



# Case Studies in Ecotourism

Ralf Buckley



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# Foreword

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Promoting the dissemination and exchange of ecotourism best practices throughout the world was one of the objectives set out by the World Tourism Organization (WTO) for the International Year of Ecotourism, 2002. A compilation of 55 case studies of sustainable ecotourism projects from 34 countries – examined in detail from the environmental, economic and social sustainability points of view – was published by WTO in May 2002.

Significantly more than in the conventional mass-tourism sector – where multinational hotel companies and tour operators act as vehicles for the transfer of know-how and technologies – the exchange of experiences in ecotourism needs to be encouraged by international organizations and publications such as the present volume, edited by a knowledgeable international expert in ecotourism matters.

Ecotourism companies and operations are generally of small size, and they should continue to be so if benefits are to remain with local communities and revert to conservation purposes. Indeed, the sustainable growth of ecotourism should be based on the replication of good practice in more and more territories, rather than on aggregating existing businesses or expanding their size. There are excellent examples of innovative technological or management solutions that have been developed by small companies, while other ecotourism ventures have failed because they lacked the very same knowledge available elsewhere.

Of course, the need to adapt solutions to the specific environmental and sociocultural conditions prevailing in each country should not be neglected. It is, therefore, necessary for tourism managers and other ecotourism stakeholders to use their wisdom and draw the relevant lessons from the

examples contained in this and similar books, and then find out the appropriate solution for their own project.

Eugenio Yunis  
Chief, Sustainable Development of Tourism  
World Tourism Organization  
September 2002

# Foreword

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Looking back at the International Year of Ecotourism (IYE), I am glad to see that we have some results to show, such as this book that I have the pleasure of introducing. For the first time, the *Quebec Declaration on Ecotourism*, a United Nations (UN)-level document, lists the elements of its definition. According to this document, ecotourism is sustainable tourism that:

- contributes actively to the conservation of natural and cultural heritage;
- includes local and indigenous communities in its planning, development and operation and contributes to their well-being;
- interprets the natural and cultural heritage of the destination for visitors;
- lends itself better to independent travellers, as well as to organized tours for small groups.

Ecotourism has definitely put down roots as a political concept: over 132 countries attended the World Ecotourism Summit in May 2002, with 45 ministerial-level participants. More than 5000 practitioners were involved in its preparations and follow-up. Activities around the IYE resulted in a much stronger global network of practitioners.

The cases examined have shown that, under suitable conditions, ecotourism helps conserve biodiversity, helps alleviate poverty in rural areas and can benefit groups of stakeholders such as traditional communities living near or in officially protected areas, as well as indigenous people and women. International aid for developing countries is critically restricted, and a market-based tool such as ecotourism can provide protected-area managers with needed financial resources and social and political support. Under the right circumstances, it can have less impact than other economic alternatives, such as indiscriminate logging, destructive fishing or slash-and-burn and monocultural agriculture. On the other hand, it also became painfully

clear that ‘greenwashing’ exists and that ecotourism has been and is being misused as a front to defend the interests of powerful minorities.

Moreover, the benefits of ecotourism for conservation and development are still very limited globally. The main challenge ahead is to scale it up while keeping its objectives close to heart, by sharing the lessons learned and applying them to all forms of tourism – one of the objectives of this book. If tourism is one of the biggest industries in the world, with almost \$500 billion in international receipts per year, it has to become an essential tool in the challenge to overcome biodiversity losses and eradicate poverty, and ecotourism can be part of the answer.

For the benefits of ecotourism to be globally relevant, we need to change the way tourism operates today. We need a combination of voluntary and regulatory policy tools, supported by efficient public–private partnerships. The platform for this change is set by documents such as the Plan of Implementation of the World Summit on Sustainable Development, which took place in Johannesburg in 2002. This Plan dedicates a full paragraph to sustainable tourism and ecotourism and links it to energy conservation and renewable energies and to the conservation of biodiversity, highlighting the role it has to play in small island developing states and in Africa. Other major international guidelines are WTO’s *Global Code of Ethics for Tourism*, the *CBD Guidelines on Sustainable Tourism in Vulnerable Ecosystems* and the *Quebec Declaration on Ecotourism*.

The lessons learned in 2002 need to reach well beyond the IYE in time, space and range of travel niches. I congratulate the author of this book, and look forward to continuing the campaign for sustainable tourism.

Oliver Hillel  
Tourism Programme Coordinator  
United Nations Environment Programme  
September 2002

## About this Book

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This book is simply a collection of case studies from around the world that either exemplify ecotourism in action, illustrate some aspect of ecotourism or test the concept of ecotourism. Some of these places and businesses I have visited myself; some are described in relatively reliable publications; and others were recommended by colleagues, especially members of the Advisory Board of the International Centre for Ecotourism Research.

There are many more case studies that I investigated but did not include. These were not necessarily better or worse. In most cases I simply had no reliable information. Others were so similar to these examples that little would be gained from including them also.

So this book is not intended as a world's-best list or even an endorsement of the products presented. It does indeed contain some outstanding examples of ecotourism, the best I have encountered in a decade and more of research. But it also includes examples which look good on paper, but which I have not been able to check out in person. And it includes cases where steps have been taken to reduce impacts, but which by their nature are perhaps beyond the generally accepted bounds of ecotourism.

The presentations differ greatly in detail and length. Some have more to write about than others, and some have been studied in more detail so there is more to say. Some of the case studies presented here have been written up extensively in published literature, others not at all. Since most of these projects are rather dynamic, recent information sources have been used as far as possible. Only recent journal articles have been cited unless earlier ones contain additional information that still seems current, and where possible, basic statistical information is drawn from current project websites.

The case studies are grouped first by continent, and then by the type of operation: private reserves, community projects, private tours and lodges



and public enterprises. The cases that I have audited myself are indicated by an asterisk. They have been assessed more critically than those where I report information from other publications or websites. Details that may attract attention or criticism in my own audits are unlikely to be reported in descriptive or promotional materials.

The continents are not equally sampled or represented. This reflects both information available and marketing history. Australia uses the term ecotourism extensively and markets it aggressively. Case studies are easy to find. Both public and private enterprises in other continents may perform equally well or better but are not marketed so aggressively and may not be described as ecotourism. In North America and Europe in particular, there are other terms with a longer history. Many operations in sub-Saharan Africa followed ecotourism principles long before the term was invented, but have only recently adopted the name.

These shortcomings could be overcome by further research. That takes time, however, and in the meanwhile the existing case studies would become outdated. This compilation seems to be considerably more comprehensive than any previous set of case studies, and I trust it will be valuable accordingly.

It has proved a far larger labour than I ever anticipated. When I started this book several years ago, there were few published case studies in ecotourism and I thought it would be a straightforward task to compile them. By 2002, however, most of those assembled over previous years had been discarded and replaced. Lacking the time or opportunity to audit them all myself, I had to rely on recommendations and critiques from reputable sources: more journalism than science. Future editions will need multiple authors.

Despite these shortcomings, this does seem to be a reasonably representative sample of case studies in ecotourism from around the world: not perfect, not complete, not a statistically valid sample, but adequate none the less to draw some general conclusions about ecotourism in practice up to 2002, the International Year of Ecotourism.

My thanks to colleagues who have contributed expertise; research assistants who have combed the literature on my behalf; and tour operators and others who have sponsored my research.

Further information on any of these case studies will be very welcome, whether from personal experience or published materials. Suggestions for additional case studies that deserve consideration for future editions of this book are equally welcome. Please contact the author directly at the International Centre for Ecotourism Research, Griffith University, Gold Coast, Australia, or by e-mail at [R.Buckley@mailbox.gu.edu.au](mailto:R.Buckley@mailbox.gu.edu.au)

# Acknowledgements

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The case studies presented here, and many more which are not, have been compiled over a number of years. In particular, some were drawn to my attention by Michael Sommer and have been reported previously, by Buckley and Sommer (2001). My recent literature and web searches were assisted by Elizabeth Clough, Joanne Carmody and Karen Sullivan. My thanks also to the many colleagues in universities, government, industry associations and non-government organizations with whom I have discussed aspects of ecotourism at innumerable conferences and elsewhere; and also to my many colleagues who run ecotourism businesses or work as ecotourism guides and who constantly contribute to the development of ecotourism through new ideas and practical applications.

All of the field audits described in this book were initially carried out in an unobtrusive manner: either as a normal commercial client; or as a volunteer member of staff, e.g. safety kayaker on rafting expeditions; or as a friend or personal associate of an individual guide. For the latter two categories, costs were commonly discounted. To obtain detailed information on environmental management, not always apparent from a customer perspective, I cited my broad research interests in ecotourism or referred to other projects current at the time. Indeed, when these initial audits were conducted, this book had not yet been conceived or commissioned. In one or two cases, however, I made return visits, either to inspect additional facilities, to interview additional staff or to observe operations during different weather conditions, specifically for this book. These repeat visits were commonly sponsored by the organizations concerned. In particular, I should like to acknowledge sponsorship from: Conservation Corporation Africa, Canadian Mountain Holidays, Explorer Shipping, Aurora Expeditions,

Natural Habitat Adventures, Sabi Sabi Private Game Reserve, Daintree Ecolodge, Silky Oaks Lodge and Quicksilver Connections.

I am greatly obliged for sponsorship in all these categories, without which this book would not have been possible. It goes without saying that comments made on any individual case study, whether positive or negative, are not influenced by the source of support used for the audit. Tour operators subjected to audit were not selected at random or opportunistically, but because of their prior reputation as leaders in their sector and geographical region, particularly in regard to minimal-impact environmental management. In addition, either as a commercial client or a sponsored guest, I have also audited many other tourism operations that are marketed as ecotourism but have not been included in this book.

I should also like to acknowledge particular assistance from: Les Carlisle from Conservation Corporation Africa; Annetjie van der Vyver of Wilderness Safaris; Catherine Raphaely, Caroline Grayburn and Super Sande at Jack's Camp, Uncharted Africa Safaris; Justin Mitchell and Steve Tophan at Sabi Sabi Private Game Reserve; Paul Silcock Chitwa at Chitwa Lodge; Suzana Machado d'Oliveira from Explorer Shipping; Victoria Underwood from Abercrombie and Kent; Greg Mortimer, Margaret Werner and others at Aurora Expeditions; Chris Buykx and others at World Expeditions; Peter Winn at Earth Science Expeditions; Doug Baird at Quicksilver Connections; Tanya Price and Dave Butler at Canadian Mountain Holidays; Roddy Mackenzie at Himachal Helicopter Skiing; Shane McNally and his staff at Silky Oaks Lodge; and Therese Maloney, Phil Stowe and Zak Dragic at Daintree Ecolodge.

In addition, I should like to acknowledge assistance from members of the International Centre for Ecotourism Research (ICER)'s International Advisory Board, and particularly Oliver Hillel of the United Nations Environment Programme (UNEP) and Ron Mader of planeta.com, for advice on the selection or rejection of individual projects.

## **Aims, Scope and Focus**

The principal aim of this book is simply to identify and present a worldwide set of case studies that may serve as operational models of ecotourism or illustrate one or more of the criteria or components of ecotourism.

The criteria for tourism businesses to qualify as ecotourism (Buckley, 1994) are: a nature-based product or setting; active management to reduce environmental impacts; an environmental education component; and a direct or indirect contribution to conservation of the natural environment, which commonly requires close cooperation with and practical benefits for local communities.

The principal focus of this compilation is on the core attractions in specific ecotourism products, rather than the ancillary services, such as air transport and urban accommodation, which may be required to reach the core attraction and which may be packaged into a retail tourism product. The focus is on commercial ecotourism, i.e. products for which a competitive price is charged through a market distribution mechanism. This can include ecotour operations by non-profit organizations and public agencies, as long as they are comparable to privately owned products.

In particular, most commercial outdoor recreation in North America and Europe, though directly comparable to ecotourism ventures in other continents, has a long-standing history within the broader recreation sector, and has been described and analysed intensively under that rubric. Relatively few case studies, in consequence, have been taken from the USA, Canada and Western Europe. A few instances have been included where either: (i) they have been promoted as ecotourism; or (ii) they have particular

features, such as community ownership, which differentiate them from mainstream recreation management.

## **Case Study Approach**

At its most basic, a collection of case studies may be simply a convenient source of reference material. Under appropriate circumstances, however, a case study approach should be able to contribute more than simply data. Clearly, case studies can provide practical models to be copied if successful or avoided if not. They also provide a form of reality check, particularly useful in a field such as ecotourism, where rhetoric and recommendations abound and much of the literature refers more to potential than to practice. Perhaps most importantly, at least from an academic perspective, case studies provide a basis for analysis in any field where predictive theory is weak and testable hypotheses are wanting, including such complex areas of human social behaviour as ecotourism.

For example, with enough data we could potentially use case studies to examine such issues as:

- whether successful ecotourism ventures are necessarily small;
- whether small ecotourism operations comply more closely with the defining criteria for ecotourism;
- whether ecotourism necessarily paves the way for large-scale mainstream tourism development, particularly in and around protected areas;
- whether ecotourism development patterns are influenced more by local politics and society or by global tourism trends;
- whether ecotourism does in fact contribute effectively to conservation of the natural environment and, if so, to what degree and under what circumstances;
- whether the educational component of ecotourism reduces the local environmental and social impacts of ecotourists and, if so, to what degree;
- whether the educational component leads ecotourists to modify their subsequent lifestyles at all and, if so, what forms of education and interpretation are most effective;
- which factors are most significant in minimizing the environmental impacts of ecotourism: for example, technology, education, location or client selection.

Of course, the collection of case studies in this book cannot pretend to resolve all of these questions and, for many of them, an experimental approach would also be feasible. For some at least, however, these case studies may perhaps provide a starting-point.

The number of ecotourism ventures that are an unqualified success on all criteria is quite limited. Many have suffered from a range of difficulties, commonly not of their own making. And only some have survived. In using case studies to analyse the development of ecotourism, these difficulties and barriers may be as important as examples of unqualified success. In addition, there are many tourism operations that provide excellent models for particular aspects of ecotourism, even if they fall short in regard to other criteria. The case studies selected for this book attempt to span all of these categories.

A number of previous publications have presented case studies in ecotourism, with various degrees of breadth and rigour. During the decade leading up to the International Year of Ecotourism (IYE) in 2002, there was a very marked growth worldwide in the number of references to ecotourism in tour-company marketing materials, government tourism strategies and the academic literature. Ecotourism industry associations have grown both in number and in size, and ecotourism has received increasing attention and recognition from national and multilateral tourism, environmental, development and financial institutions, and also from both environmental and development non-government organizations (NGOs). During this decade, various authors and agencies have presented examples of ecotourism, both in the academic literature and in reports and promotional materials by government tourism portfolios and by tourism industry associations. Ecotourism has also received many mentions in business and general magazines (e.g. Foroohar, 2002; Piore, 2002).

In the early academic literature, a rather small number of instances were cited and cross-cited repeatedly and perhaps uncritically. There was also a well-intentioned but perhaps slightly naive attempt, carried out jointly by a government agency and an NGO in Australia, to produce a directory of ecotourism operations based solely on self-assessment by the companies concerned. A more reliable approach was taken by the International Ecotourism Society, which used independent authors to identify and illustrate examples of good practice in ecolodge design (Hawkins *et al.*, 1995). An early academic compilation was produced by Harris and Leiper (1995), who assembled contributions on 14 Australian case studies, nine of them private companies and five public protected areas. Few of these, however, were written by independent authors; the remainder were written by staff of the operations concerned. Also in Australia, as a follow-on from the *National Ecotourism Strategy* released in 1994, the federal government tourism portfolio published a set of so-called success stories (Australia, Department of Industry, Science and Tourism, 1996a,b), which included examples of ecotourism.

Internationally, case studies that exhibit at least some of the defining attributes of ecotourism have been summarized in NGO reports, such as the *Green Host Effect* by Conservation International (Sweeting *et al.*, 1999), and in various books on sustainable tourism more generally (e.g. Stabler,

1997; Hall and Lew, 1998; Swarbrooke, 1999). In addition, a number of operations previously put forward as examples of ecotourism were subjected to independent critiques by authors such as McLaren (1998) and Honey (1999). At the turn of the millennium, academic works by Weaver (1998, 2001) and Fennell (1999), though not based on a case studies approach, used a wide range of practical examples to illustrate particular issues in the analysis of ecotourism and its development.

In the final lead-up to the IYE in 2002, a series of reports was produced by the multilateral organizations jointly sponsoring IYE, namely the World Tourism Organization (WTO) and the United Nations Environment Programme (UNEP). These include two compilations of case studies by WTO in 2002. A consultant report on tourism and biodiversity (Ceballos-Lascurain, 2001) submitted to UNEP also contains a number of case studies in ecotourism. Finally, during the IYE itself, a series of international conferences gave further exposure to ecotourism ventures worldwide. I have scanned as many such publications as possible to identify potential case studies.

Some of the case studies in this book appear to meet all the major criteria for ecotourism and to provide particularly valuable models for the sector as a whole. Others provide examples either of a contribution to conservation, an effective environmental education programme or technology and management to minimize impacts. Others again indicate shortcomings associated with specific individual ecotourism enterprises, destinations or policies, with lessons to be learned in each case. Finally, some provide test cases of tourism operations that may or may not be considered as ecotourism. Indeed, one or two would not necessarily consider themselves even as part of the tourism sector. Others, and many more not included in this book, have marketed themselves extensively as ecotourism but with rather little justification. Broadly, the case studies are arranged by geographical region first and type of operation second: private reserves, community ventures, tours and lodges, etc.

Not surprisingly, my personal experience of individual ecotourism operations is heavily biased towards Australia. In addition, for historical reasons Australia has been particularly prolific in the production of government reports on ecotourism. This does not necessarily indicate that there is proportionately more ecotourism in Australia than elsewhere. More probably, it indicates simply that ecotourism operations in other continents have been known historically by different names, such as outfitters, safaris and lodges; and that ecotourism operations in Latin America and Asia are commonly advertised and analysed in languages other than English, so that only a small proportion are reflected in English-language texts. In any event, since this is an international compendium, I have tried to avoid an Australian bias. There are thus numerous ecotourism operations in Australia that do not appear in this book, even though I may have visited them.

A compilation of case studies such as this always involves compromises. It could, no doubt, contain a more comprehensive compendium of

cases and more complete and detailed information on each, but at the cost of being less timely overall and less up to date in individual cases. Even as this volume is in production, no doubt, new ecotourism enterprises will commence operation and some of those currently in existence will cease. Of course, these considerations apply to any attempt to analyse any aspect of current human society. As long as these deficiencies do not lead to a misleading picture overall, the effort is still worthwhile. In particular, even with the shortcomings of information as outlined above, a case study collection such as this can provide both: (i) a broad picture of the ecotourism sector and its achievements and failings worldwide; and (ii) a basis from which to identify leaders in the ecotourism sector, which can be used as models of good practice in their own countries or worldwide.

## Methods

This book cannot attempt to include every product advertised as ecotourism, every product included in ecotourism certification schemes, every operator licensed to conduct tours in protected areas or every product that falls within the overall scope of ecotourism criteria outlined earlier. For example, in Australia alone there are 242 companies and agencies with at least one product certified by the Nature and Ecotourism Accreditation Program and well over a thousand licensed to operate in parks.

To select a set of case studies for this book, therefore, we used two additional criteria. First, we searched for independent reports that provide information from observers who do not have any particular vested interest in promoting the products concerned; and secondly, we searched for models of good practice, either in reducing negative impacts or in enhancing positive contributions. For each of these, available information has been compiled from websites and published literature, including critiques and independent assessments as well as materials produced by the case study organization itself. Where possible, the reliability of such information has been assessed by considering its source and the degree to which it is corroborated by independent accounts – i.e. not merely cross-cited from the same original source.

Where possible and relevant, personal reports by individual clients or visitors for the case studies concerned have also been considered, recognizing that these are rarely by trained observers and that they are commonly somewhat idiosyncratic. Where opportunity allowed, I audited the case study operations myself, though recognizing that even an experienced auditor sees only a snapshot and that not all operators are equally open about their shortcomings as well as their strengths.

Finally, using information from all the above sources, I attempted to assess how well each of the case studies measures up against commonly applied criteria for ecotourism; how well each could act as a model for



ecotourism development and for the tourism sector more generally; and what general lessons can be learned for ecotourism practice and policy, from failures as well as successes.

To evaluate any ecotourism enterprise from published reports is an uncertain and perhaps unreliable endeavour. Published reports are written by people with very different expectations and comparative experience. Without on-site audits by the same person, it is difficult to assess whether claims are modest or boastful. Both published reports and personal experience are soon outdated and may not remain accurate. Circumstances may change rapidly as the businesses grow or fail, governments or their policies are replaced and tourist perceptions and preferences change. The same information is copied from one publication to another, sometimes originating from materials produced by the tour operator or project proponent. Evaluations by academic researchers will generally have a broader international context and are less likely to incorporate vested interests, but typically take place during short visits, in which it is difficult to be sure that an accurate and comprehensive picture is obtained. Practitioners with direct involvement in a particular project are perhaps more likely to be aware of its history, achievements and deficiencies over a longer period of time, but may have their own reasons either to promote or criticize a particular endeavour or to exaggerate or play down the role of specific individuals or organizations.

Many ecotourism enterprises are in relatively remote areas that are seldom subject to external scrutiny, and the majority of visitors are more concerned with enjoying their holidays than evaluating the enterprise that provides it. Especially in developing countries, many visitors may not be fluent in the local languages or dialects. In some areas, tour operators, their staff, local residents and land managers may communicate in a generally understood tongue, such as English, Spanish, Swahili or Bahasa, while staff communicate with each other and with local residents in another language entirely.

Even where there are none of these barriers and an ecotourism operation is under evaluation by an experienced auditor hired and assisted by the ecotourism operator itself, there is no guarantee that relevant information will be available or apparent. For example, many ecotourism operations consist of a central marketing and management unit and a number of local operating units, either wholly owned or under contract or franchise arrangements. In such cases an audit sanctioned by headquarters may be treated by branch operations either as an inquisition that may lead to them being criticized or compelled to change their operating practices, or as an opportunity to bid for funding from the company's central coffers. Of course, this applies for multi-level organizations in any sector, both public and private. An auditor automatically and inadvertently becomes a temporary part of the internal structure of the organization audited, a tool that individual people or components in the organization can use for their own

purposes. For example, in companies where all financial operations are centralized, profitable operating units may find it difficult to obtain funds to address environmental management issues that have been causing them concern for some time. They may therefore exaggerate such issues to an auditor as a means of bringing these issues to the attention of central management more forcefully. Alternatively, where individual units operate under contracts or internal management structures that make them responsible for environmental management of their own units, they are likely to play down any shortcomings in case they may be compelled to rectify them.

