

TERRESTRIAL WILDLIFE VIEWING IN AUSTRALIA



By Karen Higginbottom and Ralf Buckley

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Status Assessment of Wildlife Tourism in Australia

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EXECUTIVE SUMMARY

Aims

This report reviews 'terrestrial wildlife viewing' (non-consumptive tourism based on free-ranging land-dwelling and freshwater animals in their natural habitats) in Australia. It provides a critical overview of the current status of terrestrial wildlife viewing in Australia, within the context of this form of tourism worldwide, as well as recommendations for action and research to facilitate the sustainable development and management of this sub-sector.

Key Issues

Tourism experiences that include terrestrial wildlife viewing are very diverse. In particular, they vary in the degree of emphasis on wildlife in the experience; the type of organisation (if any) involved, and whether they principally involve tours, attractions or accommodation-based experiences. In Australia, at least 768 organisations provide terrestrial wildlife viewing experiences, but for 93% of these, wildlife viewing is only one component of a broader nature-based or general tourism experience. Generally terrestrial wildlife viewing involves unplanned encounters with whatever animals are encountered across a fairly large area of habitat. Kangaroos, koalas and crocodiles are the kinds of animals that feature most often in terrestrial wildlife viewing in Australia, as indicated by advertising materials.

Worldwide, terrestrial wildlife viewing tourism attracts many millions of participants and directly generates billions of dollars in revenue, although good global estimates do not exist. While this sub-sector is widely thought to have grown substantially over recent decades, there is no good quantitative evidence of this. Wildlife viewing (principally terrestrial) is a significant motivation for 18.4% of international visitors to choose Australia as their destination, and 67.5% of such visitors wish to see Australian animals while they are here. For visitors from Japan, Korea, England and Germany, 'seeing wildlife in their natural surroundings' is ranked among the top six preferred activities for a visit to Australia. Seeing wild animals is a significant factor in choice of holiday destination for around a third of

Australian domestic tourists. Research to date does not allow us to determine the level of demand for terrestrial wildlife viewing, in general or in relation to particular species or forms of tourism.

Visitors who have been surveyed at a range of wild and captive wildlife tourism settings have generally indicated a preference for seeing animals in the wild rather than in captivity. Other evidence indicates that most visitors with an interest in wildlife want what they perceive to be a 'natural' experience. Kangaroos and koalas are by far the most popular species (in terms of number of people who say they wish to see them) among international visitors to Australia, and are also the species most often seen. Visitors who have previously visited Australia are less likely to want to see these 'iconic' species than are those who are visiting for the first time. Good quality interpretation appears to be important to many visitors who engage in terrestrial wildlife viewing, and this seems to be an area with significant potential for improvement in Australia.

The vast majority of enterprises that provide terrestrial wildlife viewing in Australia are small businesses. While some are financially successful, the sub-sector seems to be characterised by a wide range of impediments that are common to small businesses – and small nature-based tourism businesses – in general.

Australia is currently not generally seen as one of the world's top destinations for terrestrial wildlife viewing. However, Australia's terrestrial animals are remarkable on a global scale in a number of important ways, such that they potentially comprise a highly valuable resource for tourism. At the same time, there are a number of features of these animals that provide constraints or challenges in relation to the type of tourism experiences that can be provided, and possibly on overall development of this form of tourism.

Research around the world indicates that if poorly managed, terrestrial wildlife viewing can cause serious problems for sustainability of wildlife populations. In Australia, there has been relatively little research to evaluate these negative effects, but it seems that at present such effects have been minimal. Nevertheless, it is vital to the sustainability of this sub-sector – particularly if further growth occurs – that appropriate planning and management is in place. Types

of animals and issues of special concern in this regard are identified. On the other hand, terrestrial wildlife viewing can have a range of positive effects on wildlife and/or habitats. Some of these effects are already being realised, but there seems to be potential for these to be significantly enhanced.

Management issues and political developments relating to protected areas provide an important context for terrestrial wildlife viewing, as in many countries including Australia they comprise the main venue for such activities. A key problem facing protected areas, and consequently of potential threat to sustainable wildlife tourism, is inadequate resourcing of management authorities in the face of increasing visitor numbers. On the other hand, a key opportunity is increasing moves towards cooperation between these authorities and the tourism industry towards the mutual goal of sustainability.

Conclusions

Australia has a number of important potential competitive advantages in relation to terrestrial wildlife viewing, as well as significant challenges to be overcome. There is some evidence that there is potential for growth of this sub-sector, and there is scope for improvement in product quality, and therefore in yield associated with this form of tourism. There also seem to be opportunities for increased linking of terrestrial wildlife viewing to conservation that deserve investigation. There are large information gaps that need to be filled to determine to what extent, and in what directions, this sub-sector can best be developed. If significant development does occur, the kind of negative impacts on wildlife and ecosystems that have occurred in some overseas destinations can be expected unless proactive management and monitoring is put into place. A coordinated, strategic approach to sustainable development of terrestrial wildlife viewing is needed, with the participation of all key stakeholders.

Recommendations

Actions

These actions should be approached in a coordinated, strategic way, as one will not be effective without the others. Some of these

measures may be most effective within the context of initiatives dealing with tourism or nature-based tourism in general; in other cases it may be worth addressing wildlife tourism specifically.

1. Facilitate enhancement of the quality of terrestrial wildlife viewing experiences, particularly through:
 - investigation of opportunities for development of new types of wildlife experiences, technology and infrastructure;
 - improvement in the quality of interpretation;
 - training, advice and other support measures for operators in business, hospitality, interpretation and wildlife-related skills; and
 - further development of accreditation and licensing systems that are relevant to wildlife viewing tourism.
2. Educate the tourism industry regarding Australian wildlife, wildlife viewing opportunities, and impact issues.
3. Conduct marketing campaigns to raise the level of demand for terrestrial wildlife viewing experiences, and enable consumers to make informed choices about the experiences they seek.
4. Facilitate enhancement of management and monitoring measures in relation to impacts of terrestrial wildlife viewing on the environment (including wildlife), particularly through:
 - education and training;
 - development of user-friendly monitoring techniques;
 - increased funding of protected area agencies for resource management purposes; and
 - where feasible, increased use of tourism revenues for funding management and monitoring.
5. Develop mechanisms to facilitate greater cooperation between tourism and conservation interest groups with regard to terrestrial wildlife viewing.

Research and Communication

- Identify species and situations suitable for wildlife tourism development (see also Green, Higginbottom & Northrope, 2001).

- Investigate demand and market characteristics (especially to elucidate areas of unmet demand and opportunities for most readily driving increased demand).
- Investigate obstacles to tourist participation in existing wildlife tourism opportunities (especially the roles of price and marketing).
- Investigate causes of low visitor numbers for many small operators.
- Assess channels for, and effectiveness of, current marketing strategies and components.
- Investigate factors affecting visitor satisfaction.
- Assess impacts of wildlife viewing on species or populations considered to be at high risk or of threatened conservation status.
- Assess impacts of visitor feeding on terrestrial wildlife populations.
- Assess effectiveness of different management techniques in various types of wildlife viewing situations.
- Investigate obstacles and opportunities for sustainable terrestrial wildlife viewing tourism on private land.
- Assess factors determining the effectiveness of interpretation in terrestrial wildlife viewing, with regard to conservation outcomes and visitor satisfaction.
- Produce guidelines, interpretive and management-related written materials to assist tourists, travel agents and managers.
- Produce interpretive and marketing materials regarding wildlife tourism opportunities in protected areas, to raise incidence and satisfaction levels of wildlife encounters by visitors.

We also recommend that studies that assess wildlife tourism operations examine economic, social, environmental and educational issues simultaneously where possible, since approaches that may be best in one respect may not be so in another and it is the net outcomes that matter. Such studies are rare in Australia, and include research by Moncrieff (1998) and Braithwaite, Reynolds & Pongracz (1996), as well as research by the CRC for Sustainable Tourism that is currently in progress.

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ABSTRACT

This report provides a critical overview of 'terrestrial wildlife viewing' tourism in Australia, along with recommendations to facilitate its sustainable development and management. Information was obtained principally through a literature review, pilot field research and interviews. The types of experiences and animals that characterise this form of tourism are described and quantified. Terrestrial wildlife viewing is shown to be economically significant to Australia, although a lack of detailed understanding of demand issues is highlighted. Common problems facing businesses involved in this sub-sector are presented. Strengths and constraints associated with Australia's terrestrial animals for use in tourism are reviewed. Although negative impacts of terrestrial wildlife viewing on wildlife seem to be minimal at present, the importance of effective management practices to minimise these are stressed. The opportunity to enhance the contribution of terrestrial wildlife viewing to conservation is highlighted. There seems to be potential for improvement in product quality, growth in yield, and possibly overall growth associated with this form of tourism. A coordinated, strategic approach to sustainable development of terrestrial wildlife viewing is needed, with the participation of all key stakeholders. Specific recommendations are given for actions and research to maximise economic, business and conservation benefits to Australia from terrestrial wildlife viewing tourism.

1. INTRODUCTION

This report reviews 'non-consumptive' tourism based on free-ranging terrestrial (land-dwelling) and freshwater animals in their natural habitats, henceforth called 'terrestrial wildlife viewing'. It provides a critical overview of the current status of terrestrial wildlife viewing in Australia, within the context of this form of tourism worldwide, as well as recommendations for action and research to facilitate its sustainable development and management. The report is one of a series comprising a status assessment of Australian wildlife tourism, conducted by the Wildlife Tourism Subprogram of the CRC for Sustainable Tourism. General background and context relating to wildlife tourism in Australia is given in Higginbottom, Rann, Moscardo, Davis and Muloin (2001a).

Australia has the highest diversity of endemic terrestrial mammals, birds, reptiles and amphibians of any major tourist destination (see section 6.1 for details). Many of these animals – particularly the marsupials – are thought to be important in the tourism image of Australia and to be of substantial interest to inbound tourists. Yet tourism based on terrestrial species is relatively poorly developed, and Australians often appear to take their native animals for granted and to be unaware of the existence of the majority of these species. It is tempting to speculate that there is great potential for further development of this sub-sector in Australia. Further, conservation of many of these species is of pressing concern, and conservation agencies are becoming increasingly interested in ways in which wildlife tourism involving these species could contribute to their conservation. Very little has been written on the subject of terrestrial wildlife viewing in Australia, and this review brings together the scattered information that exists, along with additional preliminary research.

Worldwide, birdwatching tourism (a subset of terrestrial wildlife viewing) has emerged as a major specialist sub-sector of wildlife or nature-based tourism in its own right, with its own distinct characteristics. Details that are specific to birdwatching have thus been dealt with in a separate report by Jones and Buckley (2001).

¹Species that occur naturally only in the country or region in question.

2. METHODS

- International published literature and Australian published and grey literature were critically reviewed (up to early 2003).
- A database of commercial wildlife tourism operators from around Australia was compiled based on a wide range of sources (methods described in Higginbottom *et al.* 2001a). This was used to produce the descriptive breakdowns of terrestrial wildlife tourism enterprises in section 3.2, and applies to the year 2001.
- Site visits and operator interviews were conducted during 1999-2000 with 11 tourism enterprises in the south east Queensland/north east New South Wales regions that include viewing of terrestrial wildlife. The aim was to identify common strengths, weaknesses and threats (or obstacles) in relation to business viability, visitor satisfaction, education, and environmental sustainability. These enterprises were selected to cover the range of different types of terrestrial wildlife viewing enterprises operating in the region. Out of the 13 enterprises that were originally contacted to seek participation, two declined. The majority (eight) of those that participated were private commercial businesses, six of which were small businesses employing no more than two full-time staff, and two of which were medium-sized businesses (more than five staff). The other three enterprises consisted of two that were government-run (state and local government respectively), and one run by a non-profit conservation organisation. Nine of the enterprises offered some sort of tour, while two were accommodation-based (an eco-resort and a farm-stay). All but two of the enterprises ran at least part of their activities in protected areas. While only two of the enterprises specialised in wildlife tourism (the rest offered a range of nature-based experiences), six provided at least one tourism product that focused primarily on wildlife. Site visits involved participant observation during tourism activities and evaluation of potential impacts on the natural environment/wildlife. Interviews were semi-structured and took place either face-to-face or by phone, according to preference of the operator. Methods are described

further in Appendix A. These data are used in sections 5, 6.2, 6.4, 8 and 9.

- Data collected for an Australia-wide project evaluating tourism that incorporates viewing of wild kangaroos (published in Higginbottom, Green, Leiper, Moscardo, Tribe & Buckley, 2003a; Higginbottom, Northrope, Croft & Fredline, in press) were used to produce some of the boxed case studies in section 3.2.
- Participant observation and semi-structured interviews were conducted with operators of a small sample of enterprises around Australia chosen to exemplify 'best practice' in one or more respects, during 1999-2001. These were used to provide data for other boxed case studies in section 3.2.
- Semi-structured interviews were conducted with key informants from government tourism and conservation agencies in all Australian States and Territories, either face-to-face or by phone (see Higginbottom *et al.* 2001a for details). The questions on terrestrial wildlife viewing were asked as a supplement to more general questions about opportunities and obstacles facing wildlife tourism covered in the latter report. These data are incorporated into sections 7.1 and 11.
- Some of the descriptive comments and opinions expressed in this report were based partly on the professional experience of the authors, including that based on travel experience and informal conversations with a wide range of people involved in different aspects of wildlife tourism. This applies to section 3.1, 7 and 11.

3. DESCRIPTION OF TERRESTRIAL WILDLIFE VIEWING

3.1 International

Following the classification system proposed by Higginbottom *et al.* (2001a), terrestrial wildlife viewing is distinguished from other forms of wildlife tourism by involving:

- free-ranging (rather than captive) animals;
- species that live primarily on land or in freshwater (as opposed to the sea²); and
- either the viewing of animals performing natural activities, or wildlife research/conservation work conducted by tourists.

The degree of emphasis on wildlife in this form of tourism varies along a continuum from experiences based totally on wildlife through to situations where the wildlife is only a small component of the experience. The wild animals that are viewed can either be located in a small area with infrastructure set up to facilitate viewing, or they can be dispersed over a wider area where they must first be found before they can be viewed.

In practice, terrestrial wildlife viewing activities can be most conveniently divided into the following categories, each of which is somewhat discrete and cohesive in its characteristics:

- 1) Unguided encounters with wildlife in natural areas (e.g. national parks) (i.e. no direct involvement of commercial tourism operators)
- 2) Tourist accommodation (e.g. resorts, farm-stays) or non-nature based tourism facility (e.g. restaurant) featuring surrounding wildlife
- 3) Tours that include non-nature based components as well as a small wildlife component (mainly general sightseeing tours)

² For convenience, species that breed along coastlines but spend much of their time on the sea, such as seals, marine turtles and penguins, are covered in a separate CRCST report on marine wildlife tourism (Birtles *et al.* 2001), although it is recognised that tourism based on these species shares elements common to terrestrial wildlife viewing tourism.

- 4) Nature-based tours that include wildlife
- 5) Specialised wildlife tours
- 6) Research, conservation or educational tours or activities involving wildlife that are offered by organisations whose primary role is not tourism
- 7) Managed static attractions featuring a natural aggregation of terrestrial wildlife

It is not possible to quantify the number of proportion of activities that fall into each category globally. However, several patterns are clear:

- At least in more developed countries like the USA and Australia, more tourists experience terrestrial wildlife viewing through unguided encounters than through commercial activities.
- In most countries, it is much more common for wildlife to be just one component of tourism products than for wildlife to be the primary focus.
- Managed static attractions featuring a natural aggregation of terrestrial wildlife are rare, and most commonly involve colonially nesting birds.

