POSITIVE EFFECTS OF WILDLIFE TOURISM ON WILDLIFE

By Karen Higginbottom, Chelsea Northrope and Ronda Green

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Status Assessment of Wildlife Tourism in Australia Series
RESEARCH REPORT SERIES
The primary aim of CRC Tourism’s research report series is technology transfer. The reports are targeted toward both industry and government users and tourism researchers. The content of this technical report series primarily focuses on applications, but may also advance research methodology and tourism theory. The report series titles relate to CRC Tourism’s research program areas. All research reports are peer reviewed by at least two external reviewers. For further information on the report series, access the CRC website, www.crctourism.com.au.

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This report is one in a series comprising a status assessment of wildlife tourism in Australia. It comprises the initial stages of research undertaken by the Wildlife Tourism Subprogram of the CRC. Reports in this series cover various disciplinary perspectives (visitors, economics, hosts, wildlife management) as well as various subsectors (such as zoos, bird watching and hunting). Together, the reports identify the current status and key issues facing Australian wildlife tourism, and make recommendations to enhance its sustainability.

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EXECUTIVE SUMMARY

Aims

This report provides a review of the ways in which wildlife tourism can have positive effects on wildlife and their habitats, discusses the limited evidence regarding the extent to which these are currently being realised in Australia and makes recommendations to enhance such effects. While this report covers the full scope of wildlife tourism, the principal focus is on non-consumptive wildlife tourism involving free-ranging animals.

Key Issues

In principle, wildlife tourism can have various positive effects on wildlife species and their habitats. However, to date we know much more about negative effects of wildlife tourism on wildlife; very little systematic research has been conducted on positive effects. These positive effects work through four main mechanisms: (1) financial contributions, (2) non-financial contributions, (3) socio-economic incentives, and (4) education. The contribution may be to conservation, animal welfare, or both.

Financial contributions to conservation generally arise through government-administered user fees such as entrance fees, visitor levies, commercial operator licensing fees and hunting licence fees. At least in relation to wildlife tourism occurring in protected areas, this income is usually insufficient to even cover the costs of managing visitor impacts. In any case it is generally viewed as a means of partially contributing to management costs, rather than as contributing positively to conservation beyond what would occur in the absence of wildlife tourism. Currently in Australia, there has been a notable paucity of use of economic instruments to support sustainable management of natural resources. Further, there is evidence that visitors may be willing in some cases to pay more for wildlife experiences than they currently do, and thus raise additional revenue for conservation. There also seems to be scope for obtaining more funding for conservation and/or animal welfare from donations and sponsorships.
Wildlife tourism can also have a positive effect on wildlife species and their habitats through non-financial contributions. Operators and tourists can contribute positively to conservation of wildlife and their habitats by participating in management activities, monitoring or research. A number of commercial wildlife tourism operators make such contributions by involving tourists in conservation-related research projects. Many zoos are involved in breeding and reintroduction programs for threatened species. It can also be argued that hunting of feral animals contributes to biodiversity conservation in some cases. However there are no systematic or coordinated efforts in Australia to enhance such contributions.

Socio-economic incentives for conservation arising from wildlife tourism can work through their effects on the private or public sector organisations that operate wildlife tourism, or through their effects on the wider host community. One of the most important conservation benefits provided by wildlife tourism occurs when it provides an economic incentive for maintaining or restoring natural habitats. Usually as one component of nature-based tourism, wildlife tourism has been a part of the incentive for creation of a number of protected areas in Australia and also for shifts towards more conservation-oriented management practices by private landowners. There are also anecdotal examples of ways in which wildlife tourism has led to increased support for conservation by local people in Australia. However these effects are probably not as strong as some of those reported for certain less developed countries.

Finally, through education associated with wildlife tourism, visitors can be educated to increase their awareness of conservation or animal welfare issues, and thus to behave in ways which have positive consequences for wildlife or their habitats. While conservation agency informants generally believed this to be the most important conservation benefit associated with wildlife tourism in Australia, empirical evidence is generally lacking.

Conclusions for Australia

1. Nature-based (including wildlife) tourism in protected areas probably imposes net costs in terms of its direct impacts on the natural environment at the tourism sites involved.
2. The costs identified in 1. are at least partially offset, or perhaps even outweighed, by the incentive that nature-based tourism creates for retention and acquisition of such areas.

3. Government-owned wildlife tourism attractions and activities in Australia currently provide significant financial input into conservation in a few instances.

4. Wildlife tourism appears to have led to some small-scale shifts towards more conservation-oriented land-use and wildlife management practices outside of protected areas.

5. Wildlife tourism is associated with significant practical contributions to conservation.

6. The magnitude of benefits to wildlife associated with education provided as part of wildlife tourism are unknown.

7. The nature and magnitude of costs and benefits of wildlife tourism to wildlife will vary according to many factors such as type of tourism activity, vulnerability of the wildlife population, effectiveness of interpretation, and conservation ethic of the operator.

8. 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.

9. A more definite and perhaps more important conclusion in terms of future developments is that there appears to be substantial opportunity to enhance these benefits.

**Recommendations**

The following are seen as priorities for steps that can be taken at this stage to enhance the positive effects of wildlife tourism on wildlife in Australia:

1. Government agencies, conservation NGOs and tourism industry bodies should work together to strategically develop mechanisms
for enhancing links between wildlife tourism and conservation. The possibility of initiating a national strategy, perhaps based on adapting the US Watchable Wildlife Program, should be investigated. This may be integrated with other aspects of nature-based tourism, or occur within the framework of a strategy for sustainable development and management of wildlife tourism.

2. Governments should make greater use of economic instruments to promote conservation in association with wildlife tourism, balanced appropriately with consideration of social equity objectives. This should include: (a) greater adoption of the user pays principle, with charges appropriating as large as possible a proportion of the market value of natural resources; (b) return of a greater proportion of tourism revenue for management of the natural areas concerned; and (c) investigation of the possibility of raising entrance charges to high quality, high profile wildlife tourism attractions.

3. Governments (and the public) need to recognise the substantial economic gains to Australian society resulting from tourism based on nature, including wildlife, and thus increase their levels of funding for protected areas. If this were done, the net conservation impact of nature-based tourism in such areas might well be positive (see research priority 1 at the end of this summary).

4. At the same time, governments should continue to recognise wildlife conservation as a public good and invest in it accordingly, irrespective of financial benefits relating to tourism.

5. Opportunities for development by government conservation agencies of additional high quality, high yield attractions based on wildlife should be investigated as a way to generate revenue for conservation. These investigations must simultaneously consider any likely negative environmental impacts of such attractions and the costs of their mitigation.

6. Opportunities for increased economic value adding at protected areas and government-run wildlife tourism attractions should be explored by government conservation agencies. This must be
done in a sensitive way that does not detract from the natural character of such attractions. Considerations relating to National Competition Policy may also apply.

7. Wildlife tourism operators should be encouraged by suitable government incentives to donate funds for conservation purposes and to promote this in their marketing.

8. Wildlife tourism operators should be encouraged by suitable government incentives to engage in appropriate forms of conservation management, monitoring and research; and to promote this in their marketing. There is a need to creatively examine ways in which operators can make these contributions within their financial and time constraints.

9. Mechanisms for encouraging tourists to make donations to conservation should be further developed.

10. Governments should encourage and support organisations that use tourists as volunteers in conservation programs, as this is a cost-effective way of providing labour for such activities.

11. Governments should encourage and support wildlife tourism attractions becoming actively involved in research on their target species.

12. Governments should encourage shifts from traditional agriculture to wildlife or nature based tourism on private land in cases where this is economically viable. However there is a need to be vigilant in the longer term about habitat modifications that may favour species of tourism interest to the detriment of others.

However, there has been insufficient systematic research into the positive effects of wildlife tourism on wildlife. Research is needed to answer the following key questions:

1. What is the economic value of wildlife to tourism in Australia, both overall and in terms of wildlife tourism? (If such a value were found to be high, this would assist in providing an incentive for the conservation of wildlife resources.)
2. If a wildlife tourism operator makes contributions to conservation, will this assist in attracting additional or higher paying visitors, and if so under what circumstances?

3. To what extent do wildlife tourists and operators currently make practical contributions and voluntary financial contributions to conservation, and what factors are constraining such contributions? What are practical ways in which contributions can be facilitated?

4. How can a landowner best determine whether a shift from traditional land-uses to nature-based or wildlife tourism will be of financial benefit, and what are the existing mechanisms and constraints on such development?

5. How does wildlife tourism affect public attitudes towards conservation, how does this translate into actual conservation impacts, and how should wildlife tourism and associated interpretation be designed to optimise these effects? To what extent does wildlife tourism currently achieve this?
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In principle, wildlife tourism can have various positive effects on wildlife species and their habitats, but very little systematic research has been conducted on these effects. This report provides a review of the ways in which wildlife tourism can have positive effects on wildlife and their habitats, discusses the limited evidence regarding the extent to which these are currently being realised in Australia and makes recommendations to enhance such effects. The positive effects work through four main mechanisms: (1) financial contributions (e.g. entrance fees, visitor levies and operator licensing fees), (2) non-financial contributions (e.g. monitoring or research by operators or tourists), (3) socio-economic incentives for conservation (e.g. restoring natural habitats, the creation of protected areas and changes in land management practices), and (4) education (e.g. increased awareness of conservation or animal welfare issues). The nature and magnitude of costs and benefits of wildlife tourism to wildlife varies according to many factors such as type of tourism activity, vulnerability of the wildlife population, effectiveness of interpretation, and conservation ethic of the operator. Overall, it seems likely that wildlife tourism in Australia probably has a small net positive effect at present, but this cannot be concluded with any certainty. A more definite and perhaps more important conclusion in terms of future developments is that there appears to be substantial opportunity to enhance these benefits. Recommendations for action and research priorities are given to enhance the positive effects of wildlife tourism on wildlife in Australia and to help argue for appropriate support from governments and other stakeholders.

ABSTRACT

In principle, wildlife tourism can have various positive effects on wildlife species and their habitats, but very little systematic research has been conducted on these effects. This report provides a review of the ways in which wildlife tourism can have positive effects on wildlife and their habitats, discusses the limited evidence regarding the extent to which these are currently being realised in Australia and makes recommendations to enhance such effects. The positive effects work through four main mechanisms: (1) financial contributions (e.g. entrance fees, visitor levies and operator licensing fees), (2) non-financial contributions (e.g. monitoring or research by operators or tourists), (3) socio-economic incentives for conservation (e.g. restoring natural habitats, the creation of protected areas and changes in land management practices), and (4) education (e.g. increased awareness of conservation or animal welfare issues). The nature and magnitude of costs and benefits of wildlife tourism to wildlife varies according to many factors such as type of tourism activity, vulnerability of the wildlife population, effectiveness of interpretation, and conservation ethic of the operator. Overall, it seems likely that wildlife tourism in Australia probably has a small net positive effect at present, but this cannot be concluded with any certainty. A more definite and perhaps more important conclusion in terms of future developments is that there appears to be substantial opportunity to enhance these benefits. Recommendations for action and research priorities are given to enhance the positive effects of wildlife tourism on wildlife in Australia and to help argue for appropriate support from governments and other stakeholders.
1. INTRODUCTION

This report is one of a series comprising a status assessment of Australian wildlife tourism, an initial stage of the research of the wildlife tourism subprogram of the CRC for Sustainable Tourism. It reviews the mechanisms by which wildlife tourism can have positive effects on wildlife and/or their habitats, and the limited evidence regarding the extent to which these effects are currently being realised in Australia. It then recommends ways to increase these positive effects. Another report in this series (Green and Higginbottom 2001) reviews the actual and potential negative effects of wildlife tourism on wildlife, and should be read in conjunction with the present report to provide a balanced assessment of the effects of wildlife tourism on wildlife. The report also feeds into an overall assessment of Australian wildlife tourism presented in Higginbottom et al. (2001).

Governments and major international conservation organisations now widely support the view that well-managed nature-based tourism can be used to help achieve conservation goals (a view first clearly articulated by Budowski 1976). Australian governments have incorporated statements about using nature-based tourism to help foster conservation goals into various strategy documents (e.g. Commonwealth Department of Tourism 1994, Tourism Victoria 2000). However it is important to examine the evidence regarding the effectiveness of such links and to ensure that mechanisms are in place to maximise any conservation benefits.

This review is the first specifically to assess the benefits of wildlife tourism to wildlife. Wildlife tourism as defined here can be based on non-domesticated animals in captivity or in their natural environment. In the latter case it can involve so-called non-consumptive activities (often called 'wildlife viewing' for convenience, although it also includes photography, feeding and other non-destructive interactions with wildlife) or consumptive activities (hunting and fishing). (Further background on wildlife tourism internationally and in Australia is provided by Higginbottom et al. 2001). Wildlife viewing is often an integral component of broader nature-based activities, and thus the
arguments relating to nature-based tourism generally (of which wildlife viewing comprises a subset) are relevant here.

This review covers the full scope of wildlife tourism, but focuses principally on non-consumptive tourism based on animals in their natural environment, since consumptive and captive wildlife tourism are addressed in other reports in this series (Tribe 2001, Bauer and Giles 2001, Gartside 2001). Because the issues dealt with in this report sometimes apply differentially to captive wildlife tourism, wildlife viewing and consumptive wildlife tourism, any distinctions between these 'forms' of wildlife tourism are made clear where relevant.

Wildlife tourism can have either negative or positive effects on wildlife, or a combination of both. What is ultimately important is that the net effects on wildlife are at worst neutral, and preferably positive. Much more has been written about the negative effects (reviewed by Green and Higginbottom 2001) than about the positive effects, and there have been no systematic attempts to assess the net effects.

Effects of wildlife tourism on wildlife can involve the welfare of individual animals; or conservation of populations, species or communities (see Green and Higginbottom 2001), and there is often confusion in the public mind between these effects. Generally what is good for the welfare of individual animals will also be good for conservation, but as will be seen, there can at times be a conflict between these. Similarly what is good for one species of wildlife is usually good for the community as a whole, but sometimes it may have detrimental effects on other species. Most of the available literature deals with conservation rather than animal welfare benefits of wildlife tourism, although many of the same arguments apply to both. Any effects can involve wildlife directly, or may be mediated through effects on the natural environment, which comprises the habitat of the wildlife.

In principle, wildlife tourism can have positive effects on wildlife and their habitats through one or more of the mechanisms listed below. All of these can apply to all forms of wildlife tourism, although their form may differ.
• **Financial contributions**: income derived from wildlife tourism activities can be channelled into conservation or animal welfare activities (section 3).

• **Practical (in-kind) contributions**: operators and/or tourists can contribute directly to conservation or animal welfare through their own practical conservation-related activities (section 4).

• **Socio-economic incentives for conservation**: if wildlife tourism is perceived to have economic or social benefits that are greater than those of alternative land-uses, and to be reliant on preservation or rehabilitation of natural ecosystems, then this provides an incentive for conservation (section 5).

• **Education**: as part of their wildlife tourism experience, visitors can be educated to increase their awareness of conservation or animal welfare issues and thus behave in ways which have positive consequences for wildlife and/or their habitats (section 6).

For any wildlife tourism enterprise, one or more of the above types of contributions may occur, often with overlap between them. For example, a government operation like Landscape Expeditions that generates revenue for conservation by organising fee-paying tourists to participate in and learn from wildlife research programs, contributes through financial contributions, practical contributions, and through education of tourists.
2. METHODS

1. A review of international and Australian published literature, and some Australian 'grey' literature was conducted.

2. As part of a related activity involving compilation of a database of Australian wildlife tourism activities (Higginbottom et al. 2001), promotional brochures produced by wildlife tourism operators were obtained by request from all Australian regional tourism association offices. A total of 381 brochures were obtained. Each was examined for any information relating to contributions to conservation or animal welfare.

3. A semi-structured telephone interview was used to obtain information and opinion from key staff of conservation agencies regarding conservation benefits provided by wildlife tourism in Australia (Appendix A). These staff members were selected on the basis that they were the most senior person available with expertise in the area of visitor interactions with the natural environment. Before the interview began, the topic of the interview was outlined and the respondent was asked whether they believed themselves to be the most appropriate person to interview. In some cases, on the recommendation of this person, an additional staff member was interviewed to cover adequately the full scope of the questions. Staff were interviewed from conservation agencies of all States and Territories, except the Australian Capital Territory (not included because of its small size). In total, thirteen senior staff were interviewed (see acknowledgements). It should be noted that in most cases these staff were much more familiar with, and probably interested in, wildlife tourism in non-consumptive free-ranging settings, and thus they were not generally able to provide much detail about hunting, fishing or zoos. Each interview question asked whether the staff member was aware of any cases in their State or Territory where wildlife tourism had been associated with a particular type of conservation benefit, and if so they were asked to expand, with prompting. They were also asked their opinions on the effectiveness of education and on their perceptions of the net conservation impacts of wildlife tourism. These questions
deliberately focused on non-financial issues, since it was intended that financial aspects would be covered in a related report by (Davis et al. 2001). In several cases (if requested by the informants) the questions were answered by email and followed up with telephone or email contact for clarification and expansion.