Even if none of the above apply, detailed environmental management information may be difficult to obtain simply because of staff turnover, lack of records or the pressures of day-to-day operations. For example, lodges in many parts of the world operate seasonally, with lodge managers and many of the staff taking up their positions only shortly before the season opens, their time being occupied entirely with the smooth day-to-day functioning of the lodge and the concerns of individual guests. Under such circumstances, lodge infrastructure and equipment do not engage their attention unless they break. So, if the sewage treatment system, for example, operates without breakdown meanwhile, after one or two seasons nobody on site may know where it runs or even how it works. So when a plumbing problem does eventuate, particularly one that may affect guests through unpleasant odours, staff on site may be compelled to adopt a short-term jury-rigged approach, initially on a temporary basis but often extended indefinitely. Even at the most environmentally concerned establishments, circumstances such as these may lead to situations that pose significant threats to health and safety as well as to the environment. For example, I have seen sewerage pipes connected into kitchen drains, insulated electrical cables laid over barnacle-covered rocks in the intertidal zone, and worse – but these were problems I found through systematic evaluation, not because staff on site were aware of them.

Unlike fixed-site facilities such as lodges, environmental management practices in tours, safaris and boat trips often rely to a large degree on conscientious operations by the lead guide. In these cases, therefore, an audit carried out openly may not get an accurate picture of routine operations, if the guides take greater care in front of the auditor than would otherwise be the case. There is a limit, however, to how many technical questions an auditor can ask without revealing a professional interest. In practice, the most successful audits seem to be a combination of unheralded observation and interested interrogation!

In this book, case studies I have been able to audit myself are differentiated with an asterisk on the heading. In general, these have been subjected to more detailed scrutiny than the remainder and I am more confident of the conclusions. Comments are also likely to be more critical, so case studies with an audit asterisk cannot be compared directly with those without.

As noted earlier, the next edition of this book will no doubt require multiple authors. I should therefore like to invite anyone with recent personal experience of any of these case studies, whether as an operator, a client or a researcher, to contact me with updated information at the address provided in the author's introduction. The same applies for anyone with information on additional case studies that merit inclusion in the next edition of this book.

## **\*Conservation Corporation Africa**

Conservation Corporation Africa (CCA) is a private corporation that operates over 20 game lodges and reserves in six African countries, including five lodges in South Africa (CCA, 2002). CCA has 2500 employees, supporting over 20,000 families. CCA was established in its current form in 1990, but many of the reserves have been operating for much longer. CCA describes its mission as: 'care of the land, care of the wildlife, care of the people'.

Londolozi is the oldest reserve in the CCA portfolio, first established in the 1920s. If there is an archetypal ecotourism venture, perhaps it is Londolozi. It is 140 km<sup>2</sup> in area and is part of the 560 km<sup>2</sup> Sabi Sands Private Reserve, which is contiguous with the publicly owned Kruger National Park, 20,000 km<sup>2</sup> in area. Londolozi Lodge is a member of the exclusive international Relais et Chateaux group and has won numerous tourism awards. Dedication as private game reserves has conserved areas such as Londolozi from clearance for agriculture. Operation as up-market private tourism destinations generates significantly more revenue than if they had simply been gazetted as additions to the park. CCA also supports field wildlife research by its rangers and outside agencies, and since 1999 it has published the *CCA Ecological Journal*. By using revenue from international visitors to employ local staff, Londolozi and other CCA properties can support more local families than would be possible through subsistence agriculture. The overall result is a highly successful partnership between tourism and conservation, including a major addition to the conservation estate.

CCA has established a community development fund, initially a wholly owned subsidiary called the Rural Investment Fund (RIF). The aims of the RIF (Christ, 1998) were:

to ensure that ecotourism activities were discussed and endorsed by the local communities, to raise funds and support local economic benefits through community development projects, and to illustrate how the private sector can address sustainable development in rural economies through carefully conceived and implemented nature based tourism enterprises.

During its initial operations, project funding for the RIF was obtained from donors, and operating costs of around US\$100,000 per annum were contributed by CCA (Christ, 1998). These operating costs included salaries for a director, a development manager, a regional manager, a community liaison officer and three field workers. Between 1991 and 1997, RIF raised over US\$1 million to fund development projects in communities adjacent to CCA lodges, principally in South Africa. The main focus of these projects has been on improving facilities for education and health care. Recently RIF has been broadened to incorporate support from the tourism industry throughout Africa and to provide assistance for their local communities. The restructured foundation has been renamed The Africa Fund.

As noted by Christ (1998), CCA 'strives to adhere to the principles of environmentally sustainable design in the building of its lodges and camps, and environmentally friendly management in its operations'. In addition,

whilst other large, private-sector corporations operating in the tourism industry have . . . taken action on the 'environmentally sensitive' side of the ecotourism equation, . . . Conservation Corporation Africa apparently remains the only large-scale private-sector tourism corporation of its size attempting to carry out effective local community planning and involvement as part of its operating mission.

As noted by Christ (1998), however, CCA's rapid expansion has not proceeded entirely without problems. For example, when CCA opened its Ngorongoro Crater Lodge, it was found that two of the room units extended beyond the legal boundary of the concession area, to the considerable displeasure of the conservation authority. More significant in ecological terms, construction crews installing power lines to two lodges on the Zambezi River near Victoria Falls in Zimbabwe apparently cut numerous trees, in violation of CCA's own principles (Christ, 1998). CCA itself was apparently not aware of this until the damage was done.

Similar difficulties and misunderstandings with subcontractors are commonly part of infrastructure, development and other projects in all industry sectors worldwide. It does, however, perhaps serve as a reminder that, as a small ecotourism company expands, the ability of its primary owners to control and oversee all aspects of its operations shrinks concomitantly. Large and very large corporations in other industry sectors, however, have been able to establish environmental management procedures that successfully apply to suppliers and subcontractors as well as company personnel, and there is no fundamental reason why this should not also be equally possible in the tourism sector.

In 2001, CCA started an internal audit of its social and environmental contributions and performance as a step towards triple-bottom-line reporting. The audit attempts to establish quantitative benchmarks from which to improve environmental management and boost positive contributions to communities and conservation.

Environmental management issues include: those associated with field activities, such as minimal-impact wildlife watching and off-road travel; those associated with lodge operations, such as power and water-supplies, waste and sewage treatment, materials consumption and recycling, etc.; those associated with the location, design and construction of lodges and, where appropriate, their relocation or decommissioning; and those associated with land management, such as steps to minimize interruptions to wildlife movement and migration. These issues are addressed independently at each of CCA's lodges and field operations as described for individual case studies below. The audit provides better information at corporate level.

The audit also allows CCA to quantify the various contributions it has made to conservation and communities throughout the countries in which it operates. For example, CCA maintains wildlife habitat by protecting significant areas of land from agricultural clearance through leases, co-management agreements or outright purchase. At some sites it also rehabilitates former agricultural land for conservation use. These sites contribute effectively to the conservation of numerous plant and animal species, some of which are endangered. This requires active management of fires, fences, feral animals and weeds at each site.

These approaches have also served as a model for other companies in southern, eastern and more recently, western Africa, as well as overseas, both through sharing ideas and through direct staff transfers. Wildlife relocation techniques developed by current CCA staff, for example, have been used extensively throughout sub-Saharan Africa (L. Carlisle, personal communication, 2001).

The same may also apply for community development models. CCA has attracted funds to conservation and community development from clients and other donors, and contributed to health and wealth for local communities through employment, entrepreneurial opportunities, education and medical facilities. Such approaches are now part of the routine rhetoric of community ecotourism worldwide, and have indeed been followed by other tourism operators in Africa and elsewhere, but CCA deserves credit for innovation and early adoption.

There are other tour operators in sub-Saharan Africa which compete directly with CCA and might well claim similar achievements, but which I have not yet had the opportunity to assess in such detail. From the many reviews and audits carried out for this volume, however, CCA stands out as a global model for what tourism can achieve for conservation and communities. Not only has it shown innovation and adaptability, but it has survived successfully for many years and operates on a relatively large scale.

### **\*Phinda Private Game Reserve, South Africa**

Phinda Private Game Reserve is a former cattle property near the Greater St Lucia Wetlands in the province of Maputaland, South Africa. In 1991 it was purchased freehold by CCA, which has built four game lodges on the property and operates it as a private conservation reserve funded by tourism. There are two main lodges, known as Forest and Mountain Lodge, and two smaller lodges used by private groups, Vlei and Rock Lodge. The reserve is 170 km<sup>2</sup> in area and, as it is surrounded by agricultural properties and community land, is necessarily fenced along its entire boundary by a high wire-mesh game fence, a major establishment expense. The Phinda Reserve has been restocked with a wide variety of game, and also provides habitat for a number of rare, endangered and locally endemic bird species. These include Neerland's sunbird and the lemon-breasted canary.

Phinda Forest Lodge is constructed in an area of sand forest, an unusual vegetation type of considerable conservation significance. The individual guest cabins are built right inside the forest, located so as to fit between the large trees. The forest floor and understorey and the trunks of the major canopy trees are directly visible through large picture windows, close enough for guests who might otherwise pay little attention to the minutiae of a forest ecosystem to be able to sit in comfort indoors and watch cryptic forest birds feeding, rain dripping from leaf tips and trickling down tree-trunks, insects walking on bark and even the small and elusive forest antelopes, such as red duiker, meandering past.

To minimize disturbance to the forest ecosystem during construction, all components of the guest cabins were carried in along the access pathways, and assembled by hand on site. Construction contracts, including individual employment agreements, incorporated penalties for damage to any of the larger forest trees or to any endangered species. No linear foundations were used. All reticulation was laid along pathways, and either threaded under roots or sleeved where it crossed roots. Bricks were made locally and local residents were trained as carpenters and bricklayers. The site was surveyed and all trees tagged. The main lounge, dining and kitchen buildings and a separate structure housing a swimming-pool are built at the edge of the forest overlooking a grassy flat. Sludge and grease traps are fitted to all kitchen drains and sinks.

There are three local communities adjacent to Phinda: Mduku, Mngobokazi and Nibela. CCA is a major employer for residents of these areas and, through the RIF, has assisted in the construction and operation of schools and health-care facilities. According to Christ (1998), the successful model of community involvement that CCA established at Phinda was used as a template for community involvement at other CCA developments, including Kichwa Tembo in southern Kenya, Mnemba Island off north-east Zanzibar and Klein's Camp near Serengeti National Park in Tanzania.

Conversion from agriculture to conservation and tourism at Phinda has generated economic, social and environmental benefits. The former farming properties employed 60 farm workers at a basic salary of ZAR720 (currently US\$70) per annum (L. Carlisle, personal communication, 2002). When it opened in 1991, Phinda employed 250 staff at an initial salary of ZAR4200 (US\$400) per annum and currently it employs 300 staff. Hence it generates about 30 times the salary income. Gross revenues from cattle farming were around ZAR150 (US\$15) per hectare per annum, whereas CCA's current operations on the same land produced gross revenues of ZAR1500 (US\$145) per hectare per annum, ten times more.

Phinda's contributions to conservation have been even more impressive. It has successfully reclaimed and rehabilitated 140 km<sup>2</sup> of critical plant and animal habitat. This includes seven distinct ecosystems, including the rare dry-sand forest. The Phinda Reserve also links wetland areas on its northern and southern borders. In cooperation with neighbouring properties, Phinda now forms part of the Mungawana Game Reserve, planned to expand to 300 km<sup>2</sup>.

Phinda has also been used as a model for the successful reintroduction of large cats. CCA reintroduced 15 cheetah at Phinda, and this population has thrived over the past decade. Twenty individuals remain on the Reserve, 20 have moved to neighbouring areas and over 40 have been relocated to other reserves in South Africa (L. Carlisle, personal communication, 2002). Similarly, Phinda's lion reintroduction model has been duplicated and adopted widely throughout South Africa (L. Carlisle, personal communication, 2002). Phinda was apparently also the first private game reserve to acquire a group of adult breeding elephants.

### **\*Sabi Sabi Game Reserve, South Africa**

Sabi Sabi is an 80 km<sup>2</sup> private game reserve in the Sabi Sands area adjacent to Kruger National Park. It was bought by its current owner, Mr Hilton Loon, in 1974. Mr Loon also owns the adjacent Mala Mala Reserve. Sabi Sabi had previously been used for grazing cattle. Lion and white rhino have been reintroduced and Sabi Sabi, along with other reserves in the Sabi Sands area, is a prime area for 'big five' game viewing. It currently has three operating lodges: Bush Lodge, Selati Lodge and Earth Lodge.

Sabi Sabi has around 130 employees, of whom over 100 are local Shangaan people, supporting a corresponding number of local families. It also supports various wildlife conservation groups, including the Endangered Wildlife Trust, which recently gave its Cheetah Award to Operations Director Michel Girardin. Sabi Sabi has also won a range of tourism awards.

As with other private reserves in the Sabi Sands area, the most significant overall contribution the Sabi Sabi tourism operation makes to conservation is to protect the area from clearance for settlement, agriculture



or grazing by cattle. It does so through a low-volume high-value tourism operation with low impacts.

At the largest of the three lodges, Bush Lodge, sewage flows under gravity feed to a three-chambered, 10 m<sup>3</sup> holding and separation tank. Solids and sludges remain in the tank and are pumped out periodically and taken out of the park area. Black water and grey water, totalling around 90 m<sup>3</sup> per day, are pumped into evaporation ponds, which overflow through a spillway of gabion bags into an artificial wetland. According to Sabi Sabi's environmental manager, concentrations of the intestinal bacterium *Escherichia coli* are around 80–100 cells per 100 ml at the spillway intake, but less than one per 100 ml at the outflow from the wetland area. The wetland area contains *Phragmites* reeds, *Typha* bulrushes and *Cyperus* sedges, and is used routinely by saddle-billed stork, a local endangered species. Since the wetland plant species are highly attractive to elephant, the area is surrounded by a three-cable 5-watt high-tension electric fence, though even this is not always successful in repelling them.

Glass and aluminium from Sabi Sabi Bush Lodge are collected and sold to a recycler in the nearby town of Nelspruit. Kitchen scraps are sold to a local Shangaan village, where they are used to feed pigs. Water is provided from a local bore, and electricity is supplied by a power line from outside the Sabi Sabi area. Sabi Sabi has 16 customized Landrover Defenders for wildlife viewing, and tractors and a small bulldozer for road maintenance. There is a workshop, a maintenance area, a road maintenance depot and a construction depot. Electricity is supplied to Selati and Earth Lodges by underground cables from Bush Lodge.

Sabi Sabi's former third lodge, River Lodge, was damaged irreparably during floods in the 1999/2000 season. Instead of replacing it directly, Sabi Sabi built a new facility, Earth Lodge, in a different area. Unlike the older lodges, which are focused entirely on game viewing and are modelled on traditional hunting lodges, Earth Lodge is deliberately designed to appeal to environmentally concerned and health-conscious luxury travellers, reflecting a current trend across the entire southern African safari market. The individual buildings are low-set and surrounded by earth banks so as to be largely invisible from the pathways that link them. All walls are constructed of an earth-coloured concrete, which contains admixed straw and is unfinished, giving a superficial appearance similar to rammed earth. Roof construction is equally unorthodox, with large slabs of the same concrete material pierced by small towers. The towers are topped with pyramidal thatch structures, which incorporate both ventilation and skylights. Large sliding glass doors open on to individual outdoor spa pools, with privacy provided by the earth walls. The central lodge buildings also incorporate a health spa, as well as the usual dining and lounge areas.

Sewage from Earth Lodge is gravity-fed to a central septic-tank system below the lodge, and black water from the tank is pumped with grey water to a dam surrounded by an artificial wetland. Overflow from this dam runs

down a natural stream channel to a small artificial lake at the front of the lodge, commonly patronized by hippopotamus as well as birds. The wetland area is surrounded by a solar-powered electrified elephant fence. Fresh water is supplied from four bores to a 200 m<sup>3</sup> litre holding tank. All water is treated to potable quality in a small on-site filtration plant and reticulated to the individual buildings. Electricity is provided by mains power, with a backup generator in a well-muffled and ventilated housing on site. Garbage is separated on site and transported to Sabi Sabi Bush Lodge for disposal. As with Bush Lodge garbage, cans and glass are recycled in Nelspruit, food scraps are fed to village pigs, paper is burnt and the remainder is buried.

There are two older camps on the Earth Lodge property. These are currently used as the main staff quarters and overflow staff accommodation, respectively. As with all of the 35 or so private lodges in the Sabi Sands area, the properties are unfenced and game can move freely between them, but game-viewing vehicles are restricted to individual properties, unless their owners have made reciprocal traversing agreements. Sabi Sabi, for example, shares traversing rights with the adjacent Nottens Camp.

### **\*Chitwa Chitwa Reserve, South Africa**

Chitwa Chitwa is a private reserve and game lodge in the northern part of the Sabi Sands areas. It follows a model similar to the better-known lodges in the southern sector, such as Londolozi and Sabi Sabi, with similar facilities, game-viewing opportunities and environmental management practices. It seems to be significantly more affordable, however, (Chitwa Chitwa, 2002), perhaps just because it is less well known: the accommodation and activities can certainly hold their own in the best company. The lodge is on a slope overlooking a substantial artificial lake, providing excellent birdwatching opportunities directly from the front deck. The main bar and dining area is laid out in traditional safari style. Game sightings are excellent and often very close to the lodge itself.

### **Chumbe Island Coral Park, Tanzania**

Chumbe Island is the first private marine park in Tanzania. It is an uninhabited island 24 ha in area, 13 km south-west of Zanzibar Town, with a protected coral reef and forest. The information summarized below is derived from materials provided by the proprietors without independent evaluation.

Funding for the project was originally received via private investment and donations from non-government organizations (NGOs). Profits from tourism operations are reinvested in conservation, land management and free island excursions for local schoolchildren. Additional professional support is also provided by more than 30 volunteers. Facilities funded to

date include a visitor centre, seven bungalows, park-ranger patrol boats and nature trails. Old buildings have been rehabilitated and converted into a visitor centre and accommodation, and a historic lighthouse and mosque are maintained in good condition.

The island is managed for low-impact recreational activities, such as swimming, snorkelling and underwater photography. It is also used for education and training of park rangers, local fishermen, government officials, schoolchildren and tourists, and for research conducted by marine and tertiary education institutions.

The island provides a protected breeding area for endangered species of coral, reef fish and island fauna. This is due to environmental protection work by local fishermen, who have been employed and trained as park rangers. Their role includes patrolling the island, monitoring the reef daily, preventing illegal fishing and anchoring, managing a rat eradication programme, recording events such as coral bleaching and storm damage, assisting marine researchers and guiding visitors over marine and terrestrial nature trails.

No further construction of tourism facilities is allowed, and day visitation is limited and regulated by the tides to avoid damage to coral reefs by boats. All new buildings are state-of-the-art eco-architecture and self-sufficient in water and energy. Features include rainwater catchment, solar water heating, grey water recycling by vegetative filtration, composting toilets, natural ventilation and photovoltaic power generation.

### **\*Ngala Lodge and Game Reserve, South Africa**

Ngala is a 140 km<sup>2</sup> private game reserve owned by CCA in the Sabi Sand region. It is an unusual partnership between a government agency, an NGO and a private corporation. The Ngala property was donated to the South Africa National Parks Trust (SANPT), via the Worldwide Fund for Nature (WWF), by landowner Hans Hoheisen. The Ngala land has been incorporated into Kruger National Park, but in April 1992 SANPT entered into an agreement with CCA under which CCA has exclusive tourism operating rights over the Ngala land, including the Ngala Game Lodge. The Lodge opened in October 1992 after renovation. It is a member of the Small Luxury Hotels of the World. A substantial lease fee and a proportion of profits from the tourism operations are returned to SANPT, for use in expanding or adding to conservation areas.

Day-to-day operations of Ngala Lodge are managed for minimal impact. Glass and cans are recycled in nearby Nelspruit. Catering scraps are used in neighbouring communities for raising pigs. Candle ends are provided for a local village business, which recasts them and sells them back to the Lodge. Sewage is treated in multi-chambered septic-tank systems. Paper and plastic packaging are burnt in an on-site incinerator. The lodge also buys a locally

made artisanal paper, manufactured from elephant dung and recycled office paper, for use in the guest rooms.

### **\*Bongani Mountain Lodge, South Africa**

Bongani Mountain Lodge is a private game reserve and lodge operated by CCA in the province of Mpumalanga in South Africa. The Bongani reserve land is owned by a local village community and leased for 99 years by the Mpumalanga Parks Board (MPB). The Parks Board has leased operating rights for 50 years to a South African trust company, BOE. The lease allows BOE to run a commercial game lodge and wildlife safaris in the reserve. BOE is a major investor in CCA, and CCA has subleased the operating rights from BOE.

This relatively complex arrangement produces a number of operational difficulties for the CCA lodge manager, since CCA cannot deal directly with MPB, but only via BOE. For example, under the terms of the lease, MPB is supposed to guarantee minimum densities of specified game species and to provide and maintain the roads, water and power supply and communication facilities. These terms, however, are apparently not always honoured, and CCA have experienced considerable difficulties in regard to even the most basic issues, such as maintenance of water-supply pumps at weekends. Since the lodge is situated on a rocky hillside outcrop and water is supplied from a borehole in the valley below, a pump failure means that water-supplies for laundry, showers, flush toilets, etc., are immediately restricted, which is quite untenable for the commercial operation of an up-market private game lodge.

In addition, the MPB has constructed a buffalo breeding boma in a prime game viewing area within the lease, taking up 20% of the flat land in the valley floor. On occasion, the Board has apparently also run buffalo hunting safaris in the Bongani lease, sometimes directly in view of the Lodge's photo-safari guests.

Bongani Mountain Lodge became part of CCA's operating portfolio as a result of the BOE investment in CCA, and hence was taken over as a going concern rather than being constructed to CCA's design. It is somewhat larger than the other CCA lodges, is accessible to larger tour groups and operates a hotel-style pricing system, with basic board and accommodation plus add-on activities, rather than the all-inclusive lodge-style model used in all the other CCA properties.