Although no global assessment has been made of numbers of tourists visiting different terrestrial wildlife viewing destinations and/or the importance of wildlife in their decisions or experience, the destinations where the greatest numbers of international tourists engage in terrestrial wildlife viewing can readily be identified (Table 1). According to Shackley (1996), the world's most 'popular' destination for international terrestrial wildlife viewing (as indicated by numbers of tour operators) is Eastern Africa, and this is followed by Central and Southern America. Other regions that appear to have experienced significant growth in terrestrial wildlife viewing over recent decades include Eastern Europe, Australia, Antarctica and the United Kingdom. No assessment has been made of the relative size of domestic markets for wildlife tourism around the world, but North America and perhaps the United Kingdom seem to have the highest rates of domestic participation in terrestrial wildlife viewing tourism.

Table 1: Major international destinations for terrestrial wildlife viewing

REGION	WILDLIFE	COMMENTS
Eastern and Southern Africa (especially South Africa, Kenya, Tanzania, Zimbabwe, Namibia)	Large mammal (and sometimes bird) viewing as part of safari-game lodge experience. Principally in public protected areas; also private game reserves especially in South Africa. Mammals with high diversity, high abundance, large body size. Open plains and plateaus with large vistas make it easy to find and observe wildlife.	Long experience of nature/wildlife (safari) tourism Ban on sport hunting and trophy trade in Kenya Except for South Africa, most tourists are international Significant environmental and socio-political threats
North America (USA and Canada)	Mainly large mammals and birds. Key species include several species of bears (especially polar bears in Churchill, Manitoba), bison, elk, moose, pronghorn antelope, arctic foxes, ptarmigan, caribou, red wolf, coyote, bobcat, river otter, mule deer, California bighorn sheep, alligators, snakes, invertebrates. Centred on protected areas.	Trend away from hunting to wildlife viewing. Growth in birding. Strong domestic component to terrestrial wildlife viewing tourism. Major initiatives to link wildlife viewing to conservation
Central and South America (especially Costa Rica, Belize)	Various forest fauna in areas of high biodiversity in south east Asia, mostly as part of general nature-based experience. Key species include various primates and birds.	Central America generally better developed for tourism than South America due to greater political stability, closer to large market, strong protected area systems, multinational initiatives. Significant environmental and socio-political threats.
South east and South Asia (especially India)	Various forest fauna in areas of high biodiversity in south east Asia, mostly as part of general nature-based experience. Key species including orang-utans and Komodo dragon. More specialised wildlife viewing in India. Centred mainly on public protected areas.	Wildlife tourism generally small but new areas and species becoming available. Significant environmental and socio-political threats.

The level of development of terrestrial wildlife viewing around the world appears to depend largely on a combination of factors that affect tourism development, and factors that affect the quality and availability of the wildlife resource (Box 1).

Box 1: Factors positively associated with the level of development of terrestrial wildlife viewing

Tourism factors

- Factors positively affecting tourism in general, such as mildness of climate, safety, political stability, availability of tourism infrastructure and accessibility/proximity to markets – more developed countries generally have an advantage in these respects.
- Receptivity of the domestic market to wildlife viewing - North America and Europe appear to have domestic markets with the strongest interests in wildlife viewing.
- Specific initiatives for development and marketing of ecotourism or wildlife viewing, with involvement of operators and governments – North America and the United Kingdom seem to feature most strongly here.

Wildlife factors

- The size and quality of the protected area system.
- Diversity and abundance of wildlife (especially of endemic species), and availability of relatively undisturbed natural areas.
- Availability of popular or unique animal species that are can be predictably accessed, approached and viewed (e.g. HLA Consultants, GAIA Consultants Canada, Cottonwood Consultants, 1990).

Interestingly, countries that score high on tourism factors are often different from those that score high on wildlife factors, since the world's highest biodiversity tends to occur in less developed countries that are not well developed for tourism. More developed countries that score at least moderately high in wildlife factors are the USA, Canada, South Africa and Australia. Each of these has significant domestic and international wildlife viewing markets, at least if local recreationists are included. The less developed countries that are popular for wildlife viewing tend to be those that are politically stable and have at least a moderate degree of tourism infrastructure. In these countries, the main market is generally international visitors.

Terrestrial wildlife viewing in most destinations occurs in public protected areas such as national parks (see section 7 for an examination of the implications of this issue). In some countries, such as South Africa and Costa Rica, there is also substantial use of private nature reserves owned by either individuals or NGOs.

Several recent trends in terrestrial wildlife viewing around the world can be identified (see Higginbottom *et al.*, 2001a and Ryan, 1998 for details), and have implications for future directions in development of terrestrial wildlife viewing:

- Increased demand for viewing animals in natural settings (as opposed to in captivity).
- An increasing range of environments and species being incorporated into terrestrial wildlife viewing tourism³.
- At least in North America, wildlife watchers becoming more specialised in what they want in their wildlife experiences³.
- Increased demand for environmentally responsible tourism.
- Increased use of technology to facilitate wildlife viewing³.
- Blurring of the distinction between captive and free-ranging wildlife.
- Increased recognition of the synergies between wildlife tourism and conservation³.
- Use of animal species as icons to help promote nature-based tourism experiences or destinations.

3.2 Australia

At least 768 Australian businesses or organisations provided tourism experiences that include terrestrial wildlife viewing in 2001. The following percentage breakdowns apply to organised forms of terrestrial wildlife viewing tourism excluding specialised birdwatching, as the latter have been investigated in more detail elsewhere (Jones and Buckley 2001). They do not include organisations whose main business is not tourism, and probably under-represent general sightseeing tours with a wildlife component due to limitations of our methods.

³These trends are illustrated in a very practical manner in Richie Oberbillig (2000).

Only 7%⁴ of these organisations offer specialised wildlife experiences: for the rest, wildlife is one component of a broader nature-based or general tourism experience. Generally (for 93% of organisations) terrestrial wildlife viewing involves unplanned encounters with whatever animals are encountered, with the animals generally being dispersed through a wide area. Among operators who do specialise, birds are the most common focus, followed by mammals. Most (87%) terrestrial wildlife viewing activities involve only native Australian animals. Regarding types of interactions with wildlife, the majority of terrestrial wildlife viewing activities (77%) promote themselves as offering only viewing of wildlife, while 10% advertise opportunities to photograph wildlife, and 8% advertise opportunities to feed them. Many tourist operators and independent travellers feed terrestrial animals (especially birds and kangaroos) to encourage them to congregate in one place in reasonable numbers, and/or so that they can be closely approached by tourists.

The types of animals featuring most frequently in promotional brochures for individual wildlife tourism attractions are (in descending order of frequency): kangaroos, koalas, and crocodiles; with other frequently occurring animals being lizards, emus, wombats, cockatoos, possums and eagles (see Higginbottom *et al.* 2001a for details). All of these except the cockatoo⁵ and eagle feature among the animals that international tourists reported they most want to see, with the kangaroo and koala at the top of the latter list (Fredline and Faulkner 2001).

While only 23% of enterprises explicitly state that they operate in protected areas, it seems likely that many more do so. Tourism operations that include terrestrial wildlife viewing are most abundant in Western Australia and least so in Tasmania and the Northern Territory. A review of wildlife resources in the different states and territories, including terrestrial wildlife, is given in Higginbottom *et al.* (2001a). Terrestrial wildlife viewing occurs in a wide range of habitat types, but seem to be most common in coastal habitats.

Nearly all terrestrial wildlife viewing activities include a daytime

⁴Given the types of organisations that are excluded from this breakdown, this would be an overestimate for all terrestrial wildlife viewing enterprises excluding specialised birdwatching.

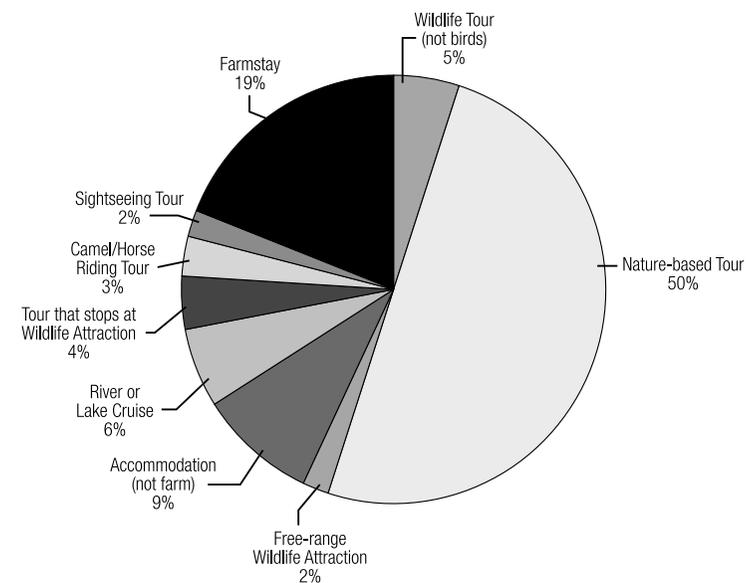
⁵Parrots, however (the group to which cockatoos belong), are part of this list.

component (98%), though most commonly continue into the night (66%). About half (51%) of nature-based tours (the most common form of organised terrestrial wildlife viewing activity) that include a significant wildlife component include both day and night-time activities.

Associated with the majority of terrestrial wildlife viewing occurring within nature-based tours, the most common form of transport is a four-wheel drive vehicle (34%), though walking is fairly common too (24%).

Terrestrial wildlife viewing in Australia is not a cohesive sub-sector, but comprises a range of different types of attractions and activities (Figure 1). Among organised attractions and activities, the most common are nature-based tours in which wildlife is just one component (59%), followed by farm-stays including wildlife (19%).

Figure 1: Types of terrestrial wildlife viewing attractions and activities (excluding specialised birdwatching) in Australia (n=768)



This breakdown does not include guided activities by organisations whose main activity is not tourism, or general sightseeing tours that include a stop at a wildlife attraction, as our methods were not sufficiently comprehensive in obtaining information on these. Nature-based tours have been sub-divided into those on camel or horseback, those on a river or lake, and others (called 'Nature-based tour' above). Accommodation-based attractions have been sub-divided into farm stays and others (called 'Accommodation (not farm)' above).

The following descriptions provide more detail on the types of experiences involved in each distinctive type of terrestrial wildlife viewing in Australia, including brief case studies chosen to represent a good practice example of each type.

Type 1: Unguided encounters with wildlife in natural areas

Commonly, unguided encounters with wildlife by tourists occur in national parks or other public protected areas. Wildlife is also often seen while driving through areas of private land. Birds are the most common form of wildlife seen. Information available to park visitors sometimes includes lists of wildlife species or brief descriptions of their natural history, but typically includes insufficient detail to help visitors locate animals or interpret their behaviour. There are however some cases where substantial wildlife interpretation is made available (see Box 2). Very few protected areas in Australia include any infrastructure designed to facilitate terrestrial wildlife viewing – some do, however, feature hides for viewing birds at inland water bodies. In some cases visitors encourage wild animals to approach by feeding them, although this is generally discouraged in public protected areas.

Box 2: Rottnest Island, Western Australia

Rottnest Island is a natural area of 1900 hectares known as an 'A-class Reserve', renowned for its scenery, nature-based activities and colonial history. It provides an unusually accessible opportunity for terrestrial wildlife viewing, with up to 500,000 visitors each year. It is run by a Statutory Authority established under Western Australia legislation, whose mission includes conservation and recreation, and whose objectives include sound business management. Most visitors come on day trips, by a short ferry-ride from Fremantle, and some stay in on-site accommodation. Visitors walk or cycle

independently around the island and/or take guided bus and walking tours. A range of nature-based activities is available, as well as visitor services such as restaurants, sale of merchandise and children's activities.

The most prominent wildlife species on the island are quokkas, a small member of the kangaroo family that is restricted to southwest Western Australia. The quokkas are seen by managers as comprising a major component of the attraction of Rottnest Island. They are at high densities and can readily be seen in many parts of the island at all times of day. They have become very habituated to people, will often approach to beg for food, and some will tolerate being petted. Although feeding of quokkas by visitors is now prohibited, it continues to occur to some extent. Some visitors also attract quokkas by providing them with water.

A wide range of educational and interpretive services are available on the island. Wildlife information is available at a visitor information centre, on printed material provided on arrival, on signage around the island, on arrival at accommodation and as spoken commentary on bus tours and guided walks (which include a 'Quokka Walk' focusing on the quokka).

(C. Wright, pers. com.; R. Shadbolt, pers. com.; pers. obs.; www.rottnest.wa.gov.au)

Type 2: Nature-based accommodation with a wildlife component

A variety of accommodation-based attractions or accommodation facilities in Australia promote the opportunity for guests to view free-ranging wildlife, such as kangaroos, possums and birds. These range from commercial campsites or caravan parks, through to full-scale nature-based resorts or lodges. They may occur either adjacent to (or surrounded by) a protected area, or on private land. The role of wildlife in these experiences ranges from incidental encounters that form a minor component of the attraction, to a specialist focus by the operators on wildlife, including guided tours and interpretation (Box 3).

Box 3: O'Reilly's Rainforest Guesthouse

O'Reilly's Rainforest Guesthouse is a privately owned tourist lodge on land completely encircled by Lamington National Park (Queensland), part of a World Heritage Area with exceptionally high biodiversity. O'Reilly's is renowned for blending old world comfort and high standards of hospitality with the experience of spectacular scenery and nature, including wildlife. The

guesthouse is owned and managed principally by the O'Reilly family, members of whom are key local figures in ecotourism and environmental initiatives. Following recent expansions, it provides accommodation for up to 155 guests. Annual occupancy is high at around 70%, with clients attracted through a highly professional marketing program supported by a strong word-of-mouth element. O'Reilly's has Advanced Ecotourism Accreditation under the Nature and Ecotourism Accreditation Program (NEAP), indicating its commitment to best practice environmental management and interpretation.

Wildlife viewing is one of the key features that attract people to O'Reilly's from elsewhere in Australia and around the world, and a range of wildlife-based activities are provided. The O'Reilly family and their guides display a high level of enthusiasm and knowledge of the local natural environment. A daily program of guided activities is available to guests, which includes an early morning bird walk and other guided nature walks that include interpretation relating to wildlife. Birds and pademelons (a small kind of wallaby) around the guesthouse have become habituated to the presence of people, making it easy for guests to observe them at close quarters. (The provision of facilities for visitors to feed birds by O'Reilly's is a controversial issue, providing benefits in terms of allowing close encounters with wildlife, but raising concerns in some quarters about impacts on wildlife.) A private guiding service is available for guests with a keen interest in bird watching. As part of its program of 'special interest activity weeks', O'Reilly's holds an annual Bird Week, Frog Week and Mammal Week, each of which provides guests with an intensive wildlife experience. Specialists in the relevant fauna groups work with O'Reilly's staff to lead these Weeks, and allow guests to participate in fauna surveys using specialist techniques such as live mammal trapping, catching frogs, using bat detectors, or using playback calls to attract birds. During this experience they learn about species identification, survey techniques, and the biology of the animals. The lodge also makes available extensive written information about wildlife to guests.