4. In addition, unstructured, face-to-face and telephone interviews were conducted on an ad hoc basis with selected operators known to be making contributions to conservation during the research period. These were used to provide anecdotal information.
3. FINANCIAL CONTRIBUTIONS

3.1 Introduction

Income from wildlife tourism activities is sometimes channelled into management activities designed to achieve conservation objectives, or into conservation-related research. This applies to all forms of wildlife tourism. In theory it is in the interests of wildlife tourism operators and tourists to invest in conservation of the wildlife resource on which their business is based (Budowski 1976). Financial contributions can occur either through compulsory government charges on tourist operators and/or tourists (section 3.2), including the special case of income from government-run enterprises dealing specifically with wildlife tourism (section 3.3); or through voluntary contributions made by operators and/or tourists (section 3.4). We are also aware of at least four wildlife tourism enterprises for which income received through wildlife tourism apparently contributes to animal welfare objectives through the operator’s involvement in rescue and/or rehabilitation of native wildlife1.

3.2 Government Charges

3.2.1 Introduction

There are increasing moves from government agencies in Australia and internationally to charge users of natural resources (including tourists and tourist operators) for that use (the ‘user pays’ principle) (Tisdell 1996, Goodwin et al. 1998, Queensland Parks and Wildlife Service 2000, Financing Protected Areas Task Force of the WCPA of IUCN/Economics Unit of IUCN 2000). This applies particularly to publicly owned protected areas, and is one form of economic instrument that can be used by governments to support sustainable environmental management (see Davis et al. 2001 for further explanation). However generally this trend has been motivated by a political drive towards economic rationalism, whereby government conservation agencies like other sectors are under pressure to ‘pay their own way’ (Wearing and Neil 1999).

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1 Further it could be argued that some initiatives purported to be related to conservation, such as rescues of stranded marine mammals, are really animal welfare initiatives.
3.2.2 *Types of government charges applying to wildlife tourism*

Box 1 presents types of government charges that currently apply to certain forms of wildlife tourism activities around the world. Most of these are applicable to any form of nature-based tourism that occurs on protected areas or state forests (including wildlife viewing); a few are specific to captive and consumptive forms of wildlife tourism.

**Box 1: Types of government-administered user fees applied to wildlife tourism**

| CHARGES RELATING TO NATURE-BASED TOURISM THAT MAY INCLUDE A WILDLIFE COMPONENT |
|---|---|
| 1. | Entrance fees to protected areas |
| 2. | Fees for use of services or facilities in protected areas |
| 3. | Visitor levies applying to protected areas |
| 4. | Licence fees for commercial tour operators in protected areas |
| 5. | Concession and lease fees for commercial operations within protected areas |
| 6. | Merchandising revenue and royalties associated with protected areas |
| 7. | Taxes |

| CHARGES SPECIFIC TO WILDLIFE TOURISM |
|---|---|
| 1. | Licence fees for commercial operators who provide encounters with wildlife species of particular conservation concern (even outside protected areas) |
| 2. | Licence fees for exhibition of captive native wildlife |
| 3. | Licence fees for recreational fishing operators, even outside protected areas |
| 4. | Licence fees for individuals who participate in recreational fishing or hunting |
| 5. | Admission/tour fees at government-owned wildlife tourism attractions; generally involving those in protected areas and certain captive wildlife attractions |
| 6. | Merchandising revenue and royalties associated with wildlife tourism attractions |
Most Australian States and Territories now charge entry fees to at least some of their protected areas. At one extreme, entry fees are not charged for any of those run by the conservation agency in the Northern Territory, while at the other extreme Tasmania now charges for all of them; the others fall in between (Queensland Parks and Wildlife Service 2000).

There is a wide range of fees for use of facilities or services provided by protected areas that are applicable to independent visitors and/or tour operators. Most Australian States and Territories have at least some protected areas where fees are payable for camping, use of park-owned accommodation, use of environmental education centres, and interpretive activities (Queensland Parks and Wildlife Service 2000). Other fees applicable in some cases include use of amenities or picnic facilities, hire of recreational facilities or hire of recreational equipment.

Use of visitor levies is rare in Australia. An 'Environmental Management Charge' on each visitor (currently $4/passenger/day) applies in the Great Barrier Reef Marine Park, and is explicitly added to the cost of commercial tours and collected by operators. This revenue is used for education, research and management of the Park (GBRMPA 2001). This is roughly equivalent to a park entry fee collected by operators.

One of the main sources of government revenue from wildlife tourism is from licences required by operators of commercial tours that occur in protected areas or state forests. All States and Territories have this requirement. Generally an application fee, annual fee, and fee based on number of guests (relying on the operator's honesty!) is payable. Fixed fees (application and annual) in the year 2000 ranged from $100 to $300, while fees per head ranged from none to $4 (Queensland Parks and Wildlife Service 2000).

Some States have well-developed commercial systems of leases for concessionaires who profit from operating private accommodation, recreational facilities, or food and retail outlets in protected areas (Queensland Parks and Wildlife Service 2000). Payment of royalties

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2 This reference does not include fees in New South Wales.
based on sales is an alternative option. Most States and Territories have some parks with retail outlets, and many sell written information to visitors (ibid).

Taxes on tourists are not currently used for raising revenue for conservation in Australia. Airport and bed taxes can be levied on tourists including those involved in nature-based tourism and channelled into natural resource management (Preece and van Oosterzee 1997). Belize charges each international visitor departing the country by plane or cruise ship a tax of US$3.75, and the revenue of more than US$500,000 p.a. is used to fund conservation activities (Financing Protected Areas Task Force of the WCPA of IUCN/Economics Unit of IUCN 2000, Lindberg 2001). In the USA, an excise tax is charged on hunting and fishing gear. This has reportedly raised nearly US$5 billion that has funded restoration of game species and conservation of millions of acres of habitat (International Association of Fish and Wildlife Agencies 2000). There has been a recent campaign by a coalition of conservation organisations (known as the 'Teaming with Wildlife' Campaign) to extend this tax to outdoor gear used by birders, hikers and other outdoor enthusiasts in order to fund conservation of wildlife species that are not hunted, fished or endangered\(^3\). The coalition argued that this was likely to be the most effective mechanism for providing such funding. However ultimately the government has chosen to fund the program from income from oil and gas leases.

Special licences for operators who provide encounters with certain wildlife species are little used in Australia. However, Western Australia requires a special 'marine mammal interaction licence' for operators who provide encounters with whales, dolphins, sea lions and dugongs, even if operating outside of protected areas. Although currently free-of-charge, a fee will soon be introduced and used to help fund management (S. Bryce, pers. comm.). Operators who provide encounters with whale sharks also require a special interaction licence for which there is an annual fee: this revenue of about $37,000 per year is used to fund research and monitoring of whale sharks (CALM 1998, D. Coughran, pers. comm.) This funding could potentially provide knowledge to assist with whale shark

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3. Until recently there was no dedicated source of Federal funding for this purpose.
conservation that goes beyond minimising impacts of tourism. There could be scope for expanding this sort of permit to other wildlife species of conservation concern.

Australian zoos and wildlife parks are required to have licences to keep and/or display native animals in captivity. For example in New South Wales, they must pay a $200 application fee plus $350/year if less than 30 species are held, or $1000/year if more than 30 species are held (A. Thompson, pers. comm.). In New South Wales this revenue is channelled to state treasury and given out in grants to various government-owned organisations including Taronga Zoo and certain organisations that are not involved with wildlife. In order to display wildlife in Victoria, a Wildlife Displayers Licence is required at an annual cost of $650, and funds are directed straight into State Treasury (Department of Natural Resources and Environment, Victoria 1998). Similarly, in Queensland, a Wildlife Exhibitors Licence (at a cost of $780 p.a. per establishment) is necessary to display native and protected wildlife, and funds are channelled into the State Treasury (A. Kowalski, pers. comm.). Conway (1999) has suggested that much more could be done to channel revenue from zoo visitors into conservation, including a suggestion that visitors could pay a fee for viewing each endangered species, with the funds being used to support protection of their habitat.

Fishing charter operators are also required to obtain a recreational charter fishing boat licence in the Northern Territory, New South Wales and Queensland, although this is currently not required in the other States (Fisheries Western Australia 1998, J. Ranson, pers. comm.).

Generally, individuals who engage in recreational fishing in Australia are legally bound to obtain a recreational fishing licence, costing around $20 per year. In New South Wales alone, revenue from freshwater and saltwater fishing licences is expected to raise $8.5 million p.a. (New South Wales Fisheries 2001), while in Victoria the total revenue from such licences in 1999 was about $4 million (Department of Natural Resources and Environment, Victoria 2000). Typically, this money is used to support sustainable management of fish stocks, sometimes including initiatives that address conservation objectives. For example, New South Wales and Victoria explicitly state that some of this revenue is used to protect and restore fish habitats.
In Victoria, some of these funds are also used for purchase of native fish fingerlings (Conroy 2000). It is not clear whether any of these initiatives provide conservation benefits that would not have occurred in the absence of recreational fishing, or whether they simply help manage its negative impacts.

Similarly, individuals are required to obtain licences for recreational hunting of native species for which hunting is legal (mainly game birds) in the relevant State. For example, in Victoria a Game Bird permit costs $40 p.a. In some States, the requirement for a licence extends to pest animals. For example, in South Australia a Basic Hunting Permit is required to hunt feral animals and unprotected native animals and costs $13.10 p.a. (National Parks and Wildlife, South Australia 2001a). Revenue from recreational hunting in South Australia is explicitly used for conservation purposes such as management of wildlife habitat and research relating to wildlife conservation (National Parks and Wildlife, South Australia 2001b). In 1999/2000, revenue from licensing of recreational hunting in Victoria generated $1.43 million, though only a small proportion of this revenue ($47,500) was used for monitoring, surveys and research on hunted species and their habitats (Lawrence 2001). In Tasmania most of the revenue generated through hunting permits is also returned to central funds, although half of the revenue from wallaby licence fees (about $49,000) is used to fund management of the Bennett’s wallaby and Tasmanian Pademelon in this State (through employment of a wallaby management officer who conducts monitoring and liaises with landowners and hunters) (G. Hocking, pers. comm.).

### 3.2.3 Evaluation of effectiveness of user-pays systems

Institution of user fees to help fund protected areas is reported to have been 'particularly effective' in several countries (Financing Protected Areas Task Force of the WCPA of IUCN/Economics Unit of IUCN 2000). Such fees cover the full operating costs for some parks in North America, Africa and South America; and in some cases provide revenues which not only support their own operations but subsidise less visited sites (ibid, Lindberg et al. 1996, K. Lindberg, pers. comm.) and have raised funding for conservation initiatives that would not have been obtained without tourism. Several of these
cases involve tourism based on free-ranging wildlife. Many of these initiatives involve large game hunting (e.g. Lindberg 1991, Barbier 1992, Creel and Creel 1997, Hulme and Murphree 2000). The Wildlife Conservation Revolving Fund in Zambia's Luangwa Valley is financed in part by auctions of safari hunting rights. This increase in funding resulted in more personnel and as a result, elephant and rhino poaching decreased by 90 percent during that time (Lindberg 1991, Barbier 1992). Tourist hunting in the Selous Game Reserve is estimated to have generated US $1.28 million in 'hunting revenue' for the Tanzanian government in 1992, of which US $960,000 was returned to wildlife conservation (Creel and Creel 1997).

There are a few reported cases of apparent net financial benefits from user fees derived from non-consumptive wildlife tourism. One of the best known is the case of tourism based on mountain gorillas (Gorilla gorilla) in Zaire (Aveling and Aveling 1989), Rwanda (Shackley 1995) and Uganda (Butynski and Kalina 1998). During the first three years of its operation, gorilla tourism in Bwindi-Impenetrable National Park funded not only the recurrent costs of that Park, but contributed to operating budgets of other Ugandan national parks (ibid). Similarly direct revenue from mountain gorilla tourism4 to the governments of Rwanda and Zaire reportedly paid not only for protection of gorillas but also for protection of other biodiversity in the gorillas' habitat (McNeilage 1996). Gorilla tourism in Rwanda and Ugandan National Parks has generated up to US$2.5 million p.a. in revenue based on entrance fees alone (Butynski and Kalina 1998)5, and tourism operators in Uganda estimate gorilla tourism to generate more than US$193 million of the country's tourism revenue in 19976 (Vieta 2001). Such income has been sufficient to pay for habitat conservation and anti-poaching measures that would not otherwise have been possible, and that have apparently been crucial to conservation of this endangered species. The Galapagos National

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4 These figures are based on ‘fees charged for gorilla visits’ in Rwanda and ‘park receipts’ in Zaire, and are not further explained.

5 Note that revenue figures are available for different years for different Parks: this calculation was undertaken by the present authors and is based on maximum annual figures available for each Park. Note also that the majority of government revenue from gorilla tourism is channelled to central government rather than the Park from which it was derived (Butynski and Kalina 1998).

6 This calculation was undertaken by the present authors and is based on an estimate of gorilla tourism generating more than 70% of Uganda’s total tourism revenue of $276 million in 1997. Note this figure relates to estimated total economic impacts, including multiplier effects, in contrast to other figures given in this section, which are limited to direct revenue associated with wildlife tourism.
Park was estimated to generate direct tourism revenue of $560,000 p.a. in 1991 (Lindberg 1991), which has since increased (K. Lindberg, pers. comm.).

However it should be noted that published examples in which wildlife tourism (whether consumptive or non-consumptive) provides sufficient revenue for conservation initiatives typically involve cases where tour or entrance fees are unusually high. A visitor wishing to visit mountain gorillas in Bwindi Impenetrable National Park (Uganda) must contribute about US$520 in park entry and tracking permit fees alone (Lindberg and Halpenny 2001, Unwin 2001). A few other national parks internationally known for their wildlife have daily entrance fees of at least US$100 (e.g. Gombe Stream National Park in Tanzania (Tanzania Tourist Board 1996) and Galapagos National Park in Ecuador (Lindberg and Halpenny 2001). The fees for safari hunting are also often notoriously high. On one hand, this means that one should not extrapolate too widely about the potential for all wildlife tourism to generate sufficient income to fund wildlife conservation in Australia. On the other, it suggests that with appropriate marketing of good quality wildlife tourism experiences, tourists may be willing to pay much more than is currently the case, and thus to raise money for conservation. Another cautionary note is that it is rarely possible to differentiate conclusively the effects of tourism from those of conservation initiatives that are often initiated simultaneously. Even in the case of gorilla tourism, Butynski and Kalina (1998) argue that it is difficult for this reason to be sure that the protection of gorillas can be directly attributed to tourism, and that conservation of mountain gorillas remains dependent on outside funding unrelated to tourism.

Generally revenues from parks around the world are not sufficient to offset fully their operating costs (Goodwin et al. 1998). This is also generally the case in Australia. Even for Australia’s popular five World Heritage Areas, user fees constitute only about 8.5% of management budgets (Driml and Common 1995). Further, although user fees in theory have the potential to fund a net conservation benefit, in practice such income is usually intended only to contribute to the costs of managing the resource in the face of negative impacts that would otherwise be incurred by tourism activities. Thus it does not usually constitute a positive effect of wildlife tourism, but rather a means to reduce negative effects.
A key issue with regard to the extent to which fees relating to use within protected areas are available for conservation is the channelling of this revenue. In some instances, such as Fraser Island National Park in Queensland and many of the major national parks in Western Australia (S. Bryce, pers. comm.), revenue obtained through tourism is returned in full directly to the attraction. It is more common internationally however for none, or only a proportion, of revenues collected from protected areas to be channelled into conserving areas they were derived from (CEC 1999), although there is a trend towards greater return of revenues to the source site (K. Lindberg, pers. comm.). Similarly in Australia, such revenue is typically returned to State Treasuries, reducing the incentive for managers of protected areas to maximise such income. On the other hand, there is a potential danger that if fees are returned to the area where they originated, managers may be motivated to promote tourism practices that might have negative environmental impacts on that area. Buckley (2000a) states that in some areas this has led reserve managers to grant concessions for tourist hotels and golf courses inside conservation reserves.