Despite these difficulties, Bongani operates very successfully, with game concentrated in a relatively localized area because of terrain, and hence readily viewed by visitors. As with other CCA lodges, a range of measures are taken to minimize environmental impacts. Because of its relatively large scale and the rocky terrain, sewage treatment is a critical operating constraint. Currently, it is gravity-fed to a large septic-tank system

constructed in a small area of deeper soils in a subsidiary valley near the lodge.

In addition to the larger game species, which are the primary draw for most tourists, the rocky terrain at Bongani provides a habitat for less commonly seen species, such as klipspringer, and also contains caves with outstanding examples of Bushman art. Since the area is relatively small and the whereabouts of large predators are generally known from day to day, visitors to Bongani can cross some areas of the property on foot, accompanied by an armed guide. This option is not available at many African game lodges, and certainly provides an additional attraction at Bongani.

### **\*Sandibe Lodge, Botswana**

Sandibe Lodge lies on one of the many low sand islands in Botswana's Okovango region. As with other private game lodges in Botswana, the lodge operators lease exclusive traversing rights for photographic safaris in the surrounding concession area. Concession areas may be leased by different operators at different times, which limits the scale of infrastructure that operators can install. Some of the concession areas are leased for hunting, others for photographic safaris only.

Sandibe Lodge is currently operated by CCA. As with most lodges in this area, it consists of a central building for guest dining and activities, with kitchens attached; individual guest cabins accessed by pedestrian pathways; and a staff accommodation area nearby but separate from the guest lodge. Sandibe is some distance from the nearest village, so staff must generally stay in the on-site accommodation, which is designed for around 35 people.

The Okovango Delta is a vast natural wetland, and currently there is no industrial development upstream and relatively little agriculture. Water flowing in the reed-lined channels is hence of extremely high quality, and Sandibe Lodge takes its water-supply directly from the nearest channel. Power is supplied by an on-site generator, housed in a fully enclosed building to muffle noise. Electricity is used mainly for lighting, with power supplied to each of the individual cabins as well as the central areas. Bottled gas is used to heat water for showers and laundry. Sewage drains to individual sealed tanks outside each of the cabins and communal areas, and black water and grey water are pumped to a soakage area in the sandy soils near the airstrip, well away from any water channels. Even at the highest point of the island, the land surface is barely above the water-table, so successful disposal of grey water is a continuing management challenge, especially during the rainy season.

There is a small on-site maintenance area for the lodge's three safari vehicles and other equipment. Sandibe Lodge has a beautifully constructed open wooden boat, powered by a 24-volt electric motor, which carries guests along the major channels through the swamp, for fishing and

birdwatching. It also has a number of fibreglass *mokoros*, canoes built in the shape of the traditional Okovango dugout and propelled either by a narrow-bladed paddle or, more commonly, by poling across the shallow flood-out areas. Ten years ago, wooden *mokoros* were still in common use, but, with the substantial growth in tourism in the Okovango over the past decade, most lodges have purchased fibreglass replicas in order to conserve the remaining large trees in the Delta area.

Sandibe recently obtained funds from CCA's RIF, now the Africa Fund, for four of the local women to establish a herb and vegetable garden in the staff village. This now operates as a successful commercial venture, supplying the lodge routinely.

### **\*Nxabega Lodge, Botswana**

Nxabega is another small up-market game lodge operated by CCA in the Okovango Delta area of Botswana, along similar lines to Sandibe. The lodge lies in a 70 km<sup>2</sup> wildlife concession on the western border of Moremi Game Reserve (CCA, 2001).

The centrepiece of the lodge is a beautifully designed lounge and dining area, with a large deck looking out over the waters. It is constructed from local timbers, reeds and thatch. A maximum of 18 guests are accommodated in individual tented cabins, which are raised a few feet above the ground. Each cabin has an individual deck and a wooden floor, with canvas roof and walls, and a bathroom area accessible through a zippered partition. This construction allows the cabins to be moved to another site if CCA's lease over the Nxabega concession area is not renewed. It also provides easy underfloor access for plumbing and power supply to each cabin.

The kitchens, food storage and freezer areas at Nxabega are attached to the dining area. As with many small lodges in southern Africa, freezers and fresh-food refrigerators are housed in relatively small and poorly ventilated rooms, which increase their power consumption in the hot climate.

Located well inside the Delta, Nxabega is generally only accessible by vehicle at the height of the dry season. Fresh food is brought in weekly by light plane, but dry goods and staples must be ordered in bulk once a year and stored on site. Similarly, garbage must either be burnt in an on-site incineration pit or stored in bags in a hyena-proof building to be trucked out once a year.

Nxabega employs over 200 full-time rangers, guides, trackers and lodge staff (CCA, 2002). Staff at Nxabega are housed on site and, as at many such lodges, grey water and sewage treatment facilities for staff accommodation are less well maintained than for the guest accommodation. CCA has only recently taken over Nxabega and intends to carry out maintenance and upgrades during the next off-peak season for guests. During peak season, as at most lodges, staff quarters are fully utilized by routine operational

personnel, and there is no permanent accommodation for additional contract maintenance personnel. Large tents, however, would seem to remain an option.

There are broad riverine channels and areas of open water near Nxabega and, in addition to *mokoros*, the lodge operates a small aluminium dinghy powered by a conventional outboard motor. This provides an opportunity for guests to travel further from the immediate environs of the lodge to areas where they can see a range of bird life, albeit with greater noise disturbance *en route* and potential pollution to water channels from fuel and oil residues. A wide range of wildlife and bird species are also visible on game drives from the lodge. Perhaps most notable is a resident pair of the highly endangered Pels fishing owl, often seen at a channel crossing close to the lodge.

### **Kasanka National Park, Zambia**

Kasanka National Park in the Central province of Zambia was suffering from heavy poaching in the mid-1980s. A British expatriate, David Lloyd, teamed up with a local landholder and gained official permission to rehabilitate the park (Farmer, 2002). They established a non-profit limited liability company, Kasanka Trust Limited, which now manages Kasanka National Park under a 10-year agreement with the Zambia Wildlife Authority. Funds have also been raised from charitable trusts in the UK and bilateral aid from the UK, Denmark, The Netherlands and Germany. Tourist camps, roads and bridges have been constructed and local community development and education projects undertaken. The Trust is largely responsible for conservation management of the park area, including anti-poaching patrols and enforcement. Fees are charged for entry to the park, providing revenue for the Zambian Wildlife Authority. Tourism is now the largest private-sector employer in the district. Turnover from tourism activities is now around US\$80,000 per annum. Around 100 local residents are employed in park management and tourism. Wildlife populations have been restored successfully.

### **\*Jack's Camp, Botswana**

Jack's Camp lies at the edge of the Makgadigadi Pans, a vast expanse of seasonally flooded salt flats at the edge of the Kalahari Desert dune fields. Accessible by air from Maun in northern Botswana, Jack's Camp provides the only permanent up-market tourist accommodation in the Makgadigadi area. It has a subsidiary camp, San Camp, which is open only seasonally. The bare white salt pans are dotted by low vegetated sand islands, and the camps are on these. When the pans are dry, they can be traversed by quad bikes, small fat-tired all-terrain vehicles, which are kept at Jack's Camp.



Jack's is a tented camp in very traditional style. There are eight guest tents, spaced around the edge of the vegetated area at one end of the sand island, together with large and sumptuous lounge and dining tents and another which is used as a tea tent at times. The view over the pans to distant sand islets is spectacular, especially at dawn and dusk. At the front of each guest tent is a low wooden platform bearing the accoutrements of a traditional safari camp: folding chairs, a tripod supporting a beaten copper basin and a large copper water jug. A hardwood dresser and small chest next to the beds complete the fit-out.

At the back of each guest tent are two open-topped enclosures fenced in by close-set stakes. One of these contains a porcelain flush toilet, a little out of keeping with the safari ambience but a welcome addition for most guests. In the other enclosure, an old-style bucket shower hangs from a pulley attached to a dead tree. A shaving mirror and soap container hang off the fence, the latter with a sliding wooden lid to prevent birds absconding with the soap! The camp staff carry warm water to the copper jug in the early morning and to the bucket shower in the afternoon. Cold water is in fact reticulated to each guest tent, to supply the flush toilet cisterns, but the copper basin and bucket shower allow the guests to experience traditional style and serve to remind them of the arid climate and sparse water supply. The reticulated water supplies run only to the toilet cisterns and are not accessible to the guests. Sewerage piping is also reticulated to the individual guest toilets, running to a central self-contained septic-tank system.

The staff and operational areas of the camp are at the other end of the island, out of sight from the guest areas. These include the manager's house, staff quarters, kitchen and food storage areas, vehicle garages and maintenance areas, workshops, generator shed and a hyena-proofed rubbish storage enclosure. The buildings in this area are constructed largely of concrete blocks in a very different style from the guest areas, but are generally well maintained and functional. Even though the camp has a generator, the guest areas use candles and lanterns in keeping with the traditional safari theme. Similarly, drinks in the central lounge and dining tent are kept cool in a modernized version of the traditional wooden ice chest. Overall, maintenance and environmental management at Jack's Camp seem to be of a particularly high standard, perhaps because some of its staff have worked there for many years.

Game drives are the principal visitor activity, as with most private game lodges in sub-Saharan Africa. Some of the game-viewing areas are also used by local village communities for grazing cattle and other livestock. Jack's Camp is on the route of one of the last remaining major African wildlife migrations and provides visitors with a rare opportunity to watch large herds on the move, unimpeded by fences. It is also one of the few areas where brown hyena are seen routinely (Uncharted Africa Safaris Co., 2002).

In addition to the wildlife migrations and the scenery of the Makdadigadi Pans, Jack's Camp offers its guests the opportunity to learn



about local ecosystems through the eyes of their earliest inhabitants, the Kalahari Bushmen. For myself at least, this was the most interesting and intense interpretative experience it has ever been my privilege to take part in. In an hour's walk, straight from the camp, I received an astonishing wealth of information and demonstration covering an enormous range of skills and knowledge. These included, for example: the design and manufacture of traditional Bushman weapons and other implements, including the precise plant and animal species used in each case, and why; how to read tracks and set snares of various kinds; how to recognize and prepare various edible and medicinal plants; how to make arrow poison and how to dig up scorpions; and how to seal up a wound using ant jaws and plant latex. Other guides are also highly skilled at finding, identifying and describing plants and wildlife, but to be introduced to the Kalahari by one of its own Bushmen sets Jack's Camp apart.

Uncharted Africa Safaris, the parent company for Jack's Camp, provides support for the non-profit Green Cross Wildlife Orphanage and Education Centre (Uncharted Africa Safaris Co., 2002).

### **Oliver's Camp, Tanzania**

Oliver's Camp is a small safari lodge in the Lokisale Game Controlled Area on the eastern border of Tarangire National Park in northern Tanzania. It was established in 1992 following a proposal by a local tour operator to the Tanzanian government and the two local Maasai villages, Loboit Soit and Emboreet (Christ, 1994). Under this proposal, an area of 20 km<sup>2</sup> within lands controlled by Emboreet village was set aside as a core wildlife conservation area, including Oliver's Camp itself. An additional area of 320 km<sup>2</sup>, including Loboit Soit village, was to be conserved for longer walking safaris.

The operators agreed to pay a fee of US\$12 per tourist per day, to be divided between the villages. In return, they asked that the villagers should not graze livestock in the core area; that they should not farm, burn or cut trees for charcoal in either area; and that they should not kill or harass wildlife in either area. The villagers would, however, retain grazing and water rights in the larger activity area. The agreement of the Tanzanian government was required since, in Tanzania, wildlife is nominally owned by the state.

Trial operations began immediately, albeit with no formal lease agreement. One issue of particular concern to the villagers was how the per capita fees would be paid to the villages. In due course a dedicated village bank account was opened, controlled by members of the village councils, elected by the villagers. A 99-year lease agreement was signed with each village and, from 1993 to 1997, according to the Camp's owners, over US\$40,000 was paid to the two villages (Christ, 1998). The funds have been spent on

maintaining village water supplies, expanding the village school and buying food during a drought.

The Camp's owners point out that, while these cooperative arrangements have indeed been successful, they required considerable investment by the tourism entrepreneur before any formal agreement was reached, both in cash to bring villagers to meetings and in time and patience when meetings did not take place as scheduled or did not produce the anticipated results. This is, of course, commonplace worldwide, particularly in communities with little prior experience of Western business practices.

In addition, the Camp's owners point out that one of the greatest difficulties facing the ecotourism entrepreneur, indeed perhaps the greatest commercial risk, is in establishing who precisely holds title to a particular area of land. For example, a customary title held by local communities may not be recognized in a national or regional land-tenure system, or vice versa. In addition, villagers may lay claim to land to which they do not, in fact, hold traditional title, either so as to use the tour company as a pawn in long-running political disputes with neighbouring villages or simply as a way to make some short-term cash at the expense of both the tour operator and their neighbours. Apparently, this did indeed happen during the early negotiations to establish Oliver's Camp (Christ, 1998). In the owner's words: 'one village discussed a site for our permanent camp, signed a lease agreement with us and received income from our activities with full knowledge that the site was, in fact, another village's land area' (Christ, 1998).

### **Wilderness Safaris, Southern Africa**

Wilderness Safaris (WS) is a large southern African wildlife safari company, which operates in the same market sector as CCA, but with a somewhat different focus and emphasis. Like CCA, it operates a range of lodges in six different African nations and supports a range of community and conservation projects. Its operational areas, however, are generally leased, whereas several of CCA's were purchased outright.

I have visited only two WS lodges to date, Djedibe in Botswana's Okavango Delta and Chikwenya near Mana Pools in Zimbabwe. According to WS (2002), Djedibe was closed during 2002, but WS continues to operate well-known Okavango lodges such as Jao.

Except at Chikwenya, therefore, I have not audited environmental management on site at WS lodges, but, like CCA, they have a good reputation with tourism industry environmental organizations, such as Business Enterprises for Sustainable Tourism (BEST), and indeed with conservation organizations. According to WS (2002), the camps have solar-powered heating and lighting, calcemite tanks for sewage treatment and can crushers to assist in recycling. They also transport non-degradable waste to landfill in nearby towns.

WS (2002) lists a number of community and conservation projects to which it contributes, including the Wilderness Safaris Wildlife Trust. The Children in the Wilderness Project was established in 2001 in conjunction with Paul Newman. It brought 120 children from rural areas surrounding the Okavango Delta to Vumbura Camp in December 2001 and WS intends to expand it to other areas. The Botswana Rhino Relocation Project is reintroducing white rhino to Mombo conservation area on Chief's Island in the Moremi Game Reserve. The Botswana Wild Dog Research Project makes use of the Chitabe concession area at the edge of Moremi Reserve, held by WS. The Save the Rhino Trust focuses in the Western Kunene Region of Namibia. The precise form and level of support for these projects is not specified on the WS website.

Also in Namibia, WS operates Damaraland Camp on the 800 km<sup>2</sup> Torra Community Wildlife Conservancy. WS leases the area from the local community in return for 10% of the Camp's bed-night revenue. Torra Conservancy provides habitat for desert-adapted elephant and black rhino, and WS provides radio facilities for the community game guards. Further north, the 300 km<sup>2</sup> Ongava Game Reserve has converted four unproductive cattle ranches into a wildlife buffer zone south of Etosha Pan.

In the Seychelles, WS has recently commenced the North Island Noahs Ark Project, intended to restore one of the islands to pre-European ecological condition as a conservation reserve, and, at Ndumo and Rocktail Bay in South Africa, local communities own shares in the lodges through community share trust schemes. WS also provides support for turtle monitoring and conservation programmes at Rocktail Bay.

According to its website, WS (2002) has established a five-member environmental team to monitor impacts and introduce guidelines and codes of practice for field staff.

### **\*Chikwenya Camp, Zimbabwe**

Chikwenya Camp lies on the eastern boundary of Mana Pools National Park in Zimbabwe, at the point where the Sapi River joins the Zambezi. The central feature of the camp is a grove of large mahogany trees, whose overhanging branches provide excellent shade. The central dining areas are under those trees, with tracks and wooden walkways to nine individual safari tents, accommodating up to 18 guests. The Camp currently has four Land Rovers outfitted for game drives, two boats and a number of canoes. It also offers guided walks (Wilderness Safaris, 2002).

I visited Chikwenya a number of years ago, so detailed information may not be entirely up to date. At the time, sewage and sullage were treated through a rather basic but perfectly functional French drain system. Mana Pools was much less well-known at the time, but the Camp was very well

run, even so: comfortable, friendly and with a particular abundance of wildlife.

## **Cousin Island, Denis Island, Fregate Island, Seychelles**

The Republic of Seychelles consists of 115 islands, with a total land area of 455 km<sup>2</sup>, scattered over an ocean area of 1.3 million km<sup>2</sup> in the Indian Ocean (Shah, 2002). The capital island of Mahe is 27 km long and 11 km wide, but many of the islands are a great deal smaller. Cousin Island is a small granite island 27 ha in area, about 4 km from the larger island of Praslin. It was operated as a commercial coconut plantation until the 1960s, when it began to run at a loss. In 1968 it was bought by BirdLife International, formerly the International Council for Bird Preservation, run from the UK. The island was immediately designated as a Nature Reserve under relevant Seychelles legislation. Seven years later it was designated a special reserve, which includes surrounding waters to 400 m offshore. There are no rats or cats on the island and, as a result, it is a major seabird and turtle rookery. Hawksbill turtles, five endemic terrestrial bird species and seven species of seabird nest on Cousin Island.

In 1998, 30 years after its original purchase, Cousin Island was turned over to the newly created BirdLife Seychelles, a local non-profit association established under Seychelles law. During this three-decade period, BirdLife International successfully restored the indigenous vegetation of the island, including native lowland forests. The breeding population of the hawksbill turtle has been restored to around 100 individuals, the largest such population in the western Indian Ocean. Seabird populations have also recovered, so that the island is now one of the most important seabird rookeries in the area. Reptile, invertebrate and coral reef populations have also been restored. Perhaps most significantly, however, the island has been critical to rescuing three endemic Seychelles bird species from extinction: the Seychelles warbler, the Seychelles magpie-robin and the Seychelles fody. In particular, the Cousin Island Reserve is credited with the successful rescue of the Seychelles warbler from probable extinction to a viable breeding population. It has also established a breeding population of the Seychelles magpie-robin.

The island is operated as a private reserve by BirdLife Seychelles, managed by local staff based on the island. Seychelles residents may visit free of charge, while foreign tourists pay a landing fee of US\$20. Around 500 locals and 10,000 tourists visit Cousin Island each year. This is almost 10% of all visitors to the Seychelles. Tour operators on the main islands bring visitors by boat, in groups of up to 30. They are ferried to shore in a boat based in the reserve and operated by the BirdLife Seychelles wardens, to reduce the risk of introducing non-native species. They are then guided around the island by the wardens, returning to their boats a couple of hours later.

In addition to the US\$200,000 per annum in landing fees paid directly to the reserve, trips to Cousin Island generate an estimated US\$600,000 per annum for local businesses (Shah, 2002). The Cousin Island wardens are all locals from nearby Praslin Island, and BirdLife Seychelles also buys materials, provisions and services from Praslin Island businesses. The wardens live on Cousin Island, in accommodation provided free of charge by BirdLife Seychelles. Taken together, these factors have reduced poaching on Cousin Island to a far lower level than on neighbouring islands. Currently, income from landing fees is sufficient to support other conservation efforts in the Seychelles as well as management of Cousin Island itself (Shah, 2002). BirdLife Seychelles also continues to receive core funding from the Royal Society for the Protection of Birds in the UK.

In the Cousin Island case study, therefore, tourism is currently providing a successful mechanism to support the conservation of biodiversity. Two caveats should, however, be noted. The first is that these conservation efforts were previously supported for three decades by an international NGO. Secondly, conservation on Cousin Island may now be dependent on tourism, so that, if tourism in the Seychelles decreases in future for some extrinsic reason, conservation efforts may well suffer too. Neither of these, however, should detract from the success of BirdLife International and, more recently, BirdLife Seychelles in harnessing international tourism as a mechanism to assist in conserving endangered birds and reptiles on Cousin Island.

Impacts are occurring from the six staff residents on Cousin Island itself: water consumption, contamination from human waste disposal and noise from generators. To overcome these problems, BirdLife Seychelles is installing solar panels, bringing in drinking-water from Praslin Island, installing composting toilets and transporting solid waste to landfill on Praslin.

According to BirdLife Seychelles (Shah, 2000), critical factors in the success of the Cousin Island Reserve include: long-term commitment by an international conservation organization; simultaneous designation of marine as well as terrestrial reserves, so that island access could be controlled; and involvement of local residents, to avoid poaching. In conclusion, they note that the use of tourism to finance the operation was a necessary long-term goal, but not at the cost of conservation objectives.

In addition to Cousin Island, BirdLife Seychelles has more recently expanded its island restoration programmes. Three islands are involved – Fregate and Denis, with five-star private resorts, and Curieuse Island, a national park managed by the Marine Parks Authority. From 1999 to 2002, BirdLife Seychelles has been undertaking island restoration programmes in conjunction with the resorts, the Marine Parks Authority and the Seychelles Ministry of Environment and Transport (Shah, 2002). Funding has been provided from the Global Environment Facility, with matching commitments from BirdLife Seychelles and the government of Seychelles and in-kind contributions from the resorts. The aim of the project is to

restore ecosystems on Fregate, Denis and Curieuse Islands to a standard comparable to those of Cousin and Aride Islands.

### **Dorobo Tours and Safaris, Tanzania**

Dorobo Tours and Safaris operate mobile camps and walking safaris in the Ngorongoro–Serengeti ecosystem in northern Tanzania, part of the traditional lands of the Maasai people. The company is owned by three brothers, who have argued that, unless wilderness and wildlife can provide an economic return for local communities, particularly the Maasai, they will be unable to compete with the pressures of expanding agriculture (Christ, 1998).

Dorobo established 5-year exclusive safari lease agreements with several local communities, with a fixed concession fee of US\$500 per year and a per capita fee of US\$10–20 per person per night in different areas.

As with similar projects elsewhere, the operators found that the establishment of the concession agreement required the commitment of extensive time and effort on the part of the tourism entrepreneur and that ultimately there was no guarantee that circumstances would remain sufficiently stable for the agreement to be lasting. Not surprisingly, they also found that the village communities did not have the expertise and experience to negotiate business arrangements of the type envisaged by the tour operators. This lack of capacity was a major deterrent to both investors and communities, who could otherwise reach mutually beneficial partnerships. In particular, the responsible handling of cash by a few individuals on behalf of a largely subsistence community has proved problematic in many parts of the world. Accordingly, 'to help meet this challenge, Dorobo is now raising funds to support full-time capacity building in several villages where they have land-use agreements, in order to strengthen transparent and democratic ways of handling revenue from the tourism project, and to foster greater input and coordination between Dorobo and the villages' (Christ, 1998).