(P. O'Reilly, pers.com.; pers. obs; www.oreillys.com.au)

Type 3: Farm-based holidays with a wildlife component

Wildlife is just one small component of many farm-based holidays. All of the 27 farm stay operators belonging to the Queensland Farm and Country Tourism Association mention wildlife viewing in their advertising (all of which appear to comprise terrestrial wildlife), whereas in other States the equivalent proportions are significantly lower (e.g. 22% in South Australia, 12% in Victoria). 'Birds' are the

type of wildlife most commonly mentioned. The role of wildlife in the experience most frequently involves the opportunity for guests to see wildlife around the farm with no explicit interpretation or facilities provided. In some cases, it also includes the option of guided wildlife activities such as bird-watching or spotlighting, and access to wildlife reference books and equipment such as binoculars (Box 4). Queensland, New South Wales, Victoria, South Australia and Western Australia have all formed State-wide organisations that undertake cooperative marketing for farm stays, and along with the national body Australian Farm and Country Tourism Inc., are seeking to raise product standards within this sector. The main market for farm-stays has traditionally been domestic, but operators are increasingly working to attract international customers. All four farm-stay operators who feature wildlife as a significant part of their attraction that we have interviewed said that they had found international visitors to be generally much more interested in wildlife than are Australians.

Box 4: Wattle Downs Sheep Station, Queensland

Wattle Downs (WD) shares features common to many Australian farm-stays, but offers a more substantial wildlife component than most. It is advertised as 'home to an abundant array of Australian native birds, animals and plants which live totally in their natural environment' and its website includes a page devoted to wildlife-related activities. WD is a family-owned working sheep station located 200km west of Toowoomba in Queensland, with tourism providing supplementary income. Part of the farm has been set aside as a Wildlife and Nature Sanctuary. WD is a past winner of the Queensland Tourism Awards.

Accommodation is provided in cottages adapted from pre-existing accommodation. Guests enjoy country hospitality, including the option of eating with the host family or a 3 course camp oven dinner. Guests can choose the activities in which they wish to partake. Farm activities include feeding animals, riding horses, assisting with sheep shearing and mustering. General nature-based and outdoor activities include bush walking, cycling, picnics, fishing or swimming in the dam. The tourism side of the business is run by Karen Huskisson, who has a keen interest in wildlife and conservation, with assistance from the rest of the family.

Guests with an interest in wildlife can either go wildlife viewing on their own, with tips from their hosts on the best locations and times, or can participate in a number of guided wildlife activities. These are: night spotlighting for wildlife

(when guests usually see koalas, kangaroos, possums, nocturnal birds and spiders), a guided daytime walk through the Sanctuary (featuring kangaroos, birds, reptiles, various wildlife signs, invertebrates), a 4WD tour through the property, or a horse ride. During all of these, Karen provides information on local wildlife and on conservation issues (among other issues). She is also setting up a self-guided nature trail. The family also hand-rears kangaroos, with which guests can sometimes assist.

(K. Huskisson, pers. com.; pers. obs.; www.wattledowns.com.au)

Type 4: General sightseeing tours that include a minor wildlife component

Compared with the other forms of organised tourism incorporating terrestrial wildlife viewing, probably a far greater number of tourists view free-ranging terrestrial wildlife as part of generalised sightseeing tours, typically involving large coaches. This includes companies like Australia Pacific Touring (Box 5), AAT Kings Tours and De Luxe Safaris. In many cases these experiences are limited to a short stop at a national park or brief sightings from the bus, and form a minor component of the tourist's experience. In others they comprise a major component of the experience, including walks or cruises at natural sites.

Box 5: Australia Pacific Touring (APT)

APT is one of Australia's largest tour companies, providing more than 100 tour offerings in Australia. This Australian-owned company was established in 1927, and now also operates overseas. Most tours are coach-based with large groups, although there is also a large range of small group tours. Accommodation ranges from luxury hotels to camping. There are tours in most regions of Australia, ranging from day tours to several weeks in duration. Most of the tours include a substantial nature-based component, and for many of these the natural environment is the main emphasis. These tours typically include stops at a range of natural attractions, and mention of the kinds of animals that can be seen at these places are a common feature of the tour advertising. For example, the 20-22 day 'Spectacular West Coast and Northern Safari' includes visits to the dolphins at Monkey Mia, snorkelling at Ningaloo Reef, cruising down Geikie Gorge ('watch for abundant birdlife and crocodiles'), a 'wildlife cruise' on the Ord River where 'you might even spot the infamous saltwater crocodile' and a 'wildlife cruise' on Yellow Water billabong ('look out for Saltwater crocodiles'). The 16 standard tour options on Kangaroo Island

feature fur seals, sea lions, koalas, kangaroos, wallabies and birds as standard highlights, both in national parks and private property settings. Six of these tours include 'wildlife' in the title of the tour (e.g. 'Kangaroo Island Wildlife After Dark – Penguins', '2 Days Wildlife Spectacular').

Marketing manager, Dana Thomson, says that "...increasingly, nature and wildlife experiences are the key selling features of our most popular destinations. National parks, state parks and forests and World Heritage Areas are increasingly sought after and access to wildlife is one of the main benefits of these destinations".

APT received the Extended Tour Operator Excellence Award from the Australian Tourism Export Council in 2001. It has recently established the APT Conservation and Charitable Foundation, which distributes a percentage of business profits to conservation or environmental projects and to humanitarian causes.

(D. Thomson, pers.com.; www.apptours.com.au)

Type 5: Nature-based tours with a wildlife component

More than half of operators that advertise opportunities for terrestrial wildlife viewing fall into this category, in which wildlife is one component of the natural environment included in a tour. These tours are conducted by a range of forms of transport, including bus, 4WD, horse, camel or boat – and come under a variety of names such as 'ecotours', 'safaris' and 'river cruises'. Group size varies from a few individuals to a large busload. Most tours include spoken commentaries, though these vary greatly in quantity, quality and depth. Tour length varies from an hour to many days. They range in scale from a guided walk at a single location to a fully packaged Australia-wide experience. While wild animals are at least mentioned in most nature-based tours, the extent to which they are included and interpreted as part of these tours varies with the expertise of the operators and the type of market involved. The smaller, more specialised tours tend to have the greatest emphasis on wildlife and high quality interpretation, and are most likely to focus on international customers (see Box 6).

Box 6: Adventure Charters, Kangaroo Island

Adventure Charters (AC), operating since 1986, is promoted as 'personalised wildlife, adventure and natural history specialists', and is operated by Craig and Janet Wickham. Among nature-based tours, it includes a particularly strong emphasis on wildlife. Craig has extensive local knowledge, a Wildlife and Park Management degree, experience as a National Parks and Wildlife Ranger and he reports a good relationship with local national parks staff. AC has Advanced NEAP accreditation.

AC runs 4WD small-group tours involving natural history, scenery viewing, history, and with a particular focus on wildlife. A number of different packages are available, or personalised packages can be designed. Most tours include viewing of terrestrial animals, including tammar wallabies, western grey kangaroos, echidnas, koalas, glossy black cockatoos, goannas and Australian sea lions. The tours include visits to Flinders Chase National Park and a private wildlife refuge in which large-scale habitat restoration is occurring. A guide with professional naturalist skills (often Craig) and a high level of interpretation is provided, with commentary, printed material and access to a library by guests. The guide can provide detailed information on behaviour, breeding biology and management. Some animals have been habituated through continued neutral interactions (without the use of food) by the tour leaders, allowing visitors to approach them closely. The experience also emphasises a high level of hospitality and personalised service, and the company uses the tag line 'good food, good wine and wildlife in the wild'. Tailored experiences such as bird watching, photography, history and geology can be provided on request. Most customers are from overseas, many of whom have not seen native Australian animals in the wild before. Past clients include Smithsonian National Zoo, Harvard Museum, American Museum of Natural History and San Diego Zoo.

(R. Green, pers. com.; C. Wickham, pers. com.; www.adventurecharters.com.au)

Type 6: Specialised commercial wildlife tours

Because Australian terrestrial wildlife are typically difficult to observe (see section 6.1), tours that specialise in wildlife often require the guides to have specialised knowledge and sometimes employ specialised techniques such as spotlighting or trapping. They are often relatively expensive, and cater to a relatively high-income market of people with strong wildlife interests. Extended tours of this type usually include a range of vertebrate and invertebrate species, as opposed to particular groups (e.g. mammals, frogs, insects). There are however some day or part-day tours focusing on particular species

such as koalas, crocodiles, flying foxes, Tasmanian devils or glow worms. As this is the category of terrestrial wildlife viewing that conforms most strictly to the common understanding of wildlife tourism, we present two examples to illustrate the range of experiences this includes.

The most common tours of this type are those that take people around a region by vehicle to view a variety of animals (Box 7). There is a fine line between nature-based tours with a strong wildlife component (as in Box 6) and this form of specialised wildlife tour.

Box 7: Inala Nature Tours

Inala Nature Tours (INT) specialises in designing and organising personalised wildlife tours around Tasmania for groups such as birdwatchers and nature enthusiasts. Emphasis is placed on providing an ecologically friendly and educational experience of a high standard, using specialist guides. A high standard of hospitality catering for individual needs is also a key feature of INT. Tour groups range from 1-20 people, and include several set tours around Bruny Island or personalised tours around Tasmania tailored to the customers' interests. The owner's 500 acre property, Inala, has been developed to combine sustainable agriculture with nature conservation. Accommodation and meals are offered at Inala if desired, and guided wildlife walks are available around the property, with a focus on endemic and threatened species. The company has expanded to act as a travel agency organising personalised tours around Australia. The business also employs several members of the local community and other guides on a casual basis.

The owner/manager and main specialist guide, Dr Tonia Cochran, is a professional biologist, with an exceptional depth and breadth of knowledge of the Tasmanian fauna and flora. She is involved in initiatives to promote the sustainable development of nature and wildlife tourism and its integration with conservation, acts a consultant on conservation projects, and provides education about conservation to school groups. Part of the profits of INT goes into conservation projects.

INT has successfully targeted the international nature-based market, with direct marketing through the internet being particularly important. INT has now established a reputation whereby word-of-mouth is a major source of clients.

(T. Cochran, pers. com.; pers. obs.; www.inalabruny.com.au)

Since most Australian terrestrial animals that are considered to be of interest to tourists are mobile and require some searching, there are very few cases where a terrestrial wildlife viewing tour can occur along a fixed route in a small area. Glow worms⁶ are an exception to this because they are 'sessile' (fixed to the substrate in one locality), forming the basis for a number of specialised tours in south-east Queensland (see Box 8), and attracting an estimated 40,000 visitors on commercial tours per year (C. Baker, pers. com.).

Box 8: Aries Tours

Aries Tours, based on the Gold Coast of Queensland, run a number of nature-based tours, and is best known for its nightly 'Glow Worm Night Tour'. It specialises particularly in the Japanese market, and at its peak has attracted around 50,000 guests per year. The company employs over 50 full-time and casual staff, and has a representative in Japan. The managing director, Clare McFarlane, is an environmental science graduate, and is heavily involved in various ecotourism initiatives.

The Glow Worm Night Tour starts with an optional 'three course Aussie dinner' followed by travel by coach or minibus to the World Heritage listed Springbrook National Park, with a stop off to view stars and city lights. Customers take a guided night walk along sealed tracks through the rainforest, in groups of about ten people. Often there are many groups – from Aries and other tour companies – using this walking track at any one time. Guides provide interpretation on various natural features including nocturnal wildlife and especially on glow worms that are predictably found near to this path. Interpretation includes guidelines on avoiding negative impacts on glow worms, and some general information about conservation. The highlight of the tour is viewing a large colony of glow worms found inside a large natural cave-like archway. The tour ends with a supper in the forest and return transfer to accommodation.

Aries has Advanced Ecotourism Accreditation under the Nature and Ecotourism Accreditation Program, indicating its commitment to best practice environmental management and interpretation. It has also been a finalist in the Queensland Tourism Awards. Aries has sponsored research into sustainable management of glow worms, contributes to maintenance of national park infrastructure and provides financial contributions for resource management to be undertaken by Park Rangers.

(C. McFarlane, pers. com.; pers. obs.; www.ariestours.com)

⁶Glow worms are the larval stage of certain species of fly that attach to moist surfaces and emit a light to attract prey. In large numbers they can give the impression of magical 'fairy lights' in the forest.

Type 7: Terrestrial wildlife viewing activities provided by organisations whose main activity is not tourism

These organisations are principally non-profit organisations such as universities, conservation NGOs, state conservation agencies and local governments. The wildlife viewing activities have traditionally been somewhat distinct from those offered by commercial organisations, in that they have focused principally on education and sometimes research. However these groups are often becoming more business-oriented and increasing their focus on providing an entertaining experience to their guests, so that there is increasingly little difference from experiences provided by commercial operators who have a keen interest in conservation. These types of activities appear to be growing in popularity, with people willing to pay substantial fees to actually assist in research or conservation work. For some of these activities, particularly those provided by local governments and conservation agencies, many of the participants are locals rather than tourists. Examples of programs that do include a significant number of tourists are Earthwatch, Conservation Volunteers Australia and Landscape Expeditions (Box 9).

Box 9: Landscape Expeditions

Landscape Expeditions are run by the Western Australian Conservation Agency (CALM) in association with the University of Western Australia, and provide opportunities for the public to pay to participate in conservation-related initiatives and research projects, especially those involving threatened wildlife. These include fauna surveys, release and trapping of reintroduced species, habitat descriptions, and behavioural observations. In 2001, there were seven expeditions advertised ranging from \$1795 to \$3795 per trip. Expeditions have up to 14 paying volunteers and up to six scientists, and range from six to 14 days. There is a strong educational component in the expeditions, with volunteers being sent detailed information prior to the expedition, interpretation from scientists during the trip. Volunteers are encouraged to keep diaries during the expedition, and an expedition report is sent to them after the expedition. Visitors come from varied backgrounds, but generally are nature enthusiasts. Landscape try to minimise their environmental impacts through using small groups and environmentally-friendly practices. The Landscape program is seen by CALM as providing valuable education about conservation and CALM provides funding for research and other conservation initiatives, and provides a source of labour that assists with research.

(K. Kenneally, pers. com.; www.calm.wa.gov.au/tourism/expedition.html)

Earth Sanctuaries Ltd deserves special mention as a private sector organisation that has spearheaded a unique type of conservation initiative in Australia, and to some extent in the world. It was established with a conservation mission, but with the explicit intention of using tourism to help achieve that mission. Its primary aim is successful reintroduction of threatened species into private reserves around Australia. At its peak, it managed ten reserves occupying 90,000 hectares, four of which were open to tourists. These reserves were surrounded by predator-proof fencing to eliminate one of the major threats to the native Australian fauna. The company has successfully re-introduced 19 species of rare or threatened wildlife onto their land. However, income from tourism, sales of shares and other sources did not prove sufficient to fund the company's ambitious plans, and all but two of the sanctuaries (those expected to be most profitable through tourism) have now been sold (M. Edwards, pers. com.). Nevertheless, the model and expertise of Earth Sanctuaries have helped inspire other NGOs and private landowners to develop similar initiatives. Time will tell whether these will prove a viable option for sustainable tourism enterprises.

Type 8: Managed attractions based on large aggregations of wildlife

In contrast to coastal species such as penguins and seals, static attractions based on free-ranging terrestrial species are very few in Australia. A number of sites provide facilities to aid bird-watching (generally boardwalks and/or viewing hides), generally adjacent to lakes and other water bodies. The example given in Box 10 is the most developed attraction we are aware of in Australia featuring mammals. We note however, that some extensive wildlife sanctuaries in natural habitats – most notably those run by Earth Sanctuaries Ltd – could be argued to fit into this category.