The extent to which user-fees should be used to fund protected areas remains controversial, and essentially a political decision (Lindberg 2001). The principal arguments against extensive use of such fees are that:

- conservation should remain a 'public good' as it benefits society as a whole;
- greater implementation of such fees could result in the visitor experience becoming more structured and commercialised, and therefore less desirable for some visitors;
- implementation of fees may exclude people who are economically disadvantaged;
- fee levels may affect profits by tour operators;
- conservation of an area or species should not be dependent on its ability to generate tourism revenue;
• revenue associated with tourism can be highly uncertain, and thus it can be dangerous to rely on this to fund conservation;

• there is likely to be a public backlash against increases in user fees – if expected to be substantial this would have a strong inhibiting influence on any government considering such changes; and

• collection and administration are difficult for some types of user fees.


A more complete assessment of the pros and cons of various mechanisms for funding protected areas are given by Financing Protected Areas Task Force of the WCPA of IUCN/Economics Unit of IUCN (2000) and Lindberg (2001).

The conservation agency informants in the present study all stated that user fees relating to protected areas go only a small (though unquantified) way to even recovering the costs incurred by nature-based recreation. However according to an evaluation of user-pays systems in Australian protected areas conducted by Queensland Parks and Wildlife Service (2000), most State and Territory conservation agencies felt that increasing implementation of such practices had achieved positive outcomes in terms of cost-effectiveness, conservation management and client services. In particular, they felt it had led to improved interpretative services and training of operators, which in turn was thought to have led to increasing conservation awareness by users. In the Northern Territory, agency staff reported that hiring campground staff funded by user fees had freed up rangers to spend more time on conservation duties. While surveyed staff thought that user fees could be used to fund conservation projects otherwise outside the capacity of the organisation, it provided little evidence that this was currently occurring. Due to lack of adequate accounting systems, it was difficult to evaluate cost effectiveness, though at least in some high profile parks user-pays fees result in a net profit. Estimated total annual revenues raised by each State through user-fees relating to its protected areas ranged from
$226,904 (ACT) to $12,884,464 (NSW), although this does not take collection costs into account. The greatest proportion of this income was provided by entrance fees or commercial activities, depending on the State. However, the report concludes that the consensus remains that conservation should remain essentially a community service obligation of governments, rather than being funded from user-pays charges. The stated primary aim of user-pays charges in Australian conservation agencies at present is to achieve at least partial recovery of costs of providing visitor facilities. A number of recommendations are made in this report to enhance the effectiveness of such systems.

Many authors suggest that the revenue generating potential of some nature-based tourism products (both private and public) is not being realised, as they believe visitors are willing to pay higher fees than they are currently charged7 (Child and Heath 1990, Pearce 1995, Goodwin et al. 1998), particularly where the funds are seen to contribute to conservation (Laarman and Gregersen 1996, Lindberg 1991). For example 470 tourists on safari in Kenya were asked how much they would be prepared to pay in extra gate fees to ensure that the parks and their wildlife did not deteriorate, revealing untapped revenue of between $46 million and $450 million per year. It was recommended that gate fees should be doubled or tripled for a trial period (Pearce 1995). Davis and Tisdell (1999) found that half of the visitors they surveyed who participated in swimming with whale-sharks in Western Australia would be willing to pay more than they were charged for this activity. Research is required into the extent to which this applies in Australia.

### 3.3 Revenue From Government-Owned Wildlife Attractions And Activities

In Australia, there are only a few government-owned and managed wildlife tourism attractions or tour organisations involving free-ranging animals (Box 2). However these have high profiles and attract large numbers of visitors.

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7 However it is important to be cautious in interpreting some of the literature on willingness-to-pay as the methods used may not always fully justify the conclusions.
Box 2: Australia's major government wildlife tourism attractions based on free-ranging animals

- Seal Bay at Kangaroo Island (SA): home to a resident colony of 600 Australian Sea-Lions that can be viewed from a boardwalk and on guided tours
- Dolphins at Monkey Mia (WA): close encounters with wild dolphins
- Phillip Island Nature Park (VIC): largest colony of Little Penguins in Australia can be seen parading up the beach on a nightly basis
- Mon Repos Turtle Rookery (QLD): largest sea turtle rookery in eastern Australia
- Tidbinbilla Reserve (ACT): large natural enclosure, known particularly for its kangaroos
- Naracoorte Cave (SA): bat populations can be viewed via an infra-red camera system; fossil animals are also a major drawcard

All these attractions now charge admission or tour fees. In contrast to protected areas, revenue raised at wildlife tourism attractions run by government is often returned to the area or species in question. Revenue generated (mainly from entrance fees) at Mon Repos Conservation Park is invested in sea turtle research, patrolling nesting beaches and predator control measures (Tisdell and Wilson 2001). To varying extents such attractions also attempt to value add by merchandising. Probably nowhere is this more extensive than at Phillip Island Nature Park, where a wide range of souvenirs are sold; income is also derived from food sales and fees for education and holiday interpretation programs (Meek et al. 1994).

Further, most of the major zoos (Melbourne, Taronga, Perth, Adelaide) and some significant wildlife parks (e.g. Desert Park and Territory Wildlife Park in NT, Cleland Park in SA) are government-owned, and all charge entrance fees. Recent years have seen the expansion of merchandising and other value-adding at such attractions.

In general, although ranger-guided tours are available at many protected areas, governments are not involved in profit-making tours. One notable exception is Landscape Expeditions (see also Box 3), which involves tourists in conservation research.
Published estimates of income and/or diversion of those funds into conservation are publicly available for only a few government-owned wildlife tourism operations in Australia, and are probably biased towards those that are the most lucrative. The Australian zoo industry (based on a survey of 53 zoos and 12 aquaria) generated an operating surplus of $16 million in 1997/8, although it also received $26 million in government funding (Tribe 2001). Net income to the Phillip Island Penguin Reserve in Victoria has been estimated by Meek et al. (1994) to be $690,000 with total revenues for 1992-1993 of $3.7 million (includes entrance fees, souvenirs, food sales and fees for education and holiday interpretation programs). Most of the profits from this operation are reported to be directed into environmental protection (Stone 2001). The Mon Repos Turtle Rookery is reported to provide substantial (but unquantified) funds for turtle conservation and research. Over the ten years that Landscape Expeditions has been in operation, about $500,000 has been raised for conservation-related scientific projects (K. Kenneally, pers. comm.). Moreover, there is often a waiting list of people wishing to participate in the summer volunteer programs at the Mon Repos turtle rookery, and sometimes for the Landscape Expeditions (ibid), suggesting unmet demand for such activities. Very few Australian wildlife researchers currently take advantage of opportunities to involve tourists in their research as fee-paying volunteers.

However, despite attempts to become more commercially orientated, most government-run wildlife attractions probably do not generate significant net profits (which could be channelled into conservation programs), and some require subsidisation to cover their costs. This raises issues relating to Australian National Competition Policy, which states that government agencies delivering a service or product should not gain any artificial competitive advantage from their government ownership (Queensland Parks and Wildlife Service 2000). John Wamsley, Managing Director and founder of Earth Sanctuaries, recently challenged this situation in relation to competition between Cleland Wildlife Park and Earth Sanctuaries' most heavily visited wildlife park: Warrawong Sanctuary (South Australia). Although the challenge was not successful, it has led to profound reassessment of the commercial orientation of Cleland, ensuring that it operates in such a way as to at least cover its own costs (D. Crinion, pers. comm.). Different State and Territory conservation agencies differ in the extent
to which they consider it within their mandate to run tourism operations on a profit-making basis (Queensland Parks and Wildlife Service 2000).

As was demonstrated for nature-based tourism in protected areas, there is evidence that fees to some wildlife attractions could be raised without significant reductions in visitor numbers. In the only published Australian study we know of to have investigated willingness to pay for wildlife tourism, a recent study at Mon Repos Turtle Rookery indicated that tourists would be willing to pay more than double the existing fee per adult (Tisdell and Wilson 2001). Recent in-house research at Phillip Island Penguin Reserve established that entrance prices could be raised above their levels at the time; this has motivated a price increase, with equity considerations addressed through greater discounts to families and groups (R. Leivers, pers. comm.).

### 3.4 Voluntary Financial Contributions By Tourism Operators Or Tourists

Some wildlife tourism enterprises donate all or a proportion of their profits into conservation initiatives, or provide opportunities for their guests to make financial contributions to conservation through donations or sponsorships. Again this mechanism is in theory equally applicable to all forms of wildlife tourism.

Some of the enterprises that donate money to conservation are non-profit non-government organisations, especially conservation organisations, in which tourism is seen as a means to a conservation end (IRG 1992, Shackley 1996). An international example is Abercrombie and Kent, a luxury safari and tour operator, who founded a non-profit organisation with the mission of preserving endangered habitat and wildlife. This organisation allocates more than 80% of its contributions directly to education and field projects relating to conservation (IRG 1992). International evidence suggests that people are willing to pay 'considerable costs' to participate actively in wildlife conservation programs (*ibid*).

Some commercial operators voluntarily channel a proportion of their funds into conservation or related research. This is motivated by some combination of concern for the need for sustainable management of
the resource, and a perception that it may assist in attracting environmentally aware clients (EWG 1995) (but see below). The membership directory of The Ecotourism Society (2000) (now the International Ecotourism Society) provides several examples of private ecotour operators who donate part of their profits to conservation-related initiatives. Earth Sanctuaries Ltd is a company that explicitly uses tourism as a source of revenue for its conservation and education programs, relating principally to reintroductions of threatened species (see section 4.3). There has been no published systematic research on the extent and ways in which wildlife tourism businesses are currently making voluntary financial contributions to conservation.

Very little has been published on the relative importance of voluntary financial contributions by individual commercial operators. Conway (1999) reports that most zoos contribute little financial support to wildlife conservation projects in the animals' natural habitat. Lindberg (1991) lists a number of private operators who donate a proportion of sales to conservation projects. The Australian NEAP scheme encourages donations to conservation by operators.

Australian wildlife tourism operators who contribute funds to conservation or conservation-related research include:

- **Private commercial:** Desert Discovery, Reef Biosearch, Inala Tours, Coates Wildlife Tours, Oceania, Dreamworld, Seaworld, Australia Zoo, Tangalooma Resort, Earth Sanctuaries Ltd.

- **Non-government nonprofit:** Worldwide Fund for Nature Travel Club (see Duff 1993), Earthwatch Expeditions (see also Box 3), Conservation Volunteers Australia, TraveLearn Australia (see Grifone and Weiler 1991).

- **Government:** Landscope Expeditions Inc (Department of Conservation and Land Management, Western Australia) (see also section 4.2).

Money for conservation is raised by some government and private operators from sponsorships and donations. Alaska’s ‘Dollars-A-Day’ conservation program includes a number of ecotour companies who provide environmental interpretation and encourage their guests to
support conservation efforts by donating a dollar a day on top of their tour costs. These contributions are distributed to various Alaskan conservation and community groups, and more than 75% of guests are reported to have participated (Alaska Wilderness Recreation and Tourism Association 1998 cited in Moscardo 1998). Some Australian protected areas include the facility for visitors to make donations. Most larger Australian zoos now include sponsorship of animals as a significant source of their revenue (this is often essential for them to cover their operating costs). Several zoos in the United States have conservation contribution machines for visitors to donate cash towards the conservation of their chosen species. Bronx Zoo provides an opportunity for visitors to donate part of their admission fees towards conservation projects linked with their Congo Basin exhibit (Conway 1999). Some smaller Australian private operators encourage their guests to make donations to conservation causes: for example Wildscapes Safaris encourages donations to its platypus research program (Wildscapes Safaris 2000). Trusts and bequests are also a common source of funding for zoos and wildlife parks. Internationally, Lindberg (1991) warns against underestimating the importance of donations in nature-based tourism, citing examples including the expansion of Costa Rica’s Monteverde Cloud Forest Reserve from 2,000 ha to 10,000 ha that were largely attributed to donations. The Darwin Research Centre in the Galapagos National Park raised $150,000 through a direct mailing appeal to visitors who had signed the guest book at the Park (Lindberg 1991, IRG 1992). In Australia, the The Mala (Rufous Hare Wallaby) Fund, established by the Central Australian Tourism Industry Association (CATIA) and the Pacific Asia Travel Association (PATA), was successful in raising $33,000 for research through donations from the general public (Preece and van Oosterzee 1997). This was surprising given that is was for an animal that would almost never be seen by tourists.

A special case of tourist donations used to support conservation initiatives is ‘adoption programs’. For example The Nature Conservancy in Central America sells ‘deeds’ to land in a protected area, for which the donor receives a certificate acknowledging their adoption of that area and its wildlife (Financing Protected Areas Task Force of the WCPA of IUCN/ Economics Unit of IUCN 2000). Adoption programs for individual zoo animals have also proved popular, and are now a significant source of revenue for many zoos. There may be
more scope for such programs, such as adoption of animals destined for reintroduction in captive breeding programs within zoos, or of radio tracked animals involved in conservation research. Useful principles for making use of donations are discussed by Financing Protected Areas Task Force of the WCPA of IUCN/ Economics Unit of IUCN (2000). A related idea that can also provide significant income is that of ‘friends’ schemes (e.g. ‘Friends of the Park’ or ‘Friends of the Zoo’) in which visitors to a protected area or wildlife attraction (or other interested parties) pay for the privilege of long-term involvement in conservation initiatives, whether from afar or including active involvement (ibid).

Conservation agency informants stated that they thought voluntary financial contributions to conservation by operators or tourists are very rare in Australia. Since many smaller operators seem to have very small profit margins, it may be unrealistic to expect them to make donations to conservation. However where such donations are made, there is anecdotal evidence that this assists in marketing. One Japanese tour company approached the Department of Conservation and Land Management in Western Australia claiming that their clients ‘wanted to contribute’ to conservation. The company has now established an endangered species trust fund into which $10 from every visitor is donated; each guest then receives a certificate acknowledging their contribution (C. Ingram, pers. comm.). Some conservation agency informants believed there is scope for expansion of such activities. Lack of accountability for the channelling of tourist donations is one issue that was identified as impeding such expansion.

3.5 Conclusions And Recommendations

There is a wide range of compulsory and voluntary mechanisms by which wildlife tourism can contribute financially to conservation. There has been insufficient systematic research on the nature of financial contributions from wildlife tourism to allow quantification of these benefits (in terms of current and potential value) either internationally or in Australia, but it seems likely that: (a) in most cases such contributions are not sufficient to pay for costs of adequate management, and (b) there is considerable untapped potential for
raising additional revenue. Existing evidence is sufficient to make the following broad recommendations for Australia:

- Methods for ensuring that government charges to users of natural resources appropriate the full market value of those resources should continue to be investigated and implemented where feasible (see Davis et al. 2001 for details).

- Mechanisms are needed to return at least some of the revenue raised by protected areas to the areas from which they were derived. Davis et al. (2000) recommend that mechanisms be developed to assign the full market value to licence fees, such as by the use of auctioning. However this needs to be balanced against the need to fund areas of high conservation value that do not have significant revenue raising potential, as well as the potential need to limit inappropriate development and to place limits on visitor numbers.

- A dual pricing system for entrance fees for protected areas and wildlife attractions to international and domestic visitors should be considered.

- The possibility of raising entrance charges to high quality, high profile wildlife tourism attractions should be explored, as evidence suggests that visitors may sometimes be willing to pay more than is currently the case. In the authors' experience, a similar issue may apply to some commercial wildlife tours.

- Opportunities for imposition of user fees for operators and tourists involved in wildlife viewing outside of protected areas should be explored: the present system generally imposes such costs only in relation to wildlife that are in captivity, hunted or fished.

- There should be a coordinated approach to imposition of user fees within and between States, to minimise the proliferation of fees and differences between States where possible.

- Opportunities for increased value-adding in protected areas and government-run wildlife tourism attractions (e.g. through more extensive merchandising) should be explored. This should be
done in a sensitive way that does not detract from the natural character of such attractions.

