Related Tourism

A kit should be produced for operators containing information and advice relating to:

- providing high quality interpretation;

- marketing and promotion ;
- effective management of kangaroo encounters; and
- key sources of information on kangaroos.

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1. ABSTRACT

This report provides an evaluation of existing organised opportunities for viewing free-ranging kangaroos in Australia. A descriptive survey revealed there to be at least 154 enterprises offering a wide range of different types of kangaroo viewing experiences. Phone interviews, visitor surveys and site visits were conducted at a subset of sites chosen as potentially providing models of best practice kangaroo-related tourism. These provided further information on the scope of such enterprises, the issues they faced, and the characteristics and responses of their visitors. While some of these enterprises provided good models in relation to management of business aspects and kangaroo encounters, no single enterprise could be considered as following best practice in all key respects, and in any case best practice was found to be specific to the type of enterprise. The examination of existing practices, combined with application of recognised principles, enabled a series of recommendations to be developed for kangaroo-related tourism enterprises in order to achieve best practice, and regarding future directions for

1. INTRODUCTION

1.1 Background

Australia is well known for its unique and interesting wildlife, with kangaroos and other macropodoids (commonly known as wallabies, bettongs, pademelons, tree kangaroos, rock wallabies and potoroos) comprising one of our best known faunal groups. Research by the CRC for Sustainable Tourism indicates that a substantial proportion of international tourists are influenced in their decision to visit Australia specifically by the presence of Australian native animals, and that kangaroos are the animal that the greatest proportion of tourists wish to see (Fredline and Faulkner, 2001a), and the one most strongly associated with the image of Australia (Chalip *et al.* 2001). The term "kangaroo" is used henceforth as a shorthand for all macropodoids (see section 1.3).

Kangaroos play a part in Australia's nature-based tourism industry, a sector identified as important and potentially growing by all government tourism agencies. By maximising the quality of visitor experiences involving encounters with kangaroos, and the performance of enterprises that provide such experiences, economic benefits associated with kangaroo-related tourism can be enhanced. By providing satisfying encounters with kangaroos, coupled with effective interpretation, there is the potential to foster increased appreciation, interest and understanding of kangaroos by tourists. To ensure that such tourism experiences can be provided into the future, as well as for conservation reasons alone, it is important that such experiences be designed and managed such that they are not detrimental to kangaroos or their habitats.

While this report was externally commissioned to deal specifically with kangaroos, many of the issues covered are expected to be of broader applicability to tourism involving free-ranging native Australian animals. It is thus expected to be of interest to operators, tourism organisations and conservation groups involved in this form of wildlife tourism.

The present report comprises one of a set of four (see also Croft and Leiper 2001, Chalip *et al.* 2001, Fredline and Faulkner 2001b) designed to provide preliminary information to help guide the future direction of tourism involving kangaroos living in their natural habitats. Broadly, it aims to describe and provides a preliminary evaluation of the current provision of tourism involving kangaroos in Australia, with a view to improving existing enterprises and stimulating appropriate practices to be promoted by new enterprises. The ultimate goal is to promote sustainability and quality of tourism involving kangaroos.

We stress, however, that no recommendations regarding the desirability of new types of kangaroo-related enterprises can be made without an assessment of demand from the broad potential market. Other research under the auspices of the CRC for Sustainable Tourism (CRC for Sustainable Tourism, 2002) is continuing to address this issue¹.

To develop recommendations to support sustainable kangaroo-related tourism, we must first define what we mean by sustainable. In Australia we have had the benefit of a federal government sponsored process (ESD Working Group, 1991) which defined sustainable tourism as tourism which:

- is concerned with the quality of experience offered to visitors,
- provides economic returns to host communities,
- ensures cultural integrity and social cohesion of host communities, protects biological diversity,
- maintains ecological systems,
- operates within the limits of the resources available,
- maintains the full range of opportunities within and across generations,

¹ We also note that while this study provides useful guidelines, the generalisability of some of the conclusions reached in our evaluations are limited by the relatively limited time and budget for this project, and should be verified by more extensive research before any major planning takes place.

- is based upon activities or designs which reflect the character of the region, and
- allows visitors to gain an understanding of the destination and encourages them to be concerned about, and protective of, the destination.

Implicit in this definition is also the sustainability of individual businesses.

Aspects of sustainability that are most relevant for tourism involving free-ranging kangaroos are business viability, visitor satisfaction, visitor education, impacts of tourism on the kangaroos, and environmental management relating particularly to the habitat used by kangaroos and by other species that could be affected by tourism involving kangaroos.

1.2 Components of Kangaroo Tourism

1.2.1 The business management component

If businesses are not well managed they will not survive and prosper, so tourism businesses that incorporate kangaroos need to adopt well-established best practice principles for business management. This includes consideration of business planning, market research, organisational structures and processes, and relationships with other organisations. Many of the relevant issues are likely to be broadly applicable to nature-based tourism operators; some may be particular to tourism based on wild animals.

1.2.2 The visitor component

The definition for sustainable tourism given in section 1.1 includes a consideration of the perspectives of tourists as well as issues related to the environmental, social and cultural impacts of tourism. Where planning is focussed on the biophysical aspects of tourism and fails to consider the factors that more directly and immediately impact upon the success of tourism enterprises, it is not surprising to find little support from the tourism industry. A more complete approach to developing more ecologically sustainable kangaroo related tourism

enterprises must include a consideration of visitor perspectives. Existing knowledge of visitors involved in wildlife tourism is reviewed by Moscardo *et al.* (2001).

A number of factors have been identified in previous research as contributing to the quality of visitor experiences. These include:

- motivations and expectations;
- previous experience;
- the amount and quality of interpretation provided;
- the quality of the service provided by tour operators and/or management agencies;
- perceptions of physical and social impacts; and
- management strategies.

1.2.3 The *interpretation component*

One important, but still often neglected, tool for encouraging sustainable tourism is education or interpretation. Interpretation combines elements of communication, education and entertainment and usually has the dual aims of assisting visitors to appreciate the place (and in this context, the animals) they are visiting and encouraging them to behave in more sustainable ways. Interpretation can play a critical role in achieving sustainability. For many people the information they encounter while at leisure may offer the only opportunity to learn about their bonds to the environment, or to their history and culture.

Effective interpretation can contribute to sustainable tourism and recreation in two main ways. Firstly it can enhance the quality of the experience for visitors and encourage continued visitor interest in the activity, thus supporting financial viability of tourism enterprises. Secondly, interpretation can assist in the management of visitors and their impacts by informing visitors about minimal impact procedures and by encouraging positive attitudes towards the conservation and

protection of the visited place. In the context of tourism involving kangaroos, effective interpretation can contribute to people's interest and appreciation of kangaroos, and thus support for their conservation and welfare (See Moscardo *et al.* 2001 for further information).

1.2.4 The kangaroo component

If visitors are to have satisfying encounters with kangaroos, and if the kangaroo populations are going to persist for future visitors to interact with, then clearly the kangaroos themselves, their habitat, and the kangaroo-visitor encounters must be appropriately managed. Particular care should be taken if rare or threatened species are involved. There is a wealth of literature detailing the many negative effects that poorly managed wildlife tourism can have on wildlife (e.g. Hammitt & Cole 1987, Knight & Gutzweiller 1995, Roe *et al.* 1997, Liddle 1997, Green & Higginbottom in review). There is sometimes a need to distinguish between conservation impacts, which relate to whole populations, species or ecosystems; and animal welfare impacts, which relate to the well being of individual animals. The former is important for ecological reasons; the latter for ethical reasons.

In principle there could be a tradeoff between what is best for the welfare and conservation of kangaroos and what leads to the greatest visitor satisfaction; although at least to some extent this could be overcome by appropriate education of visitors. On the other hand, kangaroos may actually be able to benefit from their involvement in tourism by the operators and/or tourists contributing either directly or indirectly to conservation of kangaroos either at the tourist site or more generally. There has apparently been no previous published research on the management of kangaroos in relation to tourism.

1.2.5 The environmental component

Sustainable management of the natural environment as a whole is of indirect importance to the persistence of kangaroo populations. Further, it was relevant in relation to assessing sustainability of kangaroo-related tourism businesses to establish whether operators who followed best practice principles in other respects also adopted

best practice environmental management. This includes issues like use of resources and energy, and production of wastes. These are topics that have been widely examined in the academic literature and in management-related documents. However because of its peripheral relevance to this study, this component was a minor one.

1.3 Scope

This study will deal with tourism involving not only those few species correctly referred to as kangaroos, but any extant species of kangaroos and wallabies (family Macropodidae) and rat-kangaroos (families Potoroidae and Hypsiprymnodontidae), all commonly referred to by biologists as macropods, but for the purpose of the body of this report referred to as kangaroos henceforth. Macropods have powerful hind limbs and long hind feet, and usually have a characteristic hopping gait. They are known to the general public only as kangaroos and wallabies, with the smallest species like the rat-sized potoroo and others such as quokkas, pademelons, hare-wallabies and bettongs probably being unknown to most people. They include some 60 species (depending on the classification system) and occur in a wide range of habitats and geographical regions throughout most of Australia.

The focus of this research is on tourism experiences involving free-ranging kangaroos (often loosely referred to as 'wild' kangaroos - i.e. those not deliberately confined by fences or other barriers, and occurring in their natural habitat), although this will be loosely interpreted to include those which are hand fed in their natural habitat, confined to small unfenced urban reserves, or in very large fenced areas of natural habitat. However, free-ranging tourism involving kangaroos will be placed in the context of tourism involving kangaroos more generally.

This study was limited to enterprises (also referred to elsewhere in this report as operations or organisations, depending on the context) set up for tourism, perhaps alongside other purposes. It excluded less formalised tourism situations such as national parks that featured kangaroos and for example provided interpretive signs or occasional ranger-guided walks, but not involving regular organised activities. It is important to note that an unknown but large proportion of tourists

are exposed to free-ranging kangaroos in unguided and uninterpreted situations rather than within formalised tourism situations, especially for domestic tourists (pers. obs.). However because of the emphasis on education within this report, these situations are excluded from the scope.

Each tourism enterprise provides one or more "activities", a broad term used to encompass tours, attractions or accommodation places. A very broad definition was employed in defining a kangaroo tourism activity, which was that kangaroos were advertised as an expected part of the experience, or that key informants told us that kangaroos were a significant feature. A kangaroo tourism organisation was defined as one that offered at least one kangaroo tourism activity.

1.4 Aims

The aims of this study are to:

1. Describe and classify the current scope of tourism involving kangaroos in Australia.
2. With respect to business management, visitors, interpretation, kangaroo management and environmental management:
 - Describe distinctive features of tourism involving kangaroos.
 - Describe elements of current best practice.
 - Identify weaknesses.
 - Make recommendations regarding practices to enhance sustainability of tourism involving kangaroos.
3. Describe and evaluate facilities, tools etc. available to support tourism involving kangaroos, and make recommendations for their appropriate development.

1.5 Outcomes

Ultimate outcomes sought from the research if its recommendations are implemented are:

1. Improved sustainability of existing kangaroo-related tourism enterprises, including (for aspects for which there is room for improvement):
 - Higher quality (in terms of satisfaction and education) kangaroo-related visitor experiences.
 - Improved managerial policies and practices.
 - Improved interpretation.
 - Improved management of kangaroos and kangaroo-tourist encounters.
 - Improved management of the natural environment.
2. Encouragement of current best practice policies and practices
3. Direction for sustainable development of new high quality kangaroo-related tourism experiences.

1.6 Approach

Chapter two of this report gives a descriptive overview of enterprises currently involved in kangaroo-related tourism in Australia, and the types of activities they provide. The focus is on activities involving free-ranging kangaroos, but the full scope of tourism involving kangaroos is explored to provide context.

Chapter three evaluates kangaroo-related tourism according to the components identified in section 1.2 Ideally, a comprehensive survey of enterprises providing kangaroo-related tourism would have been conducted, but this was not possible within budget and time constraints. Thus the approach used was to identify case studies

exemplifying best practice kangaroo-related tourism, and use these to make recommendations about practices that other operators could adopt. However, as expected, no one enterprise was found to follow best practice with respect to all components. Further, because of the diversity of organisations there can be no one model of best practice kangaroo-related tourism. Thus instead elements of best practice in existing enterprises, combined with other recognised best practice principles, and where these are not available from our own professional judgements, were combined to provide composite guidelines for best practice kangaroo-related tourism.

The first component dealt with in chapter three is business management. This section identifies business management issues that apply to free-ranging kangaroo-related tourism enterprises, and investigates the extent to which best practice principles are being applied in some of the more successful kangaroo-related tourism enterprises.

The section dealing with the visitor component focuses on understanding who participates in free-ranging kangaroo-related tourism, particularly in terms of their motives or expectations, their actual experiences and their satisfaction with a selection of currently available kangaroo related tourism experiences.

The interpretation section provides a preliminary evaluation of interpretation provided by some of the "better" free-ranging kangaroo-related tourism operators.

In the section dealing with kangaroos, we examine negative and positive effects of free-ranging kangaroo-related tourism on kangaroos, what operators are doing to manage this, and some of the opportunities and constraints for kangaroo-related tourism based on our assessment of practices adopted by operators, and our own research knowledge of kangaroos.

The section on environmental management briefly examines to what extent free-ranging kangaroo-related tourism operators are adopting best practice environmental management.

The final conclusions and recommendations section brings all these findings together to present guidelines for best practice in free-ranging kangaroo-related tourism, and to recommend steps to help facilitate more sustainable kangaroo-related tourism.

2. DESCRIPTION OF KANGAROO TOURISM ENTERPRISES AND ACTIVITIES

2.1 Introduction

Kangaroo-related tourism falls within the scope of nature-based tourism, and overlaps with ecotourism and special interest tourism. Useful overviews of nature-based tourism in Australia have been provided by Blamey (1995), Blamey and Hatch (1998), and McKercher (1998). Narrowing down further, kangaroo-related tourism falls within the scope of wildlife tourism, which is any tourism involving non-domesticated animals. The nature, scope and characteristics of wildlife tourism in Australia is reviewed by Higginbottom *et al.* (2001).

2.2 Methods

Information on existing kangaroo-related tourism enterprises was obtained from four sources during late 1999:

- Promotional material (mainly brochures and regional guides) available through offices of Regional Tourism Associations (RTAs) and Local Tourism Associations (LTAs). As part of a larger study, all Australian RTAs and selected LTAs were contacted and asked to send all material relating to tourism enterprises that featured wildlife. A response rate of approximately 80 per cent was achieved, with no major differences in response rates between States. We expect though cannot be sure that most of these staff would have sent the majority of material relating to wildlife. Since LTAs occurred within RTA areas, the coverage of those organisations which produce promotional brochures would have been higher than indicated by the above response rate, so we expect for most types of kangaroo-related tourism, the coverage would be fairly comprehensive. However it can be expected that some material dealing with large bus tours in which wildlife were only a small component would have been excluded.
- Guides to Australian host farms produced by each State's host farm association.

- Word-of-mouth information provided by key informants, including staff of State tourism and conservation agencies, and kangaroo researchers (see list of informants in Appendix I).
- Specialist wildlife magazines (Nature Australia, Wildlife Australia, Geo, Australian Geographic and Wingspan).

Websites of the various State tourism agencies and the Australian Tourism Commission were not used for this study, as they rarely provided detailed information about individual enterprises, and varied in coverage very much from State to State. By contrast it was assumed that the sources used would not introduce any biases in terms of the types of information sought, except where indicated otherwise in this report. However, because of the sources of information used there is a likely bias towards commercial and private enterprises.

Information on the following variables (where available) was recorded into a Microsoft Access (relational) database:

For each enterprise:

- Business or organisation name
- Contact details
- State (derived from postcode)
- Type of ownership
- Existence of any contribution to conservation
- Type of animals (species-groups) used in visual images in promotional material (including kangaroo/potoroo family as one option). Each species-group that occurred once or more for a particular enterprise was entered once for that enterprise.
- Species of kangaroo used in visual images if applicable. Each species that occurred once or more for a particular enterprise was entered once for that enterprise. Given our expertise on

kangaroos, we were able to identify any individual species where the image was sufficiently clear.

- Source of information e.g. brochure from RTA, specialist magazine (multiple entry)

For each activity:

- Name of enterprise running the activity
- Type of activity e.g. zoo, farm, specialised wildlife tour
- Primary objective
- Type of interaction with wildlife e.g. handling, viewing only (multiple entry)
- Involvement of free-range vs captive wildlife
- Involvement of native vs exotic species
- Broad type of focal wildlife e.g. terrestrial mammals, no defined focus
- Animals visitors can expect to see (including kangaroo/potoroo family as one option) (multiple entry)
- Species of kangaroo visitors can expect to see, if applicable (multiple entry)
- Degree of focus on wildlife
- Number of target species
- Dispersion of wildlife e.g. dispersed widely through a natural area, concentrated as a result of feeding by humans
- Time of day
- Habitat type (multiple entry)

- Land tenure e.g. protected area, private land
- Form of transport (multiple entry)
- Basic adult price
- Basic child price
- Description of experience

As far as possible, given the above sources of information, all variables were recorded for each enterprise and activity. However data was not always available for all of these; thus sample sizes vary between some variables. Resources provided for this project were not sufficient to allow a direct survey of all operators to be undertaken.

Breakdowns of kangaroo-related tourism enterprises/activities and/or free-ranging kangaroo-related tourism enterprises/activities were obtained for each of the above variables. These were compared where applicable with similar breakdowns for terrestrial non-consumptive (TNC) wildlife tourism activities in general, or free-ranging non-terrestrial consumptive wildlife tourism enterprises excluding specialised birdwatching (FRTNC) to determine whether kangaroo-related tourism was distinctive in any way from this subsector of wildlife tourism as a whole. Birdwatching was excluded because this was expected to have its own distinctive features, and because it was difficult to obtain a representative set of birdwatching brochures, as these operators do not often advertise through RTAs. Statistical comparisons were not conducted because the samples for most variables closely approximate a complete census.

The following counts and breakdowns were conducted, and used to calculate proportions and compile tables and pie charts as appropriate:

- Number of kangaroo-related tourism enterprises/activities and free-ranging kangaroo-related tourism enterprises/activities, defined as those in which kangaroos were an expected part of the experience, as indicated by promotional material or word-of-mouth.

- Number of TNC and FRTNC enterprises using visual images of kangaroos in their promotional brochures
- For all kangaroo-related tourism activities, and for free ranging kangaroo-related tourism activities, breakdowns by type of kangaroo featuring in the experience.
- Breakdown of species of kangaroo used in visual images for kangaroo-related tourism enterprises, and free-ranging kangaroo-related tourism enterprises.
- For all kangaroo-related tourism activities, breakdowns by involvement of free-range vs captive wildlife, type of activity, and type of kangaroo.
- For free-ranging kangaroo-related tourism enterprises, breakdowns by State, ownership, and contribution to conservation.
- For free-ranging kangaroo-related tourism activities, breakdowns by all other variables and all variables not listed in 1-4.
- Descriptive statistics on prices of free ranging kangaroo-related tourism activities.

Of all the wildlife tourism enterprises sampled, only 13 per cent include more than one activity. Thus the fact that most of the following breakdowns are based on pooled activities (where some enterprises are represented by more than one activity) is not likely to significantly distort the results in favour of those enterprises.

The number of operators used to provide data differ between the variables in question, because of varying amounts of information that were available on each operator.

2.3 Results

2.3.1 Incidence of kangaroos in wildlife tourism and its promotion

Total numbers of Kangaroo tourism operations and activities

There are at least 192 kangaroo-related tourism operations in Australia (including those involving kangaroos in captivity). An estimated 80 per cent of these involve mainly free-ranging (rather than captive) wildlife (Table 1). Of TNC operations, 36 per cent involve kangaroos; while 40 per cent of FRTNC operations involve kangaroos.

Table 1: Numbers of kangaroo tourism operations/activities and free-ranging kangaroo tourism operations/activities in relation to all terrestrial wildlife tourism activities

WILDLIFE CATEGORY	OPERATIONS		ACTIVITIES	
	ALL	KANGAROO	ALL	KANGAROO
Terrestrial non-consumptive (includes captive)	531	192	685	225
Free-ranging terrestrial non-consumptive (excluding specialised birdwatching)	389	154	494	173

Types of kangaroos involved in the tourism experience

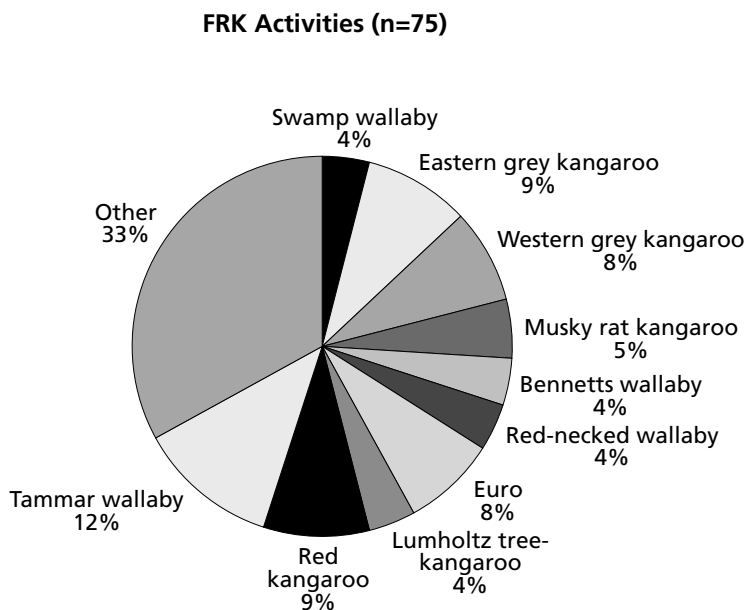
In activities where a broad group of kangaroos, rather than individual species, are mentioned as part of the tourism experience in promotional material, "kangaroos" were by far the most frequently mentioned (62%), with "wallabies" (27%) being the only other group in more than 4 per cent of brochures (total n=247).

In free-ranging kangaroo-related tourism activities for which information is available on the individual species present (only 75 cases), tammar wallabies are mentioned in the greatest number of

brochures, followed by eastern grey kangaroos, red kangaroos, euros and western grey kangaroos (Fig. 1).

Figure 1: Kangaroo species mentioned in text of promotional brochures of free-ranging kangaroo tourism activities

(There were 19 other species each mentioned in no more than 2 brochures).



Given the small number of brochures that provided information on individual species, and a likely bias against giving specific names for the large kangaroo species, these proportions cannot be assumed to correspond to the relative occurrence of different species in the tourism activities.

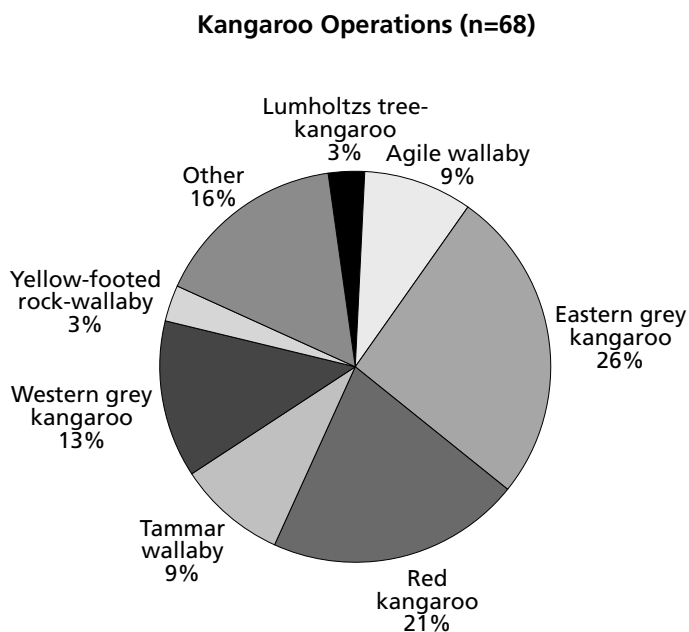
Types of kangaroos in visual images in promotional materials

Kangaroos comprise 33 per cent of visual images of wildlife used in promotional brochures of terrestrial non-consumptive wildlife tourism operations (n=310), the same proportion as for such operations involving free-ranging wildlife (but excluding specialised

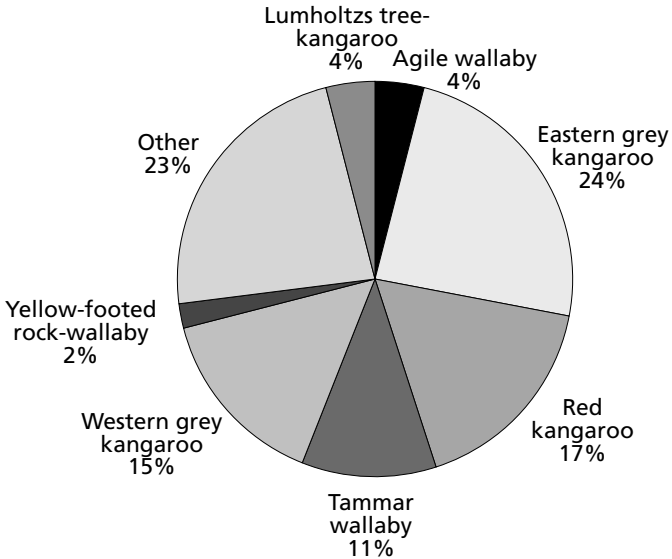
birdwatching) (n=224). These proportions probably do not closely reflect the relative occurrence of different species in the tourism experiences; in fact in some cases operators used photographs of species other than those that occurred in their area. However they may give a more accurate indication than provided by the textual records above.