### **\*Shearwater Adventures, Zimbabwe**

Shearwater is a long-established tour operator in Victoria Falls, Zimbabwe, specializing in raft, kayak and canoe trips on the Zambezi River. It is perhaps best known for its 1-day white-water raft trips on the section of the Zambezi River downstream of Victoria Falls, which enjoy a reputation among the international backpacker and adventure tourism market as one of the world's archetypal white-water raft trips. While many species of wildlife, notably crocodiles and a variety of birds, can often be seen during this trip, it is very much an adrenaline experience, strictly adventure rather than nature

tourism. And, if travelling in a paddle raft is not exciting enough, there are also so-called river sledding trips, where tourists run the rapids on specialist bodyboards. For those with appropriate kayaking skills and equipment, the raft tours can provide transport and support for kayakers to paddle the same section of the river.

Shearwater also offers multi-day birding and wildlife-watching trips in touring kayaks and canoes, on much more placid sections of the river upstream of Victoria Falls. The clients paddle open canoes or stable-decked two-person kayaks, a dark camouflage green in colour, with guides ahead and astern to provide safety and natural history interpretation. The trips are run with land support vehicles in traditional safari fashion, with well-appointed overnight camps set up on the river-bank and meals catered in style at the lunch stop, as well as breakfast and dinner at camp. Birds and big game can be seen at close quarters from the silence of the boats, on the river-bank as well as in the river itself.

While not marketed specifically as ecotourism, these canoe and kayak trips are certainly educational minimal-impact nature-based experiences, which contribute to local communities through employment and contribute indirectly to conservation through political support for the continuing existence of national parks such as Mana Pools. This is currently of considerable significance in Zimbabwe, where a large area of another national park, Gonarezhou, was opened for cattle grazing and settlement during 2001 by the Mugabe government. During 2002, political events in Zimbabwe have threatened tourism and conservation alike, but they remain interdependent.

### **\*Adrift, Uganda**

Adrift is a New Zealand raft tour operator which runs 1-day raft trips on a section of the White Nile in Uganda and a 7-day trip to islands of Lake Victoria, including the Chimpanzee Island Sanctuary (Adrift, 2002). The tours carry out or burn all non-biodegradable waste, use gas stoves rather than local firewood, hire local transport and tradespeople and purchase supplies locally. I have audited only the 1-day White Nile raft tour, which is comparable in difficulty and excitement to the much better-known 1-day trip on the Zambezi immediately below Victoria Falls, but with more complex navigation requirements. Like the Zambezi, the White Nile trip includes one grade V rapid, Itanda Falls, where the most difficult section is not run with commercial clients. Like most 1-day adventure rafting tours worldwide, logistics and safety are the guides' primary concerns. Like many other rivers worldwide, the White Nile is subject to a range of environmental threats and impacts from agriculture and industrial development and commercial raft tourism is a low-impact use, which may in due course provide a political force in favour of conserving water quality and water flows.



## **ADMADE, Zambia**

ADMADE is a Zambian government programme, initiated in 1988, which establishes Game Management Areas where responsibilities and revenues from wildlife are transferred from central government to local communities. The programme was introduced because uncontrolled poaching was previously causing major impacts on wildlife populations in national parks. The programme has been supported by funding from the US Agency for International Development (USAID) and technical support from the Wildlife Conservation Society. Revenues are generated from photographic and hunting safaris. According to Pelekamoyo (2000), the ADMADE programme in the Eastern Province of Zambia generated around US\$4 million in community revenue between 1988 and 1994 and US\$1.3 million for the Wildlife Conservation Revolving Fund. Community funds have been used to build wells, grinding mills, schools and clinics and to buy vehicles. Poaching, including the use of snares, and trade in bush meat have declined. In some instances, according to Pelekamoyo (2000), villagers are voluntarily resettling to make critical habitat available to their wildlife resource. The 'Conservation Bullet' award has been introduced to recognize tour companies that have fulfilled promises to local communities, employed local residents, helped to train professional hunters and contributed to wildlife patrols. According to Clarke (2001), however, hunting in Zambia was banned abruptly at the end of 2000 and this has thrown the ADMADE programme into chaos.

## **CAMPFIRE, Zimbabwe**

The CAMPFIRE project, Communal Areas Management Programme for Indigenous Resources, is a particularly well-known community wildlife tourism enterprise in Zimbabwe (Child and Heath, 1990; Metcalf, 1995; Koch, 1996; Weaver, 1998; Higginbottom *et al.*, 2001; CAMPFIRE, 2002). Operating since 1989, CAMPFIRE relies on transferring ownership of wildlife on communal lands to the local communities, which can then sell hunting or photo safari concessions for the species concerned, subject to quotas established by the Zimbabwe Department of National Parks and Wildlife Management. The communities are then entitled to keep the funds received and decide how they are spent. CAMPFIRE is widely credited with having reduced wildlife poaching considerably and increased household income by 15–25% (Weaver, 1998, p. 132).

Prior to the onset of recent political disruption in Zimbabwe in 2001 and 2002, the country was one of Africa's major tourism destinations. As of the late 1990s, the tourism industry in Zimbabwe employed over 100,000 people and contributed over US\$250 million annually to the national economy, around 5% of the country's gross domestic product (Weaver, 1998).



Apart from the adventure tourism attractions at Victoria Falls, most of the country's tourism products rely on wildlife, and much of the wildlife is on communally owned land outside national parks. The CAMPFIRE initiative aims to assist in wildlife conservation by linking it to community benefits. CAMPFIRE was established in 1988 by the Terrestrial Ecology Branch of the Department of National Park and Wildlife Management in the Zimbabwe Ministry of Natural Resources and Tourism. As of the late 1990s, over half of Zimbabwe's 55 administrative districts were involved in CAMPFIRE (Gotor, 1999). According to Gotor (1999), CAMPFIRE has improved community attitudes to wildlife, greatly reduced tree cutting, reduced indiscriminate settlement, established local laws for management of natural resources, established wildland areas, such as Mahenye and Mavhuradonha, provided local communities with schools, clinics, water bores and sanding mills and generated a total income of ZW\$40 million (currently US\$750,000) in 1998.

The majority of the funds earned under CAMPFIRE have been from fees for trophy hunting, rather than for photo safaris. One reason for this is that trophy hunters pay higher fees, though of course an individual animal can only provide a single fee. An equally important reason seems to be that most hunting safari operations are fully mobile and self-contained, whereas up-market game-viewing ecotours that can yield similar returns typically require extensive infrastructure. This could be achieved if communities leased large enough areas exclusively to wildlife tourism operators for long enough periods so that the tour operators could build the infrastructure needed. Since wildlife generally cannot be habituated to close-range viewing in areas with active hunting, however, leasing an area for a private game lodge would mean forgoing trophy revenue in the short term, which communities have apparently been reluctant to do.

CAMPFIRE has also suffered its share of local conflicts and community dissent (Butler, 1995). For example, communities in heavily settled areas where native vegetation has been cleared and there is no wildlife are resentful of communities that can earn money by taking part in CAMPFIRE. The ability of individual communities to profit from tourism depends on access and infrastructure, as well as wildlife, so the programme is not equally successful in all districts. In the Chikwakoora community, CAMPFIRE has provided a new school, a new communal grinding mill and ZW\$200 in cash for each of 150 households, as well as additional revenues for the local municipal council. In Nyaminyami, however, it appears that disagreements between the district council and the village community have made the programme much less successful.

According to Alexander and McGregor (2000), the 'potentially positive' CAMPFIRE project 'went badly wrong in the case of Nkayi and Lupane districts', because of 'legacies of post-independence state violence . . . and the failure of earlier wildlife projects . . . [which] combined to create deep distrust of CAMPFIRE'. There have apparently also been disputes over

domestic stock killed by wildlife and over the precise ownership of land where individual animals have been killed by hunters operating under the aegis of CAMPFIRE (Butler, 1995; Weaver, 1998).

Despite these difficulties, CAMPFIRE has been cited widely as a success story in community-based wildlife tourism and in the use of tourism to assist in wildlife conservation. In 2000–2002, however, the achievements of the CAMPFIRE model have been completely overshadowed by major political developments in Zimbabwe, with negative consequences for both tourism and conservation. In one instance, a 10,000 ha area of Gonarezhou National Park has been converted from part of the conservation estate to a new area for agricultural settlement by former soldiers. More generally, increasing violence by government forces and the general collapse of law and order has apparently led to a large fall in international travel to Zimbabwe during 2002.

### **Casamance Village Tourism, Senegal**

Village tourism in Senegal was first proposed by a French ethnologist, Christian Saglio (Echtner, 1999). From 1974 to 1991, 13 tourist villages with a total capacity of 500 beds were built on the outskirts of existing Senegalese villages, with funding principally from Canadian and French bilateral aid agencies. All but two of these villages are in the southern Casamance region, which is separated from Dakar, the capital of Senegal, by the country of Gambia and which retains a very traditional lifestyle. As of 1990, these villages received 20,000 visitors per annum, of whom about 75% were French. At that date, the villages were generating over US\$250,000 per annum, with virtually no economic leakage, as compared with a total initial capital investment of US\$170,000 (Echtner, 1999).

The tourist villages are built within easy walking distance of traditional villages and use traditional building styles and materials. Facilities are basic and meals are cooked by a local village in traditional style. Fees for accommodation and full board in 1990 were US\$17.00 per person per day. Revenues have been used to build schools and medical facilities and to buy items such as fishing boats. The principal tourist activities are to join villagers in routine tasks, accompany local fisherman on fishing trips, visit nearby beaches or watch wildlife. Each of the tourist villages has been planned and managed by a council of elected members from the nearby traditional village, which employs a small team of locals to run the tourist operations. Salaries of these staff account for approximately one-third of total tourist revenues (Echtner, 1999). The remaining two-thirds have been used to provide water and sewerage systems, agricultural equipment, mosques, start-up funds for new businesses and interest-free loans to villages in need.

Tourist development has been restricted to villages with a population of over 1000, and the number of tourist beds in each village has been limited to

50 or fewer so as to minimize the social impacts of tourism on village life. In addition to village facilities built using tourist revenue, the tourist villages have helped to provide local employment for younger villagers, who otherwise migrate to cities in search of work. Initially, however, there was a high degree of scepticism. There have also been negative cultural impacts, including Westernization, begging and the gradual replacement of a co-operative social framework by a competitive one, with some associated animosity. In addition, there has been mass-tourism development along the coastline, including a Club Med, and the tourist villages have become day-tripper destinations for tourists who definitely do not share the community ecotourism interests of the overnight village visitors (Echtner, 1999).

### **Eselenkei Conservation Area, Kenya**

The Eselenkei project is on Maasai community land near Amboseli in northern Kenya. The community land covers an area of 750 km<sup>2</sup> and is used principally for livestock grazing. A private company, Porini Ecotourism, established an arrangement with the community to set aside 50 km<sup>2</sup> as a wildlife conservation area and ecotourism area. The agreement was drafted and ratified by the Kenya Wildlife Service (KWS).

Porini has installed 60 km of tracks, two waterholes and boreholes, two dams and a tourism camp. Including a US\$6500 per annum lease payment to the community and US\$8000 to fund community projects, total land management costs are estimated by the ecotourism operator at US\$175,000 to date and total costs for the tourism camps and safari vehicles at US\$100,000 (Grieves-Cook, 2002). These funds have been provided through a US\$100,000 loan from the International Fund for Animal Welfare, grants totalling US\$25,000 from other environmental groups and US\$150,000 from the tour operator.

According to the tour operator (Grieves-Cook, 2002), the project has successfully halted local snaring and spearing of wildlife. The Eselenkei conservation area is adjacent to Amboseli National Park, which is famous for its elephants, and since 2001 elephants have also been seen in Eselenkei for the first time in many years. A wide range of other wildlife species have also been recorded in the Eselenkei conservation area.

Over 25 families from the local community have at least one family member employed within the conservation area, whether as game rangers, as staff in the tourist safari camp or in road maintenance. Payments to the community for the lease and for visitor entrance fees have helped to fund schools and water supplies. Difficulties have been experienced over handling of funds within local communities, and it may be preferable if communities identify priority needs and projects are carried out directly by the ecotourism enterprise. This approach was followed, for example, for repairs to community water supplies (Grieves-Cook, 2002).

## Spitzkoppe, Namibia

Spitzkoppe is a set of isolated granite outcrops near the town of Usakos in Namibia. It has been visited by tourists for many years. In 1992, the local Damara-speaking rural community established a tourist rest camp, with assistance from a number of NGOs including the WWF. The rest camp consists of 28 campsites, two bungalows, a bar and restaurant and a craft and cultural centre (Gariseb *et al.*, 2002). The project has established a Community Development Committee (CDC), which oversees all projects and activities. Income is retained in a community trust managed by the CDC and used for community projects. To date the project has employed 20 community members. The project has established interpretative signs warning visitors not to deposit litter, drive off tracks or damage rock art. The number of visitors grew from around 3300 in 1999 to around 5000 in 2000. Total income from the project in 2000 was around N\$220,000 (currently US\$20,000). The Spitzkoppe community is now establishing a joint venture with a private investor to construct a tourist lodge on site (Gariseb *et al.*, 2002).

## Khoadi Hoas Conservancy, Namibia

Written in full as #Khoadi //Hoas in the English transliteration of the Damara/Nama Khoi-Khoi languages, which include click sounds, the name of this site means Elephants' Corner (Goagoseb and Gariseb, 2000).

Information on this project is derived from Goagoseb and Gariseb (2000) and is somewhat incomplete. It appears, however, that Conservancy projects such as this and Nyae-Nyae, described subsequently, are valuable initiatives to harness tourism, including sport hunting, to assist in wildlife conservation.

The Conservancies are established under national legislation, within Namibia's Community-Based Natural Resource Management Programme (CBNRM). It appears that the land is publicly owned and managed by the Namibia Ministry of Environment and Tourism, though this is not explicit.

The Khoadi Hoas Conservancy lies near Grootberg in the Kunene region of Namibia, the area formally known as Damaraland. The Conservancy covers an area of 3640 km<sup>2</sup>. The initiative for the Khoadi Hoas Conservancy was provided by the Grootberg Farmers Association, a community-based organization established in the early 1990s (Goagoseb and Gariseb, 2000). The Conservancy was established in 1998. It appears that the land was subject to a private hunting concession and perhaps still is, and that the concessionaire would not cooperate with the members or goals of the Conservancy until the concession lease expired, and the Ministry of Environment and Tourism refused to renew it until cooperative arrangements were established. This, however, is not stated explicitly by Goagoseb and Gariseb (2000).

The Khoadi Haas Conservancy has received funds from Namibian government programmes, such as the National Programme to Combat Desertification and the Sustainable Animal and Range Development Programme. It has also received funding from NGOs, such as the Namibia Nature Foundation and the WWF. Land use within the Conservancy includes livestock farming as well as hunting and tourism, and the Conservancy generates funds by breeding livestock and selling to its members, presumably the farmers of the Grootberg Farmers Association. It also received funds from hunting and aims to increase this component of its income.

The description of this project by Goagoseb and Gariseb (2000) is somewhat lacking in detail. It appears that the Conservancy has acted as a government- and NGO-funded overlay to existing activities by livestock farmers and a hunting concessionaire. It is not clear what it has contributed to wildlife conservation to date, or whether it can become financially self-sustainable. As described by Goagoseb and Gariseb (2000), however, those do appear to be its goals.

### **Nyae-Nyae Conservancy, Namibia**

The Nyae-Nyae Conservancy lies around the village of Tsumkwe in the Otjozondjupa Region of Namibia, the area known as East Bushmanland. The Conservancy is established under the CBNRM and represents Bushman community members in and around Tsumkwe. According to Gariseb (2000) the Nyae-Nyae Conservancy provides hunting opportunities, accommodation facilities, guided tours and joint venture lodge developments.

The Nyae-Nyae Conservancy has received over N\$3 million (currently US\$280,000) in grants from the WWF/LIFE programme. Additional funds have been received from the UK Department for International Development and the Nyae-Nyae Development Foundation of Namibia. It has also received assistance from the Namibia Community-Based Tourism Association and the Rossing Foundation (Gariseb, 2000).

According to Gariseb (2000), the funding received to date has been used to construct infrastructure, employ staff, purchase vehicles and train community members in skills relevant to tourism and wildlife conservation. The Conservancy has applied for concession rights over its own area and is negotiating with private investors to establish a lodge. The principal source of income other than donations and grants is from trophy hunting. According to Gariseb (2000), establishment of the Conservancy has led to a major reduction in illegal hunting. Quantitative information, however, is not provided.

### **\*National Parks, Kenya**

The national parks of Kenya have long been one of the world's icon wildlife tourism destinations. They are managed by the KWS, which is responsible for some 20 national parks and reserves across the country, totalling around 30,000 km<sup>2</sup> in area (Kenya Wildlife Service, 2002). These include the montane ecosystems of Mt Kenya and the Aberdares, the crater lake at Marsabit, the hidden plateau of Lolokwe, the Rift Valley lakes, such as Nakuru, Elmenteita, Nawasha, Baringo and Bogoria, and the dry southern savannah parks, such as Tsavo West and Tsavo East.

Most of the parks charge entry fees, and several have self-catering guest houses owned and operated by KWS, as well as private lodges nearby. Rates range from US\$30–40 during the low season for cottages at Meru, Mt Elgon and Mt Kenya National Park to US\$200–250 during the high season for the Fishing Lodge in Aberdare National Park and Naishi House in Lake Nakuru National Park. These rates are for the entire unit rather than per person. Prices for Kenyan residents are set in Kenyan shillings, at a 40% discount. I have visited over half of the areas listed by KWS (2002), but too long ago to comment on current facilities, fees or practices.

Lake Nakuru National Park in Kenya's Rift Valley has been known for decades as a prime wildlife tourism destination. The most spectacular attraction is the large flocks of flamingos, which gather there and at neighbouring Lake Elmenteita to feed in the shallows. The total economic value of tourism to Lake Nakuru was estimated by Nabrud and Mungatana (1994), using a travel-cost methodology (Lindberg, 1998), at around US\$15 million in 1991. Total fees charged at the time amounted to around US\$800,000 (Lindberg, 1998).

### **KwaZulu-Natal Conservation Service, South Africa**

KwaZulu-Natal (KZN) established the first system of wildlife protected areas in Africa over a century ago. In 1998 the KZN Nature Conservation Service (NCS) was established as a parastatal model for protected-area management. This involved combining all provincially based public nature-conservation authorities, including the Natal Parks Board and the KZN Department of Nature Conservation. This new organization is responsible for 8.16% of the land surface of KZN, including a number of national parks and publicly owned nature conservancies. Revenue earned is retained by KZN NCS.

Over the past century, nature conservation in KZN has evolved through three main phases: restoring wildlife populations and expanding the protected-area network; involving the private sector in promoting the economic value of wildlife; and, recently, encouraging full participation of local communities in conservation.



KZN NCS's current management philosophy incorporates biodiversity conservation, community involvement and the sustainable use of biodiversity resources, particularly through tourism.

By encouraging landowners to acquire and use wildlife at subsidized prices, KZN NCS has established a system of biosphere reserves and conservancies managed under voluntary cooperative agreements with landowners. There are currently 222 conservancies managed by landowners, covering 21% of the province. Most of these continue farming, as well as managing part of their land for wildlife. Owners pay KZN NCS a per hectare fee each year, and the funds are used to employ conservation staff, purchase equipment and undertake conservation management and monitoring programmes. This system has enabled an increase in wildlife habitat at no cost to KZN NCS and has enabled landowners and communities to benefit directly from conservation activities.

A total of 130,000 large mammals, including endangered species such as white and black rhinoceros, have been captured and moved to private parks as part of a new initiative in biodiversity conservation. When numbers of particular species increase beyond the carrying capacity of habitats in protected areas, KZN NCS sells the surplus to private wildlife parks and commercial game reserves. At present 10,000 large mammals are moved off protected areas each year. Currently, 21% of white rhinoceros are privately owned. Wildlife sales have earned KZN NCS over US\$2.23 million since 1997.

Over the past 10 years, KZN NCS has developed a large-scale community conservation programme intended to promote sustainable lifestyles, improve quality of life, advance cultural activities and ensure conservation benefits for local communities. With assistance from KZN NCS, local communities have received donations worth over US\$7.75 million. Indigenous tribal communities are involved in developing and managing protected areas through local protected-area boards. As a result KZN NCS has also allowed local communities to harvest meat, fish and thatching and weaving material to a total value of US\$1.64 million.

Tourism facilities in protected areas owned by KZN NCS have created jobs and encouraged economic growth in parts of the province where no alternative sources of revenue existed. Local communities have developed and managed their own tourist destinations and taken part directly in tourism businesses within protected areas. KZN NCS also trains and employs local people as staff and guides in protected areas. To attract tourists, local communities have also established wildlife areas, and KZN NCS has donated animals, trained local people, and sold hunting and access rights to private tour operators. They have also developed small businesses within protected areas based on fresh produce, charcoal production and handicrafts, with a total value of over US\$0.5 million per annum.

All tourists visiting protected areas pay a community levy, totalling about US\$750,000 per annum. These funds are distributed by a registered

Community Trust, through local boards. KZN NCS is currently examining prospects for camp developments on tribal lands adjacent to parks and participatory developments within protected areas. These would probably involve co-ownership, e.g. with KZN NCS controlling 50% of shares, the private sector 25% and local communities 25%.

KZN NCS is an active partner of the KwaZulu-Natal Conservation Trust, KZNCT. The KZNCT is an independently registered capital fund, established in 1989. The KZN NCS works closely with the Trust in fund-raising and identifying conservation projects in need of support. The Trust generates revenue through fund-raising, trading in art, collections and donations. Artists and sculptors donate their work to the Trust and some pieces are reproduced for marketing purposes. A range of clothing, equipment and accessories are also manufactured and marketed with the Trust's emblem, in return for a royalty fee. Sporting events, such as sponsored mountain-bike races, are also a major source of revenue. Projects funded include law-enforcement equipment, research into biological control of introduced plants, protection of San (Bushman) rock art and electronic animal-tracking systems.