- Researchers and managers should consider whether there might be opportunities to involve paying tourists in their conservation-related activities in such a way as to generate additional revenue for these activities. Although there are certainly obstacles to overcome in terms of the major efforts required to coordinate such volunteers, and the quality of data obtained, there does seem to be scope for further development of such programs. However, this needs to be balanced against the ethics of charging volunteers, many of who are tertiary students or recent graduates wishing to gain valuable experience in these areas. Charging substantial sums could limit these activities to the more affluent.

- Commercial wildlife tourism operators should be encouraged as far as possible to use or donate funds for conservation purposes, and to use this in their marketing. However research indicating that this is beneficial in attracting more visitors is needed if this case is to be convincing to operators.

- Mechanisms for encouraging tourists to make donations to conservation should be further developed. For wildlife tourism, greater use of adoption programs may be particularly appropriate. Incentives might include provision of certificates or items such as t-shirts acknowledging these contributions.

- However, conservation remains at least partly a public good, and increased revenue from tourism should not be seen as a reason to cut public spending on conservation, but as a supplement.
4. PRACTICAL CONTRIBUTIONS

4.1 Introduction

In addition to financial contributions, wildlife tourism sometimes contributes positively to conservation of wildlife or habitats through participation in management, monitoring or research that contributes to conservation. This can be carried out by operators, tourists or both. In addition, some operators contribute to animal welfare by rescuing and rehabilitating native animals.

4.2 Practical Contributions By Tourists As Part Of Their Tourism Experience

Opportunities for tourists to be directly involved in conservation initiatives apparently relate most commonly to tourism based on free-ranging wildlife (as opposed to captive or hunted wildlife). There are small but growing numbers of organisations internationally that specialise in tours where tourists assist in conservation-related field research, monitoring or conservation work (IRG 1992, Valentine 1992). These are often non-profit non-government conservation organisations, or scientific organisations. This not only provides direct funding to scientific teams (section 3.3) but also allows these organisations to minimise labour costs (Preece and van Oosterzee 1997).

Major examples of such organisations operating in Australia are Earthwatch, Landscape Expeditions, Conservation Volunteers Australia (Box 3) and Operation Raleigh. Similarly some research stations obtain funding by accommodating or guiding guests. In the Great Barrier Reef Marine Park, environmental monitoring programs have been developed by the government authority that include participation by visitors, providing them in turn with a learning experience (Birtles et al. 2001.). At Mon Repos Turtle Rookery, turtle nests are relocated to higher grounds with the help of tourists, enhancing the success of hatchlings in reaching the sea (C. Gatley, pers. comm.). Finally, tourism infrastructure (e.g. lodges, tracks) can be used by researchers (Alderman 1994). Kevin Kenneally, Scientific Coordinator of Landscape Expeditions (pers. comm.), believes that
there is substantial untapped potential for these sorts of programs in Australia.

**Box 3: Organisations operating in Australia that specialise in working conservation holidays**

<table>
<thead>
<tr>
<th>EARTHWATCH PTY LTD</th>
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<td>Earthwatch is the world’s largest organisation that uses paying volunteers to assist with conservation-related research projects (IRG 1992). It was founded in 1971 to preserve fragile lands, monitor change and conserve endangered species, and conducts scientific expeditions that draw about 3,500 participants a year (<em>ibid</em>). In the year 2000, about 4000 volunteers are expected to participate, each paying well over US $1000 (Earthwatch Institute 2000). Out of over 100 projects offered across the globe in that year, about half were focused on wildlife; this included nine of the 11 available in Australia. Typically participation in a single working holiday costs several thousand dollars. Marsupial Rescue is one such project in Western Australia that includes monitoring populations of endangered marsupials through activities such as trapping, spotlighting, radio tracking and maintaining predator-proof fences. In the rainforests of New South Wales, another wildlife project focuses on Australia's vanishing frogs and entails nightly frog and habitat surveys in the hope of finding clues to their worldwide decline (<em>ibid</em>).</td>
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<table>
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<tr>
<th>LANDSCAPE EXPEDITIONS</th>
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<td>Landscope is a non-profit, self-supporting organisation established in 1992 by the Department of Conservation and Land Management (CALM) in Western Australia. It provides paying volunteers with the opportunity to work with scientists and experts in the field of conservation and land management. The expeditions are open to all members of the public with a reasonable fitness level and takes place in various, sometimes remote, locations across Western Australia. In 2001, there were seven expeditions advertised ranging from $1795 to $3795 per trip, offering a wide range of environmental activities including fauna surveys and feral animal control. The organisation aims to involve the community in conservation-related research and provide an opportunity for participants to gain knowledge of threatened species and environments. The research findings and outcomes obtained from these expeditions would not be possible if the volunteers did not pay for the expeditions (Kawallilak 2001, K. Kenneally, pers. comm.).</td>
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CONSERVATION VOLUNTEERS AUSTRALIA

Conservation Volunteers Australia (CVA) (formerly the Australian Trust For Conservation Volunteers) is a non-profit, non-political organisation that operates Australia-wide. Founded in 1982, the organisation involves volunteers in practical conservation and is the largest organisation that does this in Australia. In the year 2000 it contributed more than $19.2 million in preservation work for the Australian environment. CVA is open to Australian and international volunteers who work an average total of 200,000 person-days per year and complete more than 1500 week long conservation projects in Australia per year (Conservation Volunteers Australia 2001). Although volunteers do not pay for participation, such activities could under a broad definition (e.g. Harris and Howard 1996) be considered to be a form of tourism. Recently CVA has formed a partnership with a private tourism venture to sell six-week working conservation holidays to international visitors (Buckley and Sommer 2001).

COASTCARE

Coastcare is a program through which CVA protects and conserves the 37,000 km of Australian coastline. More than 60,000 volunteers have contributed to the Coastcare program in 2000, participating in a large number of wildlife conservation projects. The 'SOS – Save Our Shorebirds, Save Our Seabirds' project was a successful venture in helping protect the breeding, feeding and resting habits of coastal birds. Examples include the erection of a 2.2 km penguin protection fence, the installation of 30 artificial penguin burrows, educational signage, a seabird-friendly walkway and viewing platform and the distribution of educational leaflets (Coastcare 2001).

A conservation argument in favour of consumptive wildlife tourism that does not apply to non-consumptive forms is that in some cases the killing of wildlife may have positive outcomes for conservation and animal welfare. In the case of feral animals in Australia, their removal will usually be of benefit to the ecosystem as a whole. The killing of these animals by recreational shooters can make some contribution towards lowering their densities (although conversely it also provides an incentive to make sure the densities are maintained at reasonable levels) (O'Brien and Bomford 1995). Similarly recreational fishing can have a positive impact on aquatic ecosystems by targeting problem species: for instance the 'Carp-Busters' organise competitions for catching the most carp (a problematic exotic species) in southeast Queensland. Bauer and Giles (2001) recommend further investigation of opportunities for development of hunting tourism based on animals requiring control.
4.3 Practical Contributions By Operators

Some operators involved in each form of wildlife tourism directly participate in conservation-related initiatives, including research. These comprise a continuum from organisations set up mainly to conduct conservation work or research, to commercial tourism operators who have a minor involvement in conservation initiatives. Although it appears to be increasingly common, there has been no quantification of the extent to which wildlife tourism operators and/or tourists participate in conservation work (e.g. in terms of labour hours).

A few organisations that offer wildlife tourism were set up with the primary aim of direct practical involvement in conservation. Landscape Expeditions (Box 3) is an example of an organisation set up by a government conservation agency to enhance its conservation research program. Some facilities such as university research stations that were set up primarily for conservation or research, but obtain some of the funding for these activities by accommodating or guiding guests. Australian Koala Foundation is an example of a non-profit non-government agency set up to work for wildlife conservation and welfare which developed a tourism arm mainly in order to provide education and promote its activities. Earth Sanctuaries Ltd is a private sector organisation that occupies a unique role in Australia, and perhaps in the world. It was established with a conservation mission, but with the explicit intention of using tourism to help achieve this mission. Its primary aim is successful reintroduction of threatened species into one of a growing network of private reserves around Australia. Earth Sanctuaries currently manage ten reserves, occupying over 90,000 hectares of land, four of which are open to the public. These reserves are 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 and threatened wildlife onto their land (Earth Sanctuaries 2000). The company undertakes its own captive breeding, combined with acquisition of animals from elsewhere, and carries out reintroduction with very little direct involvement from Government. The project has gained much positive publicity in conservation circles in Australia and overseas.
Research indicates that conservation measures implemented in the process of commercial development of the (government-owned) Phillip Island Penguin Reserve may have curtailed the previous decline of Little Penguin numbers at the site (Newman 1992). These measures included purchase\(^8\) and rehabilitation of private land to provide additional habitat, rehabilitation of the existing penguin habitat, predator control, research to ensure protection of the wildlife and hardening measures to reduce visitor impact (Newman 1992, Phillip Island Nature Park Board of Management 1998, R. Leivers, pers. comm.). These actions were motivated primarily by government conservation concerns, but indirectly funded by and probably partly motivated by the economic incentive created by the lucrative Penguin Parade tourism attraction.

Even some purely commercial businesses providing wildlife viewing on private land have made significant practical contributions to conservation. Private game reserves in South Africa provide one of the best examples worldwide. Many animal species (including endangered species) have been successfully reintroduced into game reserves in parts of their former range from which they were locally extinct (James and Goodman 2000). In the province of KwaZulu-Natal, an estimated 130,000 large mammals have been captured and moved to private reserves as part of a conservation initiative by the Nature Conservation Service (KZN NCS) (Buckley 2001), many of which provide wildlife tourism\(^9\). In Australia, a major factor inhibiting similar initiatives is that unlike in South Africa\(^10\), legislation generally prohibits ownership and sale of live native animals. A number of operators who take tours on their own land have however undertaken habitat restoration measures, at least partly motivated by the desire to provide viewing opportunities.

There is a growing trend in Australia for nature tourism operators and protected area managers to recognise their shared responsibility for preservation and monitoring of natural areas and to cooperate in

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\(^8\) Note that the purchase itself was paid for by government funds

\(^9\) A further conservation benefit of this scheme is that sales of wildlife to private landowners have earned the KZN NCS over US$2.23 million since 1997 (Buckley 2001).

\(^10\) Under South African common law, wild animals can be privately owned if a landowner ‘takes control’ of those animals with the intention of owning them, and the Game Theft Act of 1991 clarifies that game farmers retain ownership of game animals generally occurring within their fenced boundaries (Glazewski 2000).
managing their common resource, particularly in terms of minimising impacts of visitors (Shelley 1994). However there has been little attempt to formalise such contributions by operators, and there still appears to be little concrete involvement of operators in park management. Some of the larger private wildlife tourism operators assist with managing the impacts of nature-based tourism in protected areas in lieu of paying government permit fees. Such arrangements have been negotiated by the major lodges close to Lamington National Park (Binna Burra Mountain Lodge and O’Reilly’s Rainforest Guesthouse). Aries Tours, who conduct guided tours of the glow worm colony at Springbrook National Park, assist in maintaining visitor facilities and training of other operators, in addition to paying permit fees (R. Henderson, pers. comm.).

In some cases operators may implement practices to enhance wildlife viewing opportunities which also benefit the welfare of individual animals or conservation of populations of certain species (at least in the short term) but may be neutral or negative in terms of their impacts on the whole population, other species or the ecosystem as a whole. In Southern and Eastern Africa, provision of artificial water points in small game reserves is widespread, which is expected to favour water dependent species to the detriment of water independent species and may cause habitat damage around water points (James and Goodman 2000). In Australia, protected area management policy generally prohibits this, and wildlife tourism in natural areas on private land is not yet widespread. However (mainly) outside of protected areas, artificial feeding of wildlife is commonly used by operators and visitors to facilitate more predictable and close range encounters with wildlife. If the nutritional quality of this food is appropriate, this may benefit welfare of individuals that are fed and increase population size of those species, but may be detrimental in terms of its overall conservation impact (see Green and Higginbottom 2001 for more details). Similarly many operators maintain areas of mown introduced pasture grasses, especially around accommodation, partly in order to encourage native grazers (especially macropods). Conservation agency informants reported several cases of private operators undertaking other minor habitat modifications to improve the wildlife tourism experience. Generally, these have involved restoring the vegetation to a more natural state and elimination of predators. A few cases involved creating a habitat more suitable for
species of tourism interest, which may have some minor negative consequences for other components of the ecosystem, but at such a localised scale that they are of no real conservation concern. For example, one operator slashes small areas of vegetation to allow visitors to obtain clear views of quolls feeding at carcasses; another has installed a small waterhole to attract wildlife (N. Mooney, pers. comm.). An operator in the Gold Coast Hinterland has provided an 'enhanced' habitat for glow worms, including supplementary 'overhangs' to provide a suitable substrate for glow worm attachment and a cover to create permanent darkness (pers. obs.). This has led to an unusually high density of glow-worms in the 'shelter', which provides a viable viewing experience during night or day. If wildlife tourism on private lands is to be further developed and promoted, habitat modification is an issue that deserves careful consideration.

Some larger wildlife tourism enterprises, including zoos and major free-ranging wildlife attractions, make a significant contribution to wildlife research. Knowledge of the biology of the Little Penguin, other fauna of the region, and related conservation management issues has increased greatly as a result of the research and monitoring programs carried out by research staff (and associates) of the Phillip Island Nature Park (Newman 1992, Rowley 1992, Phillip Island Nature Park Board of Management 1998). A substantial proportion of this research is funded by tourism income (R. Leivers, pers. comm.). A number of smaller operators, such as Oceania (a whale watching business), Wildscapes Safaris (running rainforest wildlife tours) and Araucaria Ecotours (running terrestrial wildlife tours) combine commercial objectives with participation in conservation research. By collaborating with each other and with government conservation agencies, small operators can maximise their conservation impact. For example, dive operators in New South Wales collaborate in monitoring of the threatened grey nurse shark (Birtles et al. 1996). Tangalooma Resort provide financial and in kind support to university researchers in their studies of the biology of dolphins in Moreton Bay, including those that visit the resort (Hassard 2001, see reference list available online at Tangalooma Dolphin Education Centre 2001).

A number of wildlife tourism operators – particularly small accommodation-based businesses – are involved with rescue and rehabilitation of native wildlife. While the motivation for this activity
is likely to be personal rather than commercial, the opportunity for close-up viewing and/or handling that this presents provides an additional and apparently popular experience for many guests.

Our interviews with conservation agency informants and personal experience indicates that many tourism operators providing wildlife viewing experiences are motivated primarily by their love of nature and related lifestyle considerations, rather than by commercial objectives. In such cases they are often personally motivated to contribute to conservation through direct involvement and/or education of their visitors. Conservation agency informants also indicated that involvement of operators and tourists in formal or informal research (and to a lesser extent, conservation work) on wildlife, as part of wildlife tourism is very widespread. This includes both private commercial operators and non-profit organisations set up partially with the aim of conducting such research. They report that monitoring of wildlife species also commonly occurs, where many operators and tourists report valuable information such as species sightings and behaviours to conservation agencies and organisations such as Birds Australia. Contributions to management in protected areas take place in some National Parks where 4WD clubs and hunters donate labour and one operator actually funds the employment of a ranger to assist with management of the area.

Unlike other wildlife tourism sub-sectors, conservation is now often regarded as the primary role of zoos (Tribe 2001, Conway 1995). As stressed in the World Zoo Conservation Strategy (IUDZG/CBSG 1993) this can be achieved through education (see section 6.1), captive breeding of threatened species for reintroduction, and research on these species to assist with conservation (ibid, Horwich et al. 1993, Conway 1995). These measures are increasingly being integrated with research and management on species in their natural habitats, with many zoos and wildlife parks also being involved in such fieldwork (e.g. as part of threatened species recovery programs). While conservation is explicit in the goals of all the major Australian zoos and many wildlife parks, and all three mechanisms listed above are widespread (see Tribe 2001 for details), there has been no systematic attempt to assess the extent to which they are actually meeting their conservation objectives. The expense incurred by such activities, given the struggle for zoos to remain commercially viable, is a major
constraint on the extent to which zoos can participate in conservation initiatives (*ibid*). The importance of maintaining captive populations of threatened species in terms of the overall conservation of those species is controversial: some from the zoo sector maintain that in the face of habitat destruction these programs will increasingly become the mainstay of conservation (e.g. Conway 1999), while others from the traditional conservation fraternity see this role as relatively trivial (pers. comm. with various Australian conservation agency staff).