Out of brochures featuring visual images of kangaroos in which individual species could be identified, the most common for both kangaroo operations in general, and for those that involved free-ranging animals, are eastern grey kangaroos, followed by red kangaroos and western grey kangaroos (Fig. 2).

Figure 2: Kangaroo species featuring in visual images of promotional brochures of kangaroo tourism operations in general, and free-ranging kangaroo tourism operations. Species in the "other" category each occurred in no more than 2 per cent of cases.



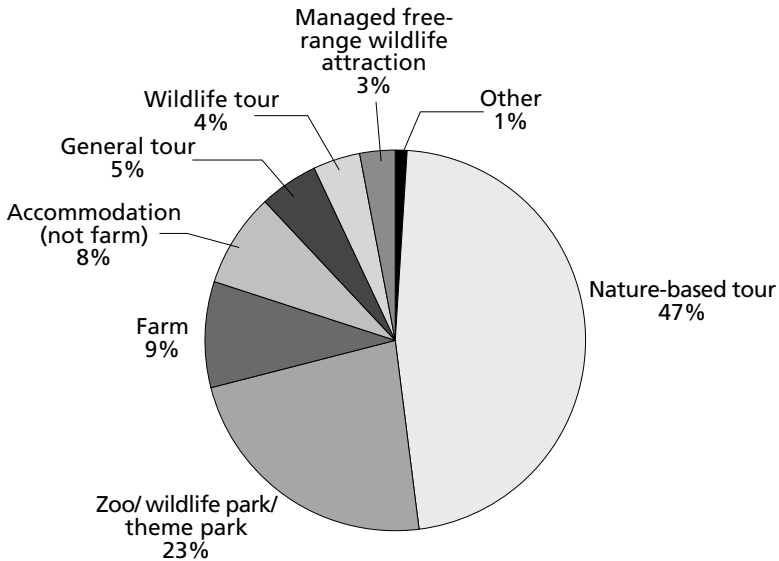
FRK Operations (n=47)



2.3.2 Types of Activity

About half of all tourism activities featuring kangaroos are tours in which the wildlife (including kangaroos) comprised only one component of a broader nature-based experience (Fig. 3). The remainder comprise predominantly (in order): zoos and wildlife parks, farm stays featuring wild kangaroos, other accommodation featuring wild kangaroos, general sightseeing tours with a kangaroo component, wildlife tours that include kangaroos and managed attractions in natural areas that include kangaroos.

Figure 3: Types of kangaroo tourism activities.



Contributions to Conservation

Operations that state they contribute to conservation (through funding, research or conservation work) comprise only 7 per cent of all kangaroo-related tourism operations (n=192) and 6 per cent of those that are free ranging (n=154). This is slightly more than for terrestrial non-consumptive wildlife tourism operations in general (n=531) and in the free-ranging form (4% each) (n=389).

Primary objective of activity

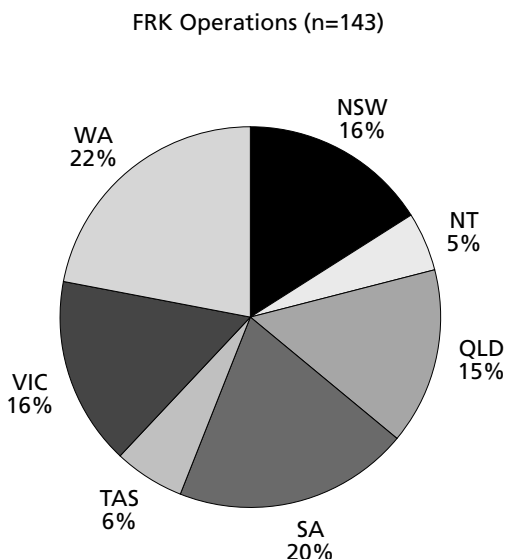
While for the majority of activities the prime objective is tourism, 8 per cent of operations involving free-ranging kangaroos were set up primarily for research, conservation or educational purposes (total n=171); this is likely to be an underestimate given that RTAs cater mainly for commercial operations. This is a larger proportion than for terrestrial free-ranging wildlife tourism in general (excluding

specialised birdwatching), for which the figure is 4 per cent (total n=490).

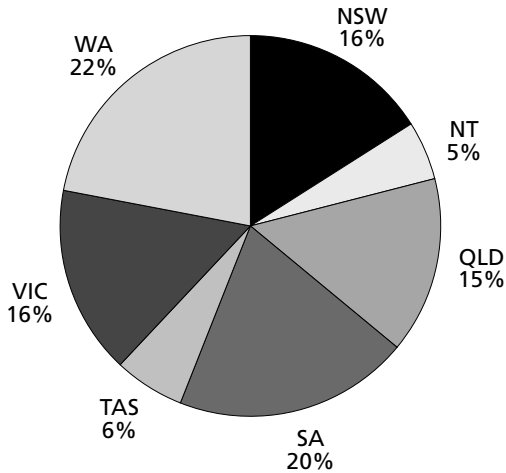
State

Tourism operations that include free-ranging kangaroos are most abundant in Western Australia, and least so in Tasmania and Northern Territory, reflecting the same trend as for free-ranging terrestrial wildlife tourism operations in general (Fig. 4). However South Australia features more strongly in the kangaroo operations than in those involving terrestrial wildlife in general.

Figure 4: Distribution of free-ranging kangaroo tourism operations across Australia, contrasted with free-ranging terrestrial non-consumptive tourism operations (excluding specialised bird watching) in general.



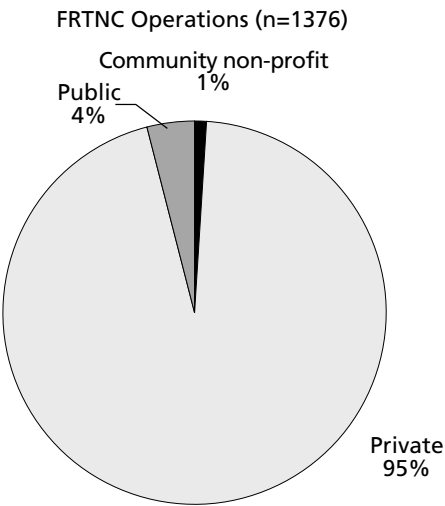
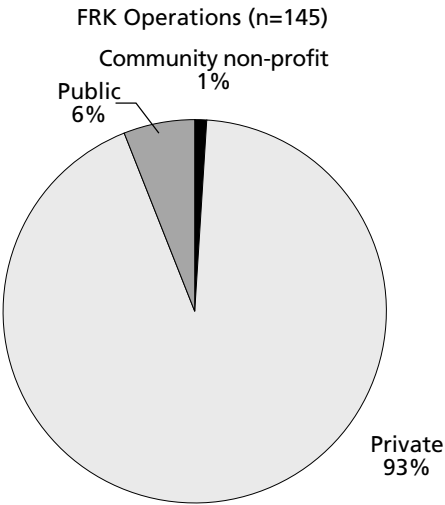
FRK Operations (n=143)



Ownership

By far the majority of free-ranging kangaroo tourism operations are under private ownership, as is the case for terrestrial free-ranging operations as a whole (Fig. 5). However it is likely that operations run by the public and community sectors are under-represented in our sources to a small extent. Also, since some of our sources implied the nature of ownership but did not make this explicit, these figures are only estimates.

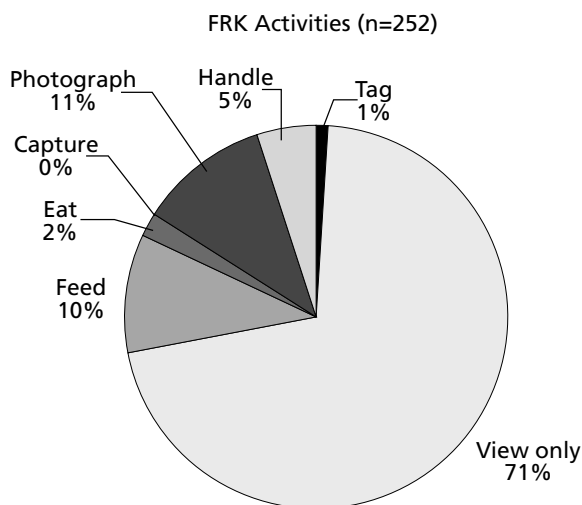
Figure 5: Ownership of free-ranging kangaroo tourism operations, contrasted with free-ranging terrestrial non-consumptive tourism operations (excluding specialised birdwatching) in general.

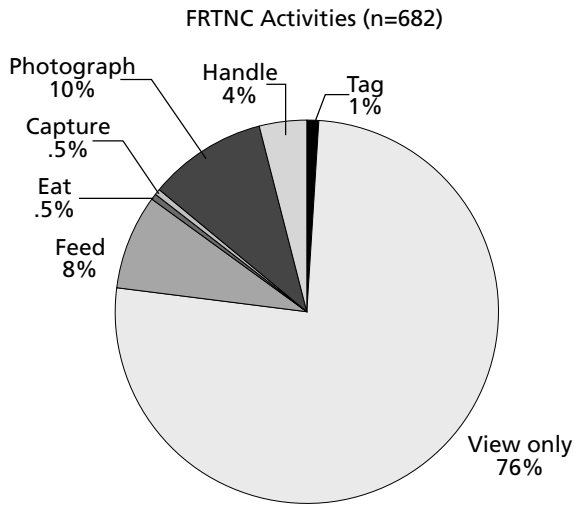


Type of Interaction with Wildlife

As for tourism involving terrestrial free-ranging wildlife in general, the vast majority of such activities that include kangaroos promote themselves as involving only viewing of wildlife (Fig. 6). Opportunities to photograph and to feed wildlife are also relatively common, and handling of wildlife still occasionally occurs even in the free-ranging setting (though this interaction applies to wildlife in general, not necessarily to the kangaroos).

Figure 6: Types of interactions involved in free-ranging kangaroo-related tourism activities, contrasted with free-ranging terrestrial non-consumptive tourism activities (excluding specialised bird watching) in general.



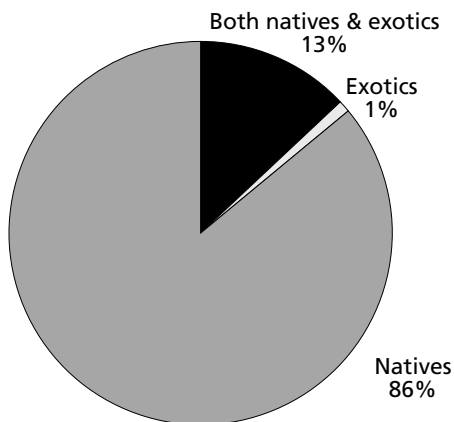


Occurrence of native vs exotic species

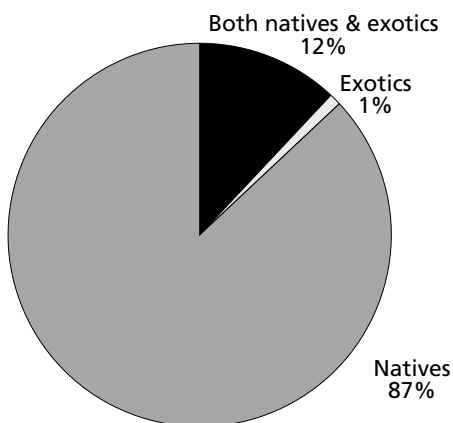
As for tourism involving terrestrial free-ranging wildlife in general, activities that include kangaroos usually involve only native wildlife species (Fig. 7).

Figure 7: Inclusion of native and exotic species in free ranging kangaroo-related tourism activities, contrasted with free-ranging terrestrial non-consumptive tourism activities (excluding specialised bird watching) in general.

FRK Activities (n=171)



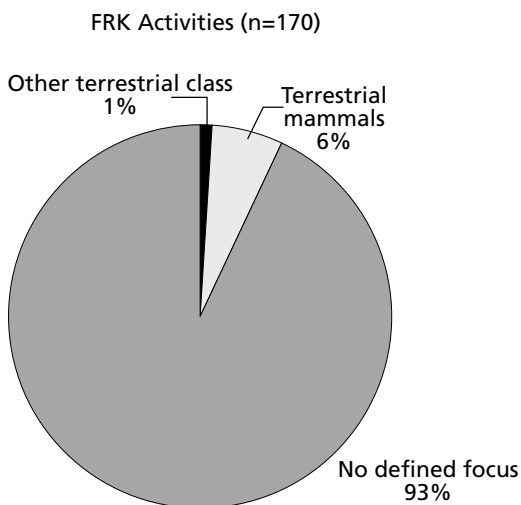
FRTNC Activities (n=486)



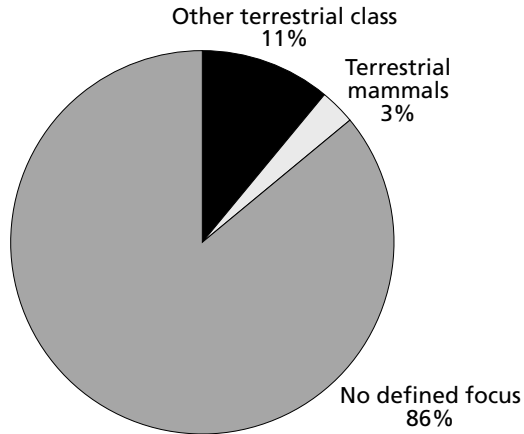
Type of Focal Wildlife

As for terrestrial free-ranging wildlife tourism in general, the vast majority of activities involving free-ranging kangaroos do not focus on any particular class of animal (mammal, reptile, bird, amphibian etc) (Fig. 8). However free-ranging kangaroo-related tourism activities focus on terrestrial mammals slightly more often than do free-ranging wildlife activities in general, but are less likely to focus on a single class.

Figure 8: Type of focal wildlife involved in free-ranging kangaroo-related tourism activities, contrasted with free-ranging terrestrial non-consumptive tourism activities (excluding specialised bird watching) in general.



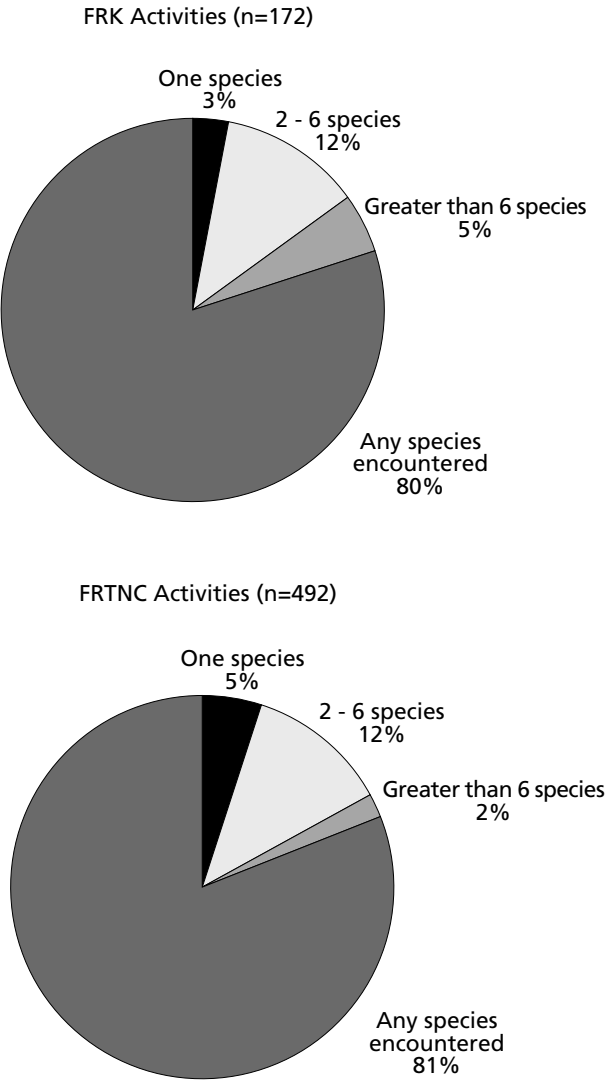
FRTNC Activities (n=467)



Number of Target Species

As for terrestrial free-ranging wildlife tourism in general, the vast majority of activities involving free-ranging kangaroos target any species that happen to be encountered, rather than focusing on six or fewer specific species (Fig. 9).

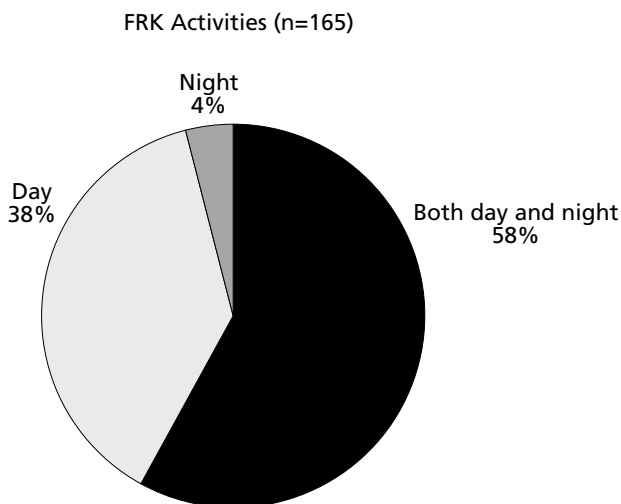
Figure 9: Number of target species involved in free-ranging kangaroo-related tourism activities, contrasted with free-ranging terrestrial non-consumptive tourism activities (excluding specialised bird watching) in general.



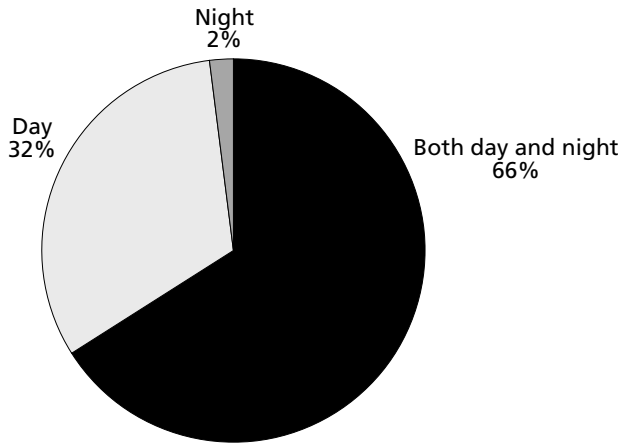
Time of Day

The majority of activities that include kangaroos involve starting the activity during the day and continuing into the night (Fig. 10). Daytime only activities were slightly more common than for free ranging terrestrial wildlife activities in general. Activities that occur at night only are rare.

Figure 10: Time of day of activities for free-ranging kangaroo tourism, contrasted with free-ranging terrestrial non-consumptive tourism activities (excluding specialised bird watching) in general.



FRTNC Activities (n=484)



A wide range of habitat types are mentioned in promotional materials (Table 2). Habitats that are most frequently reported (more than 5 times) for free-ranging kangaroo-related tourism activities are listed here in descending order of frequency, with the corresponding number of documents in which they are reported for all terrestrial free-ranging non-consumptive activities. There seems to be a relatively high incidence of reports of coastal, aquatic and moist habitats. However note that these are not necessarily specific to kangaroo components of the activity.

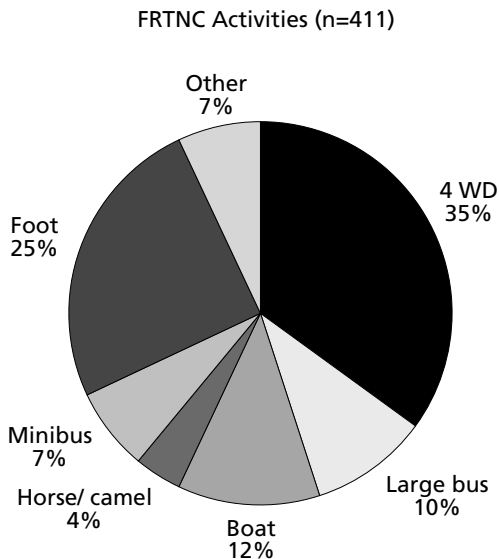
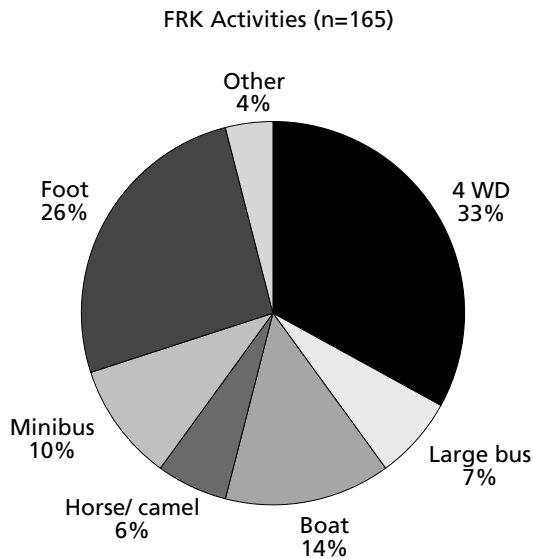
Table 2: Habitats mentioned in promotional brochures

HABITAT	FREE-RANGING KANGAROO TOURISM ACTIVITIES	FREE-RANGING TERRESTRIAL NON-CONSUMPTIVE WILDLIFE ACTIVITIES (EXCLUDING SPECIALISED BIRDWATCHING)
Bushland	53	104
River	39	72
Beach	36	100
Forest	28	71
Rainforest	27	64
Coastal	25	62
Gorge	22	68
Farmland	20	59
Creek	19	40
Ranges	16	31
Lake	14	43
Mountain	14	32
Desert	14	30
Cliff-top	13	23
Sand dunes	11	23
Wetlands	8	17
Valley	8	20
Woodland	5	10
Other	40	189
Total	412	1058

Form of Transport

As for tourism involving terrestrial free-ranging wildlife in general, the most common forms of transport for such activities that include kangaroos are in the operator's four-wheel drive, followed by no transport (ie walking on foot), followed by use of a boat (Fig. 11). However the proportion of activities involving large buses is probably under-estimated in this sample (see Methods).

Figure 11: Forms of transport used in free-ranging kangaroo tourism activities, contrasted with free-ranging terrestrial non-consumptive tourism activities (excluding specialised bird watching) in general.



Degree of Focus on Wildlife

As expected given the types of activities involved, only 16 per cent of free-ranging kangaroo activities are focused on wildlife (total n=173). However this is greater than the 9 per cent of wildlife-focused terrestrial free-ranging non-consumptive tourism activities (total n=494). The importance of this wildlife component spans a continuum from very minimal to the most significant component. Only one operator in our sample focussed mostly on kangaroos, as opposed to a range of wildlife.

Dispersion of Wildlife

The vast majority (92%) of activities that include kangaroos involve searching for wildlife (not just kangaroos) dispersed widely through natural areas, rather than concentrated in one small area for feeding or breeding (n=152). Of those in which wildlife are concentrated into a small area, half of these are caused by feeding by humans. These figures are similar to those for free-ranging terrestrial wildlife activities in general, in which 94 per cent of activities involved finding animals that are dispersed through an area (n=447).

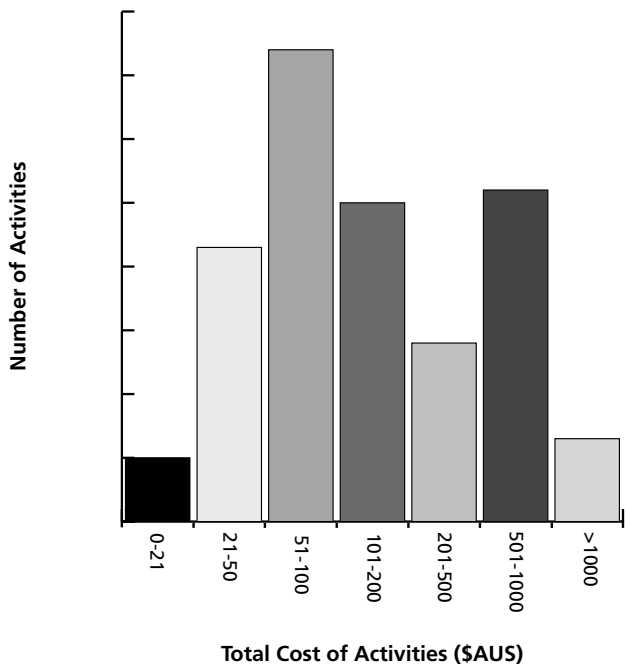
Land Tenure

From 45 per cent to 61 per cent of free-ranging kangaroo-related tourism activities include use of protected areas, particularly national parks (the minimum % is based on explicit mentions of protected areas within the promotional brochures, while the maximum % is based on our judgement that the activity probably occurred in a protected area). From 5 per cent to 26 per cent include use of private land. The remainder consist of other types of government-owned land, with no more than 2 per cent of activities including use of State Forests, at least as indicated by these brochures. These figures were comparable to those for free-ranging wildlife tourism activities in general, with 40 per cent to 56 per cent in protected areas, 4 per cent to 35 per cent on private land, and (at least as indicated directly or indirectly by brochures) no more than 2 per cent in State Forests.

Prices

In order to obtain as representative a sample as possible, only one activity was randomly selected from operations that featured more than one activity. For free-ranging kangaroo-related tourism, adult prices were available for 86 operations, and prices for children were specified for 60 operations. Unfortunately typical durations were not available for many of the single-day activities, so it is not possible to standardise prices per unit time. Adult prices ranged from \$10 to \$2875, with a median of \$94.50. Prices for children ranged from \$2 to \$1400, with a median of \$55. Among adult prices, 23.6 per cent were less than \$50, a further 32.1 per cent from \$50 to \$99, and only 8.5 per cent were above \$500. The distribution of prices is further illustrated in Fig. 12.