From 2000 to 2002, a case study area in north-eastern KZN was the subject of a World Bank research project (Lutz *et al.*, 2002) to evaluate the links between nature tourism and conservation. The project includes an ecological survey, but devotes more effort to market surveys, visitor surveys, household surveys and regional economic modelling.

### **Madikwe Game Reserve, South Africa**

Madikwe is a former farm established as a game reserve in 1991. Over the past 10 years, derelict farm buildings, old fences and weeds have been removed; other buildings have been built or renovated for parks staff; a 157 km electrified perimeter fence has been constructed to enclose a 600 km<sup>2</sup> area of the reserve; and over 10,000 animals from 28 wildlife species have been translocated and released in the reserve (South Africa Northwest Parks and Tourism Board, 2000; Eagles *et al.*, 2002). These species include elephant, rhino, buffalo, lion, cheetah, wild dog, spotted hyena, giraffe, zebra and others.

A number of game lodges have been built in the reserve using private capital, and these lodges pay concession fees to the parks board. Fees are also received from trophy hunters and other tour operators in the reserve. These funds are used to: repay the development and restoration costs for the reserve; maintain its conservation infrastructure; provide regional development funding for local communities; and establish a conservation trust fund to develop similar areas elsewhere in the north-west province. Community development has also been funded by bilateral aid from the UK. As of 1999, three of ten planned lodges had been constructed and their combined



economic impact had already exceeded that of the former farming operations (South Africa Northwest Parks and Tourism Board, 2000; Eagles *et al.*, 2002).

## **Bwindi and \*Mgahinga, Uganda**

Mountain gorillas currently survive only in the Virunga Mountains on the border between Uganda, Rwanda and Zaire. The remaining gorilla population is believed to be 600 individuals at most, and perhaps significantly fewer. A series of civil wars in the countries concerned have made monitoring and conservation activities very difficult and have also led to slaughter of gorillas by soldiers, poachers and local farmers. The mountain gorilla population in Uganda is believed to number about 300, in two small reserves in the far south-west corner of the country. The majority are in the 325 km<sup>2</sup> Bwindi Impenetrable Forest National Park, with a much smaller number in the 34 km<sup>2</sup> Mgahinga National Park. The latter, however, are more easily accessible to tourists. The gorillas live in extended family units known as troupes, and as of the mid-1990s there were three troupes in Mgahinga and perhaps 50 in Bwindi.

The Bwindi Impenetrable Forest National Park, in the Kigezi Highlands of south-western Uganda, began its existence as two Crown Forest Reserves in 1932. In 1991 these reserves were combined with additional land into a new national park, with a total area of 325 km<sup>2</sup>. This was then listed as a World Heritage area in 1994 (Brandon, 1996; WCMC, 1999).

As its name suggests, the vegetation in Bwindi Impenetrable Forest is relatively dense and multi-storeyed. It is also highly diverse, with over 200 tree species and over 100 fern species. It is believed to have the highest animal diversity in East Africa, with 120 mammal species, 336 bird species and 202 butterfly species (WCMC, 1999). A significant proportion of the plant and animal species are endemic and nine are globally threatened. The forest also provides the principal habitat for one-third of the world's remaining mountain gorilla population.

As a National Park, the area is supposed to be fully protected, but in practice many forest products are still taken by local residents, with only an estimated 10% of forest entirely free from human disturbance (WCMC, 1999). A Tourism Development Plan for Bwindi was established in 1992, and gorilla tourism commenced in April 1993.

To see the gorillas, tourists follow a park service guide and trackers on foot through the forest, typically for 4–5 h. The maximum time allowed in view of the gorilla troupe is 1 h. There is no guarantee that the gorillas will be encountered, but because the trackers visit the gorillas every day and are expert at following their progress through the forest, most tour groups do in fact encounter the gorillas unless the troupe concerned has crossed the border out of Uganda.

Tourist groups visit only habituated troupes of gorillas. The habituation process takes up to 18 months. There are two habituated troupes at Mgahinga and only one at Bwindi (Brandon, 1996). There has been continued pressure from tour operators to habituate another gorilla troupe at Bwindi, so that the number of tour permits available each day can be increased. There are several reasons why this has not been done. The first is that additional troupes are generally more remote from the road and visitor facilities and might not be accessible to tourists on foot. The second is that habituation increases their vulnerability to poaching and to disease, both of which are of particular concern for groups in more remote areas further into the park (WCMC, 1999).

Guides must be highly knowledgeable in interpreting and anticipating gorilla behaviour and must be able to speak the language of the tourists in their group and control tourist movement and behaviour tightly, to protect the tourists as much as the gorillas. For example, the guides decide from which direction to approach the gorillas and keep the tourists a minimum distance away from the gorillas. This may include retreating if the gorillas move towards the tourists. The guides specify whether the tourists must remain silent and when photography is permissible. Flash photography is not allowed at any time. Children under 15 and adults with colds or other infectious illnesses are not allowed to take part in the gorilla trekking even if they have a permit, because of the risk of transmitting disease to the gorillas.

This contrasts with tourism to view lowland gorillas in Kahuzi-beiga National Park in the Democratic Republic of Congo (Newsome *et al.*, 2001), where tour guides apparently provoked displays by the gorillas in order to impress and entertain tourists (Butynski and Kalina, 1998). Groups of up to 40 tourists were taken to view the gorillas for extended periods twice a day, and on at least two occasions the gorillas became infected with respiratory diseases introduced by the tourists. In 1988, six gorillas died and 27 more survived only after treatment with antibiotics, after infections occurred in three out of four habituated groups. Sixty-five gorillas were then vaccinated against measles. During 1990, 26 of 35 gorillas in the group visited by tourists were affected by bronchopneumonia and two of these died despite treatment with antibiotics. The risk of similar infections to the mountain gorillas in Bwindi and Mgahinga is hence very real.

Tourists are only allowed to visit the mountain gorillas in Uganda under strictly controlled circumstances. Arrangements in Mgahinga are described below. Apparently, a similar system operates in Bwindi. Tourists can enter the gorilla habitat area only as part of an organized group led by an official guide and gorilla trackers. Tourists can only join such a group by purchasing a permit from the parks service, and at Mgahinga only ten permits a day are available, with no exceptions. Broadly, seven of these are sold in advance to commercial tour operators and three are available for sale on site on the day concerned, via a first-come first-served stand-by list. This allows independent and budget travellers on so-called overlander buses, as well as

the wealthier clients of up-market commercial tour operators, to have an opportunity to see the gorillas. As of the mid-1990s, a 1-day gorilla watching permit cost US\$120 per person.

Elderly tourists sometimes arrive with no prior appreciation of the degree of physical exercise required to walk through mountainous tropical rainforest for several hours during the heat of the day. They may then elect to surrender their permits, which become available for resale by the rangers. It is also not entirely clear exactly how permits are sold in advance to tour operators. According to parks staff on site at Mgahinga, they are sold once monthly. Some tour operators in Uganda, however, claim to have a permanent allocation. In practice, international tour operators sell gorilla-watching tours subject to being able to obtain a permit for the nominated day, which they probably do by trading permits between operators.

Note that, even though the daily permit fee of US\$120 is significantly higher than most park entrance fees (Buckley *et al.*, 2001), this fee is not simply a park entrance fee, but must also cover the cost of guides, trackers, anti-poaching patrols, the permit administration system and visitor facilities, from only ten fees per day. Viewed in this light, it is an extremely low fee. In addition, for an international tourist the total cost of a trip to see the mountain gorillas can easily exceed US\$5000, so the park fee itself is a negligible proportion.

Officially, the park fees are used for gorilla conservation, but in practice it appears that they are retained by the parks authority headquarters, not necessarily by Mgahinga or Bwindi National Parks. Similarly, officially, 20% of total revenue is returned to local communities for community development projects to compensate for the occasional damage to crops caused by gorillas (Echtner, 1999). In practice, local residents on site at Mgahinga claim that these funds are not received and that the benefits they receive from gorilla tourism are principally from selling food at the campsite restaurant, a relatively low-key establishment. At Mgahinga there is also privately owned accommodation within the park itself: a small locally owned guest house immediately inside the gates and a tented camp run by a major international tour operator a little further in. The parks agency itself runs a campsite immediately outside the gates, which includes a number of well-appointed rondavels. There is apparently another camp owned by a tour operator a few kilometres away.

Higginbottom *et al.* (2001) provide estimates of revenue to the parks and income to the Ugandan tourism industry from the mountain gorilla tours, but these may be overestimates. In addition, it is by no means clear that these revenues have in fact been used for gorilla conservation: as noted by Butynski and Kalina (1998) for lowland gorillas, it is difficult to be sure that the protection of gorillas can be directly attributed to tourism, and conservation of the mountain gorillas remains dependent on outside funding unrelated to tourism.

According to Archabald and Naughton-Treves (2001), Mgahinga was designated as a national park in 1991, and local residents within the park boundaries were compensated and resettled elsewhere, generating considerable hostility. Bwindi was also gazetted as a national park in 1991. Revenue from parks had apparently been redistributed to local districts since 1952, but not necessarily to communities immediately adjacent to the parks. During the civil war from 1971 to 1986, all government control of parks was lost. The national park system was re-established in 1987, and in 1994 a revenue-sharing policy for parks was reintroduced. In particular, a pilot project was established at Bwindi and Mgahinga, under which 20% of income from gorilla-tracking permits was to be shared with local communities. The national policy did not define local communities, but park managers treated the term as meaning parishes immediately adjacent to the park. In practice, this encompassed an area of up to 3 km from the park boundary at Mgahinga, and 7 km at Bwindi (Archabald and Naughton-Treves, 2001). Uganda National Parks Service then introduced a policy requiring that all parks set aside 12% of total income for revenue sharing. From 1995 to 1998, a total of US\$83,000 in tourism revenues was apparently distributed from three parks in south-western Uganda, namely Mgahinga, Bwindi and Kibale National Park, which is a well-established-chimpanzee viewing area. In 1996, the policy was changed to increase the shared proportion of revenues to 20%, but restricted to gate fees only. At Bwindi and Mgahinga, where tourist revenues are provided principally by gorilla-tracking fees rather than park entry fees, this reduced the total funds available. The policy was apparently revised again in 2000 (Archabald and Naughton-Treves, 2001), but only after a substantial gap in revenues for local communities.

Archabald and Naughton-Treves (2001) quote fees of US\$250 per person for gorilla tracking at Bwindi and US\$175 at Mgahinga. All three of the neighbouring parishes at Mgahinga and 19 of the 21 neighbouring parishes at Bwindi had received community development funding from tourism revenues. They also received funds from the International Gorilla Conservation Program, an international NGO. Funds have been used to build schools, health clinics and roads. During 1999, Bwindi received 2100 tourists and Mgahinga received 1718 (Archabald and Naughton-Treves, 2001). In 1998, Archabald and Naughton-Treves (2001) interviewed 44 respondents from south-western Uganda, including ten from Bwindi and eight from Mgahinga. Residents near Bwindi were most concerned about crop-raiding by wildlife from within the park; those near Mgahinga were most concerned over loss of land which they had previously used within the park. My own conversations with local residents at Mgahinga, however, indicated that crop-raiding was also a major concern there but that a compensation scheme had been established. Practical difficulties associated with revenue-sharing at these parks and elsewhere are reviewed in detail by Archabald and Naughton-Treves (2001).

## **Busingiro, Uganda**

Busingiro is a designated tourism zone in Budongo Forest Reserve in north-western Uganda. The area ranges from 700 to 1270 m in altitude and supports significant populations of chimpanzees, black and white colobus, blue monkey and red-tailed monkey. The Busingiro Project was initiated by the Uganda Forest Department in conjunction with local communities in five neighbouring parishes (Langoya and Aulo, 2002). In 1991, the Forest Department dedicated half of the forest estates to conservation management recreation and half to timber production. Budongo Forest Reserve was threatened by illegal pit sawing, and one of the objectives of the Busingiro Project was to reduce such illegal uses by increasing the number of local people involved in legal uses, who would then act as informal wardens.

The project was funded by the European Union, covering staff salaries, vehicle costs and basic infrastructure. A network of 200 km of trails has been installed, and four groups of chimpanzees have been habituated to tourism (Langoya and Aulo, 2002). Tourist groups, with a maximum of six people per group, can take guided chimpanzee-tracking tours and nature walks at specified times of day. Visitors with respiratory illnesses such as colds may not take part in the tours, and visitors must remain at least 5 m from the chimpanzees. To date, the number of visitors is still low, increasing from 354 in 1994 to 967 in 2000. Total revenues from visitors increased from 1.7 million Ugandan shillings (currently US\$1000) to 10.5 million Ugandan shillings (currently US\$6300) over the same period. The project and area are being marketed currently by tour operators and the Uganda Tourist Board. Local communities have formed a community association, provide guides for tours, have included environmental components in local school curricula, sell food and handicrafts to tourists and have gained revenues for schools, health and drinking-water projects (Langoya and Aulo, 2002).

## **Amani Nature Reserve, Tanzania**

Amani Nature Reserve is a core conservation area in the Eastern Arc Mountains in Tanzania, which is one of the world's 25 biodiversity hotspots (Sawe, 2002). It is also part of the East Usumbara Biosphere Reserve. The Reserve is operated by the government of Tanzania with financial assistance from the government of Finland. The Reserve has established walking trails and driving routes, with self-guiding signs and leaflets. A map and guide-book are also available. There are two visitor rest-houses. Eighteen local tour guides have been recruited from local villages and receive 60% of guiding fees. In addition, 20% of revenues from the Amani Nature Reserve are earmarked for community development projects. The Reserve is relatively

inaccessible, especially during the rainy season, and the total number of visitors is relatively small, currently around 2000 per annum. (Sawe, 2002). Most of these visitors have specialist natural history interests, including birds, plants, butterflies and frogs. The intention in future is to market the area as a broader nature and cultural tourism destination (Sawe, 2002).

### **Kakum Canopy Walkway, Ghana**

The Kakum Canopy Walkway consists of six platforms and 300 m of suspended walkways up to 100 m above ground, providing spectacular views of the highly biodiverse Upper Guinean rainforest in Ghana. The walkway was slung from trunks using steel cables, with no nails or bolts. It is accessible by a 3 h drive along a paved road from Accra. A number of companies run tours to the walkway, or it is accessible in a private or rental car. The walkway has greatly increased the number of national and international tourists visiting Kakum National Park, from fewer than 2000 in 1992 to over 70,000 in 1999 (Conservation International (CI), 2002d). In 1997 a visitor centre was opened on site, emphasizing rainforest biology and the culture of the Akan people of southern Ghana.

There is no hotel accommodation on site, but hotels and lodges are available at Cape Coast, 20 min drive away, and a luxury hotel in El Mina, 45 min away. There is a campsite 200 m from the Kakum Visitors Centre, which can accommodate up to 12 people. It is equipped with toilets, showers and roofed sleeping platforms, but visitors must bring their own tents, mosquito-nets and sleeping-bags (CI, 2002d). Food is served on site at the Kakum Rainforest Café, which supplies international and Ghanaian dishes using fresh local produce bought from local farmers. Local Ghanaian dishes are also available in the nearby gateway village of Mesomagor. In addition to the walkway, there are guided hiking trails, where tourists can learn about traditional medicine and search for wildlife such as Diana monkeys, Campbells monkeys, bongo, over 250 species of bird and over 500 species of butterfly (CI, 2002d).

The Kakum Canopy Walkway has been successful in providing revenue for conservation activities, improving public awareness of the benefits of the park and increasing employment in local communities. The Upper Guinean rainforest is being destroyed very rapidly through agricultural expansion and timber extraction, which have already cleared around 90% of the forest's original extent. On a global scale, the remaining remnants of the rainforest are of particularly high conservation value, and the Kakum Canopy Walkway appears to have made a successful contribution to their continuing conservation (CI, 2002d).



## Parks and Tourism in Madagascar

The large island of Madagascar is one of the world's most biologically diverse areas. It supports over 100 mammal species, of which over 90% are endemic; 360 species of reptiles and amphibians, of which about 95% are endemic; 256 bird species, of which two-thirds are endemic; around 12,000 flowering plant species, with 85% endemism; and an estimated 100,000 invertebrate species (WCMC, 1992). Once almost entirely forested, Madagascar now retains less than 5% of its original vegetation, and since almost all its endemic species are forest dwellers, deforestation by slash-and-burn agriculture poses a very major and continuing threat to the existence of many of the species concerned. Only 2% of the land area is currently incorporated in protected areas, and most of these areas are very small, < 20 km<sup>2</sup> each, and isolated.

The government of Madagascar has promoted tourism as an economic development strategy, and the country was expected to receive around 100,000 visitors by the year 2000 (Parsler, 1997). By the mid-1990s, tourism was the country's second largest export earner, bringing in US\$50 million annually. Tourism has been concentrated in three major areas, namely, around the capital of Antananarivo, on the island of Nosy Be in the north-west and on the island of Ile St Marie to the east (Parsler, 1997). The principal attraction in these areas is beach tourism. Madagascar is also internationally renowned as an ecotourism and wildlife tourism destination, however, with a primary focus on lemurs, birds and orchids.

The largest and loudest of the lemur species is known as the indri, *Indri indri*, and the easiest area for tourists to observe indri is in the Perinet Wildlife Reserve, 4 h by road from the capital Antananarivo. The reserve lies in mid-altitude moist forest and, though only 810 ha in area, contains at least 25 mammal and 89 bird species. In particular, it contains one family group of indri that are habituated to humans and are hence easily observed. The reserve area is apparently suffering encroachment from slash-and-burn agriculture and degradation from illegal wildlife trapping for the international pet trade (Parsler, 1997).

Just outside the reserve is the village of Andasive, with an estimated population of around 10,000 people, most engaged in shifting agriculture. In 1992 the villagers formed an Association of Andasive Guides, which effectively unionized provision of guide services within the reserve. Most tourists arrive in organized groups of up to 12 people and spend 1–2 days in the reserve area. According to Parsler (1997), there were 19 guides in 1995, with the more successful guides receiving three or four bookings a week for most of the year, at a rate of around US\$4.85 per h.

Beach tourists at Nosy Be can also see lemurs, in this case the black lemur, *Lemur macaco*, which has a very limited distribution. These occur in Lokobe Nature Reserve, which incorporates the largest remaining remnant of primary forest on the island, 747 ha in area. Lokobe is also threatened by

habitat destruction and poaching from the nearby village of Ampasipohy. According to Parsler (1997), a single former resident of this village has guided tourists both to the village and to the area around the reserve since 1980, and since 1993 this has led the villagers to halt the hunting of lemurs in the reserve area, in return for a visitor levy of US\$0.55 per person, funds that have been used to hire a teacher at the local school.

Parsler also notes, however, that,

despite some evidence that tourist visits can, or could, be a positive influence on a reserve, some practices at reserves and around tourist facilities bear a striking resemblance to a conservationist's nightmare. Of prime concern is the practice of keeping captive wildlife, for example, crudely tethered or caged lemurs, or captured chameleons, for tourists to 'interact with' . . . to come all the way to Madagascar to stand at the bars of a cage and watch lemurs displaying unnatural behaviour is far from ideal 'ecotourism' . . . almost equal concern should be expressed about the routine and deliberate flushing, or disturbance of animals in natural habitats for visitors to glimpse them.

### **Masaola Peninsula, Madagascar**

The Masaola Peninsula covers an area of 4255 km<sup>2</sup> in north-eastern Madagascar and supports one of the largest remaining areas of lowland humid forests in the country (Kremen *et al.*, 1999). The Masaola Peninsula is a prime target for ecotourism development since it is one of the country's few remaining undeveloped regions. It has coral reef and subtropical rainforest, Madagascar's largest national parks and three marine reserves. Harsh and isolated, historically it has been only sparsely populated. Currently, however, settlement is expanding, with consequent deforestation and harvesting of marine reserves.

To enlist local support for ecotourism and to assess its likely local economic impact, a US academic group ran trial tours to the region (Odendaal, 1996; Eco-Africa Consultants, 2002). The US group found that making a deliberate effort to purchase local produce, hire local guides and stay in local accommodation doubled the net revenue remaining in the local economy, relative to that if goods and services were purchased irrespective of local ownership. A local guide association was also formed in the community of Maroantsetra. A series of three trial ecotours were conducted, beginning in November 1993. Each tour included hiking and canoe sectors, guided by local residents contracted by the US group. Research carried out during the trial tours provided information on clients' experiences of tour destinations, activities and cultural content; on the disbursement of tour fees within and outside the local region; and on the effects of ecotourists on the local community.



## **Rapita Lodge, Solomon Islands**

Rapita Lodge is owned by the Miche Village community in Marovo Lagoon, Solomon Islands, and has been in operation since 1995. Concerned over nearby fishing, mining and logging, the community approached the Solomon Islands office of the World Wide Fund for Nature (WWF, 2002c). WWF assisted with training of villagers in hospitality and management, and start-up funds were provided by the Japanese Environment Corporation. The tourist lodge was constructed by a village working group in the traditional style, using mangrove-pole frames and thatched walls of sago and nipah palms. The lodge consists of three guest houses, which accommodate 12–15 guests. The resort is run as a cooperative by the Tobakokorapa Association. Members purchase shares in the cooperative in order to receive dividends (Rapita Lodge, 2002; WWF, 2002c). The community shares the management responsibilities, providing staff for housekeeping, cleaning and bar and restaurant facilities. Tours are run from the village and include bush-medicine tours and river safaris. A number of young villagers work as guides. Following establishment of the lodge, the village has been able to prevent logging on community land and has banned fishing in several reef areas.

## **El Nido Resort, Palawan, Philippines**

El Nido is a municipality on the north-western tip of mainland Palawan in the Philippines. Its name derives from the nests of the bird's-nest swiftlet,

which nests in caves in the limestone cliffs of the area. The marine ecosystem is diverse, with 100 species of coral, three species of endangered sea turtles, and feeding grounds for dugong and other marine mammals. Parts of the area have been a marine reserve since 1991. There are two El Nido Resorts, both owned by Ten Knots Development Corporation. We have not found any independent reports of these resorts, and the summary given here is from a presentation by the company president to a World Tourism Organization/United Nations Environment Programme (WTO/UNEP) conference (Lim, 2001). We have received unconfirmed reports of concerns expressed by local communities over access to areas now used by the resorts. On the basis of Mr Lim's presentation, both written and oral, however, his resorts would appear to merit inclusion in this book.