Finally, operators may lobby for conservation of the natural resources on which they depend economically. In Tasmania, many wildlife tourism operators lobbied the government in opposition to the Franklin Dam and the extent of clearfell logging in areas where wildlife operations occur (N. Mooney, pers. comm.). Purportedly as a result of lobbying from Great Barrier Reef tourism operators, the government recently allocated additional funds into research on the Crown-of-Thorns Starfish that is detrimentally affecting the Reef. However a number of authors (e.g. Buckley 2000a, van Oosterzee 2000) have noted that unlike other commercial interest groups that depend on natural resources, the tourism industry generally seems to lack awareness of its dependence on natural resources and is doing little to lobby for conservation. A number of recent initiatives, such as the Agenda 21 for the Travel and Tourism Industry (WTTC 1995), have called for a greater orientation of the tourism industry towards recognising the need for protecting the natural resources on which the industry is based.

### 4.4 Operators As Deterrents To Destruction Of Wildlife

In addition to deliberately undertaking activities that assist conservation, wildlife tour operators may contribute indirectly by acting as deterrents to the disturbance or killing of wildlife by people. The presence of wildlife tourism guides may act as a deterrent to those participating in activities conflicting with conservation such as disturbing wildlife, poaching or collecting firewood. For example, the Zaire Gorilla Conservation Project, launched in 1984, provided surveillance for a large area of the park with four of the largest families of gorillas being monitored daily, and this has been demonstrated to have helped reduce poaching of gorillas (Aveling and Aveling 1989, McNeilage 1996). This monitoring program, along
with economic incentives (see section 5.3.3), seem to have been factors in stopping poaching of this endangered species (Groom et al. 1991). We are not aware of any similar situations occurring in Australia. However wildlife tour guides could act as informal environmental monitors in reporting any indications of threats to animal welfare or conservation (including poaching, which is a problem even in Australia) to conservation staff.

4.5 Conclusions And Recommendations

Practical contributions of wildlife tourism to wildlife conservation are widespread, although it appears there may be scope for their expansion. There has been insufficient systematic research to assess how significant these contributions are, and what factors are constraining their magnitude, either internationally or in Australia. Such research is necessary to allow detailed recommendations to be made to enhance these contributions. However anecdotal evidence is sufficient to make the following recommendations for Australia:

- Managers, researchers and tourism operators should consider using tourists as volunteers in conservation programs, as this can be a cost-effective way of providing labour for such activities.

- Governments should develop appropriate mechanisms to encourage and support operators making practical contributions to conservation (especially with regard to resource management and monitoring within protected areas), bearing in mind the practical and commercial constraints faced by operators. This could for example include preferential licensing conditions, as is being negotiated for NEAP accredited operators in protected areas.

- Legislative and bureaucratic constraints on the purchase of native animals should be re-examined with a view to facilitating greater involvement of private landowners in reintroduction programs.

- While governments should encourage shifts from traditional agriculture to wildlife or nature-based tourism on private land in cases where this is economically viable, there is a need to be vigilant in the longer term about habitat modifications that may favour species of tourism interest to the detriment of others.
• Governments should encourage and support wildlife tourism attractions becoming actively involved in research and monitoring on their target species.

• Opportunities for integrating recreational hunting and fishing with pest control should be explored, although there is a need for political sensitivity, particularly with respect to hunting.

• Operators should be formally recognised for substantial contributions to conservation, and encouraged to promote such involvement in their marketing. However convincing research indicating that this is beneficial in attracting more visitors is needed if this is to become an adequate commercial incentive for operators to make contributions to conservation.
5.1 Introduction

Wildlife tourism occurring in natural areas (whether consumptive or not) has the potential to provide a significant socio-economic incentive for conservation. Thus a number of authors (e.g. Buckley 2000b, van Oosterzee 2000) have argued that tourism offers one of the best prospects for conserving areas of wilderness that are currently unprotected. For this to work, however, requires that the following conditions be met:

- The existence of wildlife tourism must increase the socio-economic value (normally in terms of income or employment) of the natural area or natural assets as compared with alternative land-uses or wildlife management practices (or at least must be perceived to do so) (section 5.2).

- Financial viability of wildlife tourism must be reliant on, or enhanced by, preservation or rehabilitation of natural ecosystems or wildlife species (or at least perceived to be so by operators).

- The people who experience socio-economic benefits from wildlife tourism must also be those who are in a position to adopt practices that promote conservation.

The incentive provided by wildlife tourism can directly cause a shift to more conservation-oriented land-use and/or management (section 5.3). This can occur either through establishment or maintenance of protected areas (section 5.3.1), increased use of private land for conservation (section 5.3.2) or through a shift to more conservation-oriented wildlife management practices (section 5.3.3). Alternatively the effect can be indirect, via increased public support for conservation (section 5.4). Also there are two possible reasons for financial viability of wildlife tourism being dependent on conservation. The most obvious reason is that this is needed to provide a satisfying wildlife experience to tourists. The second potential reason is that involvement of an operator in conservation may assist them in attracting customers (section 5.5).
Socio-economic incentives for conservation can work through their effects on tourism operators, or through their effects on the wider host community. The host community in turn may be more likely to provide political support for use of land for conservation and for adequate resources for its sustainable management (section 5.4).

A cautionary message is given by Isaacs (2000), who argues that ecotourism has limited potential to ensure long term protection of environmental assets (through creation of economic incentives). He argues that this is because ecotourism is based on establishing a market for recreation, rather than based directly on conserving natural assets. Thus he argues that it imposes negative externality costs, especially those associated with environmental degradation caused by recreation, and it may even distract efforts away from more secure means of environmental protection. A realistic conclusion seems to be that while there is merit in these arguments, in the face of more environmentally destructive alternatives that often exist in the real world, ecotourism is worth considering as an imperfect but helpful tool to provide an incentive for conservation.

5.2 Increasing the Socio-Economic Value of Natural Assets

The first step in 'using' wildlife tourism as a socio-economic incentive for conservation is to demonstrate to landowners or the wider community that it is an economically rational use of land or wildlife resources. Depending on who needs to be convinced of the economic benefits, such valuation may be required at the level of the country, State or region (in terms of political decision-making), the local community or the individual landowner (in terms of ability to directly influence conservation practices). Communities benefit economically to varying degrees from the flow of tourist expenditures, capital/infrastructure expenditures and employment generated by tourism. This kind of benefit to local communities constitutes one of the ideals of ecotourism.

There is a growing trend, both internationally and in Australia, for conservation agencies to assess the economic value of the natural environment (usually with wildlife as an integral component) to tourism (Wearing and Neil 1999), and to compare this with the value of alternative uses of that environment. Davis et al. (2000) review
methods available for valuation. Such valuations offer a means of arguing for increased resources for management of natural resources at government level. Unless stated otherwise, the following estimates comprise (at least apparently) both direct and indirect expenditures.

It is clear that protected areas (which often – including in Australia – provide the major resource base for wildlife viewing) indirectly bring major economic benefits to many countries. There has been no overall estimate of the economic value of protected areas to Australia, but the benefits are clearly large, with visits from an estimated 50% of foreign visitors (BTR 1997). Driml (1994) estimates the annual expenditure (direct and indirect) from tourism and recreation in the Great Barrier Reef at $1.16 billion (including recreational fishing and boating), which is much greater than revenue from commercial fishing. Expenditure associated with Australia’s five World Heritage Areas has been estimated at $1.37 billion (Driml and Common 1995). In particular, the gross direct expenditure associated with the Wet Tropics World Heritage Area is estimated at $377 million, which is many times greater than the expected revenue from logging.

Wildlife tourism is thought to create considerable revenue in a number of countries. It generates about US$400 million p.a. in Kenya (Barnes et al. 1992), with the financial worth of a single wild male lion (through tourism) estimated as at least $500,000 (Thresher 1981 cited in Groom et al. 1991). Tanzania received total tourism revenue of about US$120 million in 1992; of this about 11.6% comes from hunting tourism alone (EWG 1995). Zimbabwe is estimated to earn about US$70 million p.a. from sport hunting (Kock 1996). Tourist interest in the mountain gorilla has been estimated to bring in $4 million/yr to Rwanda based on direct expenditures11 (Groom et al. 1991) and about $10 million when indirect expenditures are included (Lindberg 1991). This makes gorilla tourism alone Rwanda’s second largest industry (Groom et al. 1991), generating more than 75% of its tourism income (Lindberg 1991), and it has been shown to be much more profitable than the most likely alternative land-use, cattle grazing (McNeilage 1996). Participation in non-consumptive wildlife recreation (including captive and free-ranging wildlife) in the USA has

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11 These figures apply to the period prior to the recent civil war, which has had a very detrimental effect on tourism.
increased to include more than 60 million adults, with a total annual expenditure of US$29.2 billion in 1996 (USFWS 1998).

A cautionary note is needed, however. International examples such as those given above are widely quoted to illustrate the high potential economic value of wildlife tourism, but they mostly relate to a few high profile wildlife attractions and/or small number of places offering spectacular wildlife viewing. Because there has been no systematic study of what circumstances are conducive to high yield wildlife tourism, it is not clear to what extent there may be unrealised potential for high fees for Australian wildlife tourism experiences.

While no reliable statistics on the overall economic contribution of wildlife tourism in Australia have been compiled, some figures and anecdotes support the view that it is large. Hundloe and Hamilton (1997) estimated the value of wildlife to international tourism to Australia to be in the range $1.8-3.5 billion. However these results were based on the proportion of visitors who said wildlife was a major factor in their decision to visit Australia and their expenditure patterns, and cannot be considered a full economic valuation (see Davis et al. 2001). In another CRC study, Tisdell and Wilson (2001) used comprehensive information to estimate the total income to the Bundaberg region due to sea turtle viewing at $968,164 p.a. Whale shark tourism has been reported to be worth about $9 million to the economy of Western Australia (CALM 2001). Montague Island (NSW) – largely a wildlife tourism destination – is estimated to contribute $1.6 million to the local economy, and to have created 26 jobs (Gilligan 2001). The Phillip Island Penguin Reserve, perhaps Australia’s most lucrative wildlife tourism attraction, is estimated to generate total annual economic benefits of $96 million to the State of Victoria (Leivers 2000) and to have led to creation of 1000 jobs (Stone 2001). Again, however, we caution that these attractions – particularly the latter – probably generate unusually high financial benefits.

One of the distinguishing features of Earth Sanctuaries Ltd (Box 4), is to notionally attribute financial values to individual wild animals (even though these do not have a direct market value in the Australian legal situation). These valuations are then used to illustrate to shareholders substantial returns on their investment in terms of producing new animals through reproduction of re-introduced native animals.
Thus threatened animals managed by ESL have been estimated as worth between $1,250 and $5,000 each. This in turn provides a motivation for purchase of shares. The company was recently floated on the stock exchange to enhance revenue from this source. Millions of dollars have been raised by sales of shares and invested into the company's conservation and (related) tourism initiatives.

In practice it is very difficult to substantiate proposed links between increased socio-economic value associated with wildlife tourism and conservation impacts. The evidence is generally restricted to anecdotes purporting to illustrate a connection between implementation of tourism and a change in the management of land or wildlife (section 5.3) or political support (section 5.4).

5.3 Socio-economic Incentive for Conservation Oriented Land-use and Management

5.3.1 Establishment of protected areas

It is well recognised that less developed countries often need to maximise the productive value of their natural resources if these resources are not to be destroyed (Cochrane 1993). In many such countries nature-based tourism has been reported to provide the economic and political incentive for the creation of government-owned protected areas (Lindberg 1991, Goodwin et al. 1998, Marshall 1988). Wild animal species may be particularly useful as icons to help win international support in protecting areas for conservation, because it seems that the public will often more readily support preservation of an area to conserve charismatic animal species than for ecosystem conservation in general. There are numerous such examples relating to nature based tourism reported in the literature, especially for Africa, and many of these relate largely to wildlife tourism. In the late 1980s, the Kenyan government realised that any continued deterioration of the natural resource base in the national parks (due largely to safari tourism) would seriously endanger the most important source of foreign currency for the country. The government consequently decided to become more involved in conservation (EWG 1995). The dedication of reserved lands in Kenya in recent decades has paralleled the growth in tourism (Marshall...
and income from tourism, mostly relating to wildlife, has been reported as the main political justification for acquisition and preservation of national parks in that country (Sindiyo and Pertet 1984). A poster in Tanzania states: 'Our protected areas bring good money into Tanzania – Protect them' (Nash 1989 cited in Wearing and Neil 1999). Revenue from ecotourism has similarly been reported to have motivated protection of elephant habitat in Thailand (Isaacs 2000).

Even in more developed countries such as the USA and Australia, expected tourism-generated income has been a significant motivation for creation of protected areas. Revenue from ecotourism has similarly been reported to have motivated protection of harp seal habitat in Canada (Isaacs 2000). In Montana, USA, protected areas provide an important opportunity for wildlife-viewing, attracting more than 1.5 million visitors annually, and are seen as one avenue to increase the stability of the local economy (McCool 1996). Across the whole of the USA, a major increase in participation in nonconsumptive wildlife recreation has occurred and this trend is reported to have helped motivate interest in the protection of natural areas for the benefit of tourism (Vickerman 1988). In Australia, the declaration of protected areas has been based to a large extent on amenity and recreational values (Young et al. 1996, Preece and van Oosterzee 1997), which have often included wildlife tourism. Recently the recognition of nature-based tourism's socio-economic value has also emerged as a factor behind the protection of natural areas, especially for World Heritage Areas (Valentine 1992). Thus van Oosterzee (2000, p.91) concludes with reference to the importance of tourism as an economic incentive 'it seems almost certain that an economic motivator is essential for the mere existence of a World Heritage Area, let alone for its proper management'. The Northern Territory Tourism Development Masterplan recognises the potential financial benefits arising from nature-based tourism, helping motivate efforts to establish three major parks of international significance (Young et al. 1996). One major element of the Daintree Rescue Package in northern Queensland was to 'buy back' private land to be incorporated into public protected areas. Over 290 properties were offered for sale in the buy back scheme, although as of May 1995, only one actual sale had been completed (ibid).
Our interviews with conservation agency informants indicated that across Australia, at least 15 protected areas were created at least partially due to the socio-economic incentive provided by wildlife tourism, including cases where wildlife is just one component of a more generalised nature-based experience. Examples of areas for which wildlife tourism (rather than nature-based tourism including wildlife) was significant in this respect are: Barron Grounds Nature Reserve (NSW), Montague Island Nature Reserve (NSW) and Fogg Dam Conservation Reserve (NT). Dryandra Woodland State Forest (WA) has been recommended for proclamation as a National Park because it is a crucial conservation area for populations of numbat and the woylie (brush-tailed bettong) and is recognised to have significant value for recreation and tourism, including wildlife tourism. At Fogg Dam Conservation Reserve near Darwin in the Northern Territory a 7km boardwalk, platforms and a $2 million visitors’ centre have been established to enable tourists to view birds through the day and snakes by night (M. Butler, pers. comm.).

Several of the areas in Australia that have been set aside for wildlife populations primarily because of wildlife tourism are hunting reserves. In the Northern Territory, a protected area management system designed especially for hunting of feral animals and waterfowl has resulted in a marked improvement in conservation values of those areas, including increased native species abundance and diversity, and fire and weed control (B. Binns, pers. comm.). Advocates of using wildlife tourism to support conservation in Australia rarely allude to these areas, perhaps partly because hunting has very minimal political support in this country.

Protected areas come in many forms and not all are government-owned. There are reports of such areas being set aside for wildlife tourism and conservation by various community-based groups. The Community Baboon Sanctuary in Belize is composed entirely of lands belonging to individual landowners who voluntarily manage their lands according to the Sanctuary’s guiding principles (Alderman 1994). Tourism development is one of the main goals of the Sanctuary, and locals are involved in tourism education programs as well as acting as guides for visiting tourists. The Sanctuary has resulted in protection of habitat of the black howler monkey and other wildlife species. Such land management practices also have the
potential to reduce soil erosion, stabilise the water table and hasten nutrient replenishment following slash and burn. Similarly, cultural tourism at The Monkey Forest of Ubud in Indonesia, in which monkeys figure as important elements of the experience, is reported to have provided an economic incentive for preserving habitat for the long-tailed macaque, and to have led to an increase in its population size (Wheatley and Putra 1994). The privately owned Yellow-Eyed Penguin Reserve in New Zealand aims to preserve the world’s most endangered penguin, and is funded entirely through profits from its tour operation (Buckley and Sommer 2001). Over the last 14 years the penguin population in the reserve has increased from 30 to 200. In Australia, the Mareeba Tropical Savanna and Wetland Reserve represents a recent partnership between private, community and government sectors (Nevard 2001). Wildlife tourism is one of the sources being used to fund habitat creation and management measures that have fostered increases in a number of threatened bird species.