Figure 12: Distribution of prices for adults for free-ranging kangaroo tourism activities.



Prices were very similar to those for terrestrial free-ranging wildlife tourism activities in general (n=249 adult prices, n=111 child prices): the adult price range was the same, and the child price range was the same, the latter with a median of \$56. However at \$85 the median adult price for terrestrial free-ranging wildlife tourism activities was slightly lower than for free-ranging kangaroo-related tourism activities.

Details of Kangaroo Tourism Activities

Appendix II contains a list of all operations and associated activities involving free-ranging kangaroo-tourism, and a brief description of each activity.

2.4 Summary of Findings

- There are at least 154 Australian businesses or organisations that provide tourism experiences including encounters with free-ranging kangaroos or other macropodoids. This represents 40 per cent of operations offering encounters with free-ranging wildlife.
- About half of all kangaroo-related tourism activities involve tours that feature many aspects of the natural environment; the proportion is much higher when considering only free-ranging experiences. The remainder comprise predominantly (in descending order): zoos and wildlife parks, accommodation (other than farms) featuring wild kangaroos, wildlife tours and farm stays.
- Specialised free-ranging wildlife experiences comprise 12 per cent of kangaroo-related tourism activities; but even these are generally not restricted to one class of animals, and activities that focus only on kangaroos are very rare or non-existent.
- Usually free-ranging kangaroo-related tourism activities involve unplanned encounters with whatever animals are present, rather than being restricted to a few species. The animals are generally dispersed through a wide area.

- Most promotional material does not identify individual kangaroo species, but refers to "kangaroos" or "wallabies".
- Only 6 per cent of free ranging kangaroo-related tourism activities are promoted as involving any contribution to conservation.
- Tourism operations that include free-ranging kangaroos are most abundant in Western Australia and least so in Tasmania and Northern Territory.
- The majority of free-ranging kangaroo-related tourism activities promote themselves as offering only viewing of wildlife, though those which advertise opportunities to photograph and feed wildlife are also relatively common.
- About half of free-ranging kangaroo-related tourism activities occur in protected areas, especially national parks.
- Nearly all free-ranging kangaroo-related tourism activities include a daytime component, though most commonly they continue into the nighttime.
- Free-ranging kangaroo-related tourism activities occur in a wide range of habitat types, but there seems to be a relatively low representation of arid and semi-arid habitats than would be expected if the locations were representative of the range of kangaroos.
- Probably associated with the preponderance of free-ranging kangaroo encounters within nature-based tours, the most common form of transport for finding kangaroos is a four-wheel drive vehicle, though walking is also fairly common.
- Prices for free ranging kangaroo-related tourism activities are highly variable, with a median adult price of \$92.
- Free-ranging kangaroo-related tourism activities differ from terrestrial non-consumptive wildlife tourism in general in the following main ways:

- Slightly more likely to be set up for research, conservation or education as opposed to for commercial reasons
- Slightly more likely to be in South Australia
- Slightly more likely to focus on terrestrial mammals
- More likely to be focused on wildlife
- Slightly more likely to occur in the daytime only.

3. EVALUATION OF BEST PRACTICE KANGAROO TOURISM

3.1 General Methods

1. An initial sample of enterprises including free-ranging kangaroos that may provide examples of best practice in terms of particular aspects of their enterprise was selected from the following sources²:
 - Enterprises featuring kangaroos in the database referred to in chapter two that were accredited by the National Ecotourism Accreditation Program (NEAPWG 2000), or that had won a tourism award.
 - Our own specialist knowledge of kangaroo-related tourism enterprises.
 - An email request to 12 key informants carefully selected from kangaroo researchers and managers, and staff of government tourism agencies (see Appendix I). Key informants were asked to select enterprises with a significant kangaroo component that they believed were "doing a good job" with respect to one or more of: quality of kangaroo experience, business management, and interpretation.
- 2 This initial list was further refined to 20 enterprises on the basis of preliminary phone discussions with operators (henceforth called "the large sample"). Sites were selected if (i) kangaroos constituted a significant part of their enterprise (giving some indication that their business was financially viable), (ii) the operators stated that they generally provided some form of interpretation on kangaroos (iii) they had been in business for at least 3 years, and (iv) they were either a member of Ecotourism Association of Australia, or key informants indicated that they adopted environmentally friendly practices, or we determined from discussion that they seemed environmentally aware.

² There may well be other high quality enterprises which because of time constraints and incomplete knowledge were not included in our sample

3. Operators or managers from this "large sample" were asked to send promotional and interpretative material, and semi-structured interviews were conducted by phone regarding general features of the enterprise, issues relating to kangaroos, and business practices. These operators were also asked to administer short surveys to their visitors.
4. On the basis of these data, a "small sample" of 10 enterprises was selected for site visits and evaluations. These were selected on the basis that according to operators kangaroos would always be seen by visitors and that the interpretation component seemed to be substantial, balanced with the goal of including a range of different types of sites and species.
5. A pilot visit to two sites was carried out, which most of the research team participated in and allowed them to refine their techniques for the remainder of the site visits, conducted by a solitary researcher.
6. Site visits occurred during November 1999. Due to time and budget limitations that meant that we had to combine a number of consecutive site visits on one trip, it was sometimes not possible to participate in activities with other visits, and in four cases (all in protected areas) the researcher was the only person participating in a tour. In another, it was not possible for the researcher to be in the vehicle with the other visitors, but only when the group emerged intermittently to walk to a site. This meant there were major limitations on conclusions that could be reached about visitor behaviour.

The study comprised several different components:

- Business management.
- Visitor characteristics and reactions.
- Interpretation, especially with respect to kangaroos.
- Impacts and management relating to kangaroos.

- Environmental management.

Specific methods applying to each of these components are each presented later in the relevant section.

Description of the large sample

The 20 enterprises in the large sample comprised 14 private commercial businesses, most (12) of which were tours, most of which (10) were conducted by 4WD or small bus (10). They ranged from broad nature-based tours to those that specialised in wildlife. The remainder of the private businesses consisted of 2 resorts or lodges. We were not able to find a host farm that included a significant kangaroo component and interpretation. The other 6 enterprises occurred at government run national parks or nature reserves (4), a privately run wildlife sanctuary (1), and a national park with facilities run by a non-government conservation organisation (Birds Australia). Thus they covered most of the scope of types of free ranging kangaroo-related tourism enterprises (See Chapter two). They included all States except Tasmania and Northern Territory. These enterprises are labelled with an asterisk in Appendix II.

Description of the small sample (site visits)

The 10 enterprises in the small sample included 5 private commercial tours, most of which were conducted by small bus or 4WD (4), and one on foot. The remainder were government run enterprises at protected areas (4) or at a private wildlife sanctuary (1). No resorts were included because phone interviews revealed that kangaroos were a very minor component of what they offered, or that no interpretation was involved. The kangaroos were completely free ranging, except in 2 cases where they occurred in large areas surrounded by predator-proof fencing.

The sites were in South Australia (4), Western Australia (3), Queensland (2) and ACT (1). Half these enterprises involved experiences that occurred only during the day, while most of the remainder spanned day and night, and 1 occurred at night only.

Tours offered by these enterprises ranged in duration from two hours to several days. The privately run tours were priced at between \$35 and \$250/day, while some of the government run tours were free or at very low cost.

3.2 The Business Management Component

3.2.1 Methods

Telephone interviews were conducted with organisations in the large sample. These followed a structured interview plan comprising a sequence of questions and items for open-ended discussion. The interviews focused on a selection of activities and issues in management systems, related to wildlife tourism associated with kangaroos. The aim was to collect information and opinions regarding managerial policies and practices related to operational as well as strategic business issues.

Given the complexities of management, aligned with a need to complete interviews in under half an hour if possible (due to resources available for the study), not all managerial activities and issues could be explored in the survey. For example, a widely-followed management theory described by Quinn (1990) involves 24 sets of activities within a framework of four competing values; to explore all these in a case study on a single organisation would require far more time than many practitioners would be able to give to researchers. An illustration of how Quinn's theories are found in tourism-related organisations (Leiper 1995, pp 215-9) was used to simplify the detail for application in this research.

The expression "organisation" is used here for all purposeful groups such as small-scale business firms, larger companies, agencies of government and so on.

3.2.2 Results and discussion

Types of organisations

As identified in Chapter two, free-ranging kangaroo-related tourism takes a range of different forms that can be segregated as follows with respect to the different types of organisations involved:

- Nature-based or wildlife tourism operators, who take tourists on day trips or overnight tours.
- Organised kangaroo-related tourism in protected areas, run by protected area authorities.
- Tourist lodges or other resort accommodation where kangaroos are in the immediate environs and are pointed out by signs, by brochures or by staff;
- Farm tourism, on farms that accommodate tourists where free-ranging kangaroos can be seen.
- More than one of the above classifications often occur together, for example where a tour operator's itinerary includes national parks;

The various types tend to have different aims, priorities and practices. Thus while they can all be described as being involved with kangaroo-related tourism, the different types inevitably follow different patterns of involvement with regard to the policies and practices of business management.

Moreover, within the tour operator category there are variations that affect the way businesses are managed. Some are very small-scale organisations, with perhaps only one person working part-time as proprietor/ driver/ guide, others are slightly larger with perhaps one or two full-time personnel, while one case surveyed has 16 employees and a fleet of five vehicles. Among the smaller examples, in some cases the proprietors admitted that their motivation for being in business was not to make money, but to enjoy the lifestyle and participate in environmentally worthy pursuits. Some of these

proprietors said they were earning "less than unskilled wages". In contrast, some other organisations are being managed with an emphasis on commercial goals besides environmental and personal values, and might be quite profitable as a consequence.

A useful theoretical model for understanding these variations in organisational types, along with the inevitable (and desirable) variations in their approaches to business management, is Mintzberg's (1996) model of organisational configurations. National parks traditionally have reflected what Mintzberg terms the bureaucratic type of organisation. Recent moves to make parks administration more business-oriented have led to a slight shift from that model towards the entrepreneurial type, diversified type and professional type. Survey findings for this study indicate that the shifts have occurred but might not have led to great changes. As public institutions, administering a public resource, national parks are always likely to remain largely bureaucratic in nature; it is a model best suited to their core functions and responsibilities. Small-scale tour operators reflect the entrepreneurial type of organisation if the proprietor's priority is running the venture as a commercial enterprise. If however the priority is to enjoy a certain lifestyle, these ventures are closer to what Mintzberg terms "missionary types" of organisation.

If a commercial tour operator grows in scale and scope, it needs to lose certain entrepreneurial qualities (in terms of organisational structure - not in terms of innovative capacity) and evolve into what Mintzberg calls a machine organisation and possibly a diversified organisation. These changes require changes in managerial approach for the business to remain sustainable.

Features of business management of kangaroo tourism

The following are general features of kangaroo-related tourism organisations that emerged from the interviews.

1. No organisation specialises in the business of kangaroo tourism

While many organisations are directly involved with kangaroo-related tourism, no cases are known that could be realistically described as being "in the business of kangaroo-related tourism"

(see Chapter two). Thus the accurate way to describe the business of these tour operators is the way they typically describe it themselves: they are in the business of wildlife tourism or nature-based tourism or ecotourism. Thus there is no such thing as "the kangaroo tourism industry" in any realistic, functional sense. Rather, a range of enterprises can be identified with broader lines of business, within which is a common thread: serving tourist-consumers where kangaroos are one phenomenon to be experienced. Certain national parks, tour operators, resorts and farm tourism operators are in this collection.

2. Organisations have varying degrees of dependence on kangaroos

Survey respondents were asked to rate the importance of kangaroos for their business. The question posed was: "How important to your business is the opportunity for tourists to see kangaroos or related species such as wallabies? Please rate the importance on a scale of 0 to 10 where 0 means that these species are not at all important, where 5 means that their presence is desirable and 10 means that without them the business would not survive in its current form."

Several respondents were unable to give a specific rating, which is why the statistical results will not be reported here but, by discussing the issue, the respondents left insights to their opinions, which can be summarised.

Several tour operators said their business was highly dependent on kangaroos. Others reported lower degrees of dependence. One said that kangaroos were best described as "a bonus" for the tourists whose main interests were birds and wildlife generally and thus the kangaroos could be described as a bonus for the business. Pushed for a rating, this manager said "possibly 5 out of 10".

One operator in Queensland said kangaroos are "quite important for this business: visitors from overseas often want to see kangaroos and we can show them, even if we can't guarantee that they will see all the species in the locality". Several other respondents mentioned overseas visitors as wanting to see

kangaroos and used this as the reason for describing their businesses as "very dependent" on kangaroos.

A tour operator on Kangaroo Island put it this way: "It's the wildlife that we are dependent on it's vital for our business, we are totally dependent on it. Kangaroos are an important feature in the wildlife. International tourists expect to see them on Kangaroo Island."

A similar comment came from a national park officer in Western Australia who said that the park was highly dependent on kangaroos "for some tourists, especially some from overseas, but for other tourists they are not so important, so an overall rating is not possible".

A tour operator in the Blue Mountains rated kangaroos as "vital" for his business with a rating of 9 or 10 out of 10. However, judging by the description of the range of natural features presented on that operator's itinerary, this rating might exaggerate the importance of kangaroos.

While the findings above are important for insights to the true business lines of these organisations, and also to the level of dependence on kangaroos, the findings do not preclude meaningful references to "kangaroo tourism", so long as the implication of the expression is clearly understood.

3. Difficulty in achieving financial viability

Most (10) of the 14 private operators said that their tourism business was their major source of income, although a few hinted that it provided them with less than what they considered a reasonable income. All of the government enterprises were intended to be self supporting in a sense of covering operating costs, although they were unlikely to provide a return on investment within the foreseeable future. It also seemed that although this was the intention, none had yet achieved this objective. All had invested considerable capital in developing their tourism facilities of a scale not encountered in any of the private ventures, except to some extent Yookamurra Sanctuary.

Yookamurra requires an individual mention as along with other Earth Sanctuaries' properties it involves a unique approach to tourism and conservation. Earth Sanctuaries is a company recently floated on the stock exchange that promotes its shares on the basis of ethical investment and "environmental accounting". Financial values are attributed to individual animals according to certain criteria, such that endangered species are of considerable financial worth. As the Sanctuary develops its core business of reintroducing and protecting endangered species, the numbers of animals increase, and shareholders can see the value of their investment apparently increasing. The considerable funds raised from sale of these shares, combined with tourism revenue from Earth Sanctuaries' most financially successful tourism venture (Warrawong Sanctuary), have allowed purchase and protection of growing numbers of Earth Sanctuaries around the country. Thus although tourism at Yookamurra is not yet in itself enough to fund its own activities, it does contribute to the pursuit of the organisation's conservation objectives.

4. *Competent management*

In the cases examined, kangaroo-related tourism was generally quite well managed. All cases surveyed found managers, staff officers or proprietors confidently describing management policies and practices that reflect a reasonable and common sense approach.

A number of explanations might underlie that condition. Explanation of the condition was not specifically explored in the research, but emerged tangentially. Since the finding is a positive one for this project, the probable explanations are worth listing, as encouragement and to stimulate imitation.

One factor is that the surveyed organisations were typically owned and/or managed by individuals with strong personal commitment to environmental values such as sustainability, a condition that brings in a strong sense of responsibility. Another reason is that individuals seemed to derive personal pleasure from their employment, a condition that reinforces motivations to manage well. A third is that almost every respondent described having co-

operative, supportive employees, which makes organisations easier to manage.

Another reason is that most of these organisations seemed to be doing reasonably well as businesses (although some reportedly make no profit in the true sense) and acceptable performance of any sort gives confidence to managers, allowing them to infer that the performance is largely due to their own work and that of their team - which is a reasonable inference.

5. *Uneven standards*

Countering the positive observation above, the range of organisations we surveyed showed uneven standards of business management. A few organisations appear to be managed in a highly competent manner in all respects, while many seem to be weak in particular aspects of business management. The weaknesses are discussed later.

6. *Three broad themes in management*

Managing any organisation directly involved with kangaroo-related tourism can be divided into three themes or objects to be managed. In one sense it is an artificial division, since managers might see the three as being all part of the same entity, not as an inter-related system. However for the purpose of analysing management roles the artificial split might be useful. The three are:

- (a) Managing the company's business per se - its capital finance, its equipment, staffing, cash flow, accounting, marketing, relationships with industry and government, and so on;
- (b) Managing tourists - the company's customers on tour: managing their activities, behaviour, helping them have good experiences and so on;
- (c) Managing environmental impacts - having policies and practices to minimise damage, in order to sustain the environmental resources including the wildlife and their habitat.

Asked which of these three objects seems most difficult and complex to manage, respondents offered diverse opinions. The largest group, about two third of the sample, said that managing the business per se is the most complex and difficult. Among the remaining third, some said that all three areas were intrinsically linked and thus equally ranked, while some nominated managing tourists, one said environmental management and one felt that "the most complex" for her organisation is managing tourists while "the most difficult" is managing the business per se.

When the majority of respondents who said that managing the business per se is the most complex and difficult of the three areas were asked why they believed this to be so, common threads emerged, across most cases, as follows.

Business management is complex and difficult firstly because it has several components, as noted above, in (a); this diversity can be especially daunting and problematical in a small-scale organisation where the manager also works in operations, as happens for example where the proprietor/manager of a tour company is also a driver/guide. Such individuals can spend most of their working time in operational work, so a common problem is the limited time available for thinking about and acting on managerial matters.

A second reason why business management is complex and difficult in these cases is that often the manager is not a person with business management educational qualifications or a practical background of that sort. Several cases were found where the manager described their personal background of work and studies in science, which is useful for the environmental issues in wildlife tourism but is not specifically useful in business management.

A third and pervasive reason is that in small-scale organisations there is not much scope for division of labour to employ a range of specialist personnel to take responsibility for different kinds of tasks such as business management and its components.

Perhaps even more than is the case for many small business enterprises, running an effective kangaroo-related tourism

business requires a range of skills difficult to find in one person. Thus effective teamwork is important, and new industry entrants should not underestimate the difficulties involved.

7. Obstacles to business sustainability

When asked what they saw as the chief obstacle they faced with regard to the continued functioning of their organisation, 6 operators stated that they did not face any significant obstacles. Obstacles mentioned by other operators were: competition with other operators (especially the big companies) (3 operators), geographical remoteness (2), the need for more interpretive information in an operator-friendly format (2), the bureaucracy associated with obtaining permits (1), inadequate access to National Parks (1), and the difficulty of meeting bureaucratic expenses (e.g. insurance, permits) in the early years of establishment (1). Note that since all the organisations interviewed had survived for at least 3 years, the sample did not include the large number of small tourism organisations that fail early on. When questioned about any potential obstacles in relation to dealing with protected area authorities, 2 operators said that to the contrary they had very good relationships with them.

Operators questioned during site visits raised some further issues. Additional obstacles that were mentioned were the lack of adequate time for training in business management, and lack of adequate funding for management of protected areas. Two private operators mentioned friction with local protected area authorities as a problem, although others stressed that their relationships were highly cooperative. One operator commented about slander from one of his local competitors, and another criticised certain other operators for wanting wildlife to be hand fed for their own convenience, rather than go to the trouble of looking for the animals. Relationships with local communities were generally reported to be positive. Constructive interactions with mutual learning were reported with wildlife researchers by 6 of the operators, while the others had little or no contact with them. The factors which operators felt were most important for staff they employed varied greatly, and included: people skills, environmental ethics, ability to ensure safety requirements are met, expertise in

ecology and natural history, a passion for interpretation, common sense and initiative.

Weaknesses in kangaroo tourism business management

1. Business planning

A weakness common to many organisations surveyed is in their approaches to business planning. While several use formal plans for various aspects of business planning, the smaller scale tour operators typically do not, relying instead on informal or notional plans carried in the proprietor's head.

That approach has inherent defects and can cause problems that a formal plan, a documented plan, can avoid. This is not saying that plans must have massive quantities of written detail; it is merely indicating the advantages of writing down the key items in a plan. When this is done:

- the manager is reminded precisely of the plan's contents, which is a useful process over the time span covered by any business plan; the contents of a plan kept "in the manager's head" are prone to be ignored or forgotten, or changed without proper regard for the consequences;
- other employees can see exactly what the plan comprises: this is useful for encouraging teamwork in business management;
- various users of the plan (members of the management team) can see exactly how the items in the plan are linked together and connected to other aspects of the organisation and its environments;
- a documented plan is useful in commercial dealings with bankers and other external stakeholders.

There is a common perception that a formal, documented plan requires input from a professional planner, accountant or business consultant. The perception is mistaken, excepting in cases where plans must be highly complex.

2. Linking business planning into management systems

Planning of business activities should not exist as an isolated activity. Its proper role is to link plans to other components of management systems. This principle is hidden by the common phrase "management and planning" which implies that the two are discrete.

The main utility of a business plan occurs when, during the time interval covered by the plan, managers compare items from the plan with what actually happens. The process of comparing "plan versus actual" (in certain applications, "budget versus actual") is an important facet of a business manager's monitoring role. By monitoring, variations from the plan are observed and measured, a process which encourages the manager to make decisions about the possibility of taking corrective action, or adjusting the plan and its indicated outcomes.

The amount of time and effort required for that process depend on the degree of detail in the plan. Avoiding managing in this manner on the excuse that it involves "too much detail" is missing the point. Broadly expressed formal plans without much detail are better than no formal plans at all.

3. Market research and the need for record keeping

Most organisations surveyed collect opinions and other information from their tourist-consumers. This is a useful and economical way to collect data for market research. The weakness that often devalues this worthy effort, in several cases surveyed, is the way the manager processes the results.

Merely collecting the data (opinions etc.) and looking over the results as they come in (which might be on "feedback" questionnaires or, in many cases, in oral comments to the guide) is useful to a point but it is a weak link because it fails to exploit the potential value of the data. Psychological research has shown clearly that people tend to form misleading perceptions of data series observed in that way. That is the primary reason why better practice records the findings by summarising them on hand-

written tables or in a computer spread sheet. These permanent records provide managers with the basis for making more reliable and more precise interpretations of trends over time.

Permanent record keeping (on any facet of business performance) also enables successive managers to become effective soon after taking up a new appointment. Few persons remain in the same job for long and managers who feel responsible for helping their businesses become sustainable have a responsibility to provide their successors with useful records.

4. Personnel management and staff training

While staffing is not a serious problem, since most employees are keen and motivated by the opportunity to work in an intrinsically interesting field, several managers said staffing issues are problematical to some extent. This is because operational personnel require skills across several areas. They must be capable of dealing with the public, need high level communications skills, should have good knowledge of wildlife and ecology, must have capacity to work without close supervision, need abilities in business management, and all this in jobs that are not especially well paid. Maintaining high competence across the spectrum is difficult if not impossible for some individuals.

Offsetting this weakness is the fact that managers typically acknowledge it, and so are more likely to be taking steps to compensate for it in some way. Various aspects of teamwork, fostered by the manager in the role of team coach, are one remedy.

Very few organisations surveyed had in place any formal staff training programs. This is not an unusual condition for small-scale organisations in any field.

5. Relationships between tour operators and national parks

As mentioned above, several tour operators mentioned difficulties in relationships with national parks. One difficulty, in some regions, is a perceived lack of security for tour operators to have on-going access (in future years) to particular sites within parks, a factor

which limits the viability of tour operator businesses and hence affects their business sustainability. Another is the parks' policy regarding pricing and other methods of managing access. These problems need to be seen in the context that the primary aim of protected areas is conservation, and this necessarily requires some limitations on commercial use.

The relationships between tour operators and national parks agencies are obviously a complex topic which cannot be properly explored as one small theme in this multi-faceted project, but which might deserve closer attention in future research on a broader scale than kangaroo-related tourism. Business concerns of operators need to be seen in the context of the primary objective of protected areas being achievement of conservation goals.

6. Tour operators' relationships with booking agents

This is a problem in Cairns, and perhaps in some other locations. In Cairns, large numbers of booking agents are market intermediaries linking tourists with tour operators. The number is variously estimated to be "at least a hundred" and "about 300". Included are booking agents working from shops or booths, along with those in hotels, guesthouses and hostels. These booking agents make reservations for tourists to go on a wide range of tours, not merely tours to see wildlife in the bush, but many more of other kinds, providing sea trips to the Reef for sightseeing, diving or fishing.

Some years ago the hotels and other accommodation houses had a policy of making bookings for their guests with tour operators as a free service, without taking a commission. Later they began taking a commission of 5 per cent, then 10 per cent and now it can be 20 per cent or more, as large numbers of commercial marketers in the Cairns tourism industry realise the profitability of making these bookings in a large and expanding market. Over time, the tour operators' net revenue per sale has decreased as the booking agents have taken larger commissions. This has squeezed profitability.

This set of conditions is not in itself a weakness in business management by tour operators; the weakness is the sense of

powerlessness and unfairness felt by a number of managers facing the problem.

Best practice in kangaroo tourism business management

Some cases appear to be very well managed, but no single example should be held up as the model of best practice business management for kangaroo-related tourism. This is because there is much diversity in terms of organisation type, size and focal business activities, a condition that precludes holding out any single example as the ideal to imitate for best practice across the spectrum. The business activities of a national park cannot be managed along the same lines as a commercial tour operator based around wildlife and the latter requires a different approach from a tourist resort or farm where kangaroos are loose in the top paddock. What can be attempted is a set of points gleaned from several well-managed examples, a compilation from tour operators of varying sizes, from national parks, farm tourism operators and resorts, which in combination might be useful for all business managers active in kangaroo-related tourism.