Ten Knots operated initially as a live-aboard dive boat, but in 1991 the boat ran aground and the company then switched its operations to land-based resorts. The first of these, Miniloc Island, opened in 1982, operating initially as a dive camp. It currently has 30 rooms. The second, Lagen Island, opened in 1998 and has 51 rooms including beach-front, over-water and forest cottages. It offers a wide range of tours and water sports. According to Lim (2001), Lagen Island Resort was designed so that no trees were felled and no tree roots were cut. Floors and furnishings made use of timber salvaged from old houses. Both resorts have desalination plants and sewage-treatment facilities. Baseline environmental studies have been carried out in the surrounding area. Mooring buoys have been established at regularly used dive sites. Water from treated sewage is used for irrigation and sun-dried solid residues are used as fertilizer in the resort garden.

The resorts have entered into partnerships with government agencies and community groups for projects such as watershed rehabilitation, turtle monitoring, surveillance against illegal fishing and coastal clean-ups. According to Lim (2001), community projects are also funded through the El Nido Foundation, which has assisted in organizing local cooperatives that provide fresh produce and laundry services for the resorts. The corporation employs an environmental officer to train its employees in environmental management and in environmental interpretation for guests. According to the resort's owners, the corporation spent over 10 million Philippine pesos (currently US\$200,000) on environmental protection measures from 1995 to 2000 inclusive (Lim, 2001).

### **Turtle Island, Fiji**

Turtle is a small privately owned island in the Yasawa chain in Fiji (Harrison, 2001). Until 1972, it was uninhabited except for feral goats, which had caused considerable damage to its native vegetation. At that date it was

purchased by a US citizen, who restored the vegetation and developed a luxury resort for a maximum of 14 couples. Turtle Island won the Pacific region category of the British Airways Tourism for Tomorrow Awards in 1999. In addition to employing villagers from local islands, Turtle Island Resort has contributed to local communities through several mechanisms. Best known of these is the annual Medical Week, established in 1991 by a doctor who had been a guest at the resort. Funded by a specially established US-based charity and, since 1999, also by Fiji Telecom, it brings volunteer doctors to the island to run eye clinics, dental clinics and other health services. By the end of 2000, over 20,000 people had received medical attention, at levels up to and including corneal transplants (Harrison, 2001). The Resort has also set up a second charitable trust, the Turtle Island Community Foundation, to channel guest donations to community projects in the area around Turtle Island. As of late 1998, this trust had assets of over US\$75,000. This Foundation now incorporates the Vuaki Mission Fund, formerly an independent fund, which contributes cash and equipment to the school at Vuaki, the nearest village to Turtle Island. During a cultural audit in 1999, some difficulties were identified in communications between the Resort and Vuaki village. It was suggested that these could be overcome by the appointment of a full-time community-relations officer.

### **Abaca Village and Recreation Park, Fiji**

Abaca Village and Recreation Park is located within Koroyanitu National Park, 16 km south of Lautoka on Fiji's main island of Viti Levu. Koroyanitu National Park is 250 km<sup>2</sup> in area and contains Fiji's only unlogged tropical montane forest. Abaca village itself was moved to its present location in 1931 after a landslide through the village left only three survivors. The village was re-established and now has a population of 86 housed in 14 family *bures*. The Abaca Village and Recreation Park is owned by six villages in the region and is funded by New Zealand bilateral aid. The village has been the focus of the Pacific Economic Cooperation Council's Pacific Ecotourism Prospects project. Workshops were provided in 1996 and 1997 for villagers involved in sustainable tourism at Abaca.

The trekking area within the park offers guided tours to cloud forest, volcanic mountains and old-growth kauri forest with commentaries on village history and culture (Abaca Village and Recreation Park, 2002). All treks through the park are led by village guides and include single-day, overnight and 3-day treks between villages. Villagers have constructed a 12-bed lodge just outside Abaca. Trekkers are also offered home-stay accommodation, where tourists live with a Fijian family and become involved in community tasks, such as ploughing fields and planting and harvesting crops.

### **\*Salani Surf Resort, Samoa**

Salani Surf Resort is a dedicated surf resort on Upolu, the eastern main island of Samoa. The resort is on the south-eastern coast of Upolu, at the mouth of the Mulivai Fagatoloa River, immediately opposite Salani Village (Salani Surf Resort, 2002). The surf breaks in Samoa are powerful reef breaks of high wave quality, which attract experienced surfers from around the world. There are relatively few surfable breaks, however, and even with relatively few surfers the waves can quickly become crowded. Salani enjoys direct and privileged access to two breaks immediately offshore from the river mouth. Two more, accessible in a small open boat, are also used by clients of Sa'Moana Surf Resort further west and by independent surfers.

Salani Surf Resort incorporates eight individual bungalows and a central dining area. A maximum of 12 surfing guests are accepted at any one time. Modern Samoan society combines traditional social structures such as extended families, traditional *matai* or chiefs, and traditional customs or *faaSamoa*, with strong Christian religious practices. Within village areas, for example, dress codes are very conservative, curfews are observed at dusk and sports are strongly discouraged on Sundays.

Maintaining good relations with local villages is an essential prerequisite to business survival – and perhaps even personal safety – in Samoa, and surf resorts and tour operators must therefore ensure that their clients observe local customs. In practice this means no walking through villages in board-shorts or between 5 and 6 p.m., and no surfing on Sundays, no matter how good the wave.

Salani is well managed and maintained, with a septic sewage-treatment system and recycling as far as feasible in Samoa. Perhaps more significant, the resort has catalysed clean-up programmes in the neighbouring village by providing garbage bags and work gloves and trucks to haul away filled bags. In pre-European Pacific island societies, all garbage was biodegradable, so the custom is simply to throw rubbish over the creek bank. With glass, metal and plastic packaging this creates health risks as well as reducing the visual appeal for the Resort's clients. The clean-up programme benefits both, but it would not have happened without the Resort's initiative.

While surfing is clearly a skill-based activity, adventure rather than contemplative nature tourism, it is entirely dependent on particular features of the natural environment and is hence nature-based. Though small-scale, a tourism operation such as Salani can arguably qualify as ecotourism since it: offers a native-based surf tourism product; takes steps to minimize environmental impacts and contribute to local communities; and indirectly contributes to the conservation of water quality and community interest in the environment.

In addition to Salani, Samoa has two further dedicated surf tour operators, Sa'Moana on Upolu and Savaii Surfariis on the western main

island of Savaii. The latter operates either on the north or south coast of Savaii depending on season, using local accommodation but providing a boat and surfing guides. Savaii caters to independent travelling surfers as well as clients who have booked from overseas.

The major concern facing these three operators in future is the risk of overcrowding. Under normal – i.e. less than perfect – surfing conditions, crowding already occurs at the best surf breaks, even though the three main commercial surf tour operators already limit their numbers, by agreement with local villages. On the main island of Upolu, Salani and Sa'Moana have adopted an informal system to avoid taking their clients to the same breaks at the same time on the same day, but a non-resort operator (Line-up) apparently also takes surfers to the same breaks as Sa'Moana. On the other major island, as noted above, Savaii Surfaris operates only as a tour operator without its own accommodation, and independent travelling surfers can and do use the same local accommodation and surf at the same breaks. Indeed, the (admirable) personal philosophy of Savaii Safaris' owner is to assist and encourage independent low-budget travelling surfers. Currently, this helps to publicize Savaii Safaris' commercial operation. If crowding subsequently becomes severe, however, attitudes may change!

Crowding produces two problems from a tourism perspective. First, commercial surf tour clients tend to be older surfers, who may not be as competent as they once were or as young independent surfers still are. One reason they pay for surf tours is to avoid crowded breaks at home. If independent surfers take all the best waves at tour destinations and the commercial-tour clients miss out, they will lose the incentive to buy a tour. Secondly, the Samoan reef breaks are relatively difficult and dangerous to surf. Crowding leads to surfers incurring higher risks of injury.

### **Narayani Safari Hotel and Lodge, Nepal**

Narayani Safari Hotel and Lodge were built in 1997 and 1998, respectively, immediately outside Royal Chitwan National Park, a World Heritage listed park in southern Nepal. The hotel and lodge jointly contain 49 rooms. There were already seven lodges inside the park when planning permission was sought for Narayani. The facilities were built on land of low agricultural value, reusing materials from other buildings that were demolished. The design incorporates a number of single-storey cottages, which were originally thatched with elephant grass, but later roofed with locally made clay tiles, since the thatch leaked during the monsoon. Solar panels are used for water heating, LPG for cooking and paraffin-oil lamps for lighting. There is no external electricity supply. Local villagers are employed as staff and the project has provided funds to help in establishing a health centre and secondary-school scholarships (Gyawali, 1995). The resort is listed among

applications to the International Hotels Association Environmental Award, which were judged by the UNEP.

### **Ulu Ai Longhouse, Sarawak**

The Ulu Ai Longhouse is a guest house operated by the tour company Borneo Adventure in an area of orang-utan habitat in the catchment of the upper Ai River in the Malaysian state of Sarawak (Borneo Adventure, 2002). Information on the project is available from the tour company website, travel reports from visitors to the lodge (Tarman, 1998) and a report in the *UNESCO Courier* written by a biologist who was one of the two founding directors of Borneo Adventure. We have not identified any independent published audits. The project has received awards from various tourism bodies, however, and is included here with the caveat on the lack of independent data.

The area is occupied by the Iban people, who live in multi-family longhouses, which may be referred to by the name of the village head (Borneo Adventure, 2002). According to Tarman (1998), tourists have been visiting Iban longhouses on more accessible rivers such as the Skrang since the 1960s, and more recently also on the Rejang and Lemanak Rivers. The Ulu Ai project was initiated in 1996 by Borneo Adventure, in conjunction with the Nanga Sumpa longhouse on Ulu Batangi Ai, the upper Ai River. The area is adjacent to Batun Ai National Park and the Lanjak Entimau Wildlife Sanctuary, established to protect the last wild population of orang-utans (Basiuk, 2000). The Iban communities gain their main livelihood from farming, fishing, small-scale livestock rearing and barter and sale of rain-forest products. According to Basiuk (2000), forest products, such as rattans and sandalwood, have been depleted and tourism is replacing forest products as a source of cash income.

The Ulu Ai area is reached from Kuching, the gateway and base for Borneo Adventure, by a 4.5 h drive to a hydroelectric dam and a 1.5 h longboat transfer across the reservoir and up the Ulu Ai River (Borneo Adventure, 2002). The area now has a number of tourist lodges. In late 1993, Hilton International opened the Batan Ai Longhouse Resort (Tarman, 1998) and Borneo Adventure has also built a second lodge at Tibu longhouse.

According to Borneo Adventure (2002), tours to Iban longhouses have been operating for over 30 years, but with significant social impacts on the village communities. At Ulu Ai, instead of housing tourists in the community longhouse at Nanga Sumpa, the tour company built a separate guest house, which can house up to 30 people. The guest house was built partially from local materials, using local labour. The community retains title to the land and receives fees from the guest house, paid per person per night. The

project started receiving guests in 1987. Local villagers are employed as cooks, boatmen, guides and other assistants.

According to Borneo Adventure (2002), all food for clients is brought from Kuching, except for local fruit and vegetables, bought from the village, and fish, which is bought from an aquaculture project on the shores of the hydroelectric reservoir. All packaging and non-biodegradable garbage are returned to Kuching.

Borneo Adventure bought ten outboard motors and sold them to individual families in the community, using interest-free loans repaid from the family's earnings as boatmen for the Ulu Ai project (Borneo Adventure, 2002). The guides are paid a daily wage and a significant bonus when visitors see wild orang-utan. This provides an incentive for the members of the longhouse to keep track of the orang-utan from day to day and to warn National Parks staff if poachers are found in the area. The community is apparently also endeavouring to establish a small 1 km<sup>2</sup> private reserve in their own immediate neighbourhood, adjacent to the Batan Ai National Park.

Economic benefits for the community were reported by Basiuk (2000) as RM300,000 (US\$82,000) in 1999, shared between 26 families. This figure includes guest house rental, wages as guides, boat drivers and cooks and sales of handicrafts. According to Borneo Adventure (2002), wages total RM70,000 per annum (US\$20,000). Accommodation fees are paid to a longhouse trust fund administered by the headman and used for maintenance, community projects, emergency medical expenses and interest-free loans. In addition, since January 1997, the tour company has paid RM10 (US\$2.70) per client into a scholarship fund in the name of the former headman, the late Teai Rumah Along. These funds have been used to send students from the Ulu Ai community to receive tertiary education. In addition, people from the Ulu Ai project have subsequently been employed at the Hilton Batan Ai Longhouse Resort. According to Borneo Adventure (2002), the company has also contributed to the costs of a new longhouse for the community, including foundation poles and the design of a new sewage-treatment system. Presumably, these contributions will also help to maintain authenticity and amenities for tour clients.

### **\*World Expeditions, Nepal**

World Expeditions is an international adventure travel company that promotes a minimal-impact philosophy through its *Responsible Travel Guide Book*, which is endorsed by The Wilderness Society and received an environmental tourism award in 2001 (World Expeditions Inc., 2002).

The company offers a wide range of multi-day trekking, mountaineering, rafting, cycling and sea-kayaking trips in many countries worldwide,



some led directly by its own guides and others subcontracted to local operators. The company's core expertise is in Himalayan mountaineering and, typically, trekking and mountain trips are led directly by World Expeditions' guides, whereas river and ocean trips involving an expensive specialist equipment inventory are more likely to be subcontracted to local operators.

Some years ago I took part in one of World Expeditions' shorter Himalayan treks, in the Annapurna region. It was led by a local Sherpa, who lived along the trekking route and gave us the unexpected privilege of visiting his home and meeting his family. It was a fully catered trip, with all camping equipment, cooking equipment, fuel and food carried by porters, because of concerns over deforestation in areas around village guest houses. The guide was very conscientious about minimal-impact behaviour. He was not, however, able to provide us with either English or Latin names for plants or birds, so there was no environmental interpretation in that sense. That, however, was over a decade ago, and it was also the company's most basic introductory trek. Trips advertised currently include specialist wild-flower treks and other tours with a natural-history emphasis (World Expeditions, 2002).

The complex interactions of social and environmental issues and impacts for commercial trekking tours in the Himalayas are considered in detail in case studies on Annapurna, Mustang and Makalu-Barun National Parks. On the World Expeditions trek, which was over a decade ago, tent and fuel stoves were carried for the clients, but porters may well have stayed and eaten in local village guest houses using fuelwood.

World Expeditions provides its clients with a code of conduct in which the company commits itself to manage all its tour operations so as to maintain the natural and cultural values of the host region; minimize environmental impacts at all stages of the business; and contribute to conservation through partnerships with local environmental groups and/or land managers, and active conservation campaigns (Buykx, 2001). In its *Responsible Travel Guide Book*, World Expeditions also states that it will aim to: employ local staff, use local suppliers and assist local businesses; avoid diversion of resources away from local communities; provide opportunities for cultural exchange; contribute to the welfare of host communities; and educate its travellers about destinations, local cultures and minimal-impact behaviour (Buykx, 2001).

*The Responsible Travel Guide Book* also incorporates a set of instructions for travellers. These include, for example: stick to the trail, even if it is wet or muddy; don't tread on vegetation, even lichens; don't pick plants or collect souvenirs, pack out all rubbish and pick up other rubbish along the trail; use toilet facilities where provided, and otherwise dig a 15 cm hole at least 100 m from any watercourse; pack out sanitary items; bring only biodegradable and phosphorus-free soaps, shampoos, etc.; wash



at least 50 m from any watercourse and scatter any waste water the same distance away; and use hot water provided by World Expeditions, which is heated by paraffin oil, rather than taking showers at local establishments, where fuelwood consumption contributes to deforestation (Buykx, 2001). Instructions are also provided for the use of campfires, where these are appropriate, and for watching and photographing wildlife. All these instructions represent best practice as currently recognized for hiking, trekking and rafting trips, such as those operated by World Expeditions (Buckley, 1999, 2003b).

In addition, World Expeditions includes quite detailed guidelines for interactions with local residents, including: appropriate and inappropriate forms of public behaviour, both within the tour and between travellers and locals; what to buy, what not to buy and when to bargain or not; when and how one should respond to individual requests for assistance, e.g. for money, medicine or school supplies; what to wear and what not to wear under various circumstances; and when it may or may not be appropriate to take photographs. Clients are also given opportunities to provide donations, e.g. to the Child Haven Orphanage in Kathmandu.

World Expeditions is also a major sponsor of the Fred Hollows Foundation, an international charitable organization that provides medical expertise and equipment for cataract surgery in developing nations. World Expeditions raises funds for the Foundation through the 'See Nepal Challenge', which started in 1999, and the 'See the World Challenge', which has been added subsequently. World Expeditions runs special treks for participants who have raised Aus\$4500 each for the Foundation. As of mid-2002, over Aus\$410,000 (currently US\$235,000) has been raised (Fred Hollows Foundation, 2002).

## **Bina Swadaya Tours, Indonesia**

Bina Swadaya is Indonesia's largest non-governmental organization, with 30 years' experience in community development projects throughout Indonesia (Sproule and Suhandi, 1998; Bina Swadaya Tours, 2002). From 1988 onwards, the organization has run tours to its more prominent development projects, and it later formed a subsidiary commercial operation, Bina Swadaya Tours (BST), which operates in parallel with the Bina Swadaya development agency. Tour prices include a direct cash contribution to the work of the non-profit organization. Bina Swadaya Tours provides its clients with a pre-trip educational package, containing a code of ethics for responsible travel. It also conducts training programmes for villagers and other community groups to establish their own ecotourism enterprises, which can then become part of the BST destination portfolio. Finally, BST has become a major advocate for sustainable community-based ecotourism developments in Indonesia (Sproule and Suhandi, 1998).

### **\*Ecotour Samoa**

Tourism is a significant industry in Samoa, though far smaller than other sectors, such as fisheries and agriculture. Access by air is straightforward, but relatively indirect and expensive, and Samoa does not have the large-scale beach resorts that characterize other Pacific Island destinations, such as Hawaii, Tahiti, parts of Indonesia or even the south coast of Fiji. Indeed, its infrastructure is currently not designed for or capable of handling a large influx of urban-resort tourists.

Visitor numbers are currently growing, however, and infrastructure is likely to be improved, possibly with bilateral or multilateral development assistance, unless deliberate policy decisions are taken to restrict it. Currently, Samoa retains a strong traditional element in its social structures, known as *faaSamoa*, the Samoan way of life. This has already changed as a result of tourism, and continuing clashes between tourism growth and *faaSamoa* are likely. This may set a host-community limit to tourism growth.

Historically, visitors to another village were expected to bring gifts. This has evolved to a system where villages charge a wide range of access fees for tourists to visit individual beaches, waterfalls, forests, etc. or undertake specific activities, such as swimming or surfing. Currently these amounts are small and provide a means for local landowners to gain revenue from tourism. From a tourist's perspective, however, it is not easy to know what is reasonable and what is not. In addition, there are a range of Samoan customs that visitors must not infringe. Both these aspects provide particular opportunities for Samoan tour operators and guides, who can assist tourists in maintaining protocol without being taken advantage of. Any future moves to regulate visitors in particular areas or activities will require complex negotiations between tour operators, local villages and central government if they are to succeed. Existing operators have a distinct advantage.

Nature and adventure tourism are growing rapidly, with new tour operators guiding visitors to forests, lava tubes and waterfalls. This is producing impacts on particular species, such as cave-dwelling bats and forest-dwelling birds. Some broader form of protected-area system will be needed very soon. The existing National Environmental Management System, Ecotourism Strategy and environmental legislation protect some public areas, but most of Samoa is private or communal land, where plants and animals may not be protected.

For tourists seeking a customized experience rather than a standardized product, Samoa offers a wide range of relatively small-scale opportunities in nature, adventure and cultural tourism. Ecotour Samoa, a small business run by a Samoan-Australian couple, has devoted considerable effort in promoting these opportunities both within the country and internationally (Sooaemalelagi *et al.*, 1996; Ecotour Samoa, 2002). In 1997 the company received an award for Excellence in Tourism from the Tourism Council of the South Pacific, in recognition of these contributions.

Ecotour Samoa operates out of a large house, the Rainforest Ecolodge, in a rural area a short distance from the capital city of Apia on Samoa's eastern island of Upolu. Essentially a house and land in the local style, the Rainforest Ecolodge incorporates a permaculture-style orchard and vegetable garden, low-key tourist accommodation, a well-stocked library on tourism and the environment in Samoa and elsewhere and the operating office and residence for the company's owners.

For transport in Samoa, the company uses a highly colourful and customized bus, which must surely be an icon of ecotourism in Samoa. The front bumper carries a giant outline of a bat, constructed of heavy-duty black metal tubing. Sea kayaks and other tools of the trade are lashed firmly to the roof; the interior is fitted out with a dining table constructed of local hardwood; and the exterior is brightly decorated in eye-catching designs. Owner and chief guide Steve Brown is no less recognizable, with a beard that rivals ZZTop and boundless enthusiasm for the country's people and places. Equally important to the company's operations, operational efficiency and a firm grounding in Samoan society are provided by the other owner and partner, Funealii Lumaava Sooaemalelagi.

Broadly, Ecotour Samoa offers three types of tourist product. Most expensive are customized itineraries in Samoa, American Samoa and Tokelau, using up-market accommodation and local facilities, but guided by Ecotour Samoa. The company's principal product involves mid-priced travel in the company bus to various sites in Samoa, staying in local villages and communities. About 20 villages are currently involved in this programme. Guests stay in small but well-built beach huts, constructed in the vernacular style with a raised wooden floor, a thatched roof and walls made of woven mats, which can be rolled up or lowered as required. Food is cooked by the community concerned in local style and served at a group dining-table. Activities during the day include guided hikes, sea-kayaking, etc.

In addition, Ecotour Samoa offers a low-priced semi-volunteer programme, where visitors pay a base fee for food, accommodation and transport, and assist in cultural and conservation projects in participating villages. This programme is also used to help in training guides within the villages concerned. Finally, although not part of the company's own business operations, Ecotour Samoa has promoted domestic community tourism within Samoa. It suggests that local residents who currently live in the capital city should take advantage of their own cultural traditions and hospitality by spending a few days in one of the village communities that have established tourist facilities as above. If international visitors enjoy the experience, they argue, why not Samoans also?