5.3.2 Using private land for wildlife tourism and conservation

If economics alone is to provide a sufficient incentive for landowners to undertake wildlife tourism and conserve their land and wildlife to that end, then the net financial benefits must be greater than those for other competing but more destructive land-uses. The economic benefits could be experienced by a landowner operating wildlife tourism on his or her own land, or could be derived from tour operators who pay the landowner a fee for doing so. There are relatively few examples in the literature where nature-based or wildlife tourism has provided the main incentive for private land protection, but it is not clear whether this is because such cases are very rare or whether it is due to lack of research.

There are however several international examples illustrating this situation. The South African game reserves described in section in 4.3 are perhaps one of the most significant. In a survey of 27 private game reserves in the province of KwaZulu-Natal, 48% of managers said that if they had not had (wildlife) tourism available as an alternative commercial option, they would have continued to farm cattle (generally considered to be a less sustainable land use than wildlife viewing in such areas) (James and Goodman 2000). The
authors also concluded that nature tourism was responsible for re-introduction of popular game viewing species such as lion, cheetah, elephant and buffalo; a wider distribution of other animal species; and an increase in 'connectivity' of wildlife habitats across the broader landscape. Across the whole of South Africa, successful re-introduction programs on hundreds of private game reserves and small state reserves are reported to have been motivated largely by the economic incentive provided by wildlife tourism, especially wildlife viewing (S. Pimm, pers. comm.). Similarly in Namibia, the financial returns from wildlife on private lands (40-45% of which was attributed to tourism) doubled between 1972 and 1996, motivating a trend toward conversion of private land from livestock to wildlife (Richardson 1998). Another study showed that non-consumptive wildlife viewing in Namibia yielded the highest net economic return out of various land use options (Barnes and de Jager 1996). Other international examples described by Buckley and Sommer (2001) illustrate that the financial benefits derived from nature-based tourism (including wildlife tourism) can be used to support management of private lands for conservation – though it is unclear to what extent this would have occurred in the absence of tourism. In Europe, there are large private estates including areas of conservation significance that effectively operate as private tourism ventures. In many Latin American countries, there are private lands purchased for conservation purposes and financially supported by tourism. In North America, many private lands are managed in a relatively undisturbed state for recreational hunting.

Preece and van Oosterzee (1997) state that there are many examples of private land holders in Australia conserving their lands at the same time as setting up a nature-based accommodation base, although it is not clear to what extent tourism was a necessary incentive. Further, nature-based tourism on private land seems to be less common in Australia than in many other countries (Buckley and Sommer 2001). The Wet Tropics Management Authority is developing a pilot program of cooperative management agreements with landholders, some of whom wish to be small-scale ecotourism operators: it is reported that over 100 landholders have shown interest (Young et al. 1996).

Socio-economic incentives from wildlife tourism do not have to lead to a total change in land-use in order to lead to conservation benefits. Particularly in the case of livestock farming, there is a continuum from
using the land for traditional farming practices at maximum (or greater!) livestock carrying capacity to using the land entirely for conservation and tourism. Shifts in management practices towards maintaining or restoring significant areas of natural bushland and reducing livestock stocking rates can have substantial effects on conservation values, and may be more realistic. According to Karen Huskisson, former president of the Queensland Host Farm Association (pers. comm.), a small number of host farm properties deliberately maintain lower-than-average stocking rates of domestic stock to ensure they maintain good wildlife populations for tourism, and others are planning to do so. Similarly, a Tasmanian wildlife tourism operator and farmer has reduced his cattle stocking rates because he believes this will lead to increases in native wildlife populations – in turn he is motivated by a combination of the economic incentive provided by wildlife tourism and his own conservation-minded orientation (G. King, pers. comm.). As this operator belongs to a long-established farming family in the district, he may provide a particularly useful role model to other farmers in the district (N. Mooney, pers. comm.). Another wildlife tourism operator has discontinued his practice of shooting native animals that he previously believed to be a threat to his crops, since he perceives that they now provide a net financial benefit to him (ibid).

Interviews with conservation agency informants from several States produced further reports of operators running tours on their own private land and decreasing their livestock stocking rates [E1] in order to support improved wildlife viewing and feral animal hunting. It however seems that in most cases ethical (conservation) motivations, not just financial ones, were involved in such shifts. Further, no cases were reported where a landowner had completely shifted from primary production to wildlife tourism. In practice this may be financially viable only in cases where a land owner has access to exceptional wildlife resources. It is not clear whether there may be a considerable number of such opportunities that are not being realised due to lack of support and knowledge, and the apparent risk involved.

Schemes that provide additional support and incentives to landowners may be important in facilitating such shifts in land-use. Land for Wildlife, a conservation program initiated in 1981 that has now become nationwide and is now largely government funded, aims
to encourage and assist private landholders to conserve biodiversity on their land (Petrie 1999, Land for Wildlife 2001). As of 1994, the scheme covered 2,500 registered properties, with over 40,000 ha of that land containing species and habitats of conservation significance being voluntarily managed as wildlife habitat (Young et al. 1996). The number of registered properties has more than doubled since 1994, to over 5200 properties and as of 1997, Western Australia, New South Wales, Queensland, Tasmania and a local government in Northern Territory have joined the program (Land for Wildlife 2001). In several of these cases, the landowner has become involved in wildlife tourism and one such landowner has been profiled as a role model in various tourism newsletters as part of the scheme (M. Petrie, pers. comm.). When a property is registered with Land for Wildlife, an extension officer assesses how viable it might be for ecotourism development (ibid). The scheme does not, however, include any financial incentives, and the Queensland coordinator of the scheme (ibid) states that he believes that very few landowners are seeking to use their land for this purpose.

5.3.3 Changes to wildlife management practices

A shift towards wildlife tourism may in some cases provide a socio-economic incentive leading to a change in wildlife management practices (as opposed to land-use practices) that has positive consequences for wildlife conservation and/or welfare. This is likely to be of most conservation significance in cases where the wildlife are hunted or taken for live trade for subsistence or commercial purposes, or where they are persecuted as pests. There are numerous cases internationally where a species' conservation status has been threatened by overexploitation by poachers, and in many cases considerable suffering is caused by the means of capture. Promoting wildlife tourism has been a major and deliberate conservation strategy in many less developed countries where poaching or persecution of wildlife as pests is a major threat to wildlife, particularly in Eastern Africa, where there is an informal policy of 'wildlife pays, wildlife stays' (WCU 1991). There are several widely quoted cases in the literature where introduction of tourism has been associated with a reduction in poaching (e.g. Parsler 1997, Barbier 1992). The mountain gorilla is a classic case of a highly endangered species, threatened by poaching, for which it is widely thought that the shift to tourism has
largely because of provision of a socio-economic incentive (through employment to local people and revenue to the government and local community development projects) – allowed continual survival of a species that may not have otherwise occurred (McNeilage 1996, Vieta 2001). Conversely there is concern that since the reduction in visitor numbers following renewed war, the threats to gorilla conservation have increased. However such changes in gorilla population status may be at least partially attributed to increased patrols and enforcement funded by tourism revenue (eg Barbier 1992) (section 3) or causes unrelated to tourism (Lindberg and Enriquez 1994, Butynski and Kalina 1998).

A similar argument may apply in more developed countries, including Australia, where it is most likely to apply to species normally considered to be pests, particularly to agriculture. The strong tourist interest in ranger guided wolf walks, following the reintroduction of wolves to Yellowstone National Park in 1995, is reported to have been a significant factor in continuation of the reintroduction program in the face of negative reactions from farmers living in the area (Brooke 1996). In Australia, the International Fund for Animal Welfare and other animal rights groups are promoting the development of tourism involving wild kangaroos as a means of facilitating a shift away from commercial harvesting (IFAW 1999). Nick Mooney of the Tasmanian Department of Environment and Land Management believes that by promoting responsible tourism based on Tasmanian devils, their image as a pest among Tasmanian residents – and thus their persecution – will be reduced.

Once wildlife tourism is established in a natural area, there is an ongoing economic incentive to maintain the population(s) on which the tourism is based, which also means maintaining its habitat, including its food supply. Generally this would appear to be a highly positive conservation outcome. However as discussed in section 4.3, while this is likely to benefit individual animals and possibly species that are the target of tourism, it may sometimes be detrimental to other elements of the ecosystem.

The idea of using wildlife tourism to provide a socio-economic incentive for conservation is supported by a recent global and Australian trend towards attributing commercial values to wildlife as
a means to facilitate their conservation. In the recent Senate Inquiry on Commercial Use of Wildlife (Senate Rural and Regional Affairs and Transport References Committee 1998), tourism based on wildlife was seen as one way to achieve this goal.

For wildlife tourism to facilitate a shift to wildlife management practices that are more consistent with conservation, it is vital that the people with the power to implement this shift stand to gain – even if indirectly – from the tourism. Failure to adequately disseminate benefits of tourism to local communities in less developed countries has been widespread, and probably explains many instances where nature-based tourism has failed to elicit enhanced local support for conservation (Sindiga 1995, Groom et al. 1991, Goodwin et al. 1998).

5.4 Increased Political and Local Support for Conservation

Overlapping with the direct links with conservation-oriented management covered in the preceding sections is the more generalised political support for conservation that nature-based and wildlife tourism can generate as a result of socio-economic incentives. It is argued that if locals receive economic or other benefits from tourism, they are more likely to: (a) support existence of areas dedicated to conservation on which that tourism is based, (b) support allocation of resources to sustainably manage such areas, (c) support policies that promote shifts to more sustainable wildlife management practices (Western 1982) and (d) refrain from activities that could be detrimental to wildlife. Most of the literature relating to this argument consists of case studies from less developed countries.

Where significant net benefits arise from nature-based tourism, many authors report that increased support for conservation of natural resources may be expected from beneficiaries (e.g. Vickerman 1988, Lindberg and Enriquez 1994, Wheatley and Putra 1994, McCool 1996, Parsler 1997). Lindberg and Enriquez (1994) cite a number of case studies in less developed countries where employment and expenditures in the local area that accrue from tourism in protected areas contribute to adjacent resident’s support for conserving these areas. While direct and indirect socio-economic benefits are considered to be particularly influential, other benefits such as improved aesthetic or recreational values are also likely to contribute. Studies by
Lindberg and Enriquez (1994) found a positive change in conservation attitude in those who thought the protected area provided benefits to the community. Here community benefits appeared stronger factors in influencing attitudes than personal benefits.

Several international examples illustrate the potential link between wildlife tourism and increased local support for wildlife conservation. In Lokobe, Madagascar, local people voted for a ban on hunting of the lemur in return for modest funds for village-based development (Parsler 1997). In Tanzania, local people living around the Selous Game Reserve expressed support for the protection of wildlife, in many cases because they recognised the financial and employment benefits to the country and/or their own community (Gillingham and Lee 1999). In Rwanda, the alternative employment and small proportion of revenues provided to local people by mountain gorilla tourism is reported to have helped to reverse negative attitudes toward wildlife (which in turn is reported to have reduced poaching and land clearing) (Groom et al. 1991, Shackley 1995). CAMPFIRE in Zimbabwe aims to enable communal area residents to receive readily identifiable benefits from wildlife resources, especially through revenue from safari hunting. As a consequence, residents are more likely to perceive wildlife as an economic asset, protect it from illegal hunting and regard its management as a financially attractive land-use option (Hulme and Murphree 2000).

Despite the large number of anecdotes, evidence for changes in local attitudes as a result of nature-based tourism is mostly of poor quality. Often no baseline surveys of community or political attitudes are carried out before nature-based tourism is established. In relation to wildlife tourism, one of the few exceptions was a study involving surveys before and after establishing gorilla tourism in Rwanda (Weber 1989 cited in Lindberg et al. 1996). Despite the paucity of research, the idea that nature-based tourism is likely to be associated with attitude changes in the local population that are consistent with conservation is pervasive in the literature.

The issue of winning community support for wildlife conservation as a result of the socio-economic benefits flowing from wildlife tourism probably has relevance for some Australian communities. There are a number of Australia towns or regions where the economic impacts of
wildlife tourism may be significant, such as the Bundaberg region (near to Mon Repos Turtle Rookery), Dubbo (where the Western Plains Zoo is located), Kangaroo Island (a region with a number of popular wildlife viewing sites) and Far North Queensland (base for reef and rainforest experiences that often include a wildlife component). Wildlife tourism could also come to be important for indigenous people living in remote areas, where there are few economic opportunities but often an abundance of wildlife resources. However we are not aware of any research to indicate whether attitudes of Australian locals to wildlife conservation have been influenced by the presence of a major wildlife attraction in their region\(^\text{12}\).

Conservation agency informants recounted numerous anecdotes in which local residents in Australia had become more supportive of the preservation or restoration of natural areas as a result of economic benefits to themselves or the region that they perceived to be associated with wildlife tourism. This included cases where locals provide services and facilities for visitors (i.e. accommodation and food). In Tasmania, locals have complained to the government about the frequency of road kills and the use of 1080 on park boundaries. This lobbying has helped motivate an increase in road kill mitigation measures and related research (S. Lennox, pers. comm.). Local Aboriginal people in the Northern Territory have shown their support for nature-based tourism by allowing tourists into Nitmiluk National Park, and local support for whale watching in Hervey Bay and turtle watching at Mon Repos is extensive (though it is not clear whether this translates into enhanced support for whale and turtle conservation). Western Australian CALM’s interest in promoting tourism relating to recent reintroductions of threatened species of mammals is motivated partly by a belief that if appropriately carried out this will help foster public support for related conservation and research programs. The Wet Tropics of North Queensland is a classic case of an area previously exploited to the detriment of wildlife (by logging) where a shift in emphasis to nature-based (including wildlife) tourism has been associated with conservation, with a consequent apparent effect on local attitudes. However, in Cairns where nature-based tourism has become the mainstay of the economy in recent

\(^{12}\) Another CRC study in progress by Dr Jim Macbeth is investigating regional impacts of wildlife tourism such as this in Western Australia.
decades, this has apparently not translated into an increased interest in conservation by local people (Russell Watkinson, pers. comm.).

It is important to note that any effects of wildlife tourism on local attitudes to wildlife will not necessarily be positive. Conservation agency informants cited a few cases where local farmers apparently became increasingly negative to the existence of conservation areas because of the impacts of pest animal species encouraged by wildlife tourism. Such examples include cases where protected areas encourage the presence of possums, which in turn destroy neighbouring farmers’ crops, and also where commercial fishing operations have been displaced by the creation of marine park areas.

In addition to the direct conservation effects of tourism operators adopting more environmentally friendly practices on their land (where this is used for tourism) these landowners can become important role models to other landowners, even if the latter do not choose to become directly involved in tourism themselves. For example, the owner of Inala Tours in Tasmania reports that since her wildlife tour business has become financially successful, local rural people have developed a more positive attitude towards the retention of natural areas (T. Cochran, pers. comm.; see also the example given in section 5.3.2).

5.5 Contributions to Conservation to Assist in Marketing

A final socio-economic incentive for wildlife tourism operators to contribute to conservation is that this may assist them in attracting tourists. This can be done through a recognised accreditation scheme or through including details of involvement in conservation activities in advertising materials.

Accreditation schemes like Australia’s Nature and Ecotourism Accreditation Program (NEAPWG 2000) assume that operators will be able to use accreditation to market themselves to an increasingly ‘green’ international clientele. Achievement of NEAP Ecotourism Accreditation implies that the operator has adopted ecologically sustainable principles, while Ecotourism and Advanced Ecotourism Accreditation implies that they also make positive contributions to the conservation of the environment. However there has been no convincing research confirming the validity of this assumption, and
the effectiveness of the scheme to date seems to be hindered by a lack of market recognition. Nevertheless those operators we interviewed who do this believe it does assist them in this way.

A number of operators who participate in conservation initiatives (section 4.3) use this fact to help promote themselves directly. Inala Tours’ website includes a description of the involvement of its host in conservation of threatened species, mention of the high priority given to protecting wildlife habitat on her land, and the use of a proportion of tour income for conservation work (Inala Tours 2000). Similarly the website of Wildscapes Safaris details the company’s involvement in platypus research (Wildscapes Safaris 2000). Oceania’s website (Oceania 2001) emphasises the importance of their whale research and conservation, and the role that guests can play in this. According to the General Manager, visitor surveys at Phillip Island Nature Park have shown that visitor satisfaction levels were increased by their knowledge that the Park engaged in conservation and research initiatives and that their entry fees contributed to these programs (R. Leivers, pers. comm.). We are not however aware of any cases in Australia where enhanced business success was the primary motivation for their conservation efforts; rather it seems to generally be a secondary benefit. Nevertheless it may be that if such benefits could be demonstrated and well-publicised, they could help motivate some operators to engage in conservation initiatives.