Some of these points are the obverse of the weaknesses listed above: there is a body of evidence showing that one path to best practice is by avoiding mistakes and overcoming weaknesses. Other points are new insights gained from this research.

1. Business plans

- Best practice involves using formal business plans, which can help all business organisations. "Formal" indicates that they are documented, recorded in a tangible form for future reference during the phases (months, seasons, years) of a planning interval.
- Business plans need not be lengthy and highly detailed documents. In very small ventures they might comprise no more than a few pages. They are desirable for a number of business activities. In small organisations there should be no need to hire expensive specialists to assist with the preparation of these plans. By keeping the information relatively simple, by avoiding too much detail, and by trial and error over successive time periods, practical

managers can master the skills and become confident in the preparation and use of business plans.

- A corporate plan should cover the totality of the business, expressing capital movements, personnel changes, other assets, revenues, costs, profits or losses.
- An operations budget is a slightly more detailed plan for a briefer interval (month-by-month up to a year) showing budgeted revenues and costs of major items. A cash budget is a useful component of an operations budget.
- Organisations without marketing plans tend to be weakened by having to react to market trends as they occur, rather than gaining positions of strength by prepared work in markets. A marketing plan should, at the least, have sections on the main components of the marketing mix: products, pricing, distribution and promotion.
- One successful tour operator uses an Export Plan as part of the Marketing Plan; it sets out what the business proposes to do over the year to sustain and build revenue and profits from international tourism.

2. Integrated business management

- Best practice includes an integrated approach to business management. This means that the information in business plans is connected to information in monthly (and seasonal etc.) performance reports, so the manager can see the variances and think about whether or not they are important and, if so, make decisions as to what actions should be taken. Relatively few cases in kangaroo-related tourism are following this approach.
- Best practice in business management is also integrated in another way. It means involving the staff as a team in managerial issues. Several successful cases in kangaroo-related tourism are already following this approach to varying degrees.

3. *Market research*

- Best practice requires formal market research but, as with business planning, this does not need to be a highly detailed or high cost activity. For kangaroo-related tourism ventures, market research has three broad themes, as follows. They require separate methods.
- Facts and opinions collected from customers are an important and relatively simple theme in market research. While tourists are present, towards the end of their trip or visit, they can be asked what led them to choose the particular tour or site and what they feel about the experience. There is often no need to ask about a range of demographic issues, such as age and nationality, since these can be observed and noted without intrusive questions. All data should be recorded, for reasons explained earlier.
- Information collected from an organisation's customers gives only a very narrow and biased insight into its markets, so a broader view for research is essential in best practice. The broader view seeks information on the broader markets for kangaroo-related tourism. One broader market involves all the tourists using competitors' services in the same region. Market research in this regard investigates and tries to estimate approximately how many tourists are using all the competitors' services and why they choose one operator in preference to others. Findings from these investigations are often more obscure than superficial answers might suggest, so "re-search", repeating the investigation and analysis, is good practice. Direct questions to tourists are not feasible for that sort of research, but other methods can be used to gain insights. Market research can also investigate how many tourists are in the region that do not use any services of tour operators. This gives insights into the local tour operator industry's market penetration rate. Where it seems too low, best practice devises ways of converting competitors into a team of collaborators who develop co-operative marketing programs, to boost demand with the aim of mutual advantage. Another important aspect of market research into potential customers looks at tourists in other regions, on a Statewide, national or international scale. State tourism authorities and the Australian

Tourist Commission are responsible for assisting local tourism groups in that activity.

- Thirdly, there is a theme in market research that focuses on the supply side of markets. This looks at what industry is doing. For kangaroo-related tourism it means that a tour operator investigates the products and services provided by other tour operators, promotional methods, pricing and distribution methods. The principal aim is to have reasonably reliable information on hand to guide decisions as to whether a tour operator should copy competitors in order to remain competitive.
- Best practice in market research requires more than the collection of information. It includes attempts to understand what the information signifies and what implications it might have for the business management of the collecting organisation.

4. Team work

- Best practice in kangaroo-related tourism, as in many other fields of work these days, involves the manager fostering teamwork and the necessary team spirit that underlies it. To do this the manager works as team coach and uses various techniques to develop a sense of community among the staff. Also, the manager takes steps to empower employees.

5. Relationships with other interest groups

- Best practice sees managers in nature-based tourism working to understand and foster good relationships with other groups with interests in nature-based tourism. Thus a tour operator following best practice will participate in the local region's tourism association, will get to know and cooperate with the region's national parks' staff, and will get to know and understand any local booking agents who might send tourists to the operator.
- Best practice does not necessitate frequent participation in those activities, which might be impossible for managers of small-scale enterprises. It does require at least occasional contacts beyond

brief courtesy calls. Following best practice principles, this activity can be an item in business plans.

6. *Risk management*

- Best practice includes risk management. Asked to nominate any aspect of management practised by the organisation that had not been raised to date in the interview, two respondents (one a tour operator and the other a national park) mentioned risk management. Both said that (one a tour operator and the other a national park) mentioned risk management. Both said that risk management was a relatively new subject which they recognised has great importance. The importance is both operational and strategic. There are books and articles on the subject, for persons wanting to learn about it.

7. *Avoiding "managerialism"*

- Best practice in business management requires avoiding what might be termed "managerialism", the attitude that management is all-important to an organisation's vitality. Good management is certainly important but is only one factor contributing to organisational performance and sustainability. Fortunately, no signs of "managerialism" were found in this research on business management in organisations active in kangaroo-related tourism.

3.3 The Visitor Component

3.3.1 *Methods*

All the identified kangaroo related tourism enterprises identified in the large sample were asked if they would participate in a survey of visitors. A total of 15 operators/attractions agreed to participate within the time period November to January and each operator was sent 50 surveys, along with standardised instructions. The target sample was 500. The actual final sample achieved by the required date was 183. The sample size was limited because of the restricted timeframe for the study, which resulted in surveying over the Christmas holiday period and summer, a low season for many of the enterprises involved in the study.

The survey collected basic demographic information about visitors, their interest in wildlife tourism in general, the importance of kangaroos in the visitors' travel decisions, as well as their satisfaction with the tourist services or products provided. The methods used and particular questions asked had been validated through previous research (e.g. Hughes 1991, Pearce and Moscardo 1998, Moscardo 2000). A copy of the survey can be found in Appendix III. The survey was produced in English only.

In addition all 27 operators in the large sample were asked to estimate the numbers of visitors they received per annum. Operators visited on site were asked about the composition of their visitors with respect to domestic vs international origin. All this feedback needs to be viewed with caution as it may well be subject to bias, and the latter involves a very small sample size ($n=11$), but it was thought that their answers might provide further insights regarding visitor reactions.

The visitor survey sample

Three-quarters of the 183 responses were returned from tour enterprises, with the remaining quarter completed by visitors to protected areas and accommodation places. The majority of the sample were international visitors with 29 per cent ($n=53$) from the United Kingdom or Ireland, 23 per cent ($n=43$) from the United States or Canada, and 19 per cent from a variety of other European countries. Only 2 Asian visitors were included in the sample. The remaining 29 per cent of the sample were Australian residents. The mean age of the respondents was 46 years with a total range from 11 to 85 years. Table 3 provides a breakdown of the sample for age, sex and type of travel party.

Table 3: Demographic profile of the sample.

DEMOGRAPHIC	% OF SAMPLE
Age	
<21 years	5
21 -30	18
31-40	16
41-50	18
51-60	20
61-70	18
>70	5
Sex	
Female	60
Male	40
Travel Party*	
Alone	15
Couple	48
With children	13
With other family	17
With friends	20
With a tour or organised group	12

* Totals exceed 100% because of multiple responses

Limitations of the visitor survey sample

The overall sample size is small. Nonparametric statistical tests were used to ensure that the results were reliable for the sample size. The representativeness of the sample is limited to English speaking visitors and a low season population. It should be remembered, however, that the overall population is not large: many of the tour operators estimate annual visitation rates of 600 or less.

3.3.2 Results and discussion

Interest in wildlife

For the majority of those surveyed (50%) opportunities to view wildlife were a part of their travel decisions, while for 26 per cent of the sample opportunities to view wildlife was one of the most important factors in their travel decisions. For the remaining 24 per cent of the sample wildlife viewing opportunities were not considered in travel decisions but they were enjoyed if part of other tourism experiences. Table 4 provides a series of comparison from other Australian studies which included this question. The kangaroo related tourism sample in general had higher levels of interest in wildlife than the captive setting or general sample, but a lower level than that of the sample of visitors surveyed after their visit to Flinders Chase National Park.

Table 4: Comparisons of level of interest in wildlife.

FEATURE	% PRESENT SAMPLE	% NORTH QLD SAMPLE	% CAPTIVE SETTING SAMPLE	% F. CHASE NP SAMPLE
I prefer to avoid wildlife while on holidays	0	3	0	1
I am not interested in viewing wildlife while on holidays	0	1	1	2
Viewing wildlife is not included in my travel decisions, but I enjoy seeing wildlife while doing other things	24	57	37	17
The opportunity to view wildlife is included as part of my travel decisions	50	32	46	45
The opportunity to view wildlife is one of the most important factors in my travel decisions	26	7	16	35
	n=183	n=790 resident & regional visitors	n=957	n=365

The survey also included a question that asked visitors to rate the importance of various features of wildlife experiences. This question was designed to examine the expectations or motivations of visitors. Table 5 lists the 15 features, which were derived from previous studies of wildlife tourists, and the percentage of the sample rating the feature as very important. The most important features were those relating to the naturalness of the experience and the provision of

information. Overall features such as large numbers of wildlife and the opportunity to feed/touch wildlife had low ratings of importance. This table also includes comparable results from other Australian studies. Visitors to the captive setting gave higher importance ratings for ease of viewing wildlife, safety and a pleasant environment than the other two samples. The kangaroo related tourism sample gave the highest importance ratings of the three groups for interesting information. They rated knowledgeable guides more highly than did visitors to Flinders Chase National Park, and of similar importance to visitors to captive settings. Thus kangaroo tourists may have relatively high expectations of the quality of interpretation.

Table 5: Importance of features of wildlife experiences.

FEATURE	% PRESENT SAMPLE	% CAPTIVE SETTING SAMPLE	% F. CHASE NP SAMPLE
Seeing wildlife behaving naturally	68	-	72
Seeing wildlife in a natural environment	67	76	74
Knowledgeable guides/staff are available	66	72	44
Interesting information about the wildlife	55	50	44
Unique/unusual wildlife	55	37	54
Being able to get close to the wildlife	48	50	51
A natural environment with little evidence of humans	45	-	47
Feeling safe	43	53	42
Pleasant environment	42	63	46
Visitor numbers are limited	37	-	30
Seeing rare/endangered species	37	40	49
Large variety of wildlife	35	35	39
Wildlife are easy to see	32	56	39
Large numbers of wildlife to see	30	28	33
Being able to touch or feed the wildlife	14	17	13

Interest in kangaroos

Only 18 per cent of the sample were specifically interested in opportunities to see kangaroos in their choice of the tourism enterprise where they were surveyed. For 40 per cent of the sample seeing kangaroos was one of the factors involved in their choice, while for 38 per cent they were not a factor in the decision.

Wildlife seen

Two questions were included to assess the wildlife seen as part of the experience where surveyed. The first was specifically concerned with the numbers of kangaroos seen and the distances between the visitors and kangaroos. Table 6 summarises the responses of the sample to this question. Most visitors reported seeing some kangaroos with the majority (54%) seeing 10 or fewer. While 18 per cent of the sample were able to get very close to the kangaroos, the majority of those surveyed (45%) did not get within 10 metres of the kangaroos.

Table 6: Numbers of kangaroos seen and distances to kangaroos.

Number seen	
0	11
1-5	24
6-10	19
11-20	16
>20	16
Many/lots	16
Distance	
1 metre/less	18
2-5 metres	19
6-10 metres	19
11-50 metres	34
>50 metres	11

Visitors were also asked about any other wildlife they had seen. All but one visitor reported seeing other wildlife. The most commonly reported other wildlife were birds (71%), possums (36%), koalas (13%), emus (25%), reptiles (24%), and platypus (18%).

Satisfaction

As is commonly found in tourism and leisure studies, overall satisfaction was high. Table 7 summarises the responses to all the satisfaction questions. The majority of visitors (74%) gave their overall experience a rating of 9 or 10 out of 10, 91 per cent would definitely recommend the experience to others and 42 per cent stated that they would definitely repeat the experience, with a further 38 per cent stating that they would repeat the experience if they returned to the region. Satisfaction with the kangaroo component of the experience was also high with 74 per cent giving a rating of 8 or higher.

The majority of visitors were very satisfied with staff performance and the information available on all aspects of their experience. Lowest satisfaction ratings were given to the variety and numbers of wildlife and kangaroos seen and how easy the wildlife were to see.

Table 7: Measures of satisfaction relating to kangaroo tourism experience.

SATISFACTION MEASURES	% OF SAMPLE
Satisfaction with the overall experience	
Less than 6	2
6	2
7	7
8	14
9	25
10	49

Satisfaction with the kangaroo viewing component	
Less than 6	5
6	7
7	14
8	7
9	11
10	56
Recommend to others?	
Yes definitely	91
Possible	9
Don't Know	0
No	0
Repeat the experience?	
Yes definitely	42
Yes if I return to the region	38
Maybe	14
No	6
Very Satisfied with	
Staff friendliness	80
Staff knowledge	74
The quality of information about the environment in general	63
The quality of information about other wildlife	58
The quality of information about kangaroos	56
The condition of the natural environment	52
How easy the kangaroos were to see	48
The number of kangaroos seen	47
How close I was able to get to the kangaroos	45
The number of other wildlife seen	40
How close I was able to get to the other wildlife	39
How easy the other wildlife were to see	37
The variety of wildlife seen	33

Factors influencing satisfaction

A number of analyses were conducted to identify and measure factors that influenced the respondents' overall levels of satisfaction. Age, sex, travel party, and levels of interest in wildlife and kangaroos were found to be not significantly related to overall satisfaction. A significance level of $p < .01$ was set. This means that there was one chance in 100 that any differences found were due to random variation in responses.

Levels of overall satisfaction did differ significantly between the different tourism enterprises reported on ($\chi^2=32.4$) which suggests that the overall service and/or experience offered differed across the enterprises. A significant relationship was also found between visitors' place of residence and overall satisfaction ($\chi^2=15.4$). In this case Australian and international visitors (other than those from the United Kingdom, Ireland, United States and Canada) gave higher overall satisfaction ratings.

Despite these differences in general satisfaction, the kangaroo-viewing component was significantly positively related to overall satisfaction (Kendall's ρ of 0.45). In turn satisfaction with the kangaroo-viewing component was significantly positively correlated to satisfaction with the number of kangaroos seen (Kendall's ρ of 0.52) and the distance at which they were seen (Kendall's ρ of 0.53). More detailed analyses indicated that the highest satisfaction scores were reported by those visitors who came within a metre or less of the kangaroos, with the lowest scores reported by those who saw kangaroos at the furthest distances. A more complex relationship was found between satisfaction with the number of kangaroos seen and the numbers reported. Overall there was a tendency for satisfaction to increase as the number of kangaroos seen increased except where the number was reported as lots or many. In this case satisfaction was still high but was lower than for the other categories. It is possible that the situations where lots or many kangaroos were seen were less desirable or attractive environments.

Additional feedback from operators about visitors

All of the tour operators who were able to give an estimate said that they had less than 1,000 visitors per year, and one said they had only about 200. The protected areas all had thousands of visitors per year, with about 30,000 at Dryandra State Forest (but not necessarily engaging in kangaroo viewing). This is important in terms of the size of the market that the commercial tours are able to reach compared with the number of visitors to protected areas with kangaroos. Among the sites we visited, operators reported that visitors taking the private tours were most likely to be international, whereas those at the protected areas were more likely to be domestic.

Summary of findings

The majority of the visitors surveyed have a general rather than special interest in viewing wildlife and only 18 per cent reported that the opportunity to view kangaroos was the most important factor in their choice of tourism enterprise. It seems unlikely that there is a viable market for tourism enterprises based solely on kangaroos. Kangaroos are more likely to be seen by potential and actual clients as one of a number of species that will be viewed.

The majority of those surveyed placed a high importance on the seeing wildlife in natural environments and behaving naturally, knowledgeable staff and interesting information. The first two features would be expected given that the sample does not include visitors to captive wildlife settings. The latter two suggest clear expectations for quality guiding and interpretation.

Overall levels of satisfaction were high especially for experiences with guides and staff. Visitors from the United Kingdom/Ireland and United States/Canada had significantly lower satisfaction scores than did other visitors which could have resulted from higher expectations for the variety and number of wildlife to be seen and the amount and level of interpretation available. Clear relationships between the number of kangaroos seen and the distance at which they were seen, and overall satisfaction were identified. In general; higher satisfaction was related to larger numbers, and closer contact. One exception

was the case of very large numbers of kangaroos, which may be associated with degraded environments.

3.4 The Interpretation Component

3.4.1 Methods

Operators in the large sample were asked to send copies of text or other visual materials, including website addresses, provided for visitors. These were assessed using the audit scheme summarised in Table 8. This scheme was adapted from an audit used by Woods (1997) to examine the extent to which signs in the Wet Tropics World Heritage Area used best practice principles. These principles were developed from a major review of studies evaluating the effectiveness of various aspects and forms of interpretation. The material was also assessed with regard to the accuracy and scope of information provided about kangaroos.

An additional audit was conducted of any guided presentations available at those sites or tours that were visited in person. A summary of this audit is also given in Table 8. This audit was developed from a review of the literature available on guide effectiveness.

During site visits, a record was made by video camera and in writing of all interpretative methods and materials used relating to kangaroos.

Table 8: Issues covered in Interpretation Audits

Audit for Interpretive Text

- Information is organised with headings
- Information is organised into a hierarchy if points/concepts
- Uses humour
- Uses stories
- Uses analogies and metaphors
- Asks visitors questions
- Uses colour and contrast
- Uses illustrations
- Suggests activities for visitors
- Uses conversational style
- Provides information on minimal impact behaviours

Audit for Guided Tours/Presentations

Does the guide:

- Give an overview of the tour (how long, where we will be going, what people can expect to see)
- Use any props (things for people to touch, charts, maps etc)
- Identify a theme (a single idea that is repeated through the presentation)
- Tell stories
- Ask visitors questions
- Suggest activities for visitors
- Makes connections to common knowledge/everyday experience (ie. uses analogies)
- Enlist the help of visitors to conduct part of the tour (eg. carry a spotlight, hand out morning tea)
- Suggest activities involving senses other than looking (eg. touch or smell something)
- Refer visitors to other sources of information for further details

Topics covered:

- Identifies and talks about specific individual animals
- Gives these individuals names
- Tells visitors how they should behave so as to minimise impact
- Describes the daily activities of the animals
- Discusses breeding and rearing of young
- Outlines social structure of families or groups
- Points similarities with humans in terms of physical features
- Points out similarities with humans in terms of behaviour
- Identifies relationships with other species
- Identifies place and/or importance if the species for this ecosystem
- Describes threats to the species
- Provides population numbers
- Discusses distribution

In addition, the guide's knowledge of kangaroos as displayed during the tourism experience was assessed on a scale of poor/ moderate/ good/ excellent. Poor meant that the guide seemed to have no knowledge of kangaroos beyond that of an educated layman. Moderate meant that they had clearly done some basic reading about kangaroos but they could not answer more than basic questions. Good meant that they were able to answer most questions and displayed sound knowledge of the natural history of kangaroos as could be acquired from careful reading of key texts. Excellent meant that the guide was able to answer all reasonable questions in depth, displayed a detailed knowledge of the natural history of kangaroos, and showed significant knowledge about local kangaroo populations.

3.4.2 Results and discussion**Interpretation available**

All of the kangaroos related tourism enterprises interviewed reported providing some form of interpretation or were observed providing

interpretation, with the majority (14 out of 20) relying primarily upon guides. Many have reference books available for visitors (16 out of 20), some have signs (4 out of 20), and some have printed material available for visitors (7 out of 20). All of the protected areas and some of the accommodation places have information/environment centres and/or museums and 1 tour reported providing visitors with access to an environment centre. Most (16) of the enterprises have a website, although only 6 of these include interpretive information. On the whole very few enterprises had integrated or coordinated interpretive programs.

The following is a more complete description of modes of interpretation available at the visited sites.

Signage relating to kangaroos consists of either plaques providing species names and information on basic ecology and behaviour (best illustrated by Tidbinbilla Nature Reserve), or signs at most of the protected areas designed to discourage feeding of kangaroos. The latter signs all listed the potential negative effects of feeding on the animals to motivate visitors not to feed. At one site, although signs stated that animals should not be fed, it recommended the type of food that should be used if feeding was to occur.

Interpretative displays in visitor centres contain information on kangaroos on one or more of the following topics:

- The diversity of kangaroo species e.g. a display at Tidbinbilla Nature Reserve reads "Did you know there are 36 different kinds of kangaroos and wallabies?" and describes habitat use of a range of species, illustrated with high quality photographs.
- Endangered species e.g. Tidbinbilla Nature Reserve presents information on the conservation issues relating to the brush-tailed rock wallaby and the role of the reserve in its management.
- Inter-relationships with other components of the natural environment e.g. Perup Ecology Centre presents information on the relationship between tammar wallabies and fire, as a way of illustrating the interdependence of habitat and fauna.

Two sites, Tidbinbilla Nature Reserve (Appendix IV) and Perup Ecology Centre, provide detailed printed interpretative information on kangaroos on site. Other sites provided very little that was specific to kangaroos. One tour operator provides information on kangaroos in its promotional brochures. Another said he used to provide printed handouts but found they were seldom used by visitors, and he now refers them to his website (Wildscape Safaris).

Dryandra State Forest uses an innovative interpretative method: recorded spoken presentations available from small radio stations, allowing a self-guided tour. Drivers tune their radios to a particular frequency, and as they approach each designated area within the Forest, they access the nearest radio station, and hear quite detailed information about that site. A range of presentation styles are used, such as an interview with a wildlife researcher who has worked intensively in the area, or a more conventional commentary. This is apparently the only such example in Australia, and may merit more widespread use.

Finally, information centres where visitors could buy further information about kangaroos and other wildlife were available at Rottnest Island and at Tidbinbilla.

We note that while there are a large number of books and articles available about kangaroos, and some operators made use of many of these, there is no reasonably detailed document designed to provide information on kangaroos specifically for tourism operators or tourists.

Audit of guided presentations

The five-guided presentations when the researcher was present throughout were audited and Table 9 provides a summary of the key features of these presentations. Overall the five presentations used a variety of features known to encourage visitor satisfaction. Given that the visitor surveys indicated high levels of satisfaction with the staff knowledge and friendliness it seems likely that the audited presentations were typical of the experiences available (however, it must be stressed that the above conclusions are constrained by the very small sample size, so we cannot be sure of this.) Visitor

satisfaction does not, unfortunately, equate to visitor learning or changes in visitor attitudes. In the five presentations audited the limited use of features, especially any clear presentation of themes, analogies and metaphors, is of some concern.

Table 9: Results of the Guided Presentation Audit [numbers of operators in each category are indicated]

<p>Features of Presentations</p> <p>5 Gave an overview of the tour (how long, where we will be going, what people can expect to see)</p> <p>2 Used props (things for people to touch, charts, maps etc)</p> <p>1 Identified a theme (a single idea that is repeated through the presentation)</p> <p>5 Told stories</p> <p>3 Asked visitors questions</p> <p>0 Suggested activities for visitors</p> <p>3 Made connections to common knowledge/everyday experience (ie. uses analogies)</p> <p>5 Enlisted the help of visitors to conduct part of the tour (eg. Carry a spotlight, hand out morning tea)</p> <p>1 Suggested activities involving senses other than looking (eg. Touch or smell something)</p> <p>1 Referred visitors to other sources of information for further details</p>
<p>Kangaroo Topics Covered</p> <p>1 Identified and talked about specific individual animals</p> <p>0 Gave these individuals names</p> <p>5 Told visitors how they should behave so as to minimise impact</p> <p>4 Described the daily activities of the animals</p> <p>5 Discussed breeding and rearing of young</p> <p>3 Outlined social structure of families or groups</p>

Audit of interpretive text available

Seven of the enterprises reported having printed material available from visitors and six sent the research team copies of these materials. All but one of these six sets of brochures came from a protected area or accommodation enterprise and only one tour handed the material directly to the visitors. A total of 11 brochures, sheets and booklets were audited, of which 4 were activity sheets designed specifically for children and these included many of the features seen as enhancing interpretive effectiveness such as illustrations, stories and activities. Of the remaining 7, 5 were standard information brochures with limited use of colour, basic headings and blocks of text as in textbooks. The remaining two attempted to use headings and points, activities and humour to encourage visitor learning. None of the material audited, however, made use of interpretive themes, and none had organised material in any systematic way for visitors to follow.

This printed material was assessed for the accuracy of information about kangaroos and for its presentation of minimal impact information. In general the amount of kangaroo information contained in the brochures was limited but accurate. Some limited minimal impact information was included.

Only 6 of the 16 websites contained interpretive information on kangaroos and in 4 cases the material available was a reproduction of the printed material already available.

Assessment of knowledge about kangaroos

The knowledge of kangaroos by guides was assessed as being excellent in 5 cases, and good in 6.

Summary of findings

Although most enterprises reported using interpretation in relation to kangaroos, very few enterprises had integrated or coordinated interpretive programs. Information presented was generally accurate. However the limited use of interpretative principles is of concern, particularly with respect to educational outcomes.