In addition to offering international visitors an insider's perspective on the islands, Ecotour Samoa deserves particular commendation for its efforts in promoting the potential of ecotourism within Samoa, and the potential of Samoa within the international ecotourism market. Though small-scale and generally low-key, the company certainly offers products based on the local

natural environment and cultures; practises minimal-impact techniques at home as well as at work; involves local communities and provides them with tangible benefits; offers environmental education to communities, government agencies and other tourism operations, as well its own clients; and contributes to conservation, both by involving local communities and by its own involvement in national political processes, such as the Samoan National Ecotourism Programme.

### **\*Earth Science Expeditions, China**

Earth Science Expeditions (ESE) is an unusual organization, a non-profit corporation established specifically to carry out specialist environmental science research in areas of the world accessible only by multi-day back-country river expeditions. Its directors combine expertise in science, especially geology and water chemistry, with expertise in white-water rafting, kayaking and expedition logistics. Their primary focus is on first descents of large remote rivers draining the major catchments of the Himalayas. Many of these rivers run through areas occupied by minority peoples and, in some cases, disputed territories. In these areas maps and aerial photographs are still treated as military intelligence, and there is little or no up-to-date scientific information on the geology or ecology, at least in the international English-language scientific literature.

Because an American expedition some decades ago, with large corporate sponsors, paid an exorbitant fee to the Chinese government for the privilege of attempting a first end-to-end descent of the Yangtze River, and because the Chinese government charges high fees to mountaineering expeditions attempting an ascent of Mt Everest from the north, the Chinese government gained the mistaken impression that all expeditions were willing and able to pay large fees.

When ESE first proposed to run a section of the Mekong River, known in China as Lancang Jiang, the fees requested by Chinese authorities were well beyond the resources of a scientific expedition, particularly one funded entirely by its participants. Eventually, however, by making arrangements through the Chinese Academy of Sciences, these fees were reduced to US\$1000 per person for the first trip. This was still a very significant component of the total trip cost, but a manageable one. At the last minute, however, when logistics were almost completed, the Chinese government changed the permit from the Lancang Jiang itself to one of its major tributaries, the Yangbi. They also failed to mention to the expedition leaders that, over the 7-year period required to complete the permit negotiations, a large pulp mill had been constructed on the Yangbi, discharging untreated effluent directly into the river; and a large dam had been constructed on the Mekong River itself, flooding the last 40 km of the expedition's route.

Despite these difficulties, the expedition did run successfully, and ESE has subsequently run three further trips through the gorges of the Lancang Jiang itself, and one in the upper, Tibetan section of the river, with a second planned for 2002. From a river-runner's perspective, these later trips in the main channel of the Mekong had more to offer than the Yangbi, with cleaner water and more impressive rapids (Van Beek, 1998; Winn, 2002).

While the first expedition had a strong focus on geology, with internationally renowned geomorphologist Peter Molnar as one of its members, in addition to ESE leader Peter Winn, the later expeditions have been run effectively as commercial tours, advertised in white-water circles and open to anyone with relevant interests. The company uses a combination of kayaks and catarafts, which are a manoeuvrable design consisting of two heavy-duty plastic pontoons attached to an aluminium frame. Rigged for a single centrally-seated rower, they can carry passengers as well as food and camping equipment. The passengers do not necessarily need any particular river-running skills, although as a safety precaution they do need to be able to swim.

ESE's trips are expeditions in the sense that each is a one-off exercise involving complex logistics; they operate in remote and relatively inaccessible parts of the globe; they involve first descents of rivers that have not previously been run; all expeditions' members contribute to the costs as participants, rather than being separated into paying clients and paid staff; and the organization is set up as a non-profit corporation. The trips are tours in the sense that they take people who have paid for the privilege to parts of the world they would not otherwise visit; and, while some of the expedition members may be engaged in scientific research, others are there simply to experience nature, culture and adventure. All members of the expeditions, however, share expedition costs.

The directors of ESE are experienced river runners who are familiar with best-practice environmental management approaches for white-water rafting in the USA and elsewhere. One of them is a former long-term national park ranger in Colorado's Grand Canyon. On the river, ESE generally follows international-standard environmental management practices appropriate for a little-visited, seasonally flooded, high-volume river in a developing nation. For example, it is pointless to carry portable pump-out toilets in a country where there are no pump-out facilities and where human waste is routinely used as agricultural manure. Similarly, it is pointless to carry out glass bottles for recycling when there are no recycling facilities and where glass bottles are a scarce and highly valued commodity in riverside villages and can be reused immediately by local residents. Finally, given that all the villages in the areas concerned use fuelwood for cooking and there is abundant dead driftwood on the riverine gravel bars, which are reworked and flooded during the wet season every year, campfires provide the best minimal-impact option for expedition cooking.

Overall, therefore, while ESE does not advertise itself as ecotourism, it does provide paying participants with a nature-based and educational experience that creates minimal impact; and may contribute to conservation by supporting research, by making Chinese officials aware of the negative impacts of industrial development on tourism opportunities and by making more people aware internationally of the conservation value of the areas concerned and of threats to their natural and cultural environments.

### **\*SeaCanoe, South-East Asia**

SeaCanoe is a company started by John 'Caveman' Gray, expatriate from Hawaii, in Phang Nga Bay off Phuket on the eastern coast of Thailand. The company now also operates in Vietnam, the Philippines and Fiji (John Gray's SeaCanoe, 2002).

Phang Nga Bay is dotted by numerous, tall, steep-sided, limestone islands. Some of these contain large caves occupied by bird's-nest swiftlets, accessible by boat through high-tide level. These nests have been harvested for generations by particular local families. Because the bird's-nest material is such a valuable commodity, these families have heavily armed guards living permanently at the mouths of the caves, in bamboo platforms suspended above the cave entrances.

Some of the limestone islands are also hollow, but open to the sky above and containing internal lagoons accessible only through narrow intertidal tunnels. These are the principal attraction in the SeaCanoe tours. These islands were apparently first explored by Gray, who developed special narrow, low-profile, inflatable canoes, which could be threaded through the tunnels during a short period in the middle of each tidal cycle. Because the interior walls had previously been inaccessible, these hollow islands still supported diverse plant and animal communities, including monkeys and birds, which tourists can no longer see on the mainland. The island lagoons are known as *hongs*, and to emerge from a long dark seawater tunnel into a fully enclosed *hong*, lit by sunlight from above and surrounded by hundred-metre vertical walls of limestone, is certainly an astonishing experience.

From the outset, SeaCanoe attempted to maintain the conservation value of the *hongs*, limiting numbers and ensuring that visitors remained quiet and did not discard any litter or wastes. The company also went to considerable lengths to hire staff from local villages. Despite Gray's best efforts, however, a number of problems arose, which were not of his making, but which illustrate the difficulties that face even the best-intentioned and most successful ecotourism venture.

SeaCanoe does not own the islands it visits and, indeed, ownership seems to be disputed. As Gray's company became successful, entrepreneurs



from elsewhere in Thailand established copycat companies which duplicated Gray's product and, in some cases, used his discarded inflatable canoes when they were replaced. These companies used names very close to the original SeaCanoe, causing confusion for international visitors who had heard of Gray's company through its international tourism awards, magazine articles, etc. The copycat tours visited the same caves, using the entrance tunnels discovered by Gray. They set no limits on visitor numbers, causing congestion and safety risks. And they did not control visitor behaviour, so that noise, smoking and littering became commonplace.

Worse still, when the bird's-nest families saw that the tour operations were profitable, they demanded a cut of the takings – essentially, protection money. Gray refused to pay, and his Thai manager was gunned down, causing outrage in the international press and sparking a campaign of letters to the Thai royal family. Gray attempted to form a local industry association of tour operators to establish agreed quotas and safety and environmental standards, but some of the other operators formed a competing association with messy and confusing results.

John Gray's original company still operates, under the new name of John Gray's SeaCanoe, but the company has expanded to offer sit-on-top kayak tours amidst mangroves and a variety of tours elsewhere in South-East Asia, with less emphasis on the *hongs* of Phang Nga Bay.

I took part in one of Gray's multi-day tours myself some year ago. At that time one or two copycat companies had started operations, but Gray had cordial relations with at least one major bird's-nest family, since the tour included a visit to one of the bird's-nest caves. SeaCanoe's manager had not yet been attacked. The major concerns at that time were pollution of the Bay from coastal prawn farms and industrial development. By demonstrating the economic potential of ecotourism and by Gray's own lobbying efforts, SeaCanoe was instrumental in reducing these threats.

Some years later, however, Gray has expressed concerns that, by promoting his discoveries to tourists, he inadvertently triggered a chain of events that has been damaging not only to himself, but to the formerly hidden plants and wildlife of the *hongs*. Perhaps so: but Gray deserves considerable credit for his intentions, his efforts at community involvement and environmental protection and his perseverance in spreading the lessons from his own operations for the benefit of the ecotourism industry worldwide.

## Rivers Fiji

Rivers Fiji operates white-water raft trips on the upper Navua and the Wainikoroiluva Rivers in Viti Levu, Fiji (Rivers Fiji, 2002). Current capacity is 36 passengers per day on each river. The company started operations in 1998 after extended negotiation with Fijian government agencies and with

local villages and landholders. The tours are run by local guides, using minimal-impact approaches. Local landowners receive land-use fees, lease payments, guide training and employment opportunities. The expertise necessary to establish and operate a white-water adventure tour in a safe, low-impact and commercially viable manner was provided by expatriate partners who gained their skills in the USA. The company has established good relations with local village communities, involving them in decision-making processes and respecting their social norms. Total establishment costs were US\$500,000. The upper Navua Gorge, significant for biodiversity conservation, has been protected through a special conservation lease. Rivers Fiji has also acted as a model for ecotourism development within Fiji, providing tourism opportunities away from the coastline which act as a commercial alternative to logging and mining and provide support for local communities as well as conservation.

### **\*Tafua Canopy Walkway, Samoa**

Tafua Rainforest, a small conservation reserve in Western Samoa, contains a short canopy trail incorporating ladders, suspended walkways and lookout platforms. The reserve was apparently established as a result of efforts by a visiting ethnobotanist, Dr Paul Cox, through his company Seacology, with funds from WWF Sweden and later from model Christie Brinkley (Seacology, 2002a,b). There is a local village house at the entrance track to the reserve, and visitors are charged 10 Samoan tala (US\$3) per person entry fee. Supposedly, this money goes to ongoing management of the reserve, though I had no way to check whether this does in fact occur. The material for the canopy structures appears to have been imported from Canada and, while the ladder and walkways are currently still new and in good condition, it is not clear that any arrangements have been made for ongoing maintenance.

### **Tavoro Forest Park, Fiji**

Tavoro Forest Park is a community-owned reserve on Taveuni, the third largest island of Fiji. Land on Taveuni is largely owned by indigenous clans, known as *matagali*. Traditionally, the *matagali* have followed a subsistence lifestyle, but more recently they have begun to sell logging rights to their forests in order to obtain cash for housing and schools. Currently, around 50% of the island lies within logging concessions (Ceballos-Lascrain, 1996; APEC, 1997).

According to these authors, the Tavoro Forest Reserve was established largely through the efforts of one person, a young man who noted that the forest was already being visited by foreigners and persuaded local



community leaders that it could be valuable as a tourist attraction. These leaders were able to convince the *mataqali* community that there was greater economic potential in tourism than in logging, and the community applied successfully to the Fijian government and bilateral aid agencies for financial assistance to establish a visitor centre and hiking trails (Ceballos-Lascurain, 1996; APEC, 1997). The forest also received recognition as a Reserve within the national protected-area system.

In addition to rainforest, the Tavoro Forest Park includes a lake, streams, waterfalls, swimming holes and beaches. An area of rainforest and two waterfalls are accessible on a day walk along a well-tended hiking trail. A third waterfall is accessible via an overnight walk. Benches, restaurants and changing rooms have been provided along the trail so that tourists can take advantage of the forest creeks and swimming areas (Fiji Visitors Bureau, 1999).

In its first 6 months of operation, Tavoro Forest Park and Reserve received around 500 visitors per month, generating US\$8000 for the local community. Of this, about half was used in operating costs for the park and reserve and the remainder for schooling and house construction. The *mataqali* retained complete control over management of the reserve and the distribution of revenue. According to the Fiji Visitors Bureau (1999), the project's success is due at least in part to the reliance of the *mataqali* community on a subsistence lifestyle, so they are not dependent on cash from tourism but can use it to fund community resources according to consensus community priorities.

## **Community Ecotourism in the South Pacific Biodiversity Conservation Programme**

The South Pacific Biodiversity Conservation Programme (SPBCP) is a major regional initiative to establish a series of large and diverse conservation areas throughout South Pacific island nations. It is managed by the South Pacific Regional Environment Programme (SPREP), with funding from the Global Environment Facility through the United Nations Development Programme. SPREP is an intergovernmental organization with headquarters in Apia, Samoa. It has 26 members, of which 22 are Pacific island nations and territories. These members include American Samoa, Australia, the Cook Islands, the Federated State of Micronesia, Fiji, French Polynesia, Guam, Kiribati, Nauru, the Marshall Islands, New Caledonia, New Zealand, Niue, the Northern Marianas, Palau, Papua New Guinea, Pitcairn Island, Samoa, the Solomon Islands, Tonga, Tuvalu, the USA, Vanuatu and Wallis and Futuna. In total, these nations incorporate many thousands of islands, of which 90% are accessible only by boat.

By the year 2000, SPBCB had been operating for 7 years and had established 17 conservation areas, 12 of them with community ecotourism

**Table 3.1.** Community ecotourism initiatives under the SPBCP.

Project	Area (ha)	Important features
Uafato Conservation Area, Samoa	1,306	<i>Ifilele</i> stands, waterfalls, rainforest landscape, birds
Huvalu Forest Conservation Area, Niue	6,029	Traditional sacred forest, coconut crab, flying fox, coral outcrops
Komarindi Conservation Area, Solomon Islands	19,300	Catchment protection, birds, forest ecosystem, archaeological cave
Saanapu-Sataoa Conservation Area, Samoa	75	Mangrove forest, birds, beach areas
Takitumu Conservation Area, Samoa	155	Catchment protection, rare and endangered birds
Vatthe Conservation Area, Vanuatu	2,276	Lowland rainforest, birds, black-sand beach
Koroyanitu Conservation Area, Fiji	2,984	Dryland forest, birds, archaeological sites

initiatives. The scale and operational performance criteria for these projects have been defined by the communities themselves. Each had initial funding from SPBCB, but SPREP believes that 7 of the 12 (Table 3.1) will probably be financially self-sustaining at the end of this initial funding period (Martel, 2001).

As noted by Martel (2001), almost all land and marine resources in Pacific nations are in community ownership, and it is almost impossible for foreign investors to buy land and extremely difficult even to lease land, except in Tonga and some areas of Fiji.

### Togian Islands, Indonesia

The Togian Islands lie in the Gulf of Tomini in central Sulawesi. There are 17 major and 39 minor islands, with a total area of over 750 km<sup>2</sup> and a population of around 30,000 in 37 villages. Promoted as Indonesia's adventure-tourism destination by the Indonesian government tourism portfolio, Central Sulawesi receives only one-third as many tourists per year as North Sulawesi and fewer than one-tenth as many as South Sulawesi. Most of the visitors to Central Sulawesi are backpackers.

The Togian Islands are significant as a habitat for a number of endangered species. These include: mammals such as babirusa, cus-cus, rusa deer, Togian macaque and Tungasi tarsier; birds such as the Sulawesi hornbill and hanging parrot; and marine species such as the hawksbill turtle, the green turtle and dugongs (North Sulawesi Information Pages, 2002). The islands provide the only habitat for the Togian macaque, *Macaca togeanus*, the Togian lizard, *Varanus togeanus* and the giant coconut crab,

*Birgus latro*. The giant coconut crab was formerly widespread in Indonesia but is now an endangered species, restricted to a small area of the Togian Islands.

The islands are known internationally as a prime destination for scuba-diving. Coral reefs surrounding the Togian Islands are highly diverse, though heavily damaged by dynamite and cyanide fishing. The Togian Islands also provide good opportunities for sea-kayaking, windsurfing and other water sports (Suhandi, 2001, 2002).

Access to the Togian Islands is available only by sea. Accommodation is available in various hotels and cottages on seven different islands, with a total of 152 rooms in 1997 (Suhandi, 2001). One of these, a 15-room *losmen*, recorded 900 visitors in 1995. The Togian Islands probably receive around 5000 visitors per annum, as compared with 15,000–30,000 for the whole of Central Sulawesi. A survey by Conservation International in 1996 indicated that typical visitors to the Togian Islands are young Western Europeans, 20–30 years old, commonly travelling with a guide.

In 1997, Conservation International Indonesia and a local group, Yayasan Bina Sains Hayati (YABSHI), established an organization known as the Togian Consortium. Its aims have been to reduce damage to habitat and biodiversity by generating alternative income. To date the Consortium has successfully established the Togian Ecotourism Network, established technical capabilities in local communities and assisted in the development of successful tourist attractions. In particular, three locally managed tourist attractions have been established: a mangrove-forest wooden walkway, a forest trekking path and an island handicraft project. Project funding has been received from the Keidanren Fund, the Healthy Community Initiative and the district tourism office.

The Togian Ecotourism Network, also known by its local name of Jaringan Ekowisata Togian (JET), currently incorporates seven villages in Togian. The aim of JET is to coordinate the marketing and management of tourist accommodation and services, tour products and handicraft production. With assistance from Conservation International, the Network established an integrated ecotourism product, which started operations in 1997 and was marketed by one international tour operator and one Jakarta-based tour operator in 1998.

The principal attractions in the forest walks include the Togian macaque, hornbill, tarsier, babirusa and bats. The local communities, which operate the forest walk and the mangrove wooden walkway, gain income by charging entrance fees. Local businesses have gained revenue by providing accommodation, transport, canoe rental, food and guiding services.

The ecotour product increased the total number of tourists visiting the Togian Islands to 4000 in 1997 and increased the average length of stays from 5.6 to 7 days. In 1998, the Togian Ecotourism Network won a British Airways Tourism for Tomorrow Award. In addition to providing income for

Togian communities, the ecotourism project, in conjunction with a fisheries study, succeeded in persuading the provincial government to halt the extension of logging concessions in the Togian Islands. This is a significant conservation achievement.

## Mount Bromo, Indonesia

Bromo Tengger Semeru in East Java is a volcanic highland 500 km<sup>2</sup> in area, ranging in altitude from 1000 m to the peak of Mount Semeru, Java's highest mountain, at 3676 m. To the north is the Tengger caldera and Mount Bromo. Semeru and Bromo are both active volcanoes. The park is administered by the Directorate General of Forest Protection and Nature Conservation in the Ministry of Forestry. The Park's wildlife includes barking deer, wild pig, leopard, Javan porcupine, long-tailed macaque, jungle fowl and Asiatic wild dog.

Bromo Tengger Semeru receives more tourists than any other Indonesian national park. It is also ringed by over 50 villages, and the main threat to the Park's montane ecosystems appears to be woodcutting for fuel (Cochrane, 2000).

The Tenggerese are a Hindu group, culturally distinct from the lowland Javanese in surrounding areas. One of the main reasons that people visit the crater of Mount Bromo is for a large cultural ceremony, the Kasodo festival, which takes place every 9 months and attracts an additional 22,000–25,000 people.

The main livelihood of villages around the park is agricultural, with a mixture of subsistence crops, cash crops and livestock. The villages on the principal tourist routes, however, such as Ngadisari, now earn their livelihood largely from tourism and hire people from other villages to work their agricultural land. There is a long-standing village law in Ngadisari that prevents non-Tenggerese from buying land or renting for more than a year, and the same applies in several other nearby villages. In addition, only Tenggerese people may own horses and jeeps to take tourists to the crater. By means of these local regulations, the residents of Ngadisari have retained control over much of the income from tourism. The economic returns from tourist horse rides are commonly 15–20 times as much as from working as an agricultural labourer (Cochrane, 2000).

During the 1990s, Bromo Tengger Semeru National Park received 100,000–150,000 visitors per year, of which 25–30% were foreigners and the remainder domestic tourists. In 1995/96, these visitors paid a total of over US\$100,000 in entry fees. The total tourist income for East Java, however, for which Mount Bromo is the primary attraction, was over US\$170 million (Cochrane, 2000). Scenery and cool climate are the main reasons for visiting, and most tourists drive to Ngadisari and then ride and walk to the rim of the crater to view the sunrise. Most of the foreign visitors

stay overnight and, as of 1996/97, there were six hotels in or near Ngadisari, of which four are owned by either Tenggerese or their partners.

The economic, social and environmental impacts of tourism to Mount Bromo are considerable. In Ngadisari, tourism has replaced agriculture as the major source of livelihood, and families are generally more wealthy than in neighbouring villages. There has been a flow-on effect to nearby villages, many of whose residents are now employed to collect grass as fodder for the Ngadisari tourist horses or to work the Ngadisari agricultural land. Sociocultural impacts appear to have been minimal (Cochrane, 2000), partly because the Tenggerese people are used to retaining their traditional culture and religion in contact with a different society, namely the lowland Javanese, and partly because the Tenggerese villages have maintained control of most of the tourism services.

Environmental impacts include: an increase in litter and garbage thrown down the caldera wall; collection of grass as horse fodder from the area around the caldera; cutting of fuel wood in several villages, but apparently not in Ngadisari itself; and collection of the protected edelweiss, *Anaphalis javanica*, whose flowers are apparently considered to be lucky.

According to Cochrane (2000), 'the interests of PHA (Parks) field staff focus more on making money than on their official duty of protecting the park'. She concludes that the link between tourism and conservation is tenuous and that ecotourism as a stand-alone policy is unlikely to improve conservation. 'Where ecotourism projects are initiated with a conservation aim, official policy support in the form of government incentives and regulations – and enforcement of these regulations – is essential.'

## Gunung Halimun, Indonesia

Gunung Halimun (Misty Mountain) National Park, 400 km<sup>2</sup> in area and established in 1992, contains the largest remaining area of primary lowland forest in Java and provides habitat for 23 mammal species, including the endemic and endangered Javan gibbon and grizzled langur (Sproule and Suhandi, 1998). The park also supports more than 200 bird species, of which 18 are endemic, and over 500 plant species, and is inhabited by a number of indigenous peoples. It is threatened by subsistence and plantation agriculture, gold mining, timber cutting for fuel wood and infrastructure development. The park is 3 h by road from the capital city of Jakarta and, together with Gunung Gede Pangrango, provides a major weekend destination for many urban residents.