If visitor awareness and support for conservation is strong, then operators may be able to use their involvement in conservation initiatives as an effective form of word-of-mouth advertising. For example Lubeck (1990) states with respect to safari tourism in East Africa: 'If anyone is not convinced that voluntary or automatic conservation project support should be built into luxury tour packages...I find it helpful to say Rhinos have existed for 63 million years...90% of them have been decimated in the last ten years. Some tour operators are doing something to help the efforts to rescue and rehabilitate them'.

A special case of a socio-economic incentive for conservation mediated by marketing applies to zoos and other captive wildlife establishments. Recent decades have seen an increase in public resistance to the idea of keeping animals in captivity (Tribe 2001). In
order to maintain public support (both in terms of government funding and support, as well as in visitation numbers), zoo organisations see involvement in conservation initiatives as important to their ethical acceptability to the public and thus their sustainability (ibid, Conway 1999).

5.6 Conclusions and Recommendations

Wildlife tourism has apparently provided a significant socio-economic incentive for establishment of protected areas, use of private land for conservation, and shifts in wildlife management practices in some overseas situations. These effects appear to have been less pronounced in Australia than in some less developed countries, but there are a number of cases where such effects have occurred. Depending on the commercial prospects for an increase in wildlife tourism on private land, there may be substantial future opportunities for operation of this mechanism:

- A research priority should be an economic valuation of wildlife tourism, and of the role of wildlife in tourism overall. We expect that these values will be large, and thus will assist in arguing the case politically that increased resources are required for wildlife conservation. It may also lead to a positive change in rural attitudes to wildlife – in particular shifting the emphasis somewhat away from the perception of native animals as pests. Any evidence of high economic value of Australian wildlife derived from tourism – both nationally and in relation to particular tourism attractions – should be widely publicised in order to maximise its effect on public attitudes and political will.

- Research and support is needed to help facilitate economically viable development of wildlife tourism on private land in ways that will assist conservation. There is a need to determine under what circumstances, and by what means, landowners can be confident that such a shift will be of financial benefit to them. Similarly an examination of existing mechanisms and constraints on such shifts may be revealing.
• Financial incentives should be offered to land owners who switch from relatively destructive land-uses to well-managed nature tourism.

• Research is needed to assess the effects of wildlife tourism on public attitudes towards conservation, and how these links can be maximised.

• Research is needed to determine the potential role of local communities in participation and support for integrated wildlife tourism and conservation initiatives, and the role of social and economic incentives.

• Research is needed to determine whether and how advertising of contributions to conservation can assist individual operators in attracting clients. If results are positive, there should be a concerted effort by governments and NEAP to publicise this information and encourage operators to apply it.

Another CRC project by C. Fausnaugh is developing a manual for landowners to assist them in determining the likely financial viability of developing nature-based tourism on their land.
Tourism operators and governments often state that visitors, as part of their wildlife or nature-based tourism experience, can be educated to increase their conservation awareness and behave in ways which have positive consequences for wildlife and/or their habitats (e.g. Duff 1993, NBTAC 1994, Parks and Wildlife Commission Northern Territory undated, IUDZG/CBSG 1993). Support by visitors for the areas and wildlife involved in a wildlife tourism experience may in some cases increase simply through participating in the experience, in the absence of active educational components. Education of wildlife tourists can occur through changes in attitudes and/or increased knowledge that in turn may promote:

- more responsible behaviour towards wildlife and the natural environment, both in terms of minimising negative effects in the area where tourism occurs and more broadly;
- subsequent involvement in wildlife conservation or research;
- increased numbers of advocates of conservation, who will pass on the message to others;
- increased political pressure on governments to achieve conservation objectives; and/or
- more satisfied customers and therefore more successful businesses.

Such arguments have generally been restricted in the published literature to non-consumptive forms of wildlife tourism, although some would argue that fostering an understanding in clients of the need to sustainably manage the resource is a conservation benefit that some hunting and fishing operators provide.

Many wildlife and nature-based tourism operators, whether from the private or public sector, incorporate environmental interpretation and
education components, though there has been no systematic attempt to classify to what extent and how this is done in Australia. For many non-profit organisations offering nature-based tourism, raising public awareness of environmental issues is the primary purpose (IRG 1992). In Australia, raising conservation awareness is the primary goal of several such organisations involved in wildlife tourism, such as Worldwide Fund for Nature, Australian Museum Society (Duff 1993) and Australian Koala Foundation. It is also a major goal for fund-raising organisations that organise conservation holidays or study tours (see section 4.2). Within government, most State conservation agencies have in recent years increased their efforts in nature interpretation (although this remains limited in relation to wildlife) but have not formally assessed how effective such programs are in influencing public attitudes.

Zoos and wildlife parks are one of the few sub-sectors of wildlife tourism that have formalised their role with regard to education to some extent. In the face of political threats to their persistence associated with ethical and animal welfare issues, it has been important that they become more active in educational and conservation roles. The World Zoo Conservation Strategy (IUDZG/CBSG 1993) emphasises the great potential role of zoos in education. Most Australian zoos and wildlife parks at least attempt to communicate a conservation message, with the larger zoos typically making a major commitment to education (Tribe 2001). Melbourne Zoo has invested $500,000 in a public education strategy over the last four years, with more than 120,000 children per year using its education service (ibid). At least in Victoria, government conditions for exhibitors' licences require the holder to 'have a clear conservation theme, promote wildlife conservation or provide wildlife education' (Department of Natural Resources and Environment, Victoria 1998).

With an estimated five million domestic visitors per year (as well as three million international visitors) (Tribe 2001), zoos can reach a larger proportion of the public than any other managed form of wildlife tourism. Further, the opportunity for close and carefully managed encounters, plus the scope for fixed displays and talks, makes education generally easier to provide than in a free-ranging setting. Some zoos also provide an education role in training wildlife tourism operators in wildlife field techniques.
Businesses that have been accredited through Australia’s Nature and Ecotourism Accreditation Program (NEAPWG 2000) have also formally recognised the importance of interpretation in their products. The NEAP recognises that ‘interpretation is probably the key element in the definition of ecotourism’ and advises that ecotourism operators ‘provide an appropriate level of interpretation about the natural and cultural heritage of the areas visited’ (ibid). Operators receiving ecotourism accreditation are required to ensure that customers have access to well planned interpretation, accurate information and trained staff that have an understanding of nature and conservation issues (ibid). The recent development of a related accreditation system for nature guides (Crabtree and Black 2000) initiated by the Ecotourism Association of Australia is a further step to facilitate improvement of the standard of interpretation in nature-based tours in this country.

There is some evidence that interpretation associated with wildlife viewing can result in more positive attitudes towards wildlife conservation, in terms of generating increased support for conservation of target species and wildlife in general (reviewed by Moscardo et al. 2001). Two Australian studies of visitors’ responses to interpretation provided in relation to sea turtles at Mon Repos have shown that it resulted in attitudes indicating increased support for conservation of these turtles (Howard 1999, Tisdell and Wilson 2001). Some visitors to Phillip Island Penguin Reserve volunteer to assist with the Reserve’s research or rehabilitation programs after having learnt about these programs during their visit (R. Leivers, pers. comm.). Research on the effectiveness of different approaches to wildlife interpretation has, however, been restricted mainly to captive settings (reviewed by Woods 1998). Some of the factors that influence effectiveness in communicating a conservation message are known, though there is a conspicuous lack of knowledge of these in the context of free-ranging animals. Further, it is not known to what extent wildlife tourism in Australia – even if restricted to captive settings – is effective in this respect. While tourism operators often believe that they are having a positive effect on conservation attitudes and behaviour (e.g. Duff 1993, Spanner 1996), there is little scientific evidence to either support or refute this. Research in the Wet Tropics indicates that many visitors wish to find out about conservation issues, including what they can do to assist and that information
supplied does not seem to fully address those desires (Moscardo 1998). A number of key informants interviewed by Moscardo et al. (2001) felt that the quantity and quality of wildlife interpretation available in Australia needed to be increased, and this is also the authors' impression after having visited many wildlife tourism sites.

Those conservation agency informants we interviewed who had been directly involved in wildlife tourism recounted heartfelt anecdotes about cases where tourists' attitudes to wildlife and conservation (or even behaviour) had been positively affected by their guided wildlife tourism experience. However they generally felt this occurs only where good quality interpretation was provided. Generally they felt that the transmission of conservation messages as part of wildlife tourism is relatively poor and therefore the educational benefits are not being well realised.

6.2 Conclusions and Recommendations

Wildlife tourism in Australia is widely thought to have a substantial positive influence on visitor attitudes to conservation and thus to indirectly influence conservation outcomes in a positive way. However this belief has not been validated by research, and there is some evidence that the quantity and quality of interpretation within Australian wildlife tourism may be lacking:

- If education through wildlife tourism is to influence significant numbers of Australians, the focus in development and improvement of interpretation needs to be in zoos and with respect to interpretation available to independent travelers in protected areas.

- Research is needed to determine how best to positively influence visitor attitudes and behaviour regarding wildlife and conservation through various forms of wildlife tourism, especially in free-ranging wildlife viewing situations.

- The quantity and quality (in terms of both content and delivery) of wildlife interpretation available in various forms of wildlife tourism should be systematically assessed and any shortcomings addressed through provision of information and training.
The preceding sections have considered each type of potential positive effect of wildlife tourism on wildlife separately. But what can we say about the overall extent to which wildlife tourism enterprises make positive contributions to wildlife conservation or welfare? Unfortunately there have been no systematic independent evaluations of this for wildlife or nature-based tourism in Australia, and assessments are limited to presentations of anecdotally-reported case studies in which tourism has been reported to result in net conservation benefits (e.g. Box 4).

Box 4: Australian Case studies where conservation benefits have been reported for wildlife tourism
(as reported by Harris and Leiper 199514)

<table>
<thead>
<tr>
<th>EARTH SANCTUARIES</th>
</tr>
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<tbody>
<tr>
<td>One of Earth Sanctuaries Ltd main objectives is to increase biodiversity on its land. This is achieved by acquiring land, excluding exotic species to allow native species to flourish, and then re-introducing those natives that are threatened with extinction. At Yookamurra Sanctuary, 6 million plants have survived since rabbits were eradicated three years earlier and numbats have been successfully re-introduced. The Environmental Education Centre funds day-to-day running costs and reasonable returns to investors while educating visitors and the community about the environment and conservation-related issues.</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>PHILLIP ISLAND PENGUIN PARADE</th>
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<tbody>
<tr>
<td>The major benefit to conservation by the Phillip Island Penguin Parade relates to the increased protection and habitat quality for the penguin populations and the ongoing research that is undertaken on the Little Penguins by staff and researchers. As a result of habitat restoration, boardwalk construction, extensive revegetation and predator control programs, there has been a significant increase in the number of penguin breeding pairs. The operation is estimated to inject $50 million into the Victorian economy and has attracted a contribution of $150,000 for three years from ESSO and BHP Community Trust for research into penguin feeding and biology.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DISCOVERY ECOTOURS</th>
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<tbody>
<tr>
<td>Discovery Ecotours promote and directly support financial contributions and research for the conservation of the environment and provide opportunities for visitors to learn and enjoy wildlife and the natural and cultural environment.</td>
</tr>
</tbody>
</table>

14 Note that updated information has been provided on the first two cases elsewhere in this report.
Our content analysis of promotional brochures provides a more systematic assessment, although it is not independent since the operators themselves have described their contributions. Only 14.4% (55 out of 381) of Australian wildlife tourism operators state in their brochures that they contribute to conservation in some way, and only four mention contributions to animal welfare such as involvement in wildlife rehabilitation (Table 1). The type of contribution that is reported by the greatest number of operators is involvement in conservation-related research, followed closely by financial contributions, wildlife management and education. However we are aware of at least another 15 operators who do make contributions to conservation even though they do not advertise this fact, and there are probably many more.

Table 1: Breakdown of types of contributions to conservation claimed by wildlife tourism operators in their advertising brochures (n=55).

<table>
<thead>
<tr>
<th>TYPE</th>
<th>DEFINITION</th>
<th>OPERATORS (%)</th>
<th>EXAMPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial</td>
<td>Operator donates % of profits towards conservation or provides facility for patrons to make donations.</td>
<td>33%</td>
<td>‘A portion of your ticket cost is donated to the Queensland Museum for ongoing whale research’. ‘Funds from photo session with pythons go directly towards snake conservation.’</td>
</tr>
<tr>
<td>Education</td>
<td>Provides education about conservation related issues.</td>
<td>27%</td>
<td>‘Information on the conservation of these species and of wildlife and nature generally, is provided during the tour by trained volunteer guides.’</td>
</tr>
<tr>
<td>Research</td>
<td>Conducts research on wildlife or other aspects of the natural environment.</td>
<td>40%</td>
<td>‘Opportunity to assist with onboard whale and dolphin research.’</td>
</tr>
<tr>
<td>Wildlife Management</td>
<td>Breeds native wildlife in captivity, reintroduces native wildlife back into the environment, controls feral animals or rehabilitates and/or rescues native wildlife.</td>
<td>31%</td>
<td>‘Elimination of feral animals and the reintroduction of endangered species.’</td>
</tr>
</tbody>
</table>
As reviewed in this report, there is substantial anecdotal evidence that some wildlife or nature-based tourism enterprises and activities provide benefits to wildlife in Australia, through a wide range of mechanisms. It is impossible to quantify the magnitude of these benefits, although we can make some general statements about their likely significance and potential for enhancement.

There is a very wide range of mechanisms for channeling funds generated by wildlife tourism into conservation. These include compulsory government charges and voluntary contributions. It appears that financial contributions in relation to nature-based tourism in protected areas (based principally on government charges) are generally smaller than the costs of management of those areas, and probably also insufficient to offset negative impacts caused by visitors. While there are valid arguments against the wholesale application of the user-pays principle, it appears that there are a number of ways in which governments could obtain more of their funding for protected areas and wildlife management from users. In the context of protected areas, these may never be likely to be sufficient to lead to net conservation gains of themselves, but there may be opportunities for net gains in relation to viewing of particular popular wildlife species and consumptive use of wildlife.

<table>
<thead>
<tr>
<th>TYPE</th>
<th>DEFINITION</th>
<th>OPERATORS (%)</th>
<th>EXAMPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Habitat Management</td>
<td>Establishes new habitat protection reserves or improves existing habitat through revegetation, etc.</td>
<td>18%</td>
<td>‘Wetland preserves have been established to encourage the return of native species to the area.’</td>
</tr>
<tr>
<td>Monitoring</td>
<td>Monitoring of native wildlife.</td>
<td>9%</td>
<td>‘Assist in the CALM turtle nesting monitoring program on the top of Dirk Hartog Island, Shark Bay.’</td>
</tr>
<tr>
<td>Organisation Member</td>
<td>Operator is a member or affiliate of a conservation-related organisation.</td>
<td>2%</td>
<td>‘Partners with the Wet Tropics Management Authority in the goal of rainforest conservation and management.’</td>
</tr>
</tbody>
</table>

Note that many operators contribute in more than one way, so figures do not sum to 100%
On the other hand, and perhaps more importantly, the existence of tourism based on wildlife (and other aspects of the natural environment) may assist in ensuring that areas are protected and managed for conservation purposes. Although in a developed country like Australia some may argue that acquisition and maintenance of protected areas should not be dependent on economic benefits, the political reality appears to be that this has been and will continue to be a motivating factor in some cases. Thus sustainable growth of wildlife tourism may be one force that can be used to help in protection of land (and water bodies) for conservation in Australia.

Net financial contributions to conservation by wildlife tourism operators or tourists involved in wildlife tourism outside of protected areas appear to be relatively small in Australia, although it is possible that benefits from hunting and fishing licences are significant. Conservation benefits from a number of high profile wildlife attractions appear to be substantial, though it is difficult to balance these against the (again unquantified) costs. It is possible that there is scope for substantial additional revenue for conservation from development of further attractions. There also appears to be more scope for achieving funding for conservation through various forms of donations.