Box 10: Naracoorte Caves National Park – Bat Cave Teleview Centre

Naracoorte Caves National Park is a World Heritage Area renowned for its fossil deposits and spectacular cave formations. Tours are run through five of the larger caves in the Park. Southern Bent-wing bats roost in several of the caves (during the day), and breed in one particular cave, Bat Cave, to which access is generally prohibited. All tours are run by the South Australian Department for

Natural Environment and Heritage. Bat tours allow visitors to witness roosting bats in one of the non-nursery cave and the nightly 'fly-out' of thousands of bats from one of the caves, as well as to visit the 'Bat Cave Teleview Centre'. It is estimated that about 20% of visits to the caves by tourists feature bats, although few visit with the primary intention of seeing the bats.

The Bat Cave Teleview Centre has been developed to allow remote viewing of bats in Bat Cave without unduly disturbing the bats (as would occur if tours were allowed into that cave), and also allows disabled people to participate. The building has been designed to give the impression of being inside a cave. The technology involves remotely controlled low-light video cameras with infra-red light sources in Bat Cave, linked to monitors in the Teleview Centre. Funding for this was obtained from a federal government tourism grant, although in kind support provided within the organisation was also crucial. A guide uses remote control to move the field of view of the camera around the cave and point out interesting features to visitors, such as suckling young and social behaviour, including bat vocalisations. The system makes use of state-of-the-art international technology, and produces high quality images. The Teleview system is apparently the only one of its kind in the world used for bats. Interpretation provided by the guide covers detailed aspects of the animal's natural history and conservation, and relates this to broader environmental issues.

(S. Borne, pers. com.; pers. obs.;

www.environment.sa.gov.au/parks/naracoorte/natural.html)

Apart from the present review, a few recent studies have systematically described certain subsets of terrestrial wildlife viewing tourism in Australia. Page (2002a, 2002b) has provided an overview of the nature and issues relating to wildlife spotlighting tourism in Queensland. An estimated 28 tourism operators in Queensland conduct wildlife spotlighting activities, with 61% being free-standing tours, and the remainder associated with accommodation such as lodges.

Higginbottom *et al.* (2003a) provide a similar overview for tourism involving kangaroos and their relatives. This study found that there are at least 154 enterprises that provide organised opportunities for visitors to view free-ranging kangaroos, and described the diverse forms that these enterprises can take. 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 development of such enterprises.

Basser (2001) described the spatial distribution of terrestrial wildlife viewing enterprises in Australia, and attempted to determine what factors best predicted the density of such enterprises in any particular area. The tourism regions with the highest densities of such enterprises were Alice Springs, Kangaroo Island, Phillip Island and the Sunshine Coast. Density was positively related to: density of highways, proximity of a major urban centre, the percentage of land in the region occupied by natural vegetation and by conservation reserves, and total number of tourists from south east Asia in the region.

4. ECONOMIC SIGNIFICANCE AND MARKET

4.1 International

Not surprisingly given its ill-defined nature, no figures are available for the economic value or numbers of participants in terrestrial wildlife viewing globally. To the authors' knowledge, the only detailed research (based on large scale surveys) to determine the importance of terrestrial wildlife viewing has been in North America. Wildlife viewing in Canada and certain American states – which features mainly free-ranging terrestrial animals – is said to be 'a multi-million dollar industry' (Duffus and Dearden 1990). The most up-to-date and comprehensive study estimates that 21.8 million United States adults travelled at least 1 mile away from their home for the primary purpose of observing, feeding, or photographing non-captive wildlife (involving principally terrestrial animals) during 2001 (US Department of the Interior, Fish and Wildlife Service and US Department of Commerce, US Census Bureau 2002)⁷. The study further estimates that wildlife watchers (this time including those who watched animals within a mile of their home) spent a total of US\$38.4 billion on their wildlife-related trips, activities and equipment.

It is widely considered that terrestrial wildlife viewing has grown in recent years and continues to do so (e.g. Ethos Consulting 1991; Shackley 1996; Roe *et al.* 1997; Manfredo *et al.* 2002). Bird-watching, in particular, is widely considered to be fast growing (e.g. Cordell and Herbert 2002). A number of American states and Canadian provincial governments have identified wildlife viewing as an important growth area, and support wildlife viewing or 'watchable wildlife' programs across their jurisdictions. Although anecdotal evidence does indicate increased demand for, and supply of wildlife viewing over recent decades, there is no good quantitative evidence of this (Moscardo, Woods & Greenwood 2001). The belief that there is considerable latent demand for terrestrial wildlife viewing (e.g. Manfredo *et al.* 2002), while perhaps true, does not seem to have been well-substantiated. In fact, the US survey cited above (US Department of the Interior, Fish and Wildlife Service and US Department of

⁷The study was based on interviews with 80,000 people. The figures comprise people of at least 16 years of age.

Commerce, US Census Bureau 2002) indicates that there was a decrease of 19% in participation in wildlife viewing by non-residents between 1980 and 2001, although associated expenditure increased during this time.

Wildlife (almost exclusively terrestrial) is reported to be a prime attraction for 80% of international tourists to Kenya and Zimbabwe (Risk and Policy Analysts Ltd 1996 cited in Roe *et al.* 1997). In Kenya, tourism based on terrestrial wildlife viewing has been estimated to be worth US\$400 million to the national economy (WTO and UNEP 1992). Zimbabwean national parks, whose tourism revenue relates largely to tourists motivated by wildlife viewing, received estimated direct tourism revenue of Zim\$8.7 million in 1990. The Galapagos Islands, a tourist destination based largely on terrestrial wildlife viewing, is estimated to contribute more than \$100 million to the Ecuadorian economy (Charles Darwin Research Station 2001). Mountain gorillas alone are estimated to have provided an annual revenue of US\$4 million to Rwanda (Groom *et al.* 1991). Each single lion has been estimated to be worth US\$515,000 as a tourist resource in Amboseli National Park (Thresher 1981).

There are very few studies that have quantified the economic value of terrestrial wildlife viewing to individual towns or local regions. There are a number of cases, however, where it is clearly significant. Polar bear watching is the major economic activity for the town of Churchill in northern Manitoba, Canada. According to its Director, the Scottish Seabird Centre makes an estimated economic contribution of over a million pounds to the local economy and has re-established the local town as a tourist destination, enhanced its image and generated a sense of local pride and ownership (Brock 2002). The annual economic impact of five major bird-watching sites in the USA is estimated to be up to US\$40 million (Kerlinger and Brett 1995), while each macaw visiting a tourist site in south-eastern Peru has been estimated to potentially generate up to US\$165,000 in tourist receipts over its lifetime (Munn 1992).

Because terrestrial wildlife is often most abundant far from major urban development, it has been argued that terrestrial wildlife viewing can provide a much needed boost to depressed economies in rural areas (McCool 1996; Goodwin *et al.* 1998). In parts of southern

Africa, game viewing has been found to be much more valuable than farming of domestic livestock (Muir 1987; Sindiga 1995; Akama 1996). Further, wildlife tourism in some cases provides revenue that helps fund conservation (Higginbottom *et al.* 2001b) and there is evidence that there is potential for an increase in this form of funding (*ibid.*; Clayton and Mendelsohn 1993).

4.2 Australia

Several surveys of domestic holiday-makers in Australia have shown that seeing wild animals⁸ is a significant factor in choice of holiday destination for around one third of these people (Moscardo *et al.* 2001). None of these population-wide studies have yet examined more detailed aspects of demand for wildlife viewing, although research in progress by the CRC for Sustainable Tourism and partners is currently doing so.

More information is available on demand for wildlife tourism for international markets. Supplementary questions to the International Visitor Survey in 2000 showed that 18.4% of international visitors were influenced in their decision to visit Australia by the opportunity 'to experience native animals' – and it seems likely this related principally to terrestrial wildlife viewing (Fredline and Faulkner 2001). For 85.4% of these visitors, this was either 'an important reason' or 'no more important than any other reason' and only 0.8% said they 'would not have come otherwise'. This study also found that 67.5% of international visitors said that they wanted to see 'animals' during their visit (this did not discriminate between seeing them in the wild or in captivity).

Fredline and Faulkner (2001) found that far more international visitors wanted to see kangaroos (43.2%) and koalas (44%) than any other type of animals. The animals that international visitors did most commonly see were also the kangaroo (59.6%) and koala (50%); a number of other terrestrial species were also seen by more than 30% of visitors. These authors identified clusters of international visitors according to the types of animals they most wanted to see. These

⁸This could include marine animals and captive wildlife, although it is likely that the wording of these surveys caused people to think primarily of terrestrial animals in the wild.

were the 'iconic marsupials' (kangaroo and koala), two identifiable clusters of native mammals and birds (wombat, possum and emu; platypus, Tasmanian devil, echidna and dingo), sea mammals, and a miscellaneous group that had no obvious common characteristics. The study found that visitors on their first trip to Australia were more likely to want to see iconic marsupials than were those on later trips. Visitors who had encounters with only free-ranging animals (whether terrestrial or marine/coastal) tended to be older and more often from countries outside Asia (especially in Europe) than those who had encounters only with captive animals. The former group were also mostly on return visits, tended to go beyond international gateways into the regions and usually viewed animals from a distance rather than at close quarters.

Chalip and Fairley (2002) reanalysed survey data collected by the Australian Tourism Commission in seven source countries. In Japan, Korea, England and Germany, 'seeing wildlife in their natural surroundings' was ranked as one of the top six preferred activities among a long list of options (with the highest ranking of third occurring in the Japanese sample). 'Seeing unusual animals' was also ranked in the top ten for Japan, Korea and Germany. These options were both generally ranked higher than visiting a national park, a wildlife park or a zoo. This is useful information, given that the tourism industry has often considered that Asian tourists are more likely to appreciate experiencing wildlife at close quarters in captivity than in the wild.

There is evidence that terrestrial wildlife is important in Australia's image as an international tourist destination. The kangaroo, in particular, is one of the world's most recognisable icons for Americans in terms of the proportion of people correctly associating a symbol with the country of origin (Chalip, Arthurson & Hill, 2001).

Only one published study has tried to estimate the total value of wildlife tourism or of any particular terrestrial species to the Australian economy. This study estimated the economic value of wildlife to international tourism in Australia to be in the range \$1.8 to \$3.5 billion, and koalas alone to be worth about \$1.1 billion (Hundloe and Hamilton 1997). However these results depend on a range of controversial assumptions (see Davis, Tisdell & Hardy, 2001), do not

include consideration of domestic tourism, and include zoos and marine/coastal species. Commercial tours based on the glow-worm population at Springbrook National Park in SE Queensland are jointly estimated to have generated gross revenue of \$4 million for a one year period (2002/2003)⁹ (C. Baker, pers. com.).

In Australia, we expect that any economic benefits of terrestrial wildlife viewing to local communities are likely to be small. There are very few towns or regions for which terrestrial wildlife viewing is a major component of the local economy: crocodile viewing at the Daintree, Queensland, is perhaps one example where this contribution is significant. However, visits to national parks and other protected areas, which include an unknown amount of terrestrial wildlife viewing, are economically important in some regions. Australian national parks attracted about 63 million in 2001/2 (DITR 2003), and about half of international visitors visit at least one national park (BTR 1997). One study found that 20% of visitors to North Queensland engaged in birdwatching (Moscardo 1997).

Some figures on participation rates are also available for nature-based tours, which as seen in section 3.2 comprise more than half of enterprises offering terrestrial wildlife viewing (excluding specialised birdwatching). Outback safaris are estimated to cater to only 2% of inbound tourists, but these participants are thought to spend about twice as much as the average international tourist (Office of National Tourism 1997).

Opportunities for terrestrial wildlife viewing to provide income to depressed economies in rural areas may be particularly applicable to Australian farmers who are struggling to make a living through livestock, but have substantial wildlife habitats remaining on their lands. It might also be applicable to some Indigenous communities who occupy large areas of Australia with considerable wildlife resources (see Muloin, Zeppel & Higginbottom, 2001). It must, however, be acknowledged that there are often likely to be considerable difficulties in attracting significant numbers of tourists to these relatively remote areas.

⁹This may be a slight over-estimate, as it is based on tour prices of the larger companies only.

The review so far has considered the level and nature of participation or interest in terrestrial wildlife viewing among tourist populations as a whole. Research conducted on people who are already visiting a wildlife tourism attraction allows us to describe the market and determine the nature of demand from those visitors who already have some interest in wildlife. We need to know these things to help determine how current attractions and activities should be modified, and how best to target new development.

The four available studies of visitors at various wild and captive terrestrial wildlife settings in Australia indicate that people generally prefer seeing animals in the wild rather than in captivity. Two studies in terrestrial wildlife viewing settings reported by Moscardo *et al.* (2001) showed that the features of a wildlife experience rated as very important by the greatest proportion of visitors were: 'seeing wildlife behaving naturally' and 'seeing wildlife in a natural environment'. 'Knowledgeable guides' and 'interesting wildlife information' were moderately important, while 'seeing large numbers of wildlife' and 'being able to touch or see them' were important to very few people. In their study of terrestrial wildlife viewing that included kangaroos, Higginbottom *et al.* (2003a) found that visitors rated 'naturalness of their wildlife experience' and 'provision of information' as the most important features of the experience.

Terrestrial wildlife viewing can be expected to attract a number of somewhat distinct market segments (Moscardo *et al.* 2001). Several international studies indicate that degree of specialisation of interest is a major dimension along which visitors involved in wildlife viewing vary, and this can also be expected to be applicable in Australia. Visitors at the specialist end desire more information and higher levels of physical involvement in the wildlife experience than those at the generalist end. However, little has been published so far on the nature and characteristics of different market segments in relation to wildlife tourism in Australia, let alone for terrestrial wildlife viewing. In their study of wildlife settings that included kangaroo viewing, Higginbottom *et al.* (2003a) found that most visitors had a general interest in nature rather than a specific interest in wildlife.

Internationally, some of the features of wildlife that have been recorded as contributing to satisfaction with terrestrial wildlife

viewing experiences are: a diversity of species; species that are popular, unique or threatened; wildlife species or populations that are predictable in locality, abundant, approachable, and readily viewable (HLA Consultants *et al.* 1990; Moscardo *et al.* 2001). Features of wildlife viewing sites that have been identified as important for satisfying viewing experiences are: the presence of other features of interest, the presence of desired infrastructure (e.g. toilets, eating facilities) and accessibility (*ibid.*).

Only a few Australian studies have examined factors contributing to satisfaction of visitors with terrestrial wildlife viewing. Page (2002b) asked Queensland spotlighting operators what they perceived to be the major factors limiting visitor satisfaction with such tours. The main concern expressed (by 65% of operators) was that many visitors held unrealistic expectations of the number or diversity of animals they would see, while the wildlife concerned were unpredictable, and this sometimes led to disappointment. Our experience of talking to a wide range of terrestrial viewing operators is that this is a widespread concern. In another study that included a river and a lake cruise featuring viewing of terrestrial wildlife, Muloin (2000) found that females reported higher levels of satisfaction with the tour than males. In their study of wildlife viewing that incorporated wild kangaroos, Higginbottom *et al.* (2003a) found that the overall level of reported satisfaction with the kangaroo viewing component of their case studies was high. However, visitor satisfaction with the numbers of kangaroos and other wildlife seen and proximity to wildlife was only moderate. A Tasmanian government study (Tasmanian Department of Tourism, Sport and Recreation and Wilson 1995) found many visitors to Tasmania felt that it was hard to find native animals or sufficient information about them and were disappointed by the number of wildlife seen. Many requested more availability of wildlife brochures and guidebooks to help them in self-discovery.