3.5 The Kangaroo Component

3.5.1 Methods

Large sample

The 20 operators in the large sample were questioned in semi-structured phone interviews about features of the kangaroo population, the nature of kangaroo encounters experienced by their guests, and management practices which may be associated with positive or negative impacts on the kangaroos (in terms of conservation and animal welfare).

In particular, they were asked:

- what kangaroo species were involved
- what sort of interactions occurred between tourists and kangaroos
- whether and how handfeeding occurred
- an open ended, unprompted question about any measures adopted to manage impacts on kangaroos (this could include e.g. limiting numbers, fixed viewing sites, interpretation but no prompting will be given)
- a similar question about any measures to contribute to conservation
- perceived major problems facing the kangaroos
- whether they experienced any problems with visitors harassing kangaroos

Site visits

The researcher conducted participant observation while participating as far as possible in the typical experience offered to visitors including kangaroo encounters. However, this component was severely limited

by the absence of other visitors on some tours (see section 3.1). For each kangaroo group encountered, a checklist was used to record information on nature of the encounter, visitor behaviour, and observed and potential impacts on kangaroos. Given the lack of previous work on impacts of visitors on kangaroos, this was based on the researchers' extensive experience in observing kangaroos under natural conditions. The checklist was refined after the first two site visits by removing a few measures that proved impracticable, and by modifying the categories used for some variables (Appendix IV). Some components repeated information obtained in telephone interviews and thus allowed cross-validation; no conflicts were found between this information from the two sources.

In 7 of the enterprises, kangaroos were habituated to visitors to some extent, allowing relatively close approaches, and 4 of these cases were associated with hand feeding. In all but these 4 cases the only interactions allowed with kangaroos were viewing and photography.

3.5.2 Results and discussion

Large sample

Overview of kangaroo encounters

The most common way in which sightings of kangaroos occurred was for animals to be viewed principally on foot (7 enterprises). Sightings from vehicles were the principal form of viewing in 5 enterprises, while a mixture of sightings on foot and from vehicles occurred in 3. Sightings either from or close to accommodation were the principal form of viewing in 4 of the enterprises. Other forms of sighting were from a boat (1), or from a hide (1).

Officially, feeding of habituated kangaroos by visitors occurred in 2 of the enterprises, both on private land. However, feeding by visitors occurs in at least two of the protected areas, even though it is officially prohibited in such areas .

There were a wide range of kangaroo species (23) involved in these enterprises, the most common being eastern grey kangaroos (12 sites) and western grey kangaroos (10 sites). Other species regularly seen at

one or more of these sites were: whiptail wallaby, swamp wallaby, wallaroo, red kangaroo, bridled nailtail wallaby, black-tailed wallaby, Bennett's wallaby, black faced wallaby, red-legged pademelon, red-necked pademelon, Bennett's tree kangaroo, red-necked wallaby, tammar wallaby, quokka, brush-tailed bettong, rufous bettong, northern bettong, brush-tailed rock-wallaby, agile wallaby, musky rat-kangaroo.

Perceived negative effects of tourists on kangaroos and measures to reduce impacts

When asked if they experienced any problems with visitors harassing kangaroos, 16 of the operators in the large sample replied that they did not, and in most cases they said this was because they carefully controlled how the visitors behaved in this respect. The remainder reported occasional problems with one or more of the following:

- (international) visitors throwing sticks to make kangaroos move
- visitors rushing towards kangaroos
- visitors approaching too close for photography
- children chasing kangaroos
- one case of a visitor shooting a kangaroo with a bow and arrow (for which he was prosecuted).
- occasional serious wounding of visitors by kangaroos (one site only)

Generally, these problems were most prevalent at protected areas where constant supervision of visitors was often not possible given existing staff resources.

When asked what they perceived as the major problems facing the kangaroo populations involved in their tourism enterprises, 17 operators replied. Only 3 said that there were no significant problems, with the following answers given in descending order of frequency:

- road kills (often by tourists) (5)
- too many kangaroos for the vegetation to support. In one case the operator continued that because culling of kangaroos was not allowed, they sometimes suffered severely from lack of adequate nutrition before death (3)
- potential overuse of areas by too many operators or irresponsible operators (3)
- too much handfeeding (2)
- threatened due to causes other than tourism (1)

All operators said that they took measures to minimise negative effects of tourism on the kangaroos, with the following methods mentioned in order of frequency (note this does not reflect the frequency of their use; we observed on site visits that some operators use methods they did not mention):

- Interpretation about the need for responsible behaviour (e.g. don't interfere with or feed kangaroos, be quiet, stay on the track, don't disturb the vegetation) and/or the "wildness" of the animals and the need to keep them that way. (7)
- Guides stay on tracks and ensure guests do so too (3)
- Use appropriate spotlighting technique (1)
- Use red filters on spotlights (3)
- Habituate kangaroos through quiet observation (1)
- Take small groups (1)
- Keep contact time with kangaroos short (1)

Contributions to conservation

When asked if they did anything to contribute to conservation (not necessarily only in relation to kangaroos) most operators replied that they did, and a range of measures were reported:

- Protection and conservation-oriented management of their own private land (3)
- Politically active as tourism operators with regard to conservation (3)
- Supportive of protected areas and their sustainable use (3)
- Carry out research on wildlife (2)
- Carry out captive breeding or reintroductions of threatened species (2)
- Contribute to ecological management planning (1)
- Pay full price to national parks even though eligible for discount (1)
- Donations to an environmental cause (1)

Operators should be encouraged to undertake measures that not only contribute to conservation of their local areas and wildlife, but to use this in promotion. This happens rarely at present, yet recent research shows that this will influence the modern sophisticated ecotourist in their choice of tourism experiences.

On site observations (small sample)

Nature of kangaroo encounters

A total of 43 encounters with kangaroos were observed among visits with the 10 different tourism operators. The minimum number of encounters that occurred per activity was 2, the maximum was 12, and the median was 3. However these figures may be slight underestimates because the researcher was not always able to be

present for the entire duration of the tour. The total number of kangaroos encountered ranged from 5 to 33, with a median of 18. Relatively high numbers of animals were due to large kangaroo group sizes rather than to large numbers of encounters.

The number of encounters observed were, in order of frequency: eastern grey kangaroos (10), tammar wallabies (7), brush-tailed bettongs (7), red kangaroos (5), and western grey kangaroos (4). No more than 2 encounters were observed with each of the remaining species (quokkas, brush-tailed bettongs, rufous bettongs, northern bettongs, brush-tailed rock wallabies, agile wallabies, musky rat kangaroos). This range of species is reasonably representative of the range of body sizes and social organisations occurring in kangaroos.

The vast majority of these encounters, although spanning a range of geographical areas, occurred in native dry forest or woodland (32). Other encounters occurred in cleared areas with introduced grasses (5), native grassland or shrubland (5) and rainforest (1). However the data collection methods were such that no conclusions can be drawn about certain habitats being represented more strongly than expected by chance.

More often than not, an encounter occurred with a solitary kangaroo (22); while 14 encounters were with between 2 and 5 individuals, and only 7 were with a group of more than 5 animals. These larger groups consisted of western grey kangaroos, eastern grey kangaroos, quokkas, tammar wallabies, and agile wallabies. Along with red kangaroos, these are all species that are relatively social or tend to congregate in areas of good pasture for feeding.

The most common behaviours seen by visitors were moving (32 of the encounters) and feeding (20). Observations of resting (11) or standing alert (11) kangaroos were also relatively common. In 8 encounters, kangaroos were grooming themselves. In only 3 encounters were social interactions with other kangaroos seen, and in one case an interaction with a guide was observed. Some of the cases where kangaroos were observed alert or moving were a result of visitor presence.

In 31 of the encounters, the kangaroos were fully visible rather than obscured by vegetation or other barriers, and in 12 they were partially obscured. No encounters occurred when a kangaroo was almost fully obscured.

Out of the 43 encounters, 32 involved visitors being between 2 and 10m of the nearest kangaroo, usually because this is the distance at which they were first sighted rather than because the visitor approached to this distance. Of the remainder, 3 were less than 2m, and the rest (6) were further than 10m away. The closer encounter distances than reported in the visitor surveys may be a result of the lower (human) group size in which the researcher was on average involved.

Encounters lasted a median of 2 minutes, and ranged from 0.5 to 30 minutes. Although sometimes durations were short because the kangaroos fled, typically visitors wanted to stay watching the kangaroos for only a few minutes. However several operators reported that they sometimes have visitors who want to watch kangaroos for much longer periods of time.

Handfeeding did not occur at all in 40 of the encounters, and in the remainder kangaroos were fed a component of their natural diet or a food scientifically determined to provide suitable nutrition. Handling occurred in only 2 of the encounters (a stroke or pat), where the kangaroos were highly habituated as a result of hand feeding.

Kangaroo responses to visitor encounters

The most common reaction of kangaroos to visitor presence was to adopt an alert posture without moving for at least 5 seconds, and then to flee from the visitors (18 encounters), though in many cases they moved only a few metres. The next most common reaction was to become alert but then to return to their previous activity (13). Other occasional reactions were fleeing as soon as people were detected (4), not obviously changing their behaviour at all (4), and moving towards visitors (3), which occurred only in situations where they were often hand fed. No cases were observed where a kangaroo remained alert throughout the encounter. This of interest because it means that an experienced guide should always be able to anticipate

when kangaroos are on the verge of fleeing, and make sure that the group backs away or remains still. In no cases did we observe any signs of aggression by kangaroos towards visitors.

In at least 19 of the encounters, kangaroos either did not change their activity, or resumed the activity in which they were engaged when first sighted while the visitors were still present. The remainder did not resume their previous activity during the whole time that visitors were present, but it was not possible to ascertain whether and how quickly they did so once the visitors had left.

In 27 encounters, kangaroos either did not move at all as a result of visitor presence, or moved less than 10m and apparently stayed within the same microhabitat – so that, for example, they remained in a patch of shade under a tree, or on an area of nutritious grasses. In the remainder (16) they moved at least 20m because of visitor disturbance.

Other than the presence of people per se, the causes of behavioural disturbance to the kangaroos that we observed were use of spotlights (10 encounters), particularly where the light was kept on the animal for a long period of time, and vehicle noise (4).

Health and condition

For those kangaroo groups that could be observed clearly and closely enough to make an assessment (15 encounters), there were no individual kangaroos with obvious health problems or in poor condition.

Population vulnerability

Assessment of the severity of any negative effects of visitors on kangaroos requires consideration of the conservation status of the species and other sources of vulnerability of the populations concerned.

Five of the species involved in the tourism enterprises we surveyed are classified as threatened under the Commonwealth Environment Protection and Biodiversity Act 1999: the mala is considered

endangered; the burrowing bettong, yellow-footed rock wallaby, black-footed rock wallaby and brush-tailed rock wallaby are listed as vulnerable. In most of the cases in this study where tourism involved threatened species, these had been reintroduced into the area as part of a conservation program, whose funding in some cases was partially supported by tourism. Thus, tourism in these cases if anything had a positive influence on the species' conservation status. In the case of yellow-footed rock wallabies, tourism occurred within their existing range.

Some visited populations of kangaroos, although not threatened as a species, may have been part of a small, fragmented or otherwise vulnerable local population. This applied to musky rat kangaroos and Lumholtz' tree kangaroo, occurring in rainforest fragments in the Atherton Tablelands of North Queensland, and whose populations have probably been greatly reduced by forest clearing. It may have also applied to some of the other populations (though assessment of this was outside the scope of this study), as wildlife habitat has become increasingly fragmented due to clearing during the history of Europeans in Australia.

Issues in management of kangaroos for sustainable tourism

Based on our observations during this study, and our specialist knowledge of kangaroo behaviour and ecology, a number of issues emerged of relevance for optimal management of kangaroos for tourism. It is difficult at this early stage of systematic analysis of wildlife tourism to specify what constitutes best practice: rather the following are our assessments of the issues.

Fencing

If one is interested in promoting tourism based on kangaroos in "natural" situations, it does not seem reasonable to restrict this to cases where the animals are unconfined by fencing. This is because many mammal species in Australia, including some of the small and medium-sized kangaroos, have experienced reductions in their densities and even become endangered because of predation by introduced predators (particularly foxes), and often the only effective way to exclude the predators is by fencing. Thus the programs for

reintroducing threatened kangaroo (and other) species at Dryandra State Forest and Yookamurra Sanctuary, for example, rely heavily for their success on predator-proof fencing. In order for reasonably natural populations to be maintained, however, the enclosures must be very large (at least tens of kilometres, and preferably hundreds, although this would depend on the species and habitat concerned).

Habituation and attraction

As indicated by the visitor surveys (section 3.3.2) and our subjective impressions from observing visitors, being able to get close to kangaroos is an important determinant of visitor satisfaction with their kangaroo encounters. Generally close approach distances require that kangaroos have either become "habituated" or are "attracted" to human presence (Knight and Cole 1991). In this context habituation occurs when the avoidance response to humans decreases over time as a result of repeated exposure to them in the absence of any positive or negative reward (cf Eibl-Eibesfeldt 1970). As a result of habituation, animals become more likely to ignore the presence of humans and to continue their pre-existing activities. This is an adaptive response which means that they do not unnecessarily waste energy or give up their pre-existing activity. Attraction to humans involves a positive response, typically an approach, as a result of previous experience of positive rewards associated with the presence of humans – in this context this generally involves obtaining food. Typically kangaroos that are attracted by food will allow closer approach than those that are only habituated, but they will also tend to have their natural behaviour disrupted (which may make them of less interest to visitors) and as the next section shows, there can be other negative consequences for both the animals and the people. Further, very marked habituation, allowing visitors to approach within a few metres, can occur simply as a result of repeated exposure to visitors who behave in such a way as to pose no perceived threat. This includes minimising loud and (even more so) sudden noises or movements, not moving directly towards the animals, and above all curtailing the approach as soon as animals begin to show high levels of alertness. Operators, in conjunction with their visitors, can thus in principle "train" the kangaroos to allow close approach without the need for hand feeding to achieve close encounters.

Some species of kangaroos seem to be more easily habituated than others, particularly the larger species. This may be because the larger species are generally more social, and/or less inherently as vulnerable to predators and therefore have less need to flee. However Dr David Croft, after years of research with free-ranging red kangaroos, believes them to be one of the most difficult species to habituate in the wild (Croft and Leiper 2000). The phenomenon of habituation is a complex one that has not been directly researched for Australian mammals, and research to determine the factors that influence the extent and speed at which habituation occurs would be useful for management of tourism based on free-ranging mammals.

Although a reasonable degree of habituation or even attraction is desirable to allow satisfying visitor encounters, this must be balanced against potential negative effects on the animals. An extreme situation has been reached on Rottnest Island, where quokkas have been hand fed by tourists for many years. Some individuals are now so easy to approach that several incidences of so-called "quokka soccer" have been reported, where drunken youths have kicked, severely injured and occasionally killed several quokkas. For any populations that are susceptible to possible ill treatment by people, such a high degree of habituation is clearly not desirable for the animals' welfare. Also, it is possible that habituation to people might make kangaroos less wary of other potential predators such as dingoes and foxes (Buchanan 1999), and thus more prone to mortality.

Of even more serious concern to many tourism operators, animals that are attracted to people are much more likely to be aggressive towards them than their more "wild" counterparts. Although the probability is low, there are numerous reports of aggression towards people by hand fed kangaroos (Skira and Smith 1991). Several incidents have occurred in Australia where visitors to national parks have been injured by large kangaroos, and typically these are associated with animals being hand fed. For instance, in 1996 a man was scratched by an eastern grey kangaroo at the Carnarvon Gorge camping ground (Burger, 1997), while in 1986, a man was scratched and kicked by an eastern grey kangaroo in the Grampians National Park (Booth, pers. comm.). One child lost an eye in 1999 when attacked by a kangaroo (D. Moncrieff, pers. comm.). Similarly, at Lone

Pine Sanctuary, a number of visitors have been scratched and threatened by wallabies and kangaroos in their "walk-through" enclosure when they attempted to feed them (P. O'Callagan, pers. comm.). One operator in our large sample reported that such incidents had occasionally occurred in his experience as an operator. In Flinders Chase National Park, the problem was seen as large enough that fences were erected around eating areas so that campers could eat without being annoyed by kangaroos (D. Moncreiff, pers. comm.).

Artificial provisioning of kangaroos

The issue of whether it is appropriate for tourists or operators to feed kangaroos and other wildlife is a controversial one (see Green and Higginbottom 2001 for further information). Feeding of kangaroos is widespread in free-ranging tourism experiences in Australia, apparently for two main reasons associated with enhanced visitor satisfaction. Firstly, it allows predictable encounters to occur, overcoming the problem that it can be difficult to find and observe kangaroos at close quarters. In particular, it may be the only way to ensure a high probability of seeing members of the many relatively cryptic and solitary species. Secondly, some tourists apparently gain satisfaction from the feeding interaction itself. Among wildlife managers, proponents of feeding typically believe that the high satisfaction that visitors get from the experience, especially if coupled with appropriate interpretation, justifies the intrusion, since it increases the visitors' support for conservation. Those who disapprove of feeding under any conditions (e.g. as required by the Nature and Ecotourism Accreditation Program – NEAPWG, 2000) argue that it may have detrimental effects on welfare of individual animals, disrupt natural populations and even other species in the community, and sends the wrong sort of educational messages in encouraging people to think of wild animals as for human use. We encountered views from various parts of a continuum between these two extremes among operators in our large sample. However the nature of psychological benefits to people from feeding wildlife, and any consequent effects on their attitudes in relation to conservation, are poorly understood and an important area for research.

In terms of welfare of individual kangaroos, the major problems are associated with the high kangaroo stocking densities that often accompany hand feeding. These may increase the risks of certain contagious diseases, such as necrobacillosis (or lumpy jaw), coccidiosis, helminthosis, salmonellosis and toxoplasmosis. Evidence for this comes mainly from studies on captive populations (Blyde, 1994, 1999; Booth, 1991; Spielman, 1992; Tribe, 1993) but where animals gather together regularly in the wild (for instance at feeding sites) the same causative factors may develop. These can include poor hygiene, an environment highly contaminated with infective organisms, high levels of stress from increased aggression at the feeding sites and from the interactions between humans and animals, and dietary imbalances from inappropriate artificial feeds (Munday, 1988). A second health problem associated with hand feeding is dietary imbalances that can result from inappropriate artificial feeds (Munday, 1988). In particular, although only anecdotal evidence is available, it is widely thought that feeding of soft foods like bread and cakes increases susceptibility to lumpy jaw (e.g. N. Mooney, pers. comm.). The only study we know of investigating the effects of handfeeding on the health and condition of free-ranging macropods was conducted on woylies (brush-tailed bettongs) at Dryandra Woodland in Western Australia. Harvey (1999) found that animals that congregated around tourist accommodation and were artificially fed (but comprising an estimated maximum of 20 per cent of their diet) had greater parasite burdens but overall were not in worse condition than those elsewhere.

At the population level, a wide range of effects of hand feeding on wild animals have been recorded in various species (see Green and Higginbottom 2001 for details). These include decrease in population size (through inadequate diet or through subsequent withdrawal of a resource on which they have become dependent); increase in population size of the species being fed; and an increase or decrease in abundance of other species. None of these effects have been demonstrated for kangaroos, but there has been an absence of research designed to detect such effects. On the other hand it has been argued that where habitats have been significantly modified by human activity some provisioning of food may help animals through lean times, and thus maintaining more "natural" populations than would otherwise be the case.

In the case of kangaroos, feeding by humans seems to be the prime factor associated with incidents of aggression towards humans (see above), which is of major concern to protected area management agencies. This can in turn result in a perceived need to destroy the aggressive individuals.

As illustrated briefly above, in certain cases artificial feeding can have negative effects on wildlife. However it may well be that if the food used is nutritionally appropriate, and if the amount of feeding is small in relation to the animals' needs, negative effects will not occur. Further studies are needed to determine the factors determining effects of artificial feeding of wild kangaroos on the welfare of individual animals and on populations.

A compromise view held by many, and generally adopted in Australia (and supported by legislation), is that feeding is acceptable outside protected areas, but not within them. The difficulty with this is that some species are regularly encountered only within protected areas, and feeding may be the only way for tourists to experience close encounters with these species. However in the case of many kangaroo species, they occur quite commonly outside protected areas, or can be viewed at close quarters without the need for feeding. In the absence of clear research data, the approach of the environmentally responsible tour operator should be to do their best to provide guests with high quality viewing experiences without the need for hand feeding.

If feeding does occur, it should involve foods that are nutritionally appropriate. This means they should be close to the natural diet in nutrient composition, and of suitable consistency for ingestion and digestion. Commercially available kangaroo pellets are likely to be most suitable for this purpose, or possibly certain forms of hay. The amount of food should comprise only a small proportion of the diet and preferably not be provided on a daily basis, so that dependency does not occur. Feeding should also always be accompanied by appropriate interpretation. There are several well-established practices established for zoo situations that should be applied. A number of feeding sites should be used to reduce competition between kangaroos. The captive diet is designed to mimic that in the wild. Fresh, clean water should be available at all times and most rations

fed ad-lib. Where hay is offered, it should not be too stalky as this may predispose to necrobacillosis (Blyde, 1999). Similarly, too much bread can cause poor gum hygiene, while commercial cat and dog food preparations should be avoided as they may induce Vitamin D toxicity. Feed is usually provided above the ground to avoid contamination from animals treading and defaecating in it, the equipment used is cleaned regularly, and the areas of high kangaroo use are raked daily to remove faeces and waste feed (Blyde, 1994).

Interestingly, the commonly occurring situation where kangaroos graze on introduced pastures or lawns, thus making them more amenable to tourism, is rarely viewed in the same light as the more direct forms of artificial feeding above. This is probably because many people do not perceive these pastures as "un-natural", because negative health and behavioural effects are unlikely (or at least, have not been recorded in the literature), and because the effects are likely to have been in place for a longer period of time and local populations have adjusted to the artificial situation. It is rarely seen as a conservation issue, yet it may have significant effects on the densities and distribution of local grazing species, though there has been no research to our knowledge to investigate these effects.

Although food is the resource most commonly used to attract kangaroos to visitors, provision of artificial water supplies is another option on areas with sparse supplies of natural water (generally drier inland areas). Any benefits for tourism from such practices need to be weighed against possible increases in kangaroo populations to levels beyond the capacity of vegetation to sustain (see next section), and of land degradation around watering points.

Manipulation of kangaroo population numbers

Most of the kangaroo-related tourism enterprises studied in this report involve kangaroos whose population numbers are relatively stable. However in some areas where kangaroos are abundant and thus potentially suitable for tourism, populations tend to build up to numbers above those that can be supported by the food supply. These are generally habitat remnants that have become isolated as a result of urban or agricultural development, or areas where natural population control mechanisms have been disturbed by humans (e.g. by removing dingoes and increasing artificial water supplies). In these

cases population crashes, accompanied by considerable kangaroo suffering, can occur. If tourism is to occur in these areas, measures are desirable to redress this situation. This creates a management dilemma for management authorities to which there is no easy answer. The options are to manipulate population numbers through reproductive control or translocation (which are very expensive methods), to "cull" populations (which may be considered ethically and/or politically undesirable), or to reverse the anthropogenic factors that have led to the failure of natural population regulation mechanisms (which are often very difficult to achieve). The decision made will depend on the ethical position of those in control, the political situation, and the resources available for management.

Another potential problem occurs in areas where both commercial harvesting of kangaroos and tourism involving kangaroo viewing occurs. This is applicable mostly to semi-arid areas, although commercial harvesting does occur through much of Australia. Firstly, regular harvesting activities typically make kangaroos relatively shy of people, and thus of tourists. Secondly, although they are extremely unlikely to see shooting take place, many tourists may see harvesting and tourism as conflicting management objectives, although no research has been conducted into this issue to our knowledge.

Kangaroo to as a tool for conservation of private land

Probably the greatest conservation benefit that can be facilitated through tourism involving free-ranging native Australian wildlife (including kangaroos) is when it provides an incentive for conservation on private land. In general, provision of good opportunities for viewing of such wildlife require that landowners maintain or restore large areas of natural habitat (but see under 'Manipulation of habitat' below) and do not harvest or cull native animals. Earth Sanctuaries Ltd was founded largely on these principles. There are also an increasing number of farm stays that promote wildlife as one of their key attractions (see section 2.3.1) and a number of the owners of these enterprises have told us that the income provided by tourism either allows or encourages them to maintain natural habitats and kangaroo populations. Given that there are more of the larger kangaroos on private property than in protected areas, there is also an opportunity for relieving any

pressures from tourism in protected areas by development of wildlife tourism on private land.

Manipulation of habitat

One potential approach to encourage more kangaroos to congregate in areas that are convenient for viewing is to modify the habitat to suit them better in those areas. In fact, many parts of Australia have been modified to favour some of the larger grazing species by clearing of forest, introduction of more nutritious grasses, and installation of permanent watering points. This has as a side effect improved the opportunities for kangaroo-related tourism in some areas. Conversely, habitat modification is thought to have been a major cause of decline of some of the smaller species. Generally, preservation and restoration of natural habitat is desirable to conserve whole ecosystems, and usually this will be positive for wildlife tourism too. However, there are some cases where restoration of natural vegetation will decrease the numbers of kangaroos. For example at Asbestos Range National Park in Tasmania, an area previously used for livestock grazing, plans for restoring natural grasslands may well mean that the impressive numbers of kangaroos that can currently be seen will no longer occur.