The potential for supporting populations of threatened species in their natural habitats via income from tourism is controversial because of the need to protect such populations from any possible negative impacts. The Department of Conservation and Land Management in Western Australia is unusually proactive among Australian conservation agencies in this regard. Through the Western Shield predator control program (CALM 1999), the Department has successfully translocated a number of mammal species that were previously extinct on the mainland to parts of their former mainland range. Tourism associated with these species is now seen as having the potential to raise revenue to further assist in conservation, and to raise public awareness and support for the program (D. Moncrieff, pers. comm.). Some other State conservation agencies have also expressed cautious interest in developing carefully managed ecotourism in conjunction with species reintroduction programs.

The economic incentive provided by development of wildlife tourism on private land in principle provides one of the strongest mechanisms
linking wildlife tourism to conservation benefits. This appears to have had a minimal role in land-use decision-making in Australia to date, but may have considerable potential in the future if tourism based on free-ranging wildlife becomes a significant growth area. However in Australia there are no formal economic incentives to promote shifts from agriculture towards nature-based tourism and it remains difficult for landowners to obtain the information and advice they need to decide whether such a shift is a financially viable option. It is important that such developments are informed by research into the nature of demand for such enterprises and appropriate business planning practices. Governments need to balance development of mechanisms for encouraging such developments with suitable cautions and support for landowners contemplating such a transition.

In Australia, practical contributions of operators and tourists to wildlife conservation and research are widespread, apparently growing and sometimes of localised importance, although probably of relatively minor impact on conservation overall. In some cases they may be partially motivated by expected market gains. However generally there is still little formal incentive for operators to build such practical contributions into their operations, and there seems to be considerable scope for expansion with suitable incentives. Again this will be limited by commercial constraints, and there is a need to work with operators to find creative ways in which they can contribute with minimal costs in labour and finances.

Education provided during wildlife tourism is widely thought to be of major indirect benefit in terms of the support for conservation that it engenders, but the extent to which this actually occurs is unknown. It is vital to establish how important this mechanism is – potentially and in reality – and to determine what factors determine and currently limit its effectiveness. Such findings should be widely disseminated in appropriate forms.

The net effects of wildlife tourism on wildlife depend on the balance of positive and negative effects. In this report we have shown that it is not possible based on existing information to quantify the positive effects, either internationally or for Australia. Similarly, it is not possible to quantify the negative effects, although at this stage the signs are that any negative effects are probably of relatively small
magnitude and occur only at localised scales (Green and Higginbottom 2001). In fact, there appears to date to have been no comprehensive quantitative study anywhere in the world to determine the net impacts of wildlife or nature-based tourism, even for a particular region or sector (Green and Higginbottom 2000). This would be almost impossible to do since not only are the various effects difficult to quantify, but they operate in a number of different dimensions and cannot therefore be easily balanced against each other. Moreover, generalisations may be of limited usefulness, since the magnitude and nature of negative and positive effects of wildlife tourism on wildlife obviously vary widely from one situation to another. Negative effects depend particularly on factors such as the type of tourism activity, the regulatory environment, and the vulnerability of the habitats and animals subjected to disturbance (see Green and Higginbottom 2001). Positive effects depend on factors such as the conservation ethics of operators, the extent of perceived economic benefits of wildlife, and the quality of wildlife interpretation. Further, estimation of both negative and positive effects cannot be considered in isolation but should be compared with the effects of conceivable alternative uses of land or wildlife.

It is not surprising that given the above uncertainties, opinions about the net effects of Australian wildlife tourism on wildlife vary with the person's perspective. All but one of the conservation agency informants (most of whom work in the area of visitor services and management) stated that they believe there is an overwhelmingly positive net impact. The primary reason behind this view seemed to be the value of wildlife tourism in educating the public about conservation. On the other hand, a number of protected area staff with whom we have had informal conversations indicated that they perceive the net effect to be negative, and two of the conservation agency informants stated that perceptions on the direction of net effects of wildlife tourism would vary depending on who was asked within the agency. One also acknowledged that it is difficult to be sure about the net effects given the lack of available information on the magnitude of negative effects of wildlife tourism on wildlife. In general, a more systematic analysis of the current conservation benefits of wildlife tourism, and how these can best be facilitated, is needed, although we can probably never hope to obtain an accurate quantification of the net benefits or costs to conservation.
However, in the absence of more in depth research, some preliminary and tentative conclusions can be drawn from the above review:

1. Wildlife tourism in Australia provides benefits to wildlife through a number of mechanisms.

2. Nature-based (including wildlife) tourism in protected areas currently probably imposes net costs in terms of its direct impacts on the natural environment at the tourism sites concerned, since income to conservation agencies from tourism is probably insufficient to cover costs of management of these impacts. (However this is only true if we do not take into account its indirect economic benefits to the community, which through government revenue from other sources probably more than cover the costs of existing management.) These costs could be reduced by more effective imposition of user-pays systems to cover management costs, although there are a number of factors that mitigate against a substantial change in this direction.

3. The costs identified in 2 are at least partially offset, or perhaps even outweighed, by the incentive that nature-based tourism creates for retention and acquisition of protected areas.

4. Government-owned wildlife tourism attractions and activities in Australia currently provide significant financial input into conservation in a few instances, and there may be scope for the overall input to be substantially increased. However wildlife tourism attractions appear to be relatively high-risk ventures in financial terms and such developments should be approached with caution.

5. Wildlife tourism appears to have led to some small-scale shifts towards more conservation-oriented land-use and wildlife management practices outside of protected areas, but there may be opportunities for more such initiatives.

6. Wildlife tourism is associated with significant practical contributions to conservation that can be further enhanced, although it is not likely that these will have a large overall impact.
7. The magnitude of benefits to wildlife associated with education provided as part of wildlife tourism is unknown. If it can be demonstrated that these can have a major effect, and if education can be designed accordingly, then this may be a way in which wildlife tourism can have a major positive influence on conservation.

8. The nature and magnitude of costs and benefits of wildlife tourism to wildlife will vary according to a number of factors. The most rational approach to future development of wildlife tourism is probably to assess these for each situation, and plan accordingly. The success of these plans will depend largely on our understanding of the effects of these factors: hence the vital need for research.

9. Overall, it seems likely that wildlife tourism in Australia probably has a small net positive effect on conservation at present, although this cannot be concluded with any certainty.

10. A more definite and perhaps more important conclusion in terms of future developments is that there appears to be substantial opportunity to enhance these benefits.

So what does this mean for the development of wildlife tourism in Australia? Can it be justified on conservation grounds alone? In the face of the above uncertainties, the safe answer at this stage is probably 'no'. However, further research may reveal that it can in fact be justified on such grounds, as long as it is designed in such a way as to ensure these benefits occur. Further, it seems that particular types of wildlife tourism developments or activities probably do lead to net conservation gains (e.g. conservation holidays, carefully managed high-yield attractions based on suitable populations, mechanisms for promoting wildlife viewing on private land) and these should be encouraged.
A strategic approach to maximising the conservation benefits arising from wildlife tourism requires considering the different types of benefits simultaneously and within a holistic framework. Ideally this approach should involve a wide range of tourism and conservation stakeholders, cover the full scope of wildlife tourism (integrated where appropriate with other aspects of nature-based tourism) and should be nationally coordinated. Conservation impacts need to be considered in tandem with economic and social impacts.

There is a move towards greater communication between tourism and conservation stakeholders internationally and in Australia, based on recognition of shared goals of conservation and sustainable development. However, there appear to be two key obstacles currently limiting the effectiveness of wildlife tourism in contributing to conservation of wildlife in Australia. Firstly, formal linkages between nature-based tourism and conservation are weak, as has also been pointed out by a number of reports such as State ecotourism strategies: there is a need for the rhetoric to be better supported by concrete mechanisms. Secondly, there is a lack of understanding (based on research) of how to maximise net positive effects of wildlife tourism, particularly in relation to education. Thus government policy making and research are essential components of any effective wildlife tourism strategy.

Governments internationally are increasingly demonstrating a belief that wildlife viewing has significant potential to raise revenue and support for conservation (among other benefits). In North America, two initiatives; the Watchable Wildlife Program and the Teaming with Wildlife Campaign are a reflection of this conviction.

The US Watchable Wildlife Program, initiated in 1990, aims to ‘help maintain populations of all native animal species by building effective, well-informed public support for conservation’ (National Park Service 2001) through developing and publicising opportunities for wildlife viewing, providing associated education and encouraging associated sustainable economic development (Watchable Wildlife Incorporated 68).
2001). It is based on a Memorandum of Understanding between government agencies and non-government conservation agencies. Watchable Wildlife Incorporated was set up in 1999 as a non-profit organisation in conjunction with this Program, and aiming to advance wildlife viewing as a viable economic and conservation enterprise for communities throughout Canada, the US and Mexico. The Program is based on the idea that appropriate development of wildlife viewing opportunities will provide educational benefits, raise levels of public support for wildlife conservation, and provide economic incentives for wildlife conservation initiatives such as preservation of natural areas.

The US 'Teaming with Wildlife' Campaign (see also section 3.2.2) originated in the late 1980s and is now supported by a coalition of 3,000 organisations and businesses (led by a non-government conservation organisation and with strong involvement from State conservation agencies) (International Association of Fish and Wildlife Agencies 2000). The Campaign aims to prevent species from becoming endangered and to nurture a new generation of wildlife stewards by securing funding for non-game wildlife conservation and related education and recreation programs. Secondary stated goals are to help meet escalating demands for outdoor recreation and education, and to assure an economic future for nature tourism and the outdoor industry.

While these programs have facilitated development of new wildlife viewing sites and interpretative material, it is not clear at this stage to what extent they are achieving their intended conservation benefits. The programs do however provide important models for Australia that merit further investigation.

One feature of the above programs is that they deal only with wildlife viewing based on free-ranging animals. As mentioned earlier, zoo organisations have also become proactive in involving themselves in conservation initiatives. This report has not dealt in any detail with the nature and effectiveness of these contributions in Australia: a systematic assessment of this is the subject of another CRC project in progress by Andrew Tribe. Hunting and fishing have also been covered in only a limited way in this report, but there are some moves by Australian hunting organisations to further develop and promote their involvement in conservation. We believe there are opportunities
for collaboration between people involved in these different forms of wildlife tourism to jointly enhance the conservation benefits of wildlife tourism. This is particularly the case given the growing lack of clear distinction between captive and free-ranging sectors (see Higginbottom et al. 2001). The issue of a strategic approach to sustainable development and management of wildlife tourism in Australia is considered further in Higginbottom et al. (2001).
9. RECOMMENDATIONS

9.1 Recommendations for Action

The following are seen as priorities for steps that can be taken at this stage to enhance the positive effects of wildlife tourism on wildlife in Australia:

1. Government agencies, conservation NGOs and tourism industry bodies should work together to strategically develop mechanisms for enhancing links between wildlife tourism and conservation. The possibility of initiating a national strategy, perhaps based on adapting the US Watchable Wildlife Program, should be investigated. This may be integrated with other aspects of nature-based tourism, or occur within the framework of a strategy for sustainable development and management of wildlife tourism.

2. Governments should make greater use of economic instruments to promote conservation in association with wildlife tourism, balanced appropriately with consideration of social equity objectives. This should include (a) greater adoption of the user pays principle, with charges appropriating the full market value of natural resources where possible; (b) return of a greater proportion of tourism revenue for management of the natural areas concerned; and (c) investigation of the possibility of raising entrance charges to high quality, high profile wildlife tourism attractions.

3. Governments (and the public) need to recognise the substantial economic gains to Australian society resulting from tourism based on nature, including wildlife, and thus increase their levels of funding for protected areas. If this were done, the net conservation impact of nature-based tourism in such areas might well be positive (but see research priority 1 below).

4. At the same time, governments should continue to recognise wildlife conservation as a public good and invest in it accordingly, irrespective of financial benefits relating to tourism.
5. Opportunities for development of additional high quality, high yield attractions based on wildlife should be investigated as a way to generate revenue for conservation. These investigations must simultaneously consider any likely negative environmental impacts of such attractions and the costs of their mitigation.

6. Opportunities for increased economic value adding at protected areas and government-run wildlife tourism attractions should be explored by government conservation agencies. This must be done in a sensitive way that does not detract from the natural character of such attractions. Considerations relating to National Competition Policy may also apply.

7. Wildlife tourism operators should be encouraged by suitable government incentives to donate funds for conservation purposes and to promote this in their marketing.

8. Wildlife tourism operators should be encouraged by suitable government incentives to engage in appropriate forms of conservation management, monitoring and research; and to promote this in their marketing. There is a need to creatively examine ways in which operators can make these contributions within their financial and time constraints.

9. Mechanisms for encouraging tourists to make donations to conservation should be further developed.

10. Governments should encourage and support organisations that use tourists as volunteers in conservation programs, as this is a cost-effective way of providing labour for such activities.

11. Governments should encourage and support wildlife tourism attractions becoming actively involved in research on their target species.

12. While governments should encourage shifts from traditional agriculture to wildlife or nature based tourism on private land in cases where this is economically viable, there is a need to be vigilant in the longer term about habitat modifications that may favour species of tourism interest to the detriment of others.
9.2 Recommendations for Research Priorities

The following are seen as the priority research questions that need to be answered to determine how to most effectively enhance the positive effects of wildlife tourism on wildlife and to help argue for appropriate support from governments and other stakeholders:

1. What is the economic value of wildlife to tourism in Australia, both overall and in terms of wildlife tourism? (If such a value were found to be high, this would assist in providing an incentive for the conservation of wildlife resources.)

2. If a wildlife tourism operator makes contributions to conservation, will this assist in attracting additional or higher paying visitors, and if so under what circumstances?

3. To what extent do wildlife tourists and operators currently make practical contributions and voluntary financial contributions to conservation, and what factors are constraining such contributions? What are practical ways in which contributions can be facilitated?

4. How can a landowner best determine whether a shift from traditional land-uses to nature-based or wildlife tourism will be of financial benefit, and what are the existing mechanisms and constraints on such development?

5. How does wildlife tourism affect public attitudes towards conservation, how does this translate into actual conservation impacts, and how should wildlife tourism and associated interpretation be designed to optimise these effects? To what extent does wildlife tourism currently achieve this?
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Do you know of any examples where ......(as below); if so provide details:

1. Change in or maintenance of land use to one consistent with conservation occurred because of, or partially because of, incentive (economic or social) provided by wildlife tourism
   - creation of protected area by government
   - creation of hunting reserves
   - creation of other conserved areas by community group
   - private landowners change land-use
   - private landowners change management of wildlife e.g. pest control to allow numbers to grow.

2. Active management of natural areas (public or private) or wildlife to benefit wildlife tourism
   - protected areas or private lands (including game reserves for hunting)
   - positive and negative conservation impacts (especially wildlife feeding).

3. Voluntary financial contribution of operators or tourists to conservation.

4. Practical contributions of wildlife tourism to research and conservation
   - organisations in which tourists do conservation or research work
   - organisations who do monitoring or management
   - organisations who do research.

5. Increased or decreased support by local people for areas managed for conservation because of impacts of wildlife tourism e.g. by role model, economic benefits to locals.

6. Describe interpretation facilities, staff, activities and policies relating to wildlife in protected areas, provided by conservation agencies – (very brief statement)

   Opinion of effectiveness of this and interpretation by private operators in terms of promoting:
   - more responsible behaviour towards wildlife/ environment
   - subsequent involvement in wildlife conservation or research
   - subsequent political pressure on government for conservation.

7. Perceived net conservation impacts of wildlife tourism.
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Other reports in the wildlife tourism report series are listed below and can be ordered from the Cooperative Research Centre for Sustainable Tourism online bookshop:


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Wildlife Tourism Report Series, Editor: Dr Karen Higginbottom

This series presents research findings from projects within the Wildlife Tourism Subprogram of the CRC. The Subprogram aims to provide strategic knowledge to facilitate the sustainable development of wildlife tourism in Australia.

Status Assessment of Australian Wildlife Tourism, Editorial Team: Dr Karen Higginbottom, Ms Kelley Rann, A/Prof Derrin Davis

This report is one in a series comprising a status assessment of wildlife tourism in Australia. It comprises the initial stages of research undertaken by the Wildlife Tourism Subprogram of the CRC. Reports in this series cover various disciplinary perspectives (visitors, economics, hosts, wildlife management) as well as various subsectors (such as zoos, bird watching and hunting). Together, the reports identify the current status and key issues facing Australian wildlife tourism, and make recommendations to enhance its sustainability.

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