In our pilot study, our observations and feedback mechanisms instituted by operators indicated that levels of customer satisfaction with their whole experience and with their wildlife experience in particular were high for most operators. However it should be noted that neither our study, nor any of the operators used any written assessment of satisfaction that the customer would not expect the host to see while they were present. On two of the nature-based tours

in this pilot study, some visitors expressed disappointment that they had not seen many animals (these were the tours that did not specialise in wildlife). On another two, some visitors expressed dissatisfaction with an element of the services supplied by the host. Most visitors appeared to have a strong interest in nature and wildlife, and responded positively to learning more about them.

Unfortunately, none of the available research allows us to clearly determine whether and to what extent there is unmet demand for wildlife tourism, or for any particular form of wildlife tourism in Australia.

5. THE BUSINESSES

Information obtained from our database of wildlife tourism enterprises indicates that the vast majority of enterprises that provide terrestrial wildlife viewing are small businesses. This is consistent with findings for nature-based tourism businesses in general, typified by 'micro businesses' run by owner-operators who have few or no full-time staff other than family members (McKercher 1998).

In our pilot study, all of the small private businesses were indeed micro businesses run by owner-operators. All but one of these businesses (the one for which wildlife was only a very minor component) indicated that income from tourism alone was insufficient for the financial needs of the principal's family, and three of these seven operators indicated that they were experiencing significant financial problems. The medium-sized businesses and the tourism activities run by the conservation NGO were apparently profitable, with funds from the latter being used to support conservation activities. The two government enterprises were run on a not-for-profit, self-funding basis.

All but one of the eight private businesses, as well as the conservation NGO, had tried to target primarily international tourists, as they believed that this group would be most interested in wildlife and/or would be willing to pay higher prices than domestic tourists. The two government enterprises, by contrast, deliberately targeted locals as they saw themselves as providing a primarily educational or recreational role, rather than a commercial one.

By far the major obstacle to business success, and one that was identified by all but one of the small private businesses in our pilot study was inability to attract sufficient numbers of customers. This in turn translated into insufficient income and/or cash-flow problems. All these operators attributed this problem mainly to difficulties in marketing effectively. In turn they perceived that this was due either to lack of knowledge or understanding of marketing, lack of access to good advice on how to reach their target markets, and/or lack of sufficient support from regional tourism organisations in marketing the region or their own business. While lack of sufficient marketing expertise appeared to be a real problem (as indicated by the

operators' responses to questions about how they did their marketing), it is not clear whether better marketing alone would overcome this problem, or whether there is a lack of sufficient market demand for the number and types of products offered. The two government enterprises had no difficulties in attracting large number of customers, but as noted above, they did not need to operate on a commercial basis. The conservation NGO found that while some products sold well, they had experienced some problems in designing a primarily educational product that would satisfy the wants of their target markets, and therefore would continue to attract customers. Other obstacles to business success that were identified by more than one of the enterprises were:

- excessive costs of bureaucratic requirements and joining tourism organisations (3 operators)
- the time required for fulfilling bureaucratic requirements (2 operators)
- inequalities in the tourism industry that made it difficult for some small operators to prosper (2 operators)
- guides facing 'burnout' after running the same tour for a period of time (2 operators).

In addition to the issues identified by operators, another likely obstacle to success of at least four of the small private businesses appeared (from our observations) to be a shortage of skills, aptitude and/or experience in running a business or in hospitality. This included three private operators who said they had been largely motivated by environmental or lifestyle reasons and had no business experience prior to setting up their tourism operation.

Other obstacles facing businesses involved in terrestrial wildlife viewing, as indicated by key informants and during stakeholder workshops, are included in those identified for wildlife tourism businesses in general by Higginbottom *et al.* (2001a). In addition, businesses involved in terrestrial wildlife viewing often face issues that are particular to protected areas (covered in Chapter 7).

A study of terrestrial wildlife viewing enterprises incorporating kangaroos (Higginbottom *et al.* 2003a) revealed that even though the enterprises studied were selected as most likely to exemplify best practice, there were common weaknesses in business management and success that

are consistent with those found in the pilot study for the present report. Some of these 'kangaroo operators' indicated that the income they received from the business was less-than-satisfactory. The two government enterprises studied were intended to be self-supporting in a sense of covering operating costs, but none had yet achieved this objective. Generally, these government enterprises had invested much more capital into tourism facilities than had the private operators.

Managers or proprietors interviewed in this 'kangaroo tourism study' were able to confidently describe management policies and practices that reflect a reasonable and common sense approach to business. The enterprises were typically owned and/or managed by individuals with a strong personal commitment to environmental values, and seemed to derive personal pleasure from their employment, a condition that reinforces motivations to manage well. However some weaknesses in business management were identified in most of the enterprises. The smaller scale tour operators typically did not use documented business plans, which may cause problems. Most of the surveyed organisations collected opinions and other information from their consumers, but better recording and use could be made of this information.

Obstacles to sustainability of their businesses that were mentioned by more than one of these operators in this kangaroo study were: competition with other operators (especially the big companies), geographical remoteness, the need for more interpretive information in an operator-friendly format, lack of adequate time for training in business management, lack of adequate funding for management of protected areas, and friction with local protected area authorities. Relationships with local communities and with researchers were generally reported to be positive. 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. While staffing was not seen to be a serious problem, several managers said staffing issues were problematical to some extent, because of the difficulty in finding staff to cover the wide range of necessary skills. They stated that staff 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. Offsetting this weakness was the fact that managers typically acknowledged it, and so were more likely to be taking steps to compensate for it in some way. The relationship between tour operators and booking agents was found to be a problem in Cairns, where large numbers of booking agents (estimated to be over a hundred) are market intermediaries linking tourists with tour operators. As commissions charged by some of these have risen over recent years, the tour operators' net revenue per sale has decreased, squeezing their profitability. The operators felt a sense of powerlessness and unfairness felt by a number of managers facing the problem.

An analysis of advertising brochures produced by 'kangaroo viewing' operators found that most made poor use of persuasive marketing appeals, particularly in that they rarely referred to the benefits people might derive from buying the tourism product in question (Hill 2003).

Thus the main obstacles to business success of terrestrial wildlife viewing businesses appear to be similar to those facing nature-based tourism businesses in general. McKercher (1998) characterises such businesses as typically lying outside the mainstream of the travel industry, employing inadequate marketing resources, being unable to forge links with the global tourism system, and having staff with no formal business or tourism training. Consequently he states that the number of failed businesses is extremely high, although he acknowledges that there has been no quantitative research on this. Reasons that have been identified for failure of many nature-based tourism small businesses include: poor marketing, lack of business acumen, a tendency to stay fiercely isolated and independent, and poor quality products. Burnout was also identified as a common problem for such operators. McKercher (1998, p.5) argues that developing better business planning skills is the 'overriding need of the Australian nature-based tourism sector', including accounting and bookkeeping, accessing finance, pricing, booking and reservations procedures, taxation, cost control, developing a new business and strategic planning. It should also include market research, and an understanding of customer needs. He also states that the travel trade functions in a way that does not serve small nature-based tourism businesses well, although the situation is improving.

6. THE WILDLIFE AND ITS MANAGEMENT

Information on the wild animals involved in terrestrial wildlife viewing is important to development, marketing and design of wildlife tourism products. It is also important in terms of the effects that tourism can have on the wildlife – which can be negative, positive, or a mixture of both.

6.1 The Wildlife Resource

Globally, three different 'types' of wildlife resources for tourism can be identified:

1. *Large numbers of large animals*

These involve easily viewed aggregations of multiple individuals of (usually several) large-sized species in open areas, and are a relatively rare situation. Eastern and Southern Africa are best known for terrestrial wildlife viewing involving this type of wildlife resource, with large herds of a variety of ungulates as well as associated (smaller numbers of) large predators. The African safari/ game lodge model has been highly profitable, and marketing of 'the Big 5' appears to have assisted in developing this industry. A number of studies in such areas have found game viewing to be more economically valuable than farming of game or domestic livestock (Thresher 1981; Muir 1987; Barnes and de Jager 1996). North America, The Galapagos Islands and the Antarctic also feature some wildlife resources in this category.

2. *Single iconic species*

These principally involve large, iconic or charismatic species, such as polar bears in Churchill, grizzly bears in Alaska (USA), mountain gorillas in Uganda, Rwanda and Zaire, and Bengal tigers in India. A growing number of species and countries are being added to this list, such as giant pandas in China and giant otters in Peru. Typically only small numbers of individual animals are seen by tourists at any one time, but the 'quality' of the experience (rather than quantity) is seen as the key to visitor satisfaction.

3. Diverse wildlife as only one component of the natural environment

A range of wildlife species are one of the components of the natural environment attracting international visitors to areas of high biodiversity, particularly central and South America (especially Ecuador, the Amazon basin and Costa Rica) and South East Asia (e.g. India, Thailand, Nepal, Indonesia and Malaysia). These areas are often dominated by forest, and wildlife can be difficult to find and see.

In Australia, terrestrial wildlife viewing generally involves wildlife of the third type listed above. Some species, particularly koalas and kangaroos, seem to have iconic status in the consumer mind. Others – particularly crocodiles in the Northern Territory, and the Tasmanian devil in Tasmania, are promoted to some extent as being icons for particular regions. However terrestrial wildlife viewing products themselves generally focus on a range of species, and – as shown in section 3.2 – more often than not feature as part of a broader nature-based product. While some have argued that the large mobs of kangaroos in the Australian Outback can rival the ungulates of Africa for wildlife tourism (e.g. Croft and Leiper 2001) this is not currently the case in either the consumer's mind, tourism products or in tourism advertising.

Australia's terrestrial animals are remarkable on a global scale in a number of ways, such that in principle they provide a highly valuable resource for tourism. At the same time, there are a number of features of these animals that provide constraints or challenges on the type of wildlife tourism experiences that can be provided, and possibly on overall development of this form of tourism. In the rest of this section we provide a brief review of the types of animals concerned, and these positive and negative features. Further details of the characteristics of these animals, with implications for tourism, are given in Green *et al.* (2001). Jones and Buckley (2001) present further information on birds.

Australia has more species of endemic¹⁰ mammals, birds, reptiles and amphibians than any other major tourist destination (Table 2). It also has the greatest number of species of reptiles and amphibians with a threatened conservation status, and is second only to Brazil in numbers of threatened mammal and bird species.

¹⁰ Species that live naturally only in the region specified.

Table 2: Number of endemic and threatened species in Australia compared with other selected tourist destinations

[Adapted from WRI (2000)]

ANIMAL GROUP/ COUNTRY	TOTAL NUMBER OF SPECIES ¹¹	NUMBER OF ENDEMIC SPECIES	NUMBER OF THREATENED SPECIES
Mammals			
Australia	260	206	58
Brazil	417	119	71
Canada	193	7	7
Costa Rica	205	7	14
Germany	76	0	8
Japan	188	42	29
Kenya	359	23	43
South Africa	255	35	33
Thailand	265	7	34
United Kingdom	50	0	4
United States	432	105	35
Birds			
Australia	649	350	45
Brazil	1500	185	103
Canada	426	5	5
Costa Rica	600	6	13
Germany	239	0	5
Japan	250	21	33
Kenya	847	9	24
South Africa	596	8	16
Thailand	616	2	45
United Kingdom	230	1	2
United States	650	67	50

¹¹ The figures for Australia are lower than those reported elsewhere in this report series, which have been obtained from more recent references (mammals 276 species, birds 850 species, reptiles 838 species, amphibians 211 species), but for comparative purposes all figures as presented by WRI are given here.

ANIMAL GROUP/ COUNTRY	TOTAL NUMBER OF SPECIES ¹¹	NUMBER OF ENDEMIC SPECIES	NUMBER OF THREATENED SPECIES
Reptiles			
Australia	748	641	37
Brazil	491	201	15
Canada	41	0	3
Costa Rica	214	38	7
Germany	12	0	0
Japan	87	33	8
Kenya	190	18	5
South Africa	315	97	19
Thailand	298	37	16
United Kingdom	8	0	0
United States	287	79	28
Amphibians			
Australia	205	183	25
Brazil	581	375	5
Canada	41	0	1
Costa Rica	168	39	1
Germany	20	0	0
Japan	61	45	10
Kenya	88	10	0
South Africa	108	49	9
Thailand	112	21	0
United Kingdom	7	0	0
United States	263	152	24

Key features of the major groupings of terrestrial animals that are relevant to their tourism potential are summarised in Table 3.

Table 3: Kinds of native terrestrial animals in Australia and key features relating to their tourism potential

ANIMAL GROUP	SPECIES MOST FREQUENTLY INVOLVED IN TOURISM	KEY POSITIVE FEATURES FOR TOURISM	KEY NEGATIVE FEATURES FOR TOURISM
Mammals	Kangaroo, wallaby, wombat, koala, possum, glider, Tasmanian devil, numbat, quoll, bandicoot, bilby, platypus, echidna, dingo (larger species and those active during the day)	Exceptionally high endemism and exceptionally large proportion of threatened species. Australia is only world region with all mammal sub-classes. 56% of Australian species are marsupials or monotremes, which have many unique features and are diverse and abundant only in Australasia.	Most species are nocturnal, small, solitary, cryptic, relatively silent and do not occur predictably at fixed locations; with some notable exceptions. Large number of threatened species raise special concerns about negative impacts.
Birds	Cassowary, emu, many parrots, kookaburra, lyrebirds, many fairy-wrens and birds in general.	Exceptionally high endemism and large proportion of threatened species. High diversity of parrots, world's highest number of seabird species, high densities of migratory waders, many conspicuous or colourful species, many species with loud distinctive calls.	None. Large number of threatened species raise special concerns about negative impacts.
Reptiles (lizards, snakes, turtles, crocodiles)	Saltwater crocodile, goanna, frill-necked lizard	Exceptionally high endemism and exceptionally large proportion of threatened species. More species of lizard, python, elapid snake and blind snake than in any other country. Most distinctive lizard fauna in the world.	Often require expert knowledge to find and interpret (as elsewhere in the world). Large numbers of threatened species raise special concerns about negative impacts.

Amphibians (frogs)	Frogs in general	Exceptionally high endemism and exceptionally large proportion of threatened species. High diversity of frogs.	Most species nocturnal and active only in warmer months. Often require expert knowledge to find and interpret (as elsewhere in the world). Large numbers of threatened species raise special concerns about negative impacts.
Freshwater fish	Minimal involvement in wildlife viewing (main tourism use is in fishing)	High proportion of threatened species.	Low diversity. Large numbers of threatened species raise special concerns about negative impacts.
Terrestrial and freshwater invertebrates	Large spiders, large praying mantids, stick insects, dragonflies, glow worms, butterflies.	Exceptionally high endemism. Proportion of threatened species unknown but probably high.	Comparable with elsewhere in the world.

Other positive and negative features of the Australian fauna – including terrestrial species - as they relate to tourism are reviewed by Higginbottom *et al.* (2001a). Those features that apply to terrestrial species are summarised in Box 11.

Box 11: Key features of Australian terrestrial wildlife pertaining to their potential for viewing in natural habitats

The comments below are relative to the situation elsewhere in the world.