In an attempt to take advantage of ecotourism opportunities and counter threats to the natural environment and local communities, the Gunung Halimun Ecotourism Enterprise Development Project was established in 1995, with initial funding from the US Agency for International Development (USAID) (Sproule and Suhandi, 1998). The project involves

three participating villages, each of which has constructed guest houses and trails, manufactured marketable handicrafts and trained naturalist guides and food and beverage staff.

Three guest houses have been built, in the north at Leuwijamang, in the south at Banggunyangan and in the east at Citalahab. Guest houses in the south and east are outside the rainforest. The guest houses have been handed over to local communities to operate as commercial ventures.

The guest houses, built by community members on community land, are constructed to traditional designs using traditional materials, but incorporate such conveniences as water collection and storage systems, comfortable beds and flush toilets and septic tanks. Each of the guest houses can accommodate eight to ten clients, and each has a communal dining area with an adjoining kitchen. Local trails to nearby natural attractions, such as waterfalls or mountain-tops, have been upgraded where necessary and basic directional and interpretative signs installed. Nominated village residents have received training in guide skills, plant and animal identification and first aid; and food and beverage staff in the guest houses have been trained in food preparation and hygiene at a small hotel in the nearby city.

The villagers and the Gunung Halimun Ecotourism Enterprise Development Project were assisted by a number of outside interests, organized as the Gunung Halimun National Park (GHNP) Consortium. Consortium members include the Biological Sciences Club; the Wildlife Preservation Trust International of the USA; the National Park Management Authority of Indonesia; the University of Indonesia; and McDonalds Corporation Indonesia. The GHNP Consortium commenced social-, biological- and economic-impact monitoring in 1997. Log books and interviews were used to establish community involvement in the Gunung Halimun Ecotourism Enterprise Development Project. Biological monitoring was supposed to cover water quality, bird and primate populations and the extraction of bamboo and rattan for handicraft. Monitoring was supposed to be carried out quarterly by community residents.

For the year March 1997 to February 1998, the three village lodges received a total of 845 tourists, with an average stay of 1.4 days. Of these, 80% were Indonesian and 20% from overseas. These tourists spent a total of approximately 43 million Indonesian rupiah, of which over 75% was for accommodation and food. Direct costs were about half of total revenues, leaving a net revenue of around 22 million rupiah, of which 13 million were available as direct cash payments to the enterprise participants. These payments constituted approximately 11% of total household income for the participating villages (Sproule and Suhandi, 1998). Exchange rates between Indonesian rupiah and the US dollar fluctuate markedly, but, at rates as of September 1997, 44 million rupiah was about US\$15,000. The scale of cash input to the project by USAID and in-kind inputs by members of the GHNP Consortium was not specified by Sproule and Suhandi (1998), but, according to Purwanto (2002), the project received external funding of

US\$450,000 plus 49 million rupiah. Construction costs for the guest houses totalled US\$58,000 and staff training costs totalled US\$27,000 (Purwanto, 2002).

A number of difficulties in project implementation were identified by Sproule and Suhandi (1998), many of them relevant throughout Indonesia and, indeed, worldwide. First of these was disagreement about compensation for land provided by the communities for construction of the guest houses. In one of the villages, apparently, local youngsters had previously begun to level the area as a football field and argued for compensation for the labour involved and the lost opportunity. Concerns were apparently also raised, at an early stage of project implementation, that the project might be intended to convert local residents from Islam to Christianity, an extremely sensitive topic in Indonesia. This concern was overcome through a series of hastily arranged village meetings. Concerns arose within the GHNP Consortium over the involvement of McDonalds Corporation. According to Sproule and Suhandi (1998), McDonalds' involvement was pivotal to publicity in the principal target market of Jakarta, but, of course, McDonalds has also benefited by advertising its involvement in the conservation aspect of the project.

The aim of the project was to provide local community income to reduce extractive activities in the national park area. It is not clear how successful this has been (Purwanto, 2002). Local businesses have gained increased income and a percentage of profits goes to community facilities and for promotional activities. Since 2000, 10% of profits have been paid to the national park for the monitoring and management of a hiking trail. Trail maps have been produced and guidebooks are under production.

While successful as a tourism enterprise, however, it is not clear to what degree this project qualifies as ecotourism. Significant accounting irregularities were identified during the early phase of the project (Purwanto, 2002). Limits on visitor numbers have not yet been established. Monitoring has been inadequate, though this is now being addressed to some degree by the Japanese bilateral aid agency. A general lack of understanding of the aims and goals of ecotourism has been noted at all levels (Purwanto, 2002).

## Mountain Tourism in Nepal

Nepal is arguably the world's most famous trekking and mountaineering destination. Himalayan tourism commenced in the 1950s (MacLennan *et al.*, 2000) and, by the late 1990s, over 400,000 people visited the Kingdom each year, generating US\$1.64 million per annum and employing between 12,000 and 15,000 people (MacLennan *et al.*, 2000). Three-quarters of these visited Nepal for general sightseeing, but around 15% arrived specifically for trekking and mountaineering. There is also a significant white-water rafting sector, overlapping strongly with trekking. Since trekking requires a permit,



the number of trekkers is known quite accurately. In 1997 there were over 90,000 trekkers, 40,000 independent and 50,000 travelling with organized trekking groups. Around 60% of these trekkers visited the Annapurna region. Permits are also required for mountaineering expeditions and, in 1997, there were 120 expeditions involving 861 mountaineers and employing 7000 local support staff (MacLennan *et al.*, 2000).

The economic, social and environmental impacts of mountain tourism in Nepal have been studied quite extensively. In villages on the main trekking routes in heavily visited areas, such as Annapurna and Mount Everest, subsistence agriculture has largely been replaced by tourism-related activities. This includes running lodges, guest houses, restaurants and stalls; cultivating cash crops for sale to tourists; and working directly as porters, cooks and guides for group treks. With the additional funds available, Sherpa families are apparently preferring their children to receive a Western rather than a monastic education.

One very major environmental impact has been a large increase in non-biodegradable litter. It has been estimated that, during the late 1980s, trekkers were leaving over 55 t of litter per year in the Annapurna area alone (ICIMOD, 1995). Similarly, in the Mount Everest area, the Sagarmatha Pollution Control Committee collected 145 t of burnable garbage and 45 t of non-burnable garbage in 1995/96 alone.

Poor sanitation, inadequately covered toilet pits and scattered toilet paper and human waste are another issue of concern and have apparently led to extensive contamination of streams and rivers. Historically, the demand for firewood by lodges and tea-houses that supply the trekking market also led to extensive forest degradation and deforestation, though this may now be changing (MacLennan *et al.*, 2000). The Annapurna Conservation Area Project (ACAP) has established a minimum-impact code for tourists, which includes choosing lodges with appropriate waste-control and fuel-management practices. Such lodges, however, may not always be available or easy to identify.

## **Kathmandu Environmental Education Project, Nepal**

The Kathmandu Environmental Education Project (KEEP) is a non-government organization whose principal aim is to educate travellers in Nepal so as to minimize their environmental and cultural impacts. KEEP was established in 1991 in memory of a British climber who was killed in an accident while on a climbing trip to Mount Imja Tse in the Khumbu district of Nepal. The headquarters of KEEP are in the UK and its patron is Lord Hunt, leader of the expedition that led to the first successful ascent of Mt Everest. KEEP's principal operating office is in the Thamel area of Kathmandu, the capital city of Nepal. The Thamel area is one of the principal areas for trekkers, rafters, backpackers and other adventure tourists



visiting Nepal, with a high density of tourist hotels, restaurants, shops and trekking agencies.

KEEP's underlying philosophy is that, while tourism is a vital component of Nepal's economy, the impacts of tourism must be recognized and managed in order to protect the environment of the Himalayas and the culture of its peoples. KEEP operates a Travellers Information Centre, where visitors can obtain maps, trekking guidelines and other information. The centre contains a library of resources of Nepal's culture and environment and logbooks for major treks, such as Annapurna, Khumba and Langtang. Free weekly lectures and slide shows are offered at the centre during the principal trekking season, covering issues such as acute mountain sickness and other safety issues and the principles and practice of ecotourism (KEEP, 2002). KEEP also assists in offering first-aid and environmental training workshops for staff of trekking agencies.

KEEP has also initiated a number of small-scale practical conservation and training projects. In November 2000, for example, KEEP ran a community development project in the village of Shermantang, a community of 800 people at around 2700 m, providing training for trekking guides, porters and cooks. In March 2001, it ran a course on female outdoor leadership, in conjunction with the Nepal Mountain Association and EcoHimal Austria (KEEP, 2002). It also provides volunteer opportunities through an international schools conservation programme, and maintains international links in line with its overall mandate, 'sustainable development through sustainable tourism'.

### **\*Annapurna Conservation Area Project, Nepal**

ACAP currently encompasses three major management areas, namely the original Annapurna Conservation Area (ACA) itself; the Annapurna Sanctuary within the ACA; and the Upper Mustang Conservation and Development Area, which abuts the ACA to the north and was added in July 1992. This description covers only the original ACA. The Upper Mustang area is considered separately.

The southern section of the Annapurna region covers an area of over 5000 km<sup>2</sup>, most of it above 1000 m elevation. It contains areas of subtropical vegetation, as well as alpine and subalpine forests, with oak and bamboo in addition to pine, fir and rhododendrons. Wildlife includes musk deer, langur monkeys, snow leopard and a range of bird species. The area is the catchment for the Marsyangdi, Modi Khola and Kali Gandaki Rivers. The total resident population was quoted at around 40,000 in the early 1990s (Gurung and DeCoursey, 1994) and 120,000 in the late 1990s (Nepal, 2000a,b). It is not clear if these estimates are for the same area.

The Annapurna region is Nepal's most popular trekking destination, receiving half of all the country's total trekking tourists. It is accessed via the

regional hub city of Pokhara. In the mid-1990s it was visited by around 33,000 trekkers, staying an estimated 14 days on average (Weaver, 1998). By the mid-1990s the total number of visitors was estimated at 55,000 per year (Nepal, 2000a,b). These visitors support several hundred lodges in the southern Annapurna area, with the total number listed as around 850 by Gurung and DeCoursey (1994) and 476 by Nepal (2000a,b). The earlier estimate may include teashops as well. The first lodge was opened in 1976, in the village of Ghandruk. Initially, lodges were built in the same style as local houses, but more recent constructions have been of concrete (Shackley, 1996).

The growth of the trekking industry in the 1980s led to widespread deforestation for firewood and to water contamination through inadequate disposal of human waste. To address these problems, ACAP was established in 1987, covering an area of 2600 km<sup>2</sup> (Gurung and DeCoursey, 1994). ACAP is managed by the King Mahendra Trust for Nature Conservation, a non-governmental organization, which gains its operating revenue by charging fees to trekkers, after an initial start-up period when it was supported by international donors. Trekking fees are charged in protected areas throughout Nepal, but in most areas are returned to the central government treasury. The King Mahendra Trust, in contrast, is entitled to retain these fees and also to charge a significantly higher rate per capita.

In 1994, entrance fees to ACAP were US\$13 per person and trekking fees to the government of Nepal were US\$5 for the first 4 weeks and US\$10 for each additional week (Pobocik and Butalla, 1998). As ACAP received over 40,000 trekkers per annum in the mid-1990s, this generated over US\$700,000 per annum in fees alone at that date. Nepal (2000a,b) quoted visitor fees at 1000 Nepali rupees per visit (about US\$15) and total fees in the mid-1990s at US\$800,000 per annum.

The ACA was established for multiple use rather than strict protection, and ACAP has established a wide range of small-scale community development projects, including reforestation, micro-hydroelectric power plants and health and education programmes, as well as tourism projects. These projects are funded from visitor entrance fees. Villages are also expected to co-finance such projects. They are also involved in management of the area through numerous management committees, covering areas such as conservation and development, lodges, paraffin-oil depots, electricity, health centres and drinking-water. This degree of local participation is 'very different from other protected areas in Nepal, where resource management and protection is carried out directly by the government with almost no local involvement' (Nepal, 2000a,b). Links between tourism, conservation and local communities have been successful, but links with other economic sectors, such as agriculture, are apparently poor.

ACAP appears to have had considerable success in curbing deforestation, reducing hunting, improving the standard and hygiene of tourist lodges and tea-houses and contributing to the economic development of the

villages (Gurung and DeCoursey, 1994; Shackley, 1996; Weaver, 1998). A number of concerns, however, have been expressed recently. Foremost of these is the unplanned proliferation of new tourist buildings, including non-traditional concrete structures, at major trail intersections and staging points, in a kind of trailside strip development. It appears that the Annapurna region is to some degree losing its popularity with trekkers, relative to the Sagarmatha (Everest) National Park in the Khumbu Region and the Upper Mustang area, which has been promoted since 1992 as a new tourism destination. It seems likely that the perception of overcrowding and the progressive loss of the traditional village atmosphere may be a significant contributing factor. If so, villages that currently place heavy reliance on trekking tourism could well suffer a sharp economic downturn unless these perceptions are addressed.

According to Nepal (2000a,b), despite progress by ACAP in introducing alternative energy sources and energy-efficient technologies, most lodges continue to use firewood as their main source of energy, and heavy and haphazard tree cutting, with localized deforestation, is apparently continuing. Other environmental impacts, particularly in the Annapurna Sanctuary, at the base of the Thorong Pass and in Ghorepani village, include inadequate sanitation, extensive non-biodegradable litter and water pollution in the local streams.

Another concern that has been raised in regard to ACAP is that villages on prime trekking routes receive the bulk of the benefit. In 1994/95, the effects of ACAP in one particular village on the most popular trekking route were evaluated by two American researchers (Pobocik and Butalla, 1998). The village chosen was Tatopani, about midway on the route from the town of Pokhara, which is the starting-point for most treks in the area, to the village of Jomson, which is the usual turn-round point for trekkers who are not proceeding further around the entire Annapurna circuit or through into Upper Mustang.

The tourism study found that independent trekkers spent an average of US\$6.50 per day while in Nepal and group trekkers spent an average of US\$78 per day, of which US\$31 was actually spent in Nepal. Most of the expenditure by group trekkers in Nepal, however, goes to agencies in Kathmandu or Pokhara. In addition, even though group trekkers effectively employ an average of 3.6 support staff per trekker, including guides, porters and cooks, most of these are hired from outside the ACA itself. Independent trekkers spent only one-quarter as much per day, but almost the entire expenditure is within the trekking area. In addition, while independent trekkers effectively employ only 0.1 support staff per trekker, the staff are nearly all hired from villages within the ACA. There are also three times as many independent as group trekkers in the ACA. Overall, Pobocik and Butalla (1998) concluded that group trekkers contributed more per person to the national economy, but independent trekkers contributed more to local economies.

The American study also focused on fuelwood consumption as an index of environmental impact, since this has long been a critical issue associated with trekking in the ACA and elsewhere in Nepal, and one that has been addressed specifically in management plans. Following international concern over deforestation in the Himalayas during the past three decades, to the point where increasing slope-wash erosion was causing concern over siltation in hydroelectric dams far downstream in India, considerable effort was devoted both to aid-funded reforestation programmes and to management measures to replace fuelwood by paraffin oil for cooking and warmth.

Pobocik and Butalla (1998) attempted to quantify fuelwood consumption at Tatopani by interviewing 97 local households. They noted that villagers at Tatopani use considerably less fuelwood than those elsewhere in the ACA, firstly, since Tatopani is at low elevation and therefore relatively warm; and, secondly, since it has hot springs which supply hot water for tourist bathing and ablutions, reducing fuel requirements considerably. They also noted that owners of tourist lodges consistently under-report fuelwood consumption.

Using estimates both of fuel consumed and fuel collected, the American study found that, as of 1994, Tatopani used between 20,000 and 25,000 bundles of fuelwood annually, of which 25% was for tourists and 75% for local residents. They also found that it takes 1 full day to collect one bundle of fuelwood. This calculation, however, assumes that support staff for group treks consume fuelwood at the same rate as local households; whereas in practice they consume considerably more. Pobocik and Butalla noted that, even where trekking companies supply their support staff with warm clothing so that they would not need to use fires for warmth, the clothing may often be sold or given to relatives.

In addition, they found significant resistance to the use of paraffin oil by: the Nepal government, because paraffin oil requires foreign exchange; lodge owners, because paraffin oil costs more than fuelwood; and trekking staff, because, at lodges with fuelwood stoves, porters can use the stoves free of charge for cooking and warmth, whereas, at lodges that use paraffin oil, both cost money.

As of 1994, there were 182 households in the Tatopani village development district. Most of these are either in the valley floor, within 1 h walk from the main trekking trail, or at middle elevations, 1–3 h from the trail. About 10% are at higher elevations, 3–5 h walk from the trail. Pobocik and Butalla (1998) found that residents at high elevations derived little benefit from tourism, while suffering from forest degradation. In the valley, half of the households interviewed derived their income from tourism and about half thought that the forest had deteriorated with the growth of tourism. Results at mid-elevations were intermediate.

Interestingly, none of the residents at high or middle elevations, and only 20% of those in the valley, knew of the existence of ACAP. The American study concluded that 'most people in the Tatopani Village Development

Committee are being harmed by depleting forests without receiving benefits from tourism' (Pobocik and Butalla, 1998, p. 166). They also found that 'local support for independent trekking is stronger than for group trekking because the economic benefits are greater'.

Perhaps most importantly, they noted that:

It is commonly believed that independent trekking places a greater burden on natural resources than group treks that carry their own fuel and sleep in camps, because extra lodges are built and fuelwood is consumed in the process of providing for independent trekking. The current study refutes these assumptions.

(Pobocik and Butalla, 1998 p. 168)

The main reason is that group treks include large numbers of support staff, who consume resources, such as fuelwood, at a high rate. 'A typical group trek around the Annapurna circuit involves 50 support staff for 12 clients' (Pobocik and Butalla, 1998, p. 169).

Finally, while Pobocik and Butalla (1998) applaud the production of a minimal-impact code for tourists by the ACAP, they note that it does not work in practice, since it tells tourists to stay in lodges that use paraffin oil, whereas in most villages none do. They suggest that an environmental-friendliness rating is needed for each lodge, with monitoring by the tourists themselves to avoid the scheme becoming corrupted by local interests.

Despite these concerns, it does appear that ACAP has been broadly successful. Accordingly, when the Upper Mustang area was opened to tourism, attempts were made to duplicate this success (see pages below). The basic conditions that gave ACAP staff the opportunity to develop trekking tourism as a conservation and community development tool in the Annapurna region, however, were apparently not replicated in the Upper Mustang region, so the efforts of staff were largely frustrated.

Political developments in Nepal during 2001 and 2002 have led to considerable international concern over the safety of international tourists. While recent postings from Nepal to green-travel list-servers suggest that risks have been exaggerated, these concerns may well be sufficient to reduce the number of trekkers visiting the country and hence the revenues accruing both to the ACAP and to individual villagers on major trekking routes. The degree of local disruption this may create remains to be seen.

## **Upper Mustang, Nepal**

The Upper Mustang area lies north of Jomsom Pass in the Annapurna region of Nepal and stretches north to the Tibetan border. It is approximately 2300 km<sup>2</sup> in area, mostly arid canyons and plateaux above 2800 m, bearing a sparse vegetation of alpine scrub species, such as juniper, birch and poplar. Native wildlife includes endangered species, such as snow leopard,

lynx, black bear, arghali sheep and wild ass. The total population is around 7000 people, in 32 widely scattered settlements. Livestock herds, including cattle, sheep, goats, yaks and horses, total over 40,000.

The Mustang area was completely closed to foreign visitors until 1992, when it was opened to a limited number of trekkers in order to generate revenue from tourism (Gurung and DeCoursey, 2000). Trekkers were allowed to travel only as part of a group organized through an authorized trekking agency. All groups were required to be self-sufficient in paraffin-oil fuel, all garbage had to be carried out and each group had to be accompanied by an environmental officer paid by the group.

The total number of international visitors was limited to 200 per year, each allowed to stay a maximum of 2 weeks, for a fee of US\$500 per person per week. Residents of Mustang were assured by the government of Nepal that 60% of the revenue generated would be made available to the local community (Gurung and DeCoursey, 2000).

The reality, however, was apparently rather different from the rhetoric. As soon as the first groups of tourists began to arrive, the tourism industry started lobbying the government to increase the annual quota and decrease the per capita fee. The quota was doubled, and the fee revised to US\$700 per person for 10 days of trekking, plus US\$70 for each additional day. These fees generate considerable revenue for the Ministry of Tourism, but very few local people have received any benefits (Nepal, 2000a,b). Shortly thereafter, the quota was increased to 1000 per year. Actual numbers have fluctuated from 750 to 805 in the period 1993–1997 (Gurung and DeCoursey, 2000). Visitors stay in 19 local inns and lodges, and bring in between US\$600,000 and US\$700,000 per annum in entry fees. One of the main tourism attractions in the area is the walled city of Lo Manthang, established in the 14th century (Nepal, 2000a,b).

Currently, tourists may visit Upper Mustang only as part of a tour group led by a registered agency. Tour groups must bring their own supplies, stay in tented camps and either carry out waste or dispose of it properly on site. Each tour group is accompanied by a Nepalese liaison officer to ensure that these regulations are adhered to. Environmental impacts noted to date (Nepal, 2000a,b) include toilet waste and trash piles. Historic buildings are deteriorating and household trash is apparently prevalent throughout Lo Manthang, including partially decomposed carcasses of dead animals (Nepal, 2000a,b). It appears to date that:

relations between tourism, protected area and local communities in the Mustang context are disappointingly unfavourable . . . due to the exclusion of local people from tourism. While tourism has greatly benefited the government, neither the protected area agency nor the local community have received any benefits . . . local people are totally frustrated with the government and disappointed with ACAP because of its inability to persuade the government for a people-centred approach.

(Nepal, 2000a,b)



Conservation and community development in Mustang was delegated by the government of Nepal to the King Mahendra Trust for Nature, which had successfully run ACAP since 1986. In November 1992, 9 months after the area was first opened for trekking, the King Mahendra Trust initiated the Upper Mustang Conservation and Development Project (UMCDP) to channel tourism revenues into local communities. UMCDP established good relations with local people; ran environmental clean-up campaigns; brought in medical support; took community representatives to the Annapurna area for training; developed and distributed information brochures and codes of conduct; established tree plantations and micro-hydro- and solar electrical supplies; introduced fuel-efficient stoves; began a heritage conservation programme for monasteries, paintings and artefacts; carried out health and hygiene education, and so on (Gurung and DeCoursey, 2000). Initially, in consequence, it was highly successful.

Funding provided for UMCDP, however, has been well below the amount initially promised by the government of Nepal (Gurung