On a more local scale, planted lawns or mown areas close to tourist lodges often assist in bringing kangaroos close to the accommodation where tourists can readily see them (e.g. O'Reillys Rainforest Guesthouse). Although this is not usually done with the original intention of encouraging kangaroos, it may be one reason for maintaining it. Another operator sometime deliberately mows the grass in a certain area on her tour route to encourage kangaroos. Our recommendation is that landowners who are also kangaroo-related tourism operators should maintain or restore natural habitat on their land as far as feasible. However some habitat manipulation in landscapes that are already heavily modified by humans may be desirable if it allows visitors to see kangaroos when they would not do so otherwise.

Situations and species of particular concern

Operators mentioned hand feeding of kangaroos, and joeys becoming separated from their mothers as being situations of

particular concern. Handfeeding is covered above. Regarding separation of joeys, there is some limited evidence that this is a real danger. Intensive research on eastern grey kangaroos and red-necked wallabies at one site has shown that unweaned joeys separated from their mothers when they are severely alarmed may never re-unite and subsequently die from predation and/or malnutrition (Higginbottom, pers. obs; Stuart-Dick, pers. obs.). This is likely to occur only if they are alarmed sufficiently to flee long distances, and is another reason for ensuring that any disturbance to kangaroos by tourists is minimal.

It is difficult to be prescriptive about the time of day or conditions under which it is most important not to disturb kangaroos, and a common sense approach is recommended according to the local conditions and a knowledge of the animals' biology. For example, on a hot summer day, kangaroos should not be flushed away from shade, especially if there is no other shade nearby. If kangaroos are feeding on a good patch of grass in an area to which they are not likely to return if they feel wary, again it is important not to disturb them, especially at times when feed is poor elsewhere. However, the approach we recommend is that irrespective of the kangaroos' behaviour or location, guides do what they can to avoid flushing the kangaroos.

Tourism associated with threatened kangaroo species (of which there are 17 species under the Commonwealth's Environment Protection and Biodiversity Act 1999) should be approached with great caution. Discussions about the possibility of developing tourism focused on the last remaining wild population of the endangered bridled nail-tail wallaby, for example, have led to the conclusion that this could introduce additional threats to this species and therefore should not be developed (M. Evans, pers. com.). However, coupling carefully managed tourism with reintroduction programs, especially where this can lead to raising of revenue for such programs, may be desirable for both tourism and conservation ends. This approach is being undertaken by Earth Sanctuaries Ltd, and is being investigated by Western Australia Department of Conservation and Land Management (the subject of a new project funded by the CRC for Sustainable Tourism).

Vulnerability depends not only on the conservation status of a species but also on the threats to the population in question. Tourism involving small, relatively isolated populations of kangaroos, particularly when there may be other threats to the population, should be undertaken with caution and based on a good understanding of the local population dynamics and impacts of tourism. For example, many species of rock wallaby occur in very restricted areas and it is important that avoidance of visitors does not cause a further restriction of their local range, and consequent reduction in the available resource supply.

Tools to facilitate sustainable kangaroo tourism

Based on our observations of practices adopted by certain operators, and our intensive experience with kangaroo research, the following are some ideas that might assist in providing high quality kangaroo encounters and minimising disturbance.

Methods to assist in finding and interpreting kangaroos

Nearly all enterprises surveyed used their experience and knowledge of the local area to target the areas where kangaroos (usually among other species) might be found. However nearly all of them followed a set route, rather than using detailed knowledge of the habits of the population to find the kangaroos. This was due mainly to the need to stay on roads or tracks to minimise environmental damage, and the fact that the guides were rarely targeting only kangaroos. Several operators however showed that if the visitors had a particular interest in kangaroos, they were able to modify the route to focus more on good kangaroo areas. For example our guide from Wait-a-While Tours took us to a paddock where about 30 agile wallabies were feeding and resting, and allowed us to watch them from the vehicle. This was not on his normal route, but he was aware where to find them on request.

Since most organised encounters with free-ranging kangaroos occur with animals that are widely dispersed through an area, the animals may often be difficult to find. This creates an incentive to feed kangaroos to ensure that they can be found more predictably and approached at close quarters. However, to ensure satisfying and

authentic visitor experiences, and minimise any negative effects on kangaroos, guides can in principle develop good local knowledge of kangaroo distribution and movements, so that they can find the animals without the need for feeding.

None of the operators demonstrated sufficiently detailed knowledge of local populations to account for variables that might affect the population's distribution at a particular time (e.g. weather, time of year). Similarly none demonstrated that they could predict where interesting interactions might be occurring (for example by knowing that a female in a certain area was approaching mating time, and therefore likely to be accompanied by a group of amorous males, with lots of interesting interactions). Only one of the guides, at Yookamurra Sanctuary, was able to identify several individual kangaroos, and thus provide guests with information about their individual histories. This guide was able to relate some interesting past experiences with one kangaroo which personalised the experience. This knowledge can be obtained by conducting detailed and careful observations (see Jarman *et al.* 1989 regarding techniques for identifying individual kangaroos).

Although the above is desirable, and achievable in theory, in practice lack of sufficient time to conduct the necessary detailed observations is likely to be an insurmountable obstacle in most cases. Occasionally it may be possible to tap into the knowledge of local researchers or amateur naturalists, or to combine tourism with existing kangaroo research, or for someone in the organisation to have this expertise beforehand. This is an area worthy of further investigation if it is established that there is demand for some specialist kangaroo-related tourism experiences, as it could greatly increase visitor satisfaction.

Kangaroos can also be individually identified by various types of tagging or marking, and can be found by radio tracking. However, as these techniques are intrusive for the animals (and in any case would not be permitted for tourism alone), they are recommended only where there is some significant research objective running alongside the tourism. This happens at Yookamurra Sanctuary, although not for kangaroos, where radio tracking is used to monitor the success of reintroductions of numbats, and is also used for tourist groups to find and observe these shy animals.

Tracks and other 'signs' can be used not only to help locate kangaroos, but can be of interest to visitors in themselves, as long as the guide has sufficient knowledge to interpret them. A detailed story of the kangaroo's habitats can be pieced together from a combination of signs. Signs include: scats (faeces), scrapes used for resting, browsed vegetation, skeletal parts. None of the guides involved in our site visits included interpretation of signs. However, we are aware of a tour operator (who is also an experienced naturalist), who states that his guests show great interest in signs of roos and other animals which he points out particularly in cases where the animals themselves cannot be found.

Binoculars

Most enterprises we visited supplied binoculars to those of their guests who did not have their own (generally the majority), which are an invaluable aid to viewing of kangaroos that cannot be seen at close quarters, particularly at night time, and may assist in minimising impacts from viewing at close distances. However in practice, since binoculars require experience to use properly, quickly and without effort, many visitors do not choose to make use of them. One operator observed that although most guests accept binoculars and seem happy to wear them round their neck, many rarely use them to view the animals. Another agreed that this was an obstacle, but explained that with care taken not to "expose" people's lack of skills and with individualised instruction, her clients generally learnt to use and appreciate the use of binoculars. It would be worth investigating further how this obstacle can best be overcome.

Time of day for viewing kangaroos

Viewing kangaroos during the day allowed visitors to see kangaroos not only more clearly and easily than at night, but also behaving more naturally. This is because spotlights and the closer distances usually required for clear nighttime viewing are additional sources of disturbance. Nighttime viewing is however needed for many species that become active only after dark, particularly the smaller and forest dwelling species.

Techniques for nocturnal viewing

Nocturnal viewing of wildlife generally requires the use of spotlights or strong torches, which inevitably cause some disturbance to animals, and requires care to minimise that disturbance. Enterprises involving night viewing of kangaroos all made use of spotlights. A range of spotlighting techniques were used, for example with respect to who did the spotlighting, whether it was done on foot or from a vehicle, the wattage, beam width and colour of lights, and shining pattern and duration. Wildscape Safaris use an innovative system involving spotlighting through an opening in the roof, allowing 360° sweeping of the spotlight, thus increasing the chances of sighting animals. We encountered a range of opinions about what spotlighting practices cause the least disturbance among operators, and the limited research on this topic (e.g. Wilson 1999) is insufficient to devise general principles. However there is reasonable consensus that the degree of disturbance will be affected by the brightness of the light, and the length of time it is shone on the animal. Many users also advocate that red filters lead to less disturbance than white light, but Wilson's work has failed to confirm that the colour of the filter matters. Research is needed to more clearly establish best practice spotlighting guidelines. Similarly, although it seems obvious that visitor satisfaction will be maximised by close views of unobstructed animals, research is needed as to how it is affected by different approaches to spotlighting.

There are more high-tech tools than spotlights and binoculars available for nocturnal viewing, particularly infrared and low-light binoculars, scopes and video equipment. However these are very expensive and so beyond the scope of many operators, and the conditions in which they can be used are limited. The operator of Wildscape Safaris has designed an impressive system that may have some wider applicability. It involves an infrared video camera, with a strong zoom lens, linked to a display monitor. This allows not only easy viewing, but also minimal disturbance of the animals. However, it is a relatively expensive option for many small operators.

Boardwalks and viewing platforms

Boardwalks and viewing platforms have been used overseas to facilitate viewing of large mammals while minimising disturbance. Two of the sites visited included boardwalks through kangaroo habitat, though they were not built for this purpose. However, these are useful not so much for assisting in kangaroo viewing, but for minimising damage to sensitive ecosystems or improving visitor comfort and access.

We did not encounter any kangaroo-related tourism enterprises that used viewing platforms. These could be useful in those rare cases where kangaroos regularly feed in an open area set in a depression. An example is at Asbestos Range National Park in Tasmania, where large numbers of Forester kangaroos and Bennett's wallabies feed on a large open floodplain, behind which there is a good vantage point, but no area is set up for convenient viewing. If this were raised even higher the visitors' view of the kangaroos could be further enhanced. In a few areas such as this there could even be scope for developing restaurant or accommodation facilities designed to look out into such areas. This is a widespread and highly popular practice at African safari lodges.

Blinds and hides

Only one enterprise, Perup Ecology Centre, employed the use of a blind or hide. This was used in conjunction with limited feeding to facilitate closer viewing of kangaroos. This was not a complete blind, in that people's heads were still visible over the top, but the presence of a barrier between the visitors and the kangaroos appeared to give the animals confidence to approach more closely than they would have otherwise. The main difficulty with use of blinds or hides for kangaroos is that unless they are artificially fed, for most species of kangaroos individuals are not likely to come to the same point on a daily basis. However they may have some application in arid areas where kangaroos regularly come to watering points, in certain areas where good natural feed is highly concentrated at certain times of the year or where kangaroos regularly congregate for other reasons. Detailed knowledge of the daily movements and activities of the population is important here. Perhaps a cheap and easily portable

blind would be the best option, so that it can be moved after a period of time when kangaroos move their area of activity. These are only preliminary ideas that would need to be trialed before promotion of their use.

It is important to note that blinds or hides are unlikely to function to stop the kangaroos being aware of the presence of people, as they often do for birds. However, any sort of conspicuous barrier between kangaroos and people – whether a man made object, or strategic use of the topography (e.g. on the other side of a ditch) or vegetation is likely to assist in allowing closer approach distances. Often it seems better to let the kangaroos see the visitors, since with their strong senses of smell and hearing they are likely to detect them anyway and be more wary if they do not know what threatening potential predator is hiding from them.

3.6 The Environmental Management Component

3.6.1 Methods

Operators were asked to provide promotional material and other documents relating to environmental management practices. The plan was to compare these with best-practice environmental management in the tour sector in general, and in relation to criteria set out in ecotour accreditation schemes.

During site visits, observations were made and operators were questioned in an open-ended way about aspects of their enterprise that related to environmentally responsible practices, including use of minimal impact interpretation.

3.6.2 Results and discussion

None of the surveyed enterprises had promotional material that dealt with environmental management practices, although several (9) offered tours or accommodation that were accredited with the National Ecotourism Accreditation Program, indicating that they had fulfilled reasonable standards in relation to environmental management (7 of these had advanced accreditation).

On site observations revealed that enterprises that provided accommodation showed little evidence of best practice environmental management practices such as using renewable energy sources, minimising energy use, recycling, or composting toilets. Perup Ecology Centre was an exception, with a sophisticated system for use of solar and wind energy. However the accommodation provided did in all cases aesthetically blend well into the environment.

All tour operators were observed to keep their vehicles on the roads, and their visitors on the walking tracks, except for one 4WD tour where the vehicle was driven across a sheep paddock (but not through any native vegetation). No environmentally irresponsible behaviour was observed by guides or visitors. All litter was carried out, and strategic stops were made at public toilets, avoiding the need for use of the natural environment as a toilet site. Only one operator used disposable eating utensils, or used unnecessary packaging. The latter is, however, sometimes necessitated by health regulations.

Since written accounts of the use of best practice environmental management principles was relatively limited, it was not possible to determine whether this was correlated with good practice in other respects of the enterprise.

Potential benefits from adopting environmentally sound practices and making positive contributions to conservation are:

- increased word of mouth business from environmentally aware tourists
- ability to charge higher prices
- assurance that the resource on which the tourism is based will be protected
- cost savings due to decreased energy and resource use (TCA/CRC Tourism 1999).

4. RECOMMENDATIONS

4.1 Best Practice Guidelines for Kangaroo Tourism Operators

The following suggested guidelines have been developed on the basis of findings of the present research (regarding practices already in place, as well as identified weaknesses) in combination with our specialist knowledge of the different components. Many of these recommendations can be applied more widely to tourism based on any free-ranging animals.

4.1.1 *Business management*

- Use a documented business plan as an integral part of their management system; this need not be a complex or expensive process.
- Conduct ongoing market research and integrate that into their planning; again this can be done in relatively simple and inexpensive ways.
- Undertake effective risk management practices.
- Develop effective teamwork within your organisation to cover the range of skills required for high quality kangaroo-related tourism.
- Build strong relationships with other groups with an interest in nature-based tourism, such as protected area staff and regional or local tourism associations.
- Work to build positive relationships with local competitors.

4.1.2 *Kangaroo interpretation*

- Develop an integrated interpretive program following established best practice principles for interpretation (e.g. see Crabtree and Black 2000, Orams 1994, Ham 1992).

- Integrate your interpretation with your marketing. This can be used to help create realistic expectations of wildlife experiences, and to create an integrated interpretive experience that may enhance satisfaction and educational value.
- To achieve educational and conservation objectives, the following are issues we recommend to be addressed where feasible by kangaroo interpretation: (i) the variety of types of kangaroos, (ii) the importance of kangaroos in terms of conservation and ecosystem function, (iii) interesting features of kangaroo natural history, (iv) conservation threats faced by kangaroos, (v) current wildlife management issues for kangaroos, (vi) things that visitors can do to help conserve kangaroos, and (vii) guidelines for minimal impact when encountering kangaroos.

4.1.3 Planning and managing kangaroo encounters

- Provide as natural an experience for the visitors as possible. This is not only good for the kangaroos, but research indicates it is what international visitors who pay to participate in nature-based experiences increasingly want.
- In general, avoid handfeeding or handling of kangaroos living in natural areas. Explain to your guests that this is important for the animals' welfare and maintaining a natural ecosystem. Where feeding does it occur, ensure that it is minimal and uses nutritionally appropriate food.
- Do research on your local kangaroo species and populations. This includes reading about them, talking to local "experts" such as national parks staff and wildlife researchers, spending time searching for and observing the animals yourself and learning to interpret signs (see Triggs 1996). For example information on changes in behaviour through the day, distribution and use of habitat will help you to find the animals without the need for any handfeeding or habitat manipulation. Knowledge of their social organisation will help you understand what the animals are doing so you can explain to visitors. In particular kangaroo social behaviour is often not obvious to the untrained eye.

Understanding kangaroo requirements will help you to plan in such a way that you minimise disturbance with your visitors.

- Find out what technology is available to assist you in providing satisfying kangaroo encounters and learn to use it properly. Good use of spotlights and binoculars are particularly important, and creative use of remote viewing systems have been used to good effect. Where possible, assist your guests in the proper use of binoculars.
- Plan for flexibility in your tours and do what you can to adjust the tour to your guests' interests. Although most of your groups may not have a special interest in kangaroos or other wildlife, by knowing where certain populations are you will be able to respond when you do get such a group. This also makes it more interesting for the guide!
- Take steps to habituate the kangaroos without use of food or other rewards. The best way to do this is to make sure that your group keeps quiet and still, and stays at a distance at which the kangaroos after a short period of time resume their natural activity; then continue watching for a few minutes. When you leave, do so slowly and in a direction away from the kangaroos. Do not try to hide from the kangaroos' the idea is to let them know you are there but that you are not a threat. Over time, you will find that the distance at which the kangaroos resume their activity gradually decreases.
- If you have more than one guide with a group, it may be useful for one to go in front as the "wildlife spotter". Once they have sighted an animal, they can ensure that the rest of the group approaches carefully and does not disturb the animal.
- A good principle for minimising disturbance to kangaroos as well as providing satisfying visitor experiences is that you should not cause them to hop away. Ideally, although they will nearly always initially stop what they are doing and look at you, they should resume their previous activity while you are present. Sometimes it is not possible to avoid the animals hopping away; in such cases do not attempt to pursue them. It is not possible to prescribe a

minimum approach distance or other set criteria because these will vary with species, habitat, degree of habituation, weather conditions, kangaroo activity, and many other factors. Learn to predict how close you can get under different conditions, and to anticipate the kangaroos' behaviour so that the visitors do not continue to approach when the animals show the first signs of disturbance by becoming alert.

- Contribute to the conservation of your local area and wildlife, and use this in your promotion. Where possible involve your visitors in these activities. For example, operators who run tourism activities on their own land can undertake habitat restoration or enter into conservation agreements such as the "Land for Wildlife" scheme. Operators can get involved in wildlife research or monitoring, and involve their visitors in these activities. Operators can get involved in local natural resource management and conservation issues, and lobby for increased resources for such management. Income from tourists can be channelled into an environmental cause, either through voluntary donations or as a small proportion of the tour/attraction price.
- Build positive relationships with wildlife researchers and protected area managers working in the area based on mutual benefits. They can provide you with information to incorporate in your interpretation, and help with methods to help find and observe the animals, and can be a relatively time-efficient way of improving your kangaroo knowledge. Their cooperation may also help you in securing access to good wildlife viewing areas. You can provide them with ongoing basic monitoring of the animals and habitat. Further, you can get involved in management decisions that may affect the kangaroos and other wildlife, and help ensure that your tourism resource is protected.
- In providing an interesting kangaroo experience for visitors, remember that it is not only the kangaroos themselves that may be of interest, but also their signs. This includes tracks (especially if you learn to interpret their behaviour from tracks), droppings (from which you can show visitors what they eat and how to distinguish them from other species), shelter and lying areas, paths created through vegetation, and skeletal parts. Signs can be of

particular value in cases where you have difficulty finding large numbers of kangaroos. One wildlife tourism operator in Tasmania who is also a highly skilled naturalist carries around a "wildlife kit" containing items such as skeletal parts, a bird's nest, and materials for creating plaster casts from wildlife tracks. He reports that these provide great interest and are very handy at times when wildlife encounters are few.

- If necessary, educate your visitors that kangaroos are wild animals and it is important not to disturb them (this could be part of a general message about wildlife). If necessary mention that kangaroos occasionally attack people if they get too close.
- If your guests are travelling through areas of wildlife habitat when they leave you, remind them to drive slowly and keep their eyes open for wildlife, especially in the dusk and dark.
- Encourage visitors to use zoom or telephoto lens on their cameras so they do not need to approach closely for photography.

4.1.4 Environmental management

General guidelines for best practice environmental management are beyond the scope of this study. We recommend that operators consider becoming accredited with Australia's Nature and Ecotourism Accreditation Program (NEAPWG 2000), which provides advice and an incentive for responsible environmental practices. We further recommend that operators refer to TCA/CRC Tourism (1999) for some practical guidelines relating to issues like use of road transport, office energy management, minimising use of resources (reduce, reuse, recycle) and minimising waste production. For four wheel-drive tours, operators should refer to guidelines provided by Western Australia CALM (2000) and/or the Outdoor Recreation Council of Victoria (2000).

Some of these principles, however, are of particular relevance to kangaroos:

- On walking tours, keep your visitors on the track

- While in road transport, avoid driving off road in areas of natural habitat.
- In your interpretation, tell your guests about the importance of habitat for kangaroos and other animals, and link this to increasing awareness of wider conservation issues.
- Where feasible, get involved in habitat restoration and protection. Integrate this into your presentation, and where possible get your clients involved too.
- Drive carefully, especially at night and at dawn and dusk, to avoid killing or injuring wildlife.
- Seek advice from managers of natural areas you are using on how best to reduce environmental impacts.
- Use a relatively small group size. Obviously this needs to be offset against the commercial viability of your enterprise, but bear in mind that large groups are more likely not only to damage the environment, but also to scare away the wildlife (including kangaroos), and make it hard for each individual to see the animals and hear the interpretation, thus making your visitors' experiences less satisfying.

4.1.5 General

Many of the above issues are generic to tourism and/or nature-based tourism (business management, environmental interpretation, and environmental management). The generic issues are addressed by a range of existing training and education initiatives. Operators are particularly encouraged to consider accreditation with the Nature and Ecotourism Accreditation Program (NEAPWG 2000) and to seek accreditation for their guides (Crabtree and Black 2000).

4.2 Directions for Future Development of Kangaroo-Related Tourism

Although operators can take steps to enhance the sustainability of their enterprises, and of wildlife tourism in general, there are some

steps that need to be taken at a higher level. The following are our recommendations to those involved in the planning and facilitation of development of kangaroo-related tourism:

- There is no such thing as "the kangaroo tourism industry"; kangaroos are one product among others within a range of types of tourism enterprises. Any planning must take this into account.
- There are already a substantial number of organisations that provide a range of different types of opportunities for visitors to view free-ranging kangaroos, and most current visitors to such attractions and tours have a generalised interest in nature rather than a specific interest in wildlife or kangaroos. Therefore the emphasis in improving the quality of kangaroo-related tourism products that are available should probably be in enhancing existing experiences rather than setting up of new types of enterprises.
- This does not preclude development of a small number of high quality specialised kangaroo-related tourism enterprises focusing on a high paying special interest market if feasibility studies demonstrate their likely viability. Research on financial viability and visitor response to those few enterprises that do have a strong focus on kangaroos would be useful in this regard.
- Based on this study and our general knowledge of kangaroo-related tourism, it seems that most close tourist encounters with kangaroos probably occur in protected areas (although this needs to be verified). Thus, if one aim of kangaroo-related tourism development is for as many tourists as possible to have satisfying, educational and well-managed encounters with kangaroos, then the emphasis of efforts to develop kangaroo-related tourism should be placed on (i) enhancing the small number of existing organised kangaroo-related tourism opportunities in protected areas (and perhaps their marketing) and/or (ii) developing further interpretative activities or facilities in protected areas where no organised kangaroo-related tourism occurs. A severe constraint on the latter will be the lack of financial resources of most protected area authorities, so development would generally have to involve a user-pays system or involve partnerships with the private sector.

- Kangaroo-related tourism on private land should be particularly encouraged in cases where it is expected to be financially viable, because of likely conservation benefits.
- If one aim of kangaroo-related tourism development is sustainability of kangaroo-related tourism within the private sector, then there should be a focus on enhancing the use of kangaroos within broader nature-based tours, as these comprise the largest number of businesses involved in kangaroo-related tourism. Also, although the numbers of visitors involved is limited, the opportunities for intensive kangaroo encounter experiences (particularly with respect to interpretation) are generally greatest within the private sector. Further, if international tourists are seen as being a focus of kangaroo-related tourism development, then these apparently comprise the majority of participants in nature-based tours (though this needs to be verified).
- Since both organised and unguided tourism involving free-ranging kangaroos rely quite heavily on protected areas, adequate resources must be available for effective protected area management to ensure sustainability of kangaroos and the natural environment in these areas. Although government policies have favoured growth of visitor numbers in many protected areas in recent years, the prevalent view among natural resource professionals is that these areas are badly under-resourced.
- The emphasis in organised kangaroo-related tourism should be on providing high quality experiences that are as "natural" as possible, since (i) visitors surveyed in this study rated seeing wildlife behaving naturally and in their natural environment as important to their satisfaction, (ii) minimum disturbance of wildlife is desirable for the welfare of individuals and conservation of the whole ecosystem, (iii) educational messages relating to conservation can be most effectively made in this situation.
- Since most existing free-ranging kangaroo-related tourism activities include a daytime component, and kangaroos are more difficult to locate and observe at night, species that are active and visible during the day are likely to provide the greatest potential for tourism. This involves mainly the larger species. Nocturnal viewing

is likely to appeal to a more specialised market. At the same time, given that so many Australian animals are nocturnal, any steps that can be taken to make nighttime activities a more attractive prospect and to increase the flexibility of mainstream tourism arrangements to facilitate this would be useful.

- Although the overall level of reported satisfaction with the kangaroo-viewing component of our case studies was high, visitor satisfaction with the numbers of kangaroos and wildlife seen, and how close they were able to get to kangaroos could be improved in many cases. This can be achieved by a combination of developing better techniques for finding and getting close to kangaroos and interpretation to make visitor expectations more realistic (see below).
- The scope of this study did not include providing information about what kangaroo species may be of most interest to tourists or able to provide the best educational opportunities, although it did indicate that the total number of kangaroos seen is positively related to satisfaction to some extent. Our subjective impression from this research and our general experience with kangaroo-related tourism is that large body size, large group size, and frequency of social interactions are features of kangaroos that have positive effects on visitor satisfaction, but this requires further research. Similarly, anecdotal information based mainly on our conversations with operators suggests that red kangaroos are the species of most interest to international visitors.
- The tourism industry and protected area authorities should cooperate to develop more secure access to protected areas by environmentally responsible tour operators.
- Kangaroo-related tourism operators, protected area managers and wildlife researchers need to maximise cooperative working relationships to pursue their joint goals of sustainability of kangaroo populations and developing high quality visitor experiences. However this should generally occur more broadly within the context of nature-based tourism.