Positive Features

- High biodiversity
- Very high levels of endemism
- Very high number of threatened species
- High conservation value (related in part to the above points)
- Many species with unusual features

- Fauna attracting high levels of scientific interest
- High abundance of some species
- Many species considered ‘cute’, ‘cuddly’ or attractive (especially medium-large marsupials)
- Low degree of seasonality of activity of animals (compared with Northern hemisphere)
- Large areas of natural habitat
- Large areas of natural habitat under legal protection, including a large range of habitat types and wildlife species
- Most species active year-round
- Few dangerous species, so that people can walk without guides in most natural habitats without fearing animal attacks

Negative Features

- Many species (including many mammal species) are difficult to find and/or observe (because of nocturnal or cryptic habits, solitary nature, lack of predictability in location, small size and/or low densities) and/or occur in remote areas
- Few native species congregate habitually at waterholes or other key resources (in contrast to Southern and Eastern Africa)
- Few large or dangerous (and therefore ‘exciting’) species (crocodiles are the main exception)
- Relatively low levels of overt social behaviour among the mammals
- Most species are readily disturbed once approached closely by tourists, unless carefully habituated
- Very high proportion of threatened species, for which disturbance by tourists could be a major concern

6.2 Negative Effects of Terrestrial Wildlife Viewing on Wildlife

Research around the world has revealed a large number of cases where viewing of terrestrial animals or nature-based recreation in general has caused detrimental changes to either individual animals or whole populations (this topic is extensively reviewed by Green and Higginbottom 2001). These negative effects comprise: disruption of the activity or physiology of the animals involved (or of others that interact with them), alteration of habitat/resources, injury or death. In turn, these effects in some cases have been shown to lead to decreased survival and/or reproduction of affected populations, which may translate into a reduction in population size over time. This is of

particular concern for species that are already threatened with extinction due to other causes. The literature does not allow us to quantify the extent to which such negative effects occur as a result of terrestrial wildlife viewing. It is clear that the nature and magnitude of these effects depend on a complex interaction of many factors.

In Australia, there has been relatively little research on the effects of wildlife tourism or outdoor recreation on wildlife (see Green and Higginbottom 2001). It is clear that viewing of terrestrial animals very often causes animals to move to a new location and/or interrupt their activity, but in most cases whether these effects translate into negative effects on populations is not known. Some of the few pieces of evidence for substantial negative effects are: reduced breeding success in Adelie penguins subjected to tourist activity, injury and killing of quokkas by visitors, road-kills caused by drivers (probably including tourists attracted in part by wildlife), stress-related pathology in hand-fed brushtail possums, and culling of dingoes on Fraser Island as an indirect consequence of feeding by tourists. Conservation managers interviewed by Green and Higginbottom (2001) said that they were not aware of significant negative effects of wildlife tourism on terrestrial wildlife in Australia, although more than one expressed concerns about the potential impacts of hand feeding, spotlighting and road-kill, and mentioned certain birds and mammals as possibly being negatively affected. In their study of enterprises that featured viewing of wild kangaroos, Higginbottom *et al.* (2003a) found that most of the 'kangaroo operators' studied seemed to use appropriate measures to minimise any negative impacts of their tourism-related activities on the animals. However it should be cautioned that the enterprises selected for study were those that were expected to exemplify best practice within this sector.

Most of the operators in our pilot study (9 of 11) took steps to minimise negative impacts of their activities on wildlife and their habitats, through the design of their tourism activities and through commentaries provided by guides. Two of the operators (those least heavily involved in wildlife activities) appeared to have given little thought to environmental impacts and their management. In all cases there was no evidence of significant negative impacts, although this cannot be conclusive given lack of any effective monitoring for any of the activities. There were however a range of small-scale impacts

noted in some of the activities, that could be a problem if the frequency of activities or number of tourists involved in such activities were substantially increased. These included: soil erosion caused by horse-riding, shining lights on glow-worms (which can in turn stop them from feeding), causing kangaroos to stop feeding and flee, and trampling damage around frog habitats. Two of the operators commented that the national parks service should be better resourced to enable them to manage impacts of tourists better, although they felt that the impacts of independent visitors was of much more concern than those of guided tour groups. Only one site in this study was experiencing large numbers of visitors: this was the site of a glow-worm colony with up to an estimated 110,000 visitors annually from a number of tour companies, as well as independent visitors. These high visitor numbers are associated with the fact that unlike most terrestrial animals, glow-worms occur in high concentrations within small areas. Recent research (triggered by concerns about potential impacts) has helped with understanding of potential impacts of tourism on glow-worms (Baker 2002), and has led to implementation of new management measures. However, our pilot study observations indicated that these were not being fully implemented.

Thus we tentatively conclude that there are at present minimal negative effects of terrestrial wildlife viewing on wildlife and their habitats in Australia. This probably relates to the dispersed nature of most species and the relatively low numbers of wildlife tourists and wildlife tourism development at this stage. However, this conclusion is tentative given the virtual absence of research or monitoring on these effects in this country. Further, if the scale of tourism increases and in the case of certain vulnerable populations (such as the glow worms), impacts could become a major concern unless appropriate management measures are implemented.

A range of management techniques is available and are implemented – to varying degrees – around the world to minimise any negative effects of wildlife tourism on wildlife (Green and Higginbottom 2001; Higginbottom *et al.* 2003b). Implementation appears to be constrained mainly by lack of resources, lack of suitable practical monitoring techniques (especially for Australian animals), and perhaps lack of awareness of the potential impacts. Given that a large

proportion of terrestrial wildlife viewing in Australia occurs in protected areas (section 3.2), appropriate support for sustainable management of these areas is particularly important to the sustainability of this sub-sector (see Chapter 7).

In general, there is a need to identify the situations and species with the highest potential for negative effects, and for research and development of management tools to ensure sustainable use of the wildlife/ environmental resource. For terrestrial animals, we recommend on the basis of the limited available information that Australian research and management efforts should focus on the animals and issues identified in Box 12.

Box 12: Animals and issues of special concern regarding negative effects of terrestrial wildlife viewing in Australia

Types of terrestrial animals

- threatened species
- species that congregate in small areas at vulnerable reproductive stages e.g. nesting birds, nesting crocodiles, crocodiles, kangaroos or wallabies with young that have recently permanently exited the pouch
- species with populations occurring permanently in small areas e.g. glow worms
- species that undergo periodic or seasonal shortages of resources e.g. sub-Antarctic or Antarctic birds, various species during drought
- species with burrows or other essential structures that are vulnerable to trampling damage e.g. penguins, platypus, certain crabs

Issues

- high densities and/or frequencies of visitors
- handfeeding
- road-kill
- spotlighting
- trampling

6.3 Negative Effects of Wildlife on Tourists Involved in Terrestrial Wildlife Viewing

Not only can the activities of wildlife tourists negatively affect wildlife, but in some cases free-ranging wildlife can pose a threat to tourists. In Australia, there are relatively few terrestrial species, which pose a serious threat to humans, as long as sensible precautions are taken (see Green and Higginbottom 2001). Most Australian species will avoid humans unless they are cornered or threatened.

However, a number of species in Australia can become a nuisance and potentially dangerous to tourists if they lose their fear of, or are attracted to, humans. In the context of wildlife tourism, this most often happens when the animals have become used to being fed by tourists and/or locals. This appears to be the ultimate explanation behind a number of serious injuries inflicted on tourists by kangaroos and the killing of a child by a dingo in 2001. It has also been alleged that the practice of feeding wild crocodiles by some tourist boats may increase the risk of attacks on humans (Braithwaite *et al.* 1996).

The key management implication in relation to threats on people by animals involved in wildlife tourism appears to be that handfeeding of potentially dangerous animals should be avoided, or if not, carefully managed.

6.4 Positive Effects of Terrestrial Wildlife Viewing on Wildlife

In theory, terrestrial wildlife viewing – like other forms of wildlife tourism – can have a range of positive effects on wildlife and/or their habitats. This topic is extensively reviewed by Higginbottom *et al.* (2001b) and the following provides a summary of the key points drawn from that report.

Positive effects of terrestrial wildlife viewing on wildlife can work through four main mechanisms:

- 1) financial contributions of tourism income towards conservation

- 2) participation of operators and/or tourists in conservation-related activities
- 3) provision of a socio-economic incentive for protecting or restoring natural habitats
- 4) education of visitors about conservation

There has been very little research to quantify such effects, and in the case of terrestrial wildlife viewing in Australia, information is mainly anecdotal (see Higginbottom *et al.* 2001b). Our analysis of promotional brochures of Australian operators who provide terrestrial wildlife viewing indicated that only 6% of such operators make any contribution to conservation. However in our pilot study in southeast Queensland / northeast New South Wales, all but two of the operators delivered conservation messages to their guests which could ultimately result in some positive environmental impacts, probably more than outweighing any negative impacts. Further, three of them made contributions of finances or labour to conservation-related research or initiatives. It was clear that the majority of these operators were motivated to at least some extent by the desire to contribute to conservation.

Higginbottom *et al.* (2001b) conclude that in terms of direct impacts on the natural environment, nature-based tourism within terrestrial protected areas (including that involving independent visitors) probably imposes net costs rather than benefits. These costs may be at least partially offset by the incentive that nature-based tourism creates for retention and acquisition of such areas.

In contrast to certain coastal species (e.g. penguins and seals), there seem to be no government-run activities relating to terrestrial wildlife viewing that provide any significant financial input into conservation. Protected area managers interviewed by these authors perceived substantial benefits of terrestrial wildlife viewing in terms of education, although there is no clear evidence as to whether these effects are significant in terms of ultimate conservation benefits. The economic incentive created by opportunities for nature-based and wildlife viewing tourism appears to have led to some small-scale shifts

towards more conservation-oriented land-use and wildlife management practices on private land.

Higginbottom *et al.* (2001b) conclude that 'overall, it seems likely that wildlife tourism in Australia probably has a small net positive effect on conservation at present, but this cannot be concluded with any certainty'. They further conclude that there appear to be substantial opportunities to enhance these benefits, and make specific recommendations to this effect. All of these conclusions appear equally applicable to terrestrial wildlife viewing.

7. THE ROLE OF PROTECTED AREAS

Terrestrial wildlife viewing in major wildlife tourism destination regions around the world occurs for the most part in public protected areas (national parks and other government-run natural areas). Thus, for an understanding of the opportunities and obstacles facing the sub-sector, there is a need to consider important recent political developments currently affecting protected areas in Australia.

7.1 Role of Wildlife Tourism Within Protected Areas

In Australia, relatively few national parks are known specifically for particular species of wildlife. This contrasts with North America and Africa, where a significant proportion of parks are associated with characteristic large mammal species by the public. It corresponds more closely to the situation in many Latin American parks, where visitors hope to see wildlife, but commonly have little idea what species to expect.

In Australia as overseas, however, commercial tour operators in protected areas often focus strongly on wildlife. Indeed, one of the main marketing messages for many tour operators is their ability to find wildlife that would not be seen by the independent visitor. The same commonly applies to guided walks led by park rangers and other staff. Interpretive displays in national parks commonly feature wildlife, including rare and cryptic species unlikely to be seen by the average visitor. Animals also feature heavily in promotional materials such as leaflets, which many parks now distribute either locally or at State government level.

In addition to relatively undisturbed wildlife in backcountry areas of parks and protected areas, in many parks visitors may also see and interact with free-ranging but habituated wildlife in front country areas. The most common are birds and kangaroos or wallabies that frequent visitor areas and campgrounds because of increased availability and accessibility of food, whether lawn grass or table scraps, or bird seed sold by private concessionaires. Other examples include dingoes at Central Station on Fraser Island, which until recently, routinely patronised the campground and stole food from

unwary visitors. We have recorded several instances where tour operators feed wildlife clandestinely, to establish routine behaviour patterns, so that the animals are then in evidence when guides arrive with clients. Irrespective of the management implications of such practices, it is clear that they demonstrate the significance of wildlife in attracting wildlife to national parks. It is primarily in the national parks that visitors expect to see Australia's wildlife icons in their natural habitat.

Obstacles to sustainable development of terrestrial wildlife viewing identified by at least two of the government informants interviewed in the present study were:

- inadequate resourcing of protected areas;
- insufficient revenue derived from commercial activities (including tourism) in protected areas;
- a negative attitude of some protected area staff to tourism and private enterprise;
- poor quality of interpretation in many protected areas; and
- a need for greater security of tenure for responsible tour operators.

7.2 Trends in Visitation and Park Management

In Australia, as worldwide, the number of visitors to national parks and other protected areas and public lands is increasingly rapidly. Many parks do not monitor visitor numbers, or have only recently commenced to do so, so this trend is not well quantified. All evidence from visitor surveys, park management records, trail logs, campsite permits, and the experience of park managers, rangers, tour operators and long-term individual visitors demonstrates a very considerable increase in overall visitor numbers, over recent decades, and particularly in the last few years (Buckley 2002).

Associated with this increase in overall numbers are several subsidiary trends of equal significance in park and visitor management. These include:

- an increase in commercial tourism relative to private recreation;
- an increased number of visitors in remote backcountry as well as accessible front country areas;

- growth in demand, by tour operators, for tourism infrastructure provided by park management agencies;
- increasing proportions of park budgets devoted to visitor facilities and management, at the expense of basic conservation management; and
- growth of outdoor tourism and recreation in state forests and other public lands, as parks become increasingly crowded.

From a park management perspective, this has led to an intensifying budget crisis, where parks are:

- physically or politically unable to limit visitor numbers;
- subject to increasing demand for expenditure on large-scale infrastructure;
- subject to increasing maintenance costs associated with higher visitor numbers; and
- at risk of being held liable for the safety of inexperienced visitors.

By default and desperation rather than design, therefore, parks are increasingly driven to raise management funding from visitors and tour operators, through an array of entrance charges, permit and licence fees, and commercial concessions.

In efforts to contain visitor impacts in the face of growing visitor numbers and inexperience, parks are resorting to measures such as:

- minimal-impact educational and interpretation materials;
- environmental management conditions in permits for commercial tour operators;
- restrictions on specific visitors activities, e.g. campfires; and
- compulsory training courses for commercial guides operating in the park.

Three other approaches, which have not yet become widespread but appear to be under serious consideration in many areas, are:

- a requirement for commercial operators to be appropriately accredited, for environmental management as well as safety;
- partnerships or agreements with commercial tour operators to assist in basic conservation monitoring and management within the park (DITR 2003, National Heritage Tourism Taskforce 2003); and

- preferential licencing arrangements for commercial tour operators who have appropriate accreditation (Buckley *et al.* 2002).

From the perspective of a tour operator who provides wildlife viewing opportunities, these trends have the following consequences:

- an increase in the total clientele and market size;
- increasing cost and complexity for permits to operate in national parks;
- increasing competition between operators; and
- possibly, increasing pressure to be able to ensure that clients do see particular wildlife species.

As tour operators search for new, more exclusive or less crowded opportunities, and forestry agencies recognise the social and economic value of tourism, some wildlife tours are now operating in state forests as well or instead of national parks. In addition, some state forestry agencies have started to promote their own wildlife tours, albeit currently at very small scale. Australia lags well behind the rest of the developed world in the use of public forests for tourism. In the USA, for example, the Forest Service has now recognised that it earns at least one and possibly two orders of magnitude more from tourism than it does from logging, and is adjusting its management priorities accordingly. This has yet to happen in Australia. Tasmania and Western Australia appear furthest advanced in promoting tourism in the state forests, and Queensland has recently taken a step in that direction. The extent to which this will involve wildlife tourism is not yet clear.