- Opportunities for subsidising the purchase of modern technology to enhance wildlife viewing – with a view to raising the level of sophistication of Australian wildlife tourism product – should be explored.

4.3 Tools to Facilitate Sustainability of Kangaroo Tourism

A relatively cost effective way of enhancing the quality of kangaroo-related tourism experiences is to produce a kit targeted at operators containing relevant information and advice pertaining to the components of kangaroo-related tourism that are sometimes relatively poor. This kit should include the following elements:

1. A set of best practice interpretive principles and resource material related to kangaroo interpretation. This should focus on the development of themes and how to organise information to assist visitor learning. It could also include ideas for encouraging visitor interaction and participation. Much of the information will be broadly applicable to nature-based or wildlife tourism, but some points will be specific to kangaroos. The kit should also include information to assist in understanding and explaining kangaroo habits to visitors.
2. A written guide to responsible marketing and promotion to assist in development of brochures, websites and other promotional material that is both coordinated with the interpretation program and which creates realistic visitor expectations. Adequate preparation of visitors for their experience and enhanced interpretation are both tools for improving visitor satisfaction and repeat and recommended business.
3. Advice on techniques to assist in locating and observing kangaroos.
4. A flyer containing minimal impact guidelines for operators/ visitors in relation to kangaroos.

5. An annotated reference list of key sources of information on kangaroos. These references will assist in interpretation, in planning for high quality kangaroo encounters, and in planning for minimisation of tourism impacts on kangaroos.

In developing any such kit, the usefulness of such information and its appropriate form needs to be ascertained by discussion with operators and preferably brief visits to a larger sample of more representative sites, to ensure it is fully relevant to their needs.

Two additional points need to be made in relation to the above kit. Firstly, marketing and interpretative materials currently available rarely mention individual species or the incredible diversity of kangaroos; in terms of educating visitors about kangaroos this is an important omission and should be addressed in these guidelines. Secondly, since most operators who offer kangaroo encounters as part of their tourism activities do not specialise in wildlife, any information provided to assist in enhancing kangaroo experiences or interpretation should not assume much prior knowledge and be written in an easily readable, non-technical way.

4.4 Final Comments

This report has proposed steps that can be taken to help facilitate sustainability of existing kangaroo-related tourism enterprises and made some preliminary suggestions regarding directions for future development. However, broad market-based research on what tourists expect and want with regard to kangaroo encounters is necessary before overall directions for the future of kangaroo-related tourism can be established, and this has been partially addressed by Fredline and Faulkner (2001b). Another CRC study by Croft and Leiper (2000) has assessed the opportunities for development of new kangaroo-related tourism enterprises. The present study has concentrated to a large extent on kangaroo-related tourism run by the private sector, but it is apparent that a large proportion of kangaroo-related tourism is under the control of the public sector in protected areas. Therefore there remains a need to determine in more detail the role of protected areas in kangaroo-related tourism. Taken together, the above body of research will be useful in planning for the

future of kangaroo-related tourism in Australia⁴ and as a basis for development of support materials to assist operators in enhancing the quality of their kangaroo-related tourism products.

⁴ We also note that while this study provides useful guidelines, the generalisability of some of the conclusions reached in our evaluations are limited by the relatively limited time and budget for this project, and should be verified by more extensive research before any major planning takes place.

APPENDICIES

APPENDIX I:

LIST OF KEY INFORMANTS WHO PROVIDED ADVICE ON POTENTIAL BEST PRACTICE OPERATORS

STATE	STAFF INTERVIEWED	ORGANISATION NAME
WA	Andrew Burbidge	Department of Conservation and Land Management (CALM)
WA	Paul de Tores	CALM
WA	Daryl Moncrieff	CALM
WA	Stephen de Silva	Librarian, CALM
QLD	Alan Horsup	Queensland Parks and Wildlife Service
TAS	Nick Mooney	Tasmanian Parks and Wildlife Service
SA	Fraser Vickery	Department of Environment and Natural Resources
VIC	Graeme Coulson	Melbourne University
WA	Eleanor Russell-Rowley	
NSW	Marguerite Young	Worldwide Fund for Nature
NSW	Peter Jarman	University of New England
NSW	Jack Giles	Taronga Zoo

APPENDIX II:

ORGANISATIONS AND ACTIVITIES INVOLVED IN FREE-RANGING KANGAROO TOURISM IN MARCH 2000⁵

ORGANISATION NAME	ACTIVITY NAME	DESCRIPTION OF EXPERIENCE
AAT Kings Tours - Melbourne	Puffing Billy, Warrook Cattle Farm and Penguin Parade	Travel on Australia's oldest steam train/ View little penguins and other native Australian wildlife.
AAT Kings Tours Pty Ltd	West McDonnell Ranges and Alice Springs Desert Park	Stop at the Simpson Gap, maybe spot some wallabies.
Acacia Apartments Designer Tours	Acacia Apartments Designer Tours	Personalised tours and real flexibility to see the wildlife that you want to see.
Active Safaris	2 Day South West Discovery	Pass through national parks, containing rugged cliffs, surf beaches and virgin forest.
Adventure Charters of Kangaroo island	Adventure Charters of Kangaroo Island	A range of holiday experiences/ Explore island life and observe wildlife in their natural habitat.
Adventure Terra Safari Tours	3 Day Kakadu, Mary River and Litchfield	Stay at Egrets Rest Lodge where the wallabies and birds live with you.

⁵ As indicated by availability of promotional materials at the time. Note that this list does not correspond exactly with those analysed in the classifications as it is based on information several months later.

Albany Coastal Safaris	Fitzgerald River National Park Tour	The Fitzgerald National Park is the largest in the region with over 1700 recorded species of plants/ Large range of fauna, particularly birds, mammals and reptiles. Guest house, and neighbouring National Park camping. Many pademelons at edge of forest.
Alf's 4WD Safaris	Mootwingee National Park	Visit secluded gorges and tranquil rockholes that attract abundant wildlife.
Alkirna Nocturnal tours	Alkirna Nocturnal Tours	Experience wildlife rarely seen in day light.
All Terrain Safaris	35 Day Western Half of Oz	Travel through the western half of Australia viewing incredible scenery, wildlife and wildflowers.
All Terrain Safaris	4 Day South-West	Visit wave rock, climb Bluff Knoll/ Spotlight for kangaroos/ Taste bush foods.
Alpine 4WD Tours	Alpine 4WD Tours	Takes you off-road/ Home to some of the world's most unique and beautiful wildlife/ We take only photographs - we leave only footprints.
Araucaria Ecotours	Araucaria Ecotours	3-Day zoologist led tour of the wild Border Ranges.

Aussie Bight Expeditions	Aussie Bight Expeditions	Witness some of the magnificent bays and landforms of Cape Le Grand National Park/ Some of the best scenery in the world/ Catch the magnificent wildflowers.
Australia Pacific Tours	Historic New Norcia, & the Pinnacles	Say 'good morning' to the koalas and other unique Australian animals, such as wombats, kangaroos & emus at the Australian Wildlife Park.
Australia Pacific Tours	Pinnacles, 4WD, Sand Dunes & Beach	Yanchep National Park, set amongst the bush this park is home to a family of koalas/ Keep your eyes peeled for glimpses of native wildlife.
Australia Pacific Tours	Pinnacles, Wildflowers One Day Explorer	Head to Yanchep National park, where time is taken to view koalas In the superb Australian bush/ It is also possible to see other native animals such as emus and kangaroos.
Australian Dreaming Trails	Australian Dreaming Trails	Fly over spectacular coastline and experience a variety of wildlife.
Australian Pinnacle Tours	One day 4WD Fun, Pinnacles Desert, Wildflowers, Koalas, Sand Dunes and Beaches Adventure	Driving along deserted beaches/ View kangaroos and emus touring the pinnacle desert.

Australian Pinnacle Tours	Perth and Fremantle Morning Sights	See the highlights of Perth and Fremantle/ Feed the black swans at Lake Monger. Short-eared rock wallabies now thrive in rocky crevices close to the water's edge.
Australian Pinnacle Tours	Pinnacles Desert, Yanchep Koalas, Wildflowers and Wildlife Tour	Yanchep National Park home to a family of native Australian koalas. Enjoy the unique experience of touching and photographing these beautiful creatures/ Keep an eye out for kangaroos and emus as they come out to graze in the farmers paddocks.
Australian Wilderness Safaris	Australian Natural History Safari	Highly experienced naturalist guide/ Host of native rainforest birds and animals.
Autopia Tours	Tour 1	To view free ranging penguins, feed and handle captive kangaroos and wallabies. Photograph wild koalas.
Autopia Tours	Tour 5	View magnificent and spectacular scenery and see free ranging wildlife.
Backtracks 4WD safaris	Lamington & Mt Tamborine NPs	Tour of National Parks.

Barrington Top Guest House	Barrington Top Guest House	Accommodation and guided activities. Pademelons seen in spotlighting, free-range and tame kangaroos (mostly eastern greys).
Bayree Farm	Bayree Farm	Experience kangaroos in the wild and maybe see emus coming out to drink from sheep watering troughs.
Beagle Bay Caravan Park	Beagle Bay Caravan Park	Caravan park with wildlife present.
Beyond Tours	Beyond Tours	Experience the Flinders Ranges and view rare wildlife.
Bicheno Hideaway	Bicheno Hideaway	Accommodation (chalets) situated on beautiful Tas coastline/ Range of wildlife activities/ Bush setting.
Bimbimbi	Bimbimbi	Go bush and enjoy country hospitality on this grazing property/ Feed roos, bird watch, ride and fish/ Catch a glimpse of abundant bird life in bush.
Bluff Downs	Bluff Downs	See a glimpse of cliff hopping rock wallabies on this outback station.
Bogie River Bush House (The)	Bogie River Bush House	Tame native animal handling (wallabies, possums, etc).

Boomerang Bicycle Tours	Great Ocean Road	Bicycle tour with bird and animal wildlife viewing opportunities.
Brumby Tracks	Brumby Tracks Trail Rides	Horse riding tour that includes incidental wildlife viewing.
Bungaree Station	Bungaree Station	Take a bushwalk and see kangaroos and deer in the hills.
Bush & Backwaters	Bush & Backwaters	See an abundance of wildlife.
Bush Limousine	Bush Limousine	Blue Mountains the chance to see wild eastern grey kangaroos at the forest fringe, Goulburn River National Park is remarkable for the diversity and richness of its native wildlife, including red-necked wallabies and wallaroos.
Capalaba Park Alpacas and tourist farm	Capalaba Park Alpacas and Tourist Farm	See rare and precious animals/ Nestled in the foothills of the Great Dividing Range/ Complete rural experience.
Carriageway	Carriageway	Abundant wildlife including kangaroos and over 60 species of birds.
Cherry Creek Retreat	Cherry Creek Retreat	Enjoy the choruses of native birds and frogs and experience this unique wildlife sanctuary/ Go on endless walks, swimming, bird watching, fishing and boating.

Cheyenne Wilderness Retreat	Cheyenne Wilderness Retreat	This retreat offers breath taking views, abundant wildlife, bushwalking and fossicking/ A photographers delight/ View rare and endangered rock wallabies.
Chiltern Regional Park	Chiltern Regional Park	Self-guided tour with informative rail brochure along walking track in natural regenerating white box and other woodlands. May see eastern grey kangaroos and black wallabies.
Coate's Wildlife Tours	Rotamah Island Bird Observatory	8 day tour viewing Christmas Islands unique red crabs and their migration in season/ Abundant bird life and magnificent tropical rainforests. Accommodation only or including guided weekend activities. Also day visits. Kangaroos and swamp wallabies...
Cooper Creek Wilderness	Cooper Creek Wilderness	Interpretive walks through rainforest including nocturnal. Cooper Creek Wilderness contains habitat to populations of Bennetts tree-kangaroo, red-legged pademelon, swamp wallaby and musky rat-kangaroo.

Coorong Nature Tours	2 Day Tour of the Upper South East	Involves tours of conservation parks tailored to individual needs.
Cox's River Escapes	Day Escape: Code JC	A chance to glimpse the shy wildlife in their natural habitats.
D'Oro Tourist Farm	D'Oro Tourist Farm	See kangaroos and native birds in natural bush.
Daintree Connection P.L	Daintree Connection Safari Cruise	A calm cruise with experienced local naturalist/ Informative and picturesque view of the rainforest flora and fauna.
Daintree Wilderness Lodge	Daintree Wilderness Lodge	Pademelons and tree kangaroos on the property as well as musky rat kangaroos and the occasional swamp wallaby have been spotted by guests walking through the property.
Design A Tour	Southern Celebration Tour	Boat cruises/ Tree top walk/ Spot lighting for rare native animals/ Sample local freshwater crayfish.
Design A Tour	Tastes of the Forest	Boat cruises/ Tree top walk/ Spot lighting for rare native animals/ Sample local freshwater crayfish.
Discover the Kimberley	Northern Beaches	See a petrified forest, an Aboriginal midden, pristine beaches, panoramic views, normally a variety of bird life and often a wallaby.

Diving Safaris Pty Ltd (Telhawk Farm)	On The Wallaby 4WD Tours	Roos and wallabies are seen, but not a special focus.
Dryandra Woodland	Dryandra Woodland	Unique self-drive trails including radio drive trail which is the first of its kind in WA. Unguided walks, accommodation available. 13 species of native ground-dwelling mammals, including rare and reintroduced species due to fox control.
East Point Reserve	East Point Reserve	200 hectare recreational area with natural forest and mangroves/ Wide open parkland and safe saltwater swimming away from the sea.
Eco Tours	Ecosystem Cruise	Relaxing and discovering the beauty and diversity of the Coolum Creek ecosystem and Wetland Sanctuary.
Eco-Adventure Tours	Forest Nightwalk/Night Safari	Spotlight walks/ Aussie animals up close.
Ecotrek	Flinders Ranges	Walk the Haysen trail and see specific types wildlife.
Ecotrek	Kangaroo Island	Trekking Tour of Kangaroo Island.

Escape Tours	Southern Wonders	Enjoy the scenery of the southern coastline and the karri forest/ Experience dried flower and wool products/ Visit alpaca farm. Guest house and camping, guided walks, information centre. Red-necked pademelons are common in this area.
Experience Tasmania	Waterfalls, Wilderness & Wildlife	Mt Field National Park/ Short walk under the fern tree canopy/ Russel Falls/ "Meet the natives".
Fairdale	Fairdale	This 127 ha property is also home to over 70 species of rainforest birds, the rare tree climbing kangaroo and platypus/ Activities include swimming, fishing, farm tours, milking and pony rides. Various tours including visits to Flinders Chase. Many western grey kangaroos in Flinders Chase.
Forest of Tranquillity (The)	Forest of Tranquillity	Tame wallabies, bird feeding trays, km's of forest walks.
Forgotten Country 4WD Ecotours	Cattleman's Country	This last remaining wilderness of northern NSW is your best opportunity to see kangaroos in the wild.

Galaxy Tours & Charters	1 Day Wildlife Spectacular	Tour that stops at numerous wildlife attractions, both captive and free-ranging.
Gawler Ranges Safaris	Gawler Ranges Safaris	Includes viewing of kangaroos.
Golden West Feral Safaris	Golden West Feral Safaris	Fully guided hunts in the comfort of air conditioned 4wd, hunt goats, foxes, and camels. Daylight tours plus after-dinner spot-lighting. Includes the opportunity to see Lumholtz's tree kangaroo and musky rat kangaroo.
Great Australian Bight Safari's	Great Australian Bight Safari's	Tour the beautiful Eyre Peninsula.
Great Oak Holdings P.L	Explorer Ecotours: Platypus Explorer	Excellent chance of seeing wild platypus, beautiful Russel Falls, bush BBQ dinner, after dark viewing of quolls, wallabies and possums.
Great Oak Holdings P.L	Explorer Ecotours: Tasmanian Devil Explorer	Devils, quolls, kangaroos, spectacular coastal cliff-top walk.
Great Southern Educational Tour (The)	Great Southern Educational Tour	Environmental Adventure Camp.

Great Western Coach Tours	Gecko Canoeing	See and photograph black swans/ Come face to face with creatures of the deep at fascinating underwater world/ View the many sea-creatures on display. Guided canoe and kayak tours, min 3 days in length. From August onwards we start to see more and more euros and wallabies along the river bank.
Halls Creek and Bungle Bungle Tours	Northern Beaches	See petrified forest, an Aboriginal midden, pristine beaches, panoramic views, normally a variety of bird life and often a wallaby.
Hanericka Farm stay	Hanericka Farm stay	Activities include fishing, yabbing/ Observe kangaroos, wallabies and other wildlife in their natural surrounds.
Hanging Rock Reserve	Nightwalks	During the tour see a number of native mammals and a large variety of birds.
Harlow Park Horse Riding	Harlow Park Horse Riding	Horse riding tour that encounters wildlife along the way.
Harmony Holidays/Sanders Gorge Sanctuary	Sanders Gorge Sanctuary	Wildlife refuge on a privately owned sheep station.
Harry Nanya Tours	Mungo NP 1 Day Tour	Aboriginal tour of Mungo Nat. Park.

Harry Nanya Tours	Wentworth One Day Heritage Trail	Aboriginal nature tour.
Healesville Sanctuary	Healesville Sanctuary	The Australian wildlife experience/ Wander through beautiful bushland/ Encounter animals at close range.
Holiday Hub Tourist Park	Holiday Hub Tourist Park	Tourist Accommodation Park set in bushland on the beach.
Howard Springs Nature Park	Howard Springs Nature Park	Swim with fish and turtles/ Follow the nature trail through rainforest and lush parklands/ See goannas, wallabies and many bird species.
Inala - Bruny Island	Guided Nature Tours	Tours operate by demand.
Kakadu Plus	Kakadu Plus	Tours into Kakadu Park includes camping and wildlife viewing.
Kangaroo Island Ferry Connections	Kangaroo Island Ferry Connections Tours	Tour of Kangaroo Island.
Kangaroo Island Odysseys	Kangaroo Island Odysseys	A kangaroo silhouetted at dusk against the pounding sea/ Taste, touch, scent and sound the delights of the island.
Kangaroo Island Wildness Tours	Kangaroo Island Wildness Tours	Observe kangaroos in their wild and natural habitat.
Karaway Country Tours	Karaway Country Tours	A great way to experience the relaxed lifestyle of the big river country.

Keetleys Tours	1 Day Katherine Trek	Katherine's spectacular scenery is a major drawcard that makes this tour so popular/ See plenty of wildlife.
Kiah River Cabins	Kiah River Cabins	Watch the kangaroos swim across the sandflats or catch the local wombat out for a stroll.
Knockrow Castle & Park Zoo	Knockrow Castle & Park Zoo	See a variety of Australian wildlife.
Kroombit Park	Kroombit Park	Farm situated next to National Park/ View the wildlife in its natural habitat.
Kuranda Rainforest Resort	Kuranda Rainforest Resort	Has a unique wallaby sanctuary and a panorama of native flora and fauna.
Kyabram Fauna Park	Kyabram Fauna Park	Run by the community of Kyabram/ Includes bird watching towers, walk-through natural wildlife exhibits.
Lake Argyle Cruises	'Bower Bird' Cruise	Cruise that spots wildlife.
Lake Argyle Cruises	Silver Cobbler Cruise	All encompassing cruise to take you on a tour that will cover 120 kms of lake, over 240 species of birds, 26 species of fish, & 20000 freshwater crocodiles. Farm-stay cattle station. Rock wallabies on property, roo-feeding advertised.

Lakeside St. Clair Wilderness Holidays	Lakeside St. Clair Wilderness Holidays	Range of accommodation overlooking lake within world heritage area/ Ranger guided walks/ Regular inhabitants incl. "Bennett's wallabies" and pademelons/ Range of bird life and nocturnal animals.
Linley Park Animal Farm	Linley Park Animal Farm	Experience a true Aussie farm/ See a wide range of native and exotic animals.
Majestic Tours	Francois Peron NP	Home to many rare and endangered animals.
Melbourne's Best Tours	Penguin Parade Tour	Travel through scenic farmlands/ Stopping to see Australian Wildlife where you can handfeed kangaroos and emus and see koalas up close/ Nobbies/ Seal rocks, seagull and mutton bird nesting areas/ Witness the nightly ritual of the world's smallest penguins
Mt Loftys Ranges Bushwalking Tours	Day Walk Parra Warra	Go walking through the Australian bush and see kangaroos and many bird species.
Mt Piper Education Reserve	Mt Piper Education Reserve	Enjoy a wide variety of native animals and birds/ In summer chance of seeing numerous butterflies as they are attracted to the top of the mountain as part of a breeding ritual.

Murramarang Resort	Murramarang Resort	Resort with kangaroos resident.
Murray River Educational Nature Tours	Murray River Educational Nature Tours	Nocturnal kangaroo tours available.
Myella Farm Stay	Myella Farm Stay	Join in every day farm life/ See kangaroos in the wild.
Nainoo Nature Guides	Nainoo Nature Guides	Beach and bush walk/ Appeal to birdwatchers, photographers/ See agile wallabies grazing on short grass.
Napier Downs	Napier Downs	Well appointed cottage with stunning views/ Enjoy conducted farm walks, kangaroo spotting, yabbie catching or just relax by the log fire.
Nature Trek South Australia	Nature Trek South Australia	"I've never seen and patted so many kangaroos".
Neil McLeods Ningaloo Safari Tours	2 Day Beach Camp Safari	Wonder at the treasure trove of natural attractions/ Many species of beautiful corals and brilliant coloured reef fish/ Explore the pristine coastline/ Relax around the campfire at Elle's Beach.

Neil McLeods Ningaloo Safari Tours	Top of the Range	The wildlife abounds with red kangaroos and blue flyers/ Hamper lunch overlooking beautiful Osprey bay/ See the giant osprey nests and the timid black footed rock wallabies sunning themselves/ Snorkel in the crystal clear waters of Ningaloo Reef's ...
Nelgai Host Farm	Nelgai Host Farm	Set in Australian bush with large lagoon and abundant wildlife/ Birdwatchers will delight in the array of bird life and wildfowl surrounding the lagoon/ See kangaroos and various kinds of wallabies/ Get to feed chooks, collect eggs...
Otway Ocean Tours	Nighttime Forest Walk	Spotlighting tour for nocturnal Australian animals.
Palm View Chalets	Palm View Chalets	Feed possums and kookaburras from the balcony.
Perup Forest Ecology Centre	Perup Forest Ecology Centre	A spectacular wilderness experience, 27 species of native mammals, designed to help visitors gain knowledge and understanding of nature conservation and forest management. Best single location in Australia for observing rare marsupial wildlife.

Plain Creek Cattle Station	Plain Creek Cattle Station	Offer memories second to none for years to come/ Bushwalking, bird watching and star gazing/ See the wildlife that roam the area.
Planet Perth Tours	Only Falls and Horses	2 hour horse ride/ See emu and kangaroos/ Handfeed wild parrots.
Prestbury	Prestbury	Experience great views, peace, bird life, kangaroos and the occasional koala/ Go bushwalking, swimming, boasting, fishing...
Proud Australia Holidays	Proud Mary Eco-Cruising	Nocturnal tours available.
Pump Hill Farm Cottages	Pump Hill Farm Cottages	Meet friendly farm animals and enjoy bushwalks and wildflowers right at your doorstep. 3-day wildlife tour featuring an overview of Australia's wildlife while spotting local examples. Visit the hills behind Kooralbyn to look for eastern grey kangaroos...

Quokka: Western Australian Adventure Tours	5 Day, 4WD, South-West Adventure Tour	View native animals and birds/ Travel to a near by dive site/ Overnight camping/ Sample such delights as smoked kangaroo/ Walk and fish along pristine beaches/ View whales and dolphins from the coastal cliffs.
Rain forestation Kuranda	Amphibious Army Duck Tours	Tour World Heritage Rainforest, Viewing terrestrial and marine animals/ Explanations and interpretation by rainforest guide.
Redback Safaris	Pinnacles 1 Day Tour	Discover the true feeling of our unique outback/ View elusive kangaroos and emus.
Redgum Retreat Holiday Resort	Redgum Retreat Holiday Resort	Tour Redgum Forests on the banks of the Murray River/ See koalas, kangaroos, bird life and Australia's largest eagle nest/ Stay at Redgum Retreat on the edge of Barmah State Park.
Renmark River Cruises	Renmark River Cruises	Short walks looking for kangaroos as well as emus and other bird life.

Riddy's Trawool Valley Tours P/L	Australis Nature Tours	Take a walk/ Have a picnic or relax in comfort while driven through picturesque farmland of cattle and kangaroos. Mobs of wild kangaroos seen during drive around periphery of Serendip Sanctuary.
Riddy's Trawool Valley Tours P/L	Riddy's Trawool Valley Tours P/L	Take a walk/ Have a picnic or relax in comfort while driven through picturesque farmland of cattle and kangaroos.
Rotamah Island Bird Observatory	Rotamah Island Bird Observatory	Delight in the sights and sounds of nature/ Bird observatory with accommodation and regularly held wildlife theme activities.
Round About Tours	Animals Galore	Discover Tidbinbilla Nature Reserve and find kangaroos, koalas, wallabies, emus and other animals. Enjoy a relaxed pace and a beautiful bush setting. Taste bush food.
Round About Tours	Roos and Views	See lots of kangaroos just near Canberra on a short bushwalk. Beautiful sunset from Canberra's best lookout and learn about Canberra's history.

Safari Treks	Pinnacles Day Tour	First stop in Yanchep National Park to make contact with the koalas/ We keep a constant lookout for the many kangaroos that live in the region.
Sea Charters	Round About Tours	Day Tour to Tinbinbilla Nature Reserve, kangaroos, including red, lots of information from our friendly guides, Sunset Tour - lots of kangaroos near city on short bushwalks, learn all about kangaroos. "Did you know there are 58 types"?
Sedgwick's Camel Farm	Sedgwick's Camel Farm: Sunset Camel Trek & Bush Walk	An unique adventure experience the whole family will enjoy/ Take a sunset camel trek, watch the kangaroos as they come for their nightly feed.
Serendip Sanctuary	Serendip Sanctuary	Wildlife viewing from specially designed indoor facilities.
Seymour Bushland Park	Seymour Bushland Park	Experience a number of native wildlife in a natural bushland setting/ Enjoy picnicking, a walk in the peace and tranquillity of the bush/ Watch for wildlife and listen to their calls.

Sleepy Hollow Farm Cottage	Sleepy Hollow Farm Cottage	There is magnificent bird life, kangaroos and occasional echidnas/ See a wide variety of farm animals/ Kangaroos can be seen grazing at dawn and dusk and from time to time echidnas on their endless hunt for ants.
South Australian Scenic Tours	South Australian Scenic Tours	Tours of National Parks with wildlife component.
South West Adventure Tours	South West Adventure Tours	Experience Tasmania's West Coast, wild and magnificent/ Choose from a number of different tours to experience an adventure of a lifetime. Cruises on river and amongst mangroves. Kangaroos and wallabies seen on river bank.
Sunshine Coast Ecotours	Ecosystem Cruise	Enter the Coolum Creek ecosystem and wetland sanctuary region, encounter some of the prolific bird life that inhabit the area, kangaroos and wallabies rest lazily in the shade.
Surefoot Explorations Pty. Ltd.	Wilson's Promontory	Drive to tidal river and take a short walk to see wombats, kangaroos and emus.
Talitha Trail Rides	Talitha Trail Rides	Enjoy the bush and if you are lucky see wildlife such as emus and wallabies.

Talune Wildlife Park	Talune Wildlife Park	Lies in a beautiful sheltered valley/ Established on rich farmland/ Lovable wombats bounding wallaby and many more will curiously greet you/ Our animals are friendly and you will be able to pat and feed most of them...
Tasmanian Expeditions	Cradle Mountain Trek	Trek through World Heritage Nat. Park and wilderness/ Wildlife abounds and you might even spot the shy Tasmanian devil.
Tasmanian Expeditions	Cycle and Canoe Longford	Explore picturesque rolling countryside/ See abundant bird life of the area. Walking and canoeing. Flinders Ranges Heysen Trail and Farm stay - red kangaroos and euros commonly sighted. Canoeing through the desert.
Tasmanian Expeditions	Freycinet Walk	Explore Nat. Parks through a number of different walks/ See wildlife and stay in cabins.
Tasmanian Expeditions	Platypus Tour	View platypus and night spotting of wombats, Bennetts wallaby and more/ Discover insects and the secrets of the big bellied seahorse.

Taylor's Bush Tours	Taylors Bush Tours	See the beautiful Kirrara Falls/ Sightings of wildlife.
Tidbinbilla Nature Reserve	Tidbinbilla Nature Reserve	Large natural enclosures of different habitat types in larger area of nature reserve. Walking trail.
Tobwabba Tours	Tobwabba Tours	Visit to traditional sites, learn about history, bush tucker and music restaurant serves bush tucker. Opportunity to view locally produced artefacts. View dolphins.
Travel North	Crocodile Night Adventure	Spotlighting cruise of the Johnstone River.
Travelabout 4WD tours	4 Day Monkey Mia Kalbarri/Pinnacles 4WD Adventure	4 days of fun, sun and adventure/ View dolphins, kangaroos and emus along with other activities.
Travelabout 4WD tours	Pinnacles Desert, Sand Dunes & Beaches 4WD Fun Tour	Go to a Koala Park where we have the opportunity to see native wildlife/ Stop at a small fishing village/ Deserted beach with clear water and gentle surf/ Bush tracks viewing elusive kangaroos and emus.
Trek the Ranges	Trek the Ranges	Explore the countryside on horse back and a variety of wildlife.
Triangle Tours and Charters: Magela P.L	Magic Lake Argyle	Enjoy the magic of Lake Argyle, Australia's only inland sea/ Feed the euros and fish/ View Carlton Gorge.

Victoria Desert Tours	Victoria Desert Tours	Experienced tour guide taking you to glorious locations/ See wildlife including kangaroos, emus, dingos, eagles, camels, lizards.
Wait-a- While Environmental Tours	Mountain Wildlife Experience	Emphasis on rare mammals that are only found in the mountainous rainforests.
Waratah Bay Coastal Tours	Waratah Bay Coastal Tours	Walk through coastal environments/ Wildlife to be seen along the way.
Warrawong Sanctuary	Warrawong Sanctuary	Guided tours/ Accommodation.
Wattle Downs Sheep Station	Wattle Downs Sheep Station	Experience real Australia and find memories to last a life time/ A working stud merino farm with cattle, horses and abundant wildlife/ Enjoy bushwalking, bird watching or a picnic in an unspoilt native fauna sanctuary/ At night have the thrill of night spotlighting...
West Coast Safaris	South West Explorer	Explore the Stirling Ranges/ Take the exciting " tree top walk "/ Swim in the crystal clear of eagle bay.
Western Travel Bug	Albany, Margaret River, South West, Esperance & Wave Rock	Visit magnificent beaches/ Stop at National parks and visit a wildlife park to view kangaroos, koalas, and emus.

Western Travel Bug	Kalbarri, Pinnacles & Wildlife	General tourist natural attractions tour that stops at the Yanchep National Park to observe wildlife.
Western Travel Bug	Pinnacles Day Tour	Visit National Parks, see wildflowers, kangaroos, koalas & emus/ Enjoy morning tea and lunch.
Western Travel Bug	Pinnacles on Sunset Weekend	Visit Yanchep National Park, see koalas, kangaroos, emus/ Visit a farm, see native wildflowers, sheep sheering.
Wild-Life Tours	Great Ocean Road Special	Visit Tower Hill, a volcanic crater loaded with koalas, emus, kangaroos.
Wilderness Rides	Wilderness Rides	Horse back tour with wildlife attention.
Wildscapes Safaris	Rainforest at Night	An amazing variety of nocturnal wildlife/ Use spotlights to find and photograph wonderful nocturnal animals.
Wilsons Promontory Tours	Wilsons Promontory Tours	Relax and let us take you to places and tell you stories.
Woodridge Country Retreat	Woodridge Country Retreat	See the pet kangaroos and a colony of rare white wallabies.
Wooleen Station	Wooleen Station	Large sheep station with wildlife in attendance.

Yardie Creek Tours	Yardie Creek Boat Cruise	Offers you the perfect way to view this beautiful area by taking a leisurely and informative cruise up spectacular Yardie Creek/ Appreciate the colours and beauty of the gorge/ Best opportunity of seeing close-up the fauna of the gorge, especially the rare black striped rock wallaby.
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APPENDIX III:

VISITOR SURVEY

Developing Best Practice Principles for Viewing Kangaroos

This survey is being conducted by the CRC for Sustainable Tourism. The aim is to understand visitor needs and responses to the kangaroo viewing experiences. The results of the survey will be used to improve the planning for, and management of, kangaroo viewing as a tourist activity.

You can help us to improve this type of experience for visitors by spending approximately 10 minutes of your time completing this questionnaire. All of your answers will be confidential and although your participation is voluntary your help would be greatly appreciated.

When you have finished please place the questionnaire in the envelope provided, seal it and return it to the staff member who gave it you.

If you do not wish to participate please place this questionnaire in the envelope provided, seal it and return it to the staff person who gave it to you.

1. Where do you usually live?

- ☐ In Australia Please give us your post code _____
- ☐ Outside Australia Please tell us the country _____

2. In general, how interested are you in viewing wildlife while on holidays?

- ☐ The opportunity to view wildlife is one of the most important factors in my travel decisions
- ☐ The opportunity to view wildlife is included as part of my travel decisions

- ☐ Viewing wildlife is not included in my travel decisions, but I enjoy seeing wildlife while doing other things
- ☐ I am not interested in viewing wildlife while on holidays
- ☐ I prefer to avoid wildlife while on holidays

3. Thinking about your decision to take this tour? How important were opportunities to see kangaroos in that decision.

- ☐ The opportunity to view kangaroos was one of the most important factors in my decision
- ☐ The opportunity to view kangaroos was included as part of my decision
- ☐ Viewing kangaroos was not included in my decision, but I enjoy seeing them as part of this experience
- ☐ I am not interested in viewing kangaroos, my decision was based on other things
- ☐ I didn't make the decision, someone else did.

4. Thinking about wildlife experiences in general how important are the following features to you?

	NOT AT ALL IMPORTANT	NOT VERY IMPORTANT	SOMEWHAT IMPORTANT	VERY IMPORTANT
Large numbers of wildlife to see				
Unique or unusual wildlife				
Being able to get close to the wildlife				
Interesting information about the wildlife				
Seeing wildlife in a natural environment				
Seeing wildlife behaving naturally				
Large variety of wildlife				
Knowledgeable guides/ staff are available				
Wildlife are easy to see				

FEATURES	NOT AT ALL IMPORTANT	NOT VERY IMPORTANT	SOMEWHAT IMPORTANT	VERY IMPORTANT
Pleasant environment Feeling safe				
A natural environment with little evidence of humans				
Being able to touch or feed the wildlife				
Visitor numbers are limited				
Seeing rare/ endangered wildlife				

(Note: When we say wildlife we mean land and marine animals, birds, and insects and wild rather than domestic animals).

5. How many kangaroos did you see today?

☐ None, or I saw _____ Kangaroos.

Approximately how close did you get to the kangaroo/s? _____

6. Did you see any other wildlife?

☐ No

☐ Yes, what did you see? _____

7. Overall how satisfied were you with the kangaroo viewing opportunities on this tour?

[illegible]

10. Would you recommend this tour to others?

- ☐ Yes, definitely ☐ possibly ☐ no ☐ don't know

11. Would you take this tour again?

- ☐ Yes, definitely ☐ Yes, if return to region ☐ maybe ☐ no

12. Who are you travelling with on this trip?

Please tick as many as apply.

- | | |
|---|--|
| <input type="checkbox"/> I'm alone | <input type="checkbox"/> Spouse or partner |
| <input type="checkbox"/> Child(ren) | <input type="checkbox"/> Other family/relatives |
| <input type="checkbox"/> Friends | <input type="checkbox"/> Tour or organised group |
| <input type="checkbox"/> Other (please specify) _____ | |

13. In what year were you born? 19_____

14. Are you ☐ male or ☐ female?

Thankyou very much for your help. Please place the questionnaire in the envelope, seal it and return it to the staff person who gave it to you.

APPENDIX IV:

OBSERVATIONAL CHECKLIST FOR KANGAROO ENCOUNTERS

A. Tours

For each "group" of macropods seen at one time

(defining group as all animals of one species seen at one time):

1. **Species**
2. **Habitat** – include vegetation, day/night, land tenure
3. **Population vulnerability** – comment if evidence of very small or localised population where tourism could affect a significant proportion of population.
4. **Number of individuals** visible to tourists
5. **Area** where animals seen when > 2 (draw a rectangle round furthest apart animals and state length, breadth) (used to calculate density)
6. **Type of tourist interaction:** view from vehicle/on foot, photograph, touch, feed
7. **Handfeeding**
 - who feeds
 - type of food
 - quantity of food
 - unused feed
 - regurgitationComments
8. **Handling?**
9. **Flash photography?**
10. **Disruptive behaviour of tourists?** (e.g. noise, run)

- 11. Duration of encounter** (mins)
- 12. Behaviours seen** by tourists (feed, move, alert, rest, groom, interaction (describe))
- 13. Visibility** totally unobscured, partially obscured, almost fully obscured; by what e.g. vegetation
- 14. Other** features of particular interest to tourists
- 15. Activity state before disturbed** of majority (feed, move, alert, rest, groom, interaction, unknown)
- 16. Minimum distance** of animal from tourist (touch, 0-2m, 2-5m, 5-10m, 10-20m, 20-50m, >50m)
- 17. Reaction to tourists:**
 - 1 Flush as soon as detect people (<5 secs)
 - 2 Alert > 5 secs then flush
 - 3 Remains alert
 - 4 Alert then return to previous behaviour
 - 5 No obvious change in behaviour
 - 6 Move towards tourist
 - 7 Aggression towards tourist
 - Other (e.g. takes food from tourist)
- 18. Change in activities** of majority
 - 1 Does not resume activity while tourists present
 - 2 Resumes previous activity while tourists present (or never changed)
 - Other (e.g. include disruption of mother young behaviour)
- 19. Effects of tourists on** majority of animals' locations
State distance moved and change in microhabitat, with comments
- 20. Typical visual condition score**
Good - no indentation
Medium – lines on hips but no hollowing
Poor - hollowing

21. Any evidence of health problems (injuries, lameness, swellings, discharges, salivation, scouring, coat condition, skin condition, wet or matted fur, body condition – state only if get good look)

22. Tourists reactions (describe)

B. Static attraction or accommodation with macropods around

During one hour of observation at peak tourist viewing time positioned at location to view maximum number of tourist-macropod encounters:

1. Species

2. Habitat – include vegetation, day/night, land tenure

3. Population vulnerability – comment if evidence of very small or localised population where tourism could affect a significant proportion of population.

4. Number of individuals visible to tourists

5. Area where animals seen where >2 (draw a rectangle round furthest apart animals and state length, breadth) (used to calculate density)

6. Number adult males, adult females no obvious py, adult female py small bulge, adult females large bulge (head out or in), yaf, subadult male, subadult female, unknown of each **species** or if insufficient time, count proportion of females with and without visible young

7. Type of tourist interaction: view, photograph, touch, feed (number of each)

8. Handfeeding

- who feeds
- type of food
- quantity of food
- unused feed
- regurgitation

Comments

9. Handling?

10. Flash photography?

11. Disruptive behaviour of tourists? (e.g. noise, run)

12. Duration of each macropod within viewing distance (mins)

13. Behaviours seen by tourists (feed, move, alert, rest, groom, interaction (describe))

14. Visibility totally unobscured, partially obscured, almost fully obscured; by what e.g. vegetation

15. Other features of particular interest to tourists

16. Activity of majority (feeding, resting, interacting, alert, unknown)

17. Intra and interspecific aggression (subjects, number of bouts, trigger factors, describe)

18. Minimum distance of animal from tourist (touch, 0-2m, 2-5m, 5-10m, 10-20m, 20-50m, >50m)

19. Reaction to tourists: (for each macropod)

- 1 Stay/move into viewing area and carry out "natural" activity
- 2 Stay/move into viewing area and flush when see people
- 3 Stay/move into viewing area and alert for time x then "natural" activity
- 4 Approach tourist

5 People move to where macropods are – then record as for tours

20. Visual condition scores

21. Coat condition scores

22. Health problems (injuries, lameness, swellings, discharges, salivation, scouring, coat condition, skin condition, wet or matted fur, body condition)

23. Tourists reaction (describe)

REFERENCES

- Blamey, R. 1995. The Nature of Ecotourism. Occasional Paper No. 21. BTR, Canberra, Australian Capital Territory.
- Blamey, R.K. and D. Hatch. 1998. Profiles and Motivations of Nature-Based Tourists visiting Australia. Occasional Paper No. 25. BTR, Canberra, Australian Capital Territory.
- Blyde, D. 1994. Management and diseases of macropods. In *Wildlife*. The Post-Graduate Committee in Veterinary Science, Proc. 233: 247-251.
- Blyde, D. 1999. Advances in treating diseases of macropods. In *Wildlife In Australia – Health and Management*. The Post-Graduate Committee in Veterinary Science, Proc. 327: 439 – 452.
- Booth, R. personal communication, 2000.
- Booth, R. 1991. Macropods – husbandry, handling, anaesthesia and common diseases. In *Diseases of Exotic and Zoo Animals*. Vol. 2. Recent Advance Series No. 57.
- Buchanan, K. 1999. Behavioural impacts of handfeeding on a mother and young red-necked wallaby. Third Year Project Report for Bachelor of Science. School of Environmental and Applied Sciences, Griffith University, Gold Coast.
- Burger, E. 1997. *Wildlife Feeding Report*. Industrial Placement Report. University of Queensland, Gatton.
- Crabtree, A.E. and Black, R.S. 2000. *EcoGuide Program Guide Workbook*. Ecotourism Association of Australia, Brisbane, Queensland.
- Croft, D. and Leiper, N. 2000. *in review*. Opportunities for tourism based on wildlife kangaroos. Research Report Series. CRC for Sustainable Tourism, Gold Coast.
- Cooperative Research Centre (CRC) for Sustainable Tourism (2002). *Wildlife Tourism Subprogram Homepages*. www.crctourism.com.au/wildlife
- Eibl-Eibesfeldt, I. 1970. *Ethology: the biology of behaviour*. Holt, Rinehart and Winston, New York, USA.
- ESD Working Group. 1991. *Tourism - Final Report*. Canberra, Australian Government Publishing Service.
- Fredline, E. and Faulkner, B. 2001a. *Status assessment of wildlife tourism in Australia series: International market analysis of wildlife tourism* (Wildlife Tourism. Research Report No. 22). CRC for Sustainable Tourism, Gold Coast, Queensland.

- Fredline, E. and Faulkner, B. 2001b. *International market analysis: Kangaroos in Tourism*. Report to International Fund for Animal Welfare. Griffith University, Gold Coast Queensland.
- Green, R.J., & Higginbottom, K. 2001. *Status assessment of wildlife tourism in Australia series: The negative effects of wildlife tourism on wildlife* (Wildlife Tourism Research Report No. 5). CRC for Sustainable Tourism, Gold Coast, Queensland.
- Ham, S.H. 1992. *Environmental Interpretation: A Practical Guide for People with Big Ideas and Small Budgets*. North American Press, Golden, Colorado, USA.
- Hammitt, W. E. and Cole, D. 1987. *Wildlife Recreation: Ecology and Management*. John Wiley, New York.
- Harvey, N. 1999. *The Impact of Ecotourism upon the well-being of woylies at Dryandra Woodland Village*. Honours Thesis, Zoology Department, University of Western Australia.
- Higginbottom, K., Rann, K., Moscardo, G., Davis, D. and Muloin, S. 2001. *Status assessment of wildlife tourism in Australia series: Wildlife tourism in Australia overview* (Wildlife Tourism. Research Report No. 1). CRC for Sustainable Tourism, Gold Coast, Queensland.
- Hill, B., Arthurson, T. and Chalip, L. 2001. *Status assessment of wildlife tourism in Australia series: Kangaroos in marketing of Australian: potentials and practice* (Wildlife Tourism. Research Report No. 19). CRC for Sustainable Tourism, Gold Coast, Queensland.
- Hughes, K. 1991. Tourist satisfaction: a guided "cultural" tour in North Queensland. *Australian Psychologist* 26(3): 166-171.
- Jarman, P.J., Jones, M.E., Johnson, C.N., Southwell, C.J., Stuart-Dick, R.I., Higginbottom, K.B. and Clarke, J.L. 1989. Macropod studies at Wallaby Creek. VIII. Individual recognition of kangaroos and wallabies. *Australian Wildlife Research* 16: 179-185.
- Knight, R. L. and Cole, D. 1991. Effects of recreational activity on wildlife in wildlands. Pp 238-247 in *Transactions of the Fifth-sixth North American Wildlife and Natural Resources Conference*, R. McCabe, ed. Wildlife Management Institute, Washington.
- Knight, R. L. and Gutzwiller, K. J. (eds). 1995. *Wildlife and recreationists: Coexistence through Management and Research*. Island Press, Washington DC.
- Leiper, N. 1995. *Tourism Management*. RMIT Publishing, Melbourne.

- Liddle, M. J. 1997. *Recreation Ecology: the Ecological Impact of Outdoor Recreation and Ecotourism*. Chapman and Hall, London.
- McKercher, R. 1998. *The business of nature-based tourism*. Hospitality Press, Melbourne, Victoria.
- Mintzberg, H. 1996. The Structuring of Organisations. Pp 331-349 in *The Strategy Process: Concepts, Contexts, Cases*, 3rd edition, Henry Mintzberg and James Brian Quinn, eds. NJ: Prentice Hall.
- Moscardo, G. 2000. Understanding wildlife tourism market segments: an Australian marine study. *Human Dimensions of Wildlife* 5: 36-53.
- Moscardo, G., Woods, B. and Greenwood, T. 2001. *Status assessment of wildlife tourism in Australia series: Understanding Visitor Perspectives on Wildlife Tourism* (Wildlife Tourism Research Report No. 2). CRC for Sustainable Tourism, Gold Coast, Queensland.
- Moncrieff, D. personal communication, 2000.
- Mooney, N. personal communication, 2000.
- Munday, B.L. 1988. Marsupial disease. In *Australian Wildlife: The John Keep Refresher Course for Veterinarians*. The Post-Graduate Committee in Veterinary Science, Proc. 104: 15-19.
- Nature and Ecotourism Accreditation Program Working Group (NEAPWG). 2000. *Nature and Ecotourism Accreditation Program 2nd Edition*. NEAP, Brisbane, Queensland.
- O'Callagan, P. (Lone Pine Sanctuary), personal communication, 2000.
- Orams, M. 1994. Creating Effective Interpretation for Managing Interaction Between Tourists and Wildlife. *Australian Journal of Environmental Education* 10(1): 21-34.
- Pearce, P.L., and Moscardo, G. 1998. The role of interpretation in influencing visitor satisfaction: A rainforest case study. In W. Faulkner, C. Tidswell, & D. Weaver (Eds), *Progress in Tourism and Hospitality Research*, 1998, Part 1. Proceedings of the Eighth Australian Tourism and Hospitality Research Conference, Gold Coast (pp. 309-319). Bureau of Tourism Research, Canberra.
- Roe, D., Leader-Williams, N. and Dalal-Clayton, B. 1997. *Take Only Photographs, Leave Only Footprints*. IIED Wildlife and Development Series No. 10, International Institute for Environment and Development, London
- Skira, I. and Smith, S. 1991. *Feeding wildlife in national parks*. 5th Australasian Regional Seminar on National Parks and Wildlife Management, Tasmania.

- Spielman, D. 1992. Veterinary care of Australian native mammals. In *Urban Wildlife*. The Post-Graduate Committee in Veterinary Science. Proc. 204: 69-97.
- Tourism Council of Australia (TCA)/ CRC for Sustainable Tourism. 1999. *Being green is your business*. Tourism Council of Australia, Woolloomooloo, NSW.
- Tribe, A. 1993. *Medicine and management of captive macropods*. Proceedings of the Queensland Division Annual Conference, Australian Veterinary Association, Brisbane: 46-59.
- Triggs, B. 1996. *Mammal Tracks and Signs: a field guide for south-eastern Australia*. Oxford University Press, Melbourne, Victoria.
- Western Australian Department of Conservation and Land Management (WA CALM). 2000. Four-wheel driving. http://www.calm.wa.gov.au/tourism/4wd_splash.html
- Wilson, R. 1999. Possums in the Spotlight. *Nature Australia* (Autumn 1999): 35-41
- Woods, B. 1997. Interpretive signs in North Queensland. In R. Ballantyne, F. Leverington and L. Sutherland (eds). *Big ideas – small budgets*. Proceedings of the Interpretation Australia Association National Conference, Gatton, 1997.

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The Cooperative Research Centre for Sustainable Tourism was established under the Australian Government's Cooperative Research Centres Program to underpin the development of a dynamic, internationally competitive, and sustainable tourism industry.

Our mission: Developing and managing intellectual property (IP) to deliver innovation to business, community and government to enhance the environmental, economic and social sustainability of tourism.

DEVELOPING OUR IP

Director of Research – Prof Leo Jago

1. Tourism, conservation and environmental management research

Co-ordinator – Prof Ralf Buckley
(r.buckley@mailbox.gu.edu.au)

- Wildlife Tourism
- Mountain Tourism
- Nature Tourism
- Adventure Tourism

2. Tourism engineering design and eco-technology research

Coordinator – Dr David Lockington
(d.lockington@uq.edu.au)

- Coastal and marine infrastructure and systems
- Coastal tourism ecology
- Waste management
- Physical infrastructure, design and construction

3. Tourism policy, events and business management research

Coordinator – Prof Leo Jago
(Leo.jago@vu.edu.au)

- Consumers and marketing
- Events and sports tourism
- Tourism economics and policy
- Strategic management
- Regional tourism
- Indigenous tourism

4. Tourism IT and Informatics research

Coordinator – Dr Pramod Sharma
(p.sharma@uq.edu.au)

- Electronic product & destination marketing and selling
- IT for travel and tourism online development
- Rural and regional tourism online development
- E-business innovation in sustainable travel and tourism

5. Post graduate education

Coordinator – Dr John Fien
(j.fien@mailbox.gu.edu.au)

6. Centre for Tourism and Risk Management

Director – Prof Jeffrey Wilks
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7. Centre for Regional Tourism Research

Director – Prof Peter Baverstock
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MANAGING OUR IP

General Manager – Ian Pritchard
(ian@crctourism.com.au)

1. IP register
2. Technology transfer
3. Commercialisation
4. Destination management products
5. Executive training
6. Delivering international services
7. Spin-off companies

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(pocclery@iprimus.com.au)
- Sustainable Tourism Services
Managing Director – Stewart Moore
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- Green Globe Asia Pacific
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