8. INTERPRETATION

It is widely recognised that well-designed interpretation provided as part of nature-based tourism can not only influence people's attitudes and behaviour in relation to conservation, but can increase visitor satisfaction, enhance visitor safety and/or help motivate people to participate in nature-based tourism activities (Davis *et al.* 1997; Tourism Queensland 1999, Manfredo and Driver 2002). However, relatively little research has explored this in any detail for wildlife tourism or for terrestrial wildlife viewing (see Moscardo *et al.* 2001).

A visitor survey in Flinders Chase National Park (Greenwood *et al.* 2000) found that 44% of respondents rated the availability of interesting information about wildlife and knowledgeable guides/staff as very important features of a wildlife experience. A number of other studies have indicated the importance of good interpretation to visitor satisfaction (see Moscardo *et al.* 2001). There is also evidence that effective interpretation in association with wildlife tourism can lead to more positive attitudes towards conservation (ibid). However key informants interviewed by Moscardo *et al.* (2001) and by Higginbottom *et al.* (2001a) felt that the quantity and quality of interpretation associated with wildlife tourism in Australia were often inadequate, both in general and in relation to terrestrial wildlife viewing in particular. Valentine (1984) observed that there was virtually no interpretation available in national parks to support birdwatching.

In their study of enterprises incorporating kangaroo viewing, Higginbottom *et al.* (2003a) found that most enterprises used interpretation in relation to kangaroos, and spoken commentaries were the dominant format used. Information presented was generally accurate. However, very few enterprises had integrated or coordinated interpretive programs, and there was limited use of interpretive principles, which is of concern particularly with respect to educational outcomes.

All but two of the operators in our pilot study (a horse riding experience for which the environmental experience turned out to be peripheral, and the farm stay) provided plentiful interpretation about

wildlife and the natural environment. This was presented solely as a commentary given by the guide, except for two of the tour operators who also provided written materials and access to references. Information was generally accurate, and conservation messages were delivered. However in most cases there was very limited use of interpretive principles, and none of the guides had undergone formal training in interpretation. While all guides were enthusiastic, they varied considerably in their ability to communicate in an entertaining manner.

However a systematic assessment of the nature, quality and effectiveness of current interpretation is needed to make detailed recommendations about the use of interpretation in wildlife viewing tourism. It would also be useful to know from the operators' what kind of information and interpretive materials they would consider useful, as well as the extent and nature of interpretation desired by visitors.

There is a wide range of publications that provide information on different groups of Australian terrestrial animals, either across the country or in particular regions (see examples given in Green *et al.* 2001), but these are designed as general or biological references. Only one recent publication is directed specifically at tourists: a Lonely Planet Guide (Bennett *et al.* 2000). This provides general tips on wildlife watching, information on the types of wildlife likely to be found in various habitats and localities, and natural history information about major species and groups of wild animals. In addition, Lindenmayer and Press (1989) have produced a manual on spotlighting of arboreal mammals that is useful both to tour operators and members of the public who wish to know how best to find and observe animals in this way, and minimise their impacts on the animals.

9. THE HOST POPULATION

As reviewed in section 4.2, at present terrestrial wildlife viewing probably makes only small contributions to local economies in Australia, for the most part.

An important potential impact of host communities on wildlife viewing in some cases could be resistance of various voluntary conservation and animal rights NGOs to some forms of terrestrial wildlife viewing development. This could include any plans to provide additional infrastructure to assist wildlife viewing in national parks. Another impact is resistance from farmers and other local residents in rural areas who are concerned with impacts of tourists on their lifestyle, practical problems caused by tourists, and perceived potential for restrictions on their land use. Such concerns have been voiced by residents of Beaudesert Shire, in southeast Queensland (R. Green, pers. com.) and the Daintree region.

A very small proportion of Australian terrestrial wildlife viewing enterprises make any mention of inclusion of indigenous people or culture (6.3%). The involvement that does occur falls into the following categories:

- Aboriginal art, mythology and/or culture;
- Aboriginal show, music and/or dancers;
- Aboriginal heritage or sacred sites;
- Aboriginal bush tucker and medicinal plants;
- Aboriginal traditional lives;
- Aboriginal cultural centre;
- Aboriginal guides; and
- Aboriginal owned and operated.

Muloin *et al.* (2001) have identified potential for increased involvement of Australian Indigenous people in wildlife tourism.

10. SWOT ANALYSIS OF TERRESTRIAL WILDLIFE VIEWING TOURISM IN AUSTRALIA

In this section we review the strengths, weaknesses and threats and opportunities for terrestrial wildlife viewing, including suggestions on future directions for sustainable development of this sub-sector. Some of these issues are covered in more depth in the general context of wildlife tourism in Higginbottom *et al.* (2001a), and the conservation issues are covered in more detail in Higginbottom *et al.* (2001b) and Green *et al.* (2001).

10.1 Strengths

Internationally, terrestrial wildlife viewing has been cited as one of the fastest growing areas of tourism, and demand has often seemed to meet supply of new wildlife viewing experiences (however these claims cannot be scientifically defended). In Australia, viewing terrestrial animals in the wild is important to a significant proportion of international and domestic tourists (though far from the majority) and most international visitors want to see 'animals', with some evidence of a preference for seeing them in the wild (section 4.2). Australian terrestrial animals and the natural environment in which they occur offer a number of key advantages compared with other major tourist destinations (Box 11), and Australia is already internationally recognised for some of these species.

On a global scale, Australia has a modern, sophisticated tourism industry that is in principle capable of meeting tourist needs and wants. It is already internationally recognised for its natural environment, and for being a world leader in ecotourism. Operators and staff involved in specialised terrestrial wildlife businesses are often highly motivated and have strong conservation awareness, and are keen to communicate their enthusiasm to visitors. Many of these operators are already supplying high quality experiences that lead to high levels of visitor satisfaction.

Terrestrial wildlife viewing in Australia is probably leading to some conservation benefits in terms of education of visitors, contributions

of some operators to conservation initiatives and indirectly in providing a socio-economic incentive for habitat preservation.

10.2 Weaknesses, threats and challenges

On the other hand, there are significant constraints or obstacles that currently seem to be limiting the development of terrestrial wildlife viewing. These are mostly not insurmountable, but would require creative and coordinated efforts to overcome.

The wildlife

- Australian terrestrial wildlife species are associated with a number of apparently negative features for viewing by tourists (see Box 11), which give rise to the following constraints and challenges:
 - For most species, satisfying wildlife viewing requires application of specialist knowledge, skills, and equipment; thus restricting types of operators and raising costs (and therefore restricting viewing to a relatively high income group).
 - In many cases, satisfying wildlife encounters are likely to require patience, perseverance and sometimes hardship by tourists; thus restricting the size of the market (although this can in some cases be overcome by creative design of experiences – see section 10.3 below).
 - For the large number of nocturnal species, viewing the animals when they are active (generally more satisfying) means altering the usual activity pattern of tourists and operators.
 - Given the difficulty of finding and observing many species, creative (and sometimes time consuming or costly) ways of facilitating quality encounters with these species are needed. This may for example involve habituating animals to the presence of people, searching for sites that provide relatively good viewing opportunities, researching the movement patterns of the animals so that their locations can be reasonably predicted, using technology to facilitate remote viewing or building structures to allow closer-than-normal encounters.

- Since it is often difficult for visitors to interpret the behaviour of Australian animals, informed interpretation by guides is important.

- In general, substantial expansion of this sub-sector, and particularly forms of wildlife viewing that involve manipulation of animals and natural environments, may lead to negative effects on the wildlife and natural environment. Already, some operators and independent travellers are reported to be rather unscrupulous in terms of impacting on the wildlife and natural environment, which suggests the need for improved management. Thus careful management – and adequate resources, knowledge and commitment for effective management – is essential.
- Australia has experienced, and probably will continue to experience, destruction and modification of natural terrestrial habitats, limiting opportunities for new wildlife tourism ventures and increasing fragmentation such that existing populations decline. Thus conservation of wildlife and the natural environment in general is critical to the future of terrestrial wildlife viewing.

Tourism infrastructure and access

- There is little tourism infrastructure in many of the remote areas where much wildlife resides. This means that either considerable investment is needed to set up this infrastructure (often at high risk), or terrestrial wildlife viewing tourism in more remote areas will continue to be restricted to independent travellers of commercial tour groups that are relatively self-contained in supplying their needs, and/or to the fairly small market segment that does not desire a range of comforts and conveniences.
- Some of the best wildlife areas are remote and/or otherwise difficult or expensive to access.

Market

- International visitors, and probably many Australians too, apparently have a poor knowledge of the diversity and features of

Australian terrestrial wildlife species and therefore are not aware of many species that may be of interest to them.

- There is a lack of knowledge of wildlife viewing opportunities by tourists.
- Due to the relatively high cost of guided tours or other managed activities involving free-ranging wildlife, these activities are relatively exclusive and tend to be confined to high-income customers (in contrast to visits to captive wildlife facilities). The relatively high cost limits the market growth potential, although it is not known to what extent.

Tourism industry

- Terrestrial wildlife viewing operators are often plagued by generic business planning and management problems, and some face financial viability problems.
- There is a lack of knowledge of terrestrial wildlife and wildlife viewing experiences in the tourism industry.
- The quality of service (hospitality issues) provided by some operators is seen as sub-standard.
- Wildlife tourism products based on terrestrial species are not adequately sophisticated given the expectations of many (often experienced) modern tourists.
- Small operators often have difficulty adequately promoting their products – in terms of knowing how to do so and cost.
- There are few available tour guides with the specialised knowledge that is desirable to enable them to find and interpret wildlife effectively.
- The standard of marketing of terrestrial wildlife viewing is widely felt to be poor, and there is a lack of cooperative marketing.

- There is a lack of use of educational principles and formal interpretation training among small operators who provide terrestrial wildlife viewing experiences.
- There is little written interpretive material provided to guests by most operators.
- There is a low level of involvement of private landholders in this sub-sector of wildlife tourism, yet it is on private land where the greatest conservation benefits can be achieved.
- There is potentially competition between the captive and free-ranging sectors – although there is also potential for these to complement each other.
- Very few operators are involved in monitoring and assessment of impacts of tourism on wildlife and their habitats.

Government

- There is very little policy material concerned with management of this sub-sector. What policy and legislation there is sometimes contradictory or confusing (particularly regarding feeding of wildlife by visitors).
- There is little practical government support for development of terrestrial wildlife viewing on private and public land.
- At least in some States, many Parks staff are reported to have a negative attitude towards any tourism or private enterprise operation in parks. They also typically have little experience or training in tourism.
- There is very little monitoring and assessment of impacts of nature-based tourism on the environment (including wildlife) by government agencies.
- There is little written interpretive material on wildlife available from protected area management, and what is available is often of poor quality in terms of presentation.

- From the point of view of the industry, there are insufficient facilities (e.g. canopy walks, hides) to support satisfying wildlife viewing in protected areas.
- In some areas or situations the complexity of government bureaucracy (e.g. multitude of permits required) is a major frustration to operators.
- The low level of funding for protected area management is a major concern with regard to ability to manage and monitor wildlife tourism.
- Over recent years there has been decreasing access to certain areas of good wildlife habitat by commercial operators as a result of declaration of protected areas and restrictions on access within these. Some responsible operators perceive that their access to good wildlife viewing opportunities in protected areas is unduly restricted, and that they have insufficient security of access.
- There is very little training or other support specific to terrestrial wildlife viewing.

Knowledge

- There is very little research information available on any aspect of this sub-sector in Australia, including information on the nature and extent of demand and on the environmental impacts of wildlife tourism.
- There is a shortage of suitable practical techniques for monitoring of impacts.
- There are very few guidelines available to assist in management of impacts of tourism based on specific terrestrial wildlife taxa. Such guidelines need to be specific to the taxon concerned.

Other

- There is a low level of cooperation and mutual understanding between tourism and conservation interest groups, including with protected area management agencies in some cases.
- There is a conflict of interest between a desire for decreased regulation and bureaucracy by operators, and environmental groups demanding greater control and restrictions.
- The environmental/animal rights lobby may be resistant to the expansion of some forms of terrestrial wildlife viewing tourism.

10.3 Opportunities and future directions

Industry development

There is no evidence that there is substantial unmet demand for commercial terrestrial wildlife viewing in Australia, although further research is needed to substantiate whether such demand exists. Most international visitors who want to see wild animals while in Australia do so, and indicate high levels of satisfaction with viewing experiences (Fredline and Faulkner 2001). While some operators are doing very well financially, our impression is that the majority are working well under capacity and many are struggling to survive (supported by data in Sections 5 and 10.2), and prices generally seem to be low by world standards. This supports our impression that levels of competition between terrestrial wildlife viewing operators are high.

At the same time we suggest that there may well be significant latent demand for certain types of quality wildlife viewing experiences. Currently, the large variety of Australian wildlife is not well recognised by tourists or the tourism industry both internationally and domestically, which is affected by education and marketing. There also seem to be significant opportunities for improving the quality and sophistication of Australian wildlife tourism products. Given that there is clearly strong worldwide interest in wildlife tourism that is perceived to be of high quality, we suggest that a combination of product enhancement and more effective marketing could be used to drive

increased demand. This needs to be investigated through further research and/or experimental development.

Thus we suggest that any growth of terrestrial wildlife viewing tourism in Australia will need to be supply-driven and will require the following four components:

1) *Generation of increased demand from both domestic and international tourists to see a wide range of Australian wildlife species in their natural habitats.*

This needs to be driven by enhanced education regarding the diversity and positive features of Australian wildlife, coupled with enhanced marketing regarding the opportunities for, and desirability of, terrestrial wildlife viewing. One mechanism that may help facilitate this is through promoting wildlife icons. For international visitors, it may be possible to create an Australian equivalent to Africa's 'Big Five' (e.g. 'You've seen Africa's Big Five, what about the Seven Wonders from Down Under?'). Suitable species might be the koala, kangaroo (red or eastern grey), saltwater crocodile, platypus, bilby, and wombat. This could be mirrored on a regional/state scale, emphasising species of particular local interest. This approach has been considered in a preliminary way in Western Australia, based mainly on a set of endemic, threatened and charismatic mammal species such as the numbat and woylie (D. Moncrieff, pers. com.) Alternatively, and for domestic consumers, regions could each have a single icon species, as already applies to some extent with the Tasmanian Devil (Tasmania) and the Rottneest Island Quokka (Western Australia). Other possibilities might be the greater glider in the New England tablelands, the mountain pygmy possum in the Australian Alps and the marsupial mole in Central Australia. Not all these species could readily be seen in the wild, so a co-ordinated approach with captive wildlife viewing facilities would be needed.

2) *Enhancement of product quality, particularly in terms of developing more sophisticated products and providing improved services.*

Some specific product suggestions that may assist with this are given in the next section. Key mechanisms that may help in this regard are:

- Further development of accreditation programs such as NEAP, and linking this to the licensing system for access to protected areas.
 - Support for operators (through funding and other incentives and assistance) to develop innovative wildlife viewing products.
 - Enhanced training, involving where possible face-to-face training on wildlife for established tourism operators, and enhanced access to business training for those with wildlife skills.
- 3) *More effective linking of tourists to terrestrial wildlife viewing products through appropriate marketing.*

This would allow consumers access to better information about available wildlife experiences that would suit their interests and needs.

4) *Enhancement of management and monitoring measures to ensure that the wildlife resource is not degraded through the effects of terrestrial wildlife viewing development.*

This would require an improved knowledge base, raised awareness of potential problems, adequate commitment from management authorities and the tourism industry, and increased funding for conservation agencies.

Future development of wildlife tourism should simultaneously consider not only the need to ensure no long-term deterioration of the wildlife involved, but how to maximise benefits flowing from tourism to wildlife. Recommendations to facilitate this are given by Higginbottom (2001b). It is vital in this regard that there is close cooperation between tourism and conservation interests in steering and promoting the future development of wildlife tourism. In some cases, there may be a need to reconcile the different priorities relating to economic versus conservation goals. In particular:

- the need to ensure environmental sustainability (as well as social sustainability) supports a focus on increased yield, rather than increased volume at many sites.
- In order to charge the high prices that may be required to raise enough revenue to support conservation initiatives, it is important

to limit supply in relation to demand for certain wildlife tourism experiences (e.g. through quotas or permits).

We propose that future development of wildlife tourism in Australia should be approached in a strategic, coordinated way (Higginbottom *et al.* 2001a). Tasmania is currently the most active jurisdiction in Australia in terms of driving sustainable development of wildlife tourism in Australia (Kriwoken *et al.* 2002). The recent establishment of Wildlife Tourism Australia (www.wildlifetourism.org.au/index.htm), an organisation comprising wildlife tourism operators and other stakeholders, is hoped to help drive this strategic approach. To be effective, the approach will require involvement from tourism operators, tourism industry associations, and governments.

The USA seems to be the world leader in terms of use of a diversity of innovative designs for terrestrial wildlife viewing experiences, coupled with use of sophisticated technology and infrastructure. Richie Oberbillig (2000) contains many ideas and examples, some of which may be applicable with appropriate adaptations to certain Australian species.

New styles or components of wildlife tourism deserving investigation

- A modified form of African style safari tourism, providing a total luxury 'packaged experience' with wildlife viewing and high quality, environmentally sensitive accommodation linked to national parks.
- Integration of captive and free-ranging wildlife viewing experiences – with one building on the other to create a more satisfying overall experience.
- Wildlife trekking or hiking, such as occurs in Thailand, where guides take treks down elephant trails, spotting animals along the way.
- More specialist experiences to meet the demands of an increasingly sophisticated market, such as tours focusing on frogs, insects, or mammals, and catering for a low volume but high yield market.

- Low cost tours or provision of limited guiding in protected areas, for tourists who cannot afford relatively expensive commercial guiding, but wish to experience more than possible with their own resources and knowledge.
- More sophisticated interpretive materials and infrastructure in protected areas to facilitate enhanced self-guided wildlife viewing (see next section), and at a cost affordable to most visitors.
- Increased integration of Indigenous and wildlife tourism in appropriate ways (Muloin *et al.* 2001).
- Increased incorporation of conservation initiatives into wildlife viewing experiences.
- Increased integration of government and university fauna conservation or research programs with wildlife viewing tourism (to provide education and revenue for conservation).
- Increased linking of species reintroductions and threatened species with tourism (as long as this is carefully managed).
- Inclusion of 'pest' and harvested species as subjects of wildlife viewing, with associated interpretation.
- Change in timing schedules of tours to facilitate nocturnal wildlife viewing.

Enhanced use of technology and infrastructure

- Use of physical structures to enable visitors to get better (usually closer) views of animals without disturbing them. In Australia, hides (known in the USA as blinds) are often used for viewing birds, but their use could be expanded to other types of animals (although they may not be effective for some species). Overseas, more extensive use than in Australia is made of such structures for animals other than birds. Viewing hides at waterholes in many Southern and Eastern African reserves enable the visitor to see a wider range of large mammals at closer distances than would otherwise be possible. Hides need not be fixed in position: in

eastern Colorado, a mobile wildlife viewing trailer is positioned adjacent to courting grounds of the endangered greater prairie chicken, and left in place for a week before use to habituate the birds to its presence (Richie Oberbillig 2000). At a nature reserve in Swaziland, visitors eat at a restaurant while viewing hippopotamuses in the adjacent waterhole through the window (pers. obs.). An observation tower is used to improve viewing and security to people watching bears at Pack Creek, Alaska (Richie Oberbillig 2000). At Lake Tahoe in California, visitors can view spawning salmon and other fish from a chamber constructed to allow viewing through windows into the water (ibid.).

- Concealed paths have also been used elsewhere in the USA. At the Yellow-eyed Penguin Reserve in New Zealand, a system of hides and interconnecting tunnels allows close access to penguins without causing undue stress (Dyer 1999). In Australia, viewing hides at waterholes are now being trailed with kangaroos at Fowler's Gap in western New South Wales.
- Careful use of 'baits' to attract animals. In Tasmania, a number of operators are now using road-killed animals (found in the local area) to attract Tasmanian devils to locations where they can be viewed at close quarters and in comfort by visitors (N. Mooney, pers. com.). Guidelines have been established to ensure that impacts on the animals are minimal. Other possibilities are artificial watering points, salt licks or suitably sited open grassy areas for herbivores and use of pheromones for carnivores. Again, any impacts on animals need to be carefully weighed against benefits.
- Provision of equipment to aid in wildlife viewing to tourists, where necessary supported by training or information on use, e.g. binoculars, viewing scopes, night vision equipment. At Santa Ana National Wildlife Refuge in Texas, visitors can borrow binoculars and field guides. At the Georgetown Bighorn Sheep Viewing Area in Colorado, they can pay to use spotting scopes to observe wild bighorn sheep (Richie Oberbillig 2000).
- Use of electronic or other technology (often developed through research or wildlife monitoring activities) to facilitate close-up viewing of wildlife behaving naturally, and with minimal disturbance. This sort

of technology can satisfy what appears to be a growing demand for being able to observe natural phenomena that are normally difficult to observe, as exemplified in many of the more sophisticated modern wildlife television programs. Some examples currently used in Australia for terrestrial wildlife viewing are:

- 'Burrowscopes' designed for viewing of mutton-birds and other ground dwelling birds (Dyer 1999). This comprises a black and white video camera in a metal case, and an infra-red light source, linked to a monitor screen. Use of this technology for tourism is currently being tested (P. Dyer, pers. com. 2002).
- Video monitoring of the endangered orange-bellied parrot, linked with interpretation. Video cameras are positioned in the nests, with images relayed to a viewing platform, where interpretation is provided (Dyer 1999).
- Low-light/infra red cameras as used at Naracoorte caves (Box 10). This system could be adapted for small mammals, platypus or bird nests (S. Borne, pers. com.).
- Infra-red video cameras for night wildlife tours, as used by Wildscapes Safaris in North Queensland.

Such technology can even be used for fish. An underwater camera system at Neosho National Fish Hatchery, Missouri, allows visitors to observe the endangered Ozark cave fish without going near the cave. Spawning sockeye salmon can be viewed on a television monitor inside a viewing shelter at Tongass National Forest, Alaska (Richie Oberbillig 2000).

This sort of technology can also be used for viewing at sites far remote from the wildlife habitat. For example, at the Pratt Museum in Homer, Alaska, visitors can remotely manipulate video cameras placed at a bear viewing area and a bird rookery many miles away, and view the associated images on a television screen.

- Development of extensive, high quality interpretive materials for particular taxa and/or regions. A useful model to adapt would be the 'watchable wildlife guides' and websites of a growing number of states and provinces in the USA and Canada. These provide

information on species to see, where and when to find them, interesting information about them, how to maximise visitor satisfaction and minimise wildlife impacts, and sources of further information. They act as an educational, product enhancement and marketing tool.

Improved marketing

- Improved marketing by individual operators.
- Cooperative marketing of wildlife tourism, e.g. the recent 'Wildlife Trail' initiative in South Australia, linking captive and free-range wildlife tourism operators in a marketing campaign, and supported by the South Australian Tourism Commission (M. Edwards, pers. com.).
- Improved information on wildlife viewing opportunities and associated wildlife information on websites of government tourism agencies and/or tourism industry associations.

11. RECOMMENDATIONS FOR ACTION AND RESEARCH

The following list summarises the major recommendations arising from this report regarding measures to help facilitate sustainable development of terrestrial wildlife viewing tourism in Australia. Further details of some of these were covered in Chapter 10.

Actions

These actions should be approached in a coordinated, strategic way, as one will not be effective without the others. Some of these measures may be most effective within the context of initiatives dealing with tourism or nature-based tourism in general; in other cases it may be worth addressing wildlife tourism specifically.

- 1) Facilitate enhancement of the quality of terrestrial wildlife viewing experiences, especially through:
 - investigation of opportunities for development of new types of wildlife experiences, technology and infrastructure;
 - improvement in the quality of interpretation;
 - training, advice and other support measures for operators, in business, hospitality, interpretation and wildlife-related skills; and
 - further development of accreditation and licensing systems that are relevant to wildlife viewing tourism.
- 2) Educate the tourism industry regarding Australian wildlife, wildlife viewing opportunities, and impact issues.
- 3) Conduct marketing campaigns to raise the level of demand for terrestrial wildlife viewing experiences, and enable consumers to make informed choices about the experiences they seek.
- 4) Facilitate enhancement of management and monitoring measures in relation to impacts of terrestrial wildlife viewing on the environment (including wildlife), especially through:
 - education and training;
 - development of user-friendly monitoring techniques;

- increased funding of protected area agencies for resource management purposes; and
 - where feasible, increased use of tourism revenues for funding management and monitoring.
- 5) Develop mechanisms to facilitate greater cooperation between tourism and conservation interest groups with regard to terrestrial wildlife viewing.

Research and communication

- Identify species and situations suitable for wildlife tourism development (see also Green *et al.* 2001).
- Investigate demand and market characteristics (especially to elucidate areas of unmet demand and opportunities for most readily driving increased demand).
- Investigate obstacles to tourist participation in existing wildlife tourism opportunities (especially the roles of price and marketing).
- Investigate causes of low visitor numbers for many small operators.
- Assess channels for, and effectiveness of, current marketing strategies and components.
- Investigate factors affecting visitor satisfaction.
- Assess impacts of wildlife viewing on species or populations considered to be at high risk or of threatened conservation status.
- Assess impacts of visitor feeding on terrestrial wildlife populations.
- Assess effectiveness of different management techniques in various types of wildlife viewing situations.
- Investigate obstacles and opportunities for sustainable terrestrial wildlife viewing tourism on private land.

- Assess factors determining the effectiveness of interpretation in terrestrial wildlife viewing, with regard to conservation outcomes and visitor satisfaction.
- Produce guidelines, interpretive and management-related written materials to assist tourists, travel agents and managers.
- Produce interpretive and marketing materials regarding wildlife tourism opportunities in protected areas, to raise incidence and satisfaction levels of wildlife encounters by visitors.

We also recommend that studies that assess wildlife tourism operations examine economic, social, environmental and educational issues simultaneously where possible, since approaches that may be best in one respect may not be so in another and it is the net outcomes that matter. Such studies are rare in Australia, and include research by Moncrieff (1998) and Braithwaite *et al.* (1996), as well as research by the CRC for Sustainable Tourism that is currently in progress.

To conclude, there is some evidence that there is potential for growth of terrestrial wildlife viewing in Australia, although there are also important constraints to be overcome. There is certainly scope for improvement in product quality, and therefore in yield associated with this form of tourism. There also seem to be opportunities for increased linking of terrestrial wildlife viewing to conservation that deserve investigation. There are large information gaps that need to be filled to determine to what extent, and in what directions, this sub-sector can best be developed. If significant development does occur, the kind of negative impacts on wildlife and ecosystems that have occurred in some overseas destinations can be expected unless proactive management and monitoring is put into place. A coordinated, strategic approach to sustainable development of terrestrial wildlife viewing is needed, with the participation of all key stakeholders.

APPENDIX A: LOCAL AREA WILDLIFE TOURISM REPORT

*Note: the subtopics mentioned are only an indication – different issues will be important in different situations; *indicates that questioning is required.*

- 1) Methods
(date, researchers, methods)
- 2) Description of Wildlife Attraction
(place, wildlife, natural environment, nature of attraction and context)
- 3) Description of Experience
(what typical experience involves including e.g. group size, travel, duration, authenticity)
- 4) Education/Interpretation
(description and evaluation)
- 5) Description of Staff
(number, training/experience, behaviour, attitudes*)
- 6) Description of Visitors*
(number; demographics e.g. age, types of groups e.g. family, gender, educational level, occupation; previous wildlife experience; personality; general attitudes; motivation for this visit)
- 7) Visitor Reactions*
(behaviour and verbalisations indicating nature of their response to the experience - e.g. level of involvement, perceptions of comfort, value for money, learning, enjoyment; include quotes where possible and idea of what proportions felt what; overall assessment of visitor satisfaction and reasons for positive and negative)
- 8) Business Aspects*
(apparent profitability and issues affecting; nature and effectiveness of marketing)
- 9) Operator Perceptions*
(about his business, clients, natural environment; issues they think important)
- 10) Environmental/Wildlife Impacts*
(for each activity describe observed and potential; presence of any monitoring; nature and evaluation of effectiveness of any management measures)
- 11) Other ideas/Comments/Issues

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AUTHORS

Dr Karen Higginbottom

Karen Higginbottom coordinated the Wildlife Tourism subprogram of the CRC for Sustainable Tourism. She has been responsible for the coordination of this report series. Until recently, Karen was a lecturer at Griffith University, where she taught wildlife management, vertebrate biology, and nature-based tourism. Her research experience is principally in wildlife ecology, behaviour and management, especially regarding its integration with "human dimensions". Her current research focuses on wildlife management and synthesis issues relating to wildlife tourism. Karen is now a consultant, part-time research fellow and writer. She has extensive experience as a wildlife tourist in many countries, and spent three year working on environmental management and community development issues in Africa. Email: k.higginbottom@griffith.edu.au

Prof Ralf Buckley

Ralf Buckley is Professor of Ecotourism and Director of the International Centre for Ecotourism Research at Griffith University. He has served for several years as Coordinator of the Environment R&D Program, and Director Nature and Adventure Tourism, for the CRC for Sustainable Tourism. His books *Case Studies in Ecotourism* and *Environmental Impacts of Ecotourism* both address wildlife as well as other nature tourism products. Email: r.buckley@griffith.edu.au



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

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(d.lockington@uq.edu.au)

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(Leo.jago@vu.edu.au)

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- Events and sports tourism
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Coordinator – Dr Pramod Sharma
(p.sharma@uq.edu.au)

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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
(j.wilks@uq.edu.au)

7. Centre for Regional Tourism Research

Director – Prof Peter Baverstock
(pbaverst@scu.edu.au)

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- Sustainable Tourism Holdings
CEO – Peter O'Clery
(pocclery@iprimus.com.au)
- Sustainable Tourism Services
Managing Director – Stewart Moore
(sts@crctourism.com.au)
- Green Globe Asia Pacific
CEO – Graeme Worboys
(graeme.worboys@ggasiapacific.com.au)

*For more information contact:
Communications Manager – Brad Cox
CRC for Sustainable Tourism Pty Ltd
Griffith University, PMB 50
GOLD COAST MC, Qld 9726
Ph: +61 7 5552 8116, Fax: +61 7 5552 8171
Visit: www.crctourism.com.au or email:
Brad@crctourism.com.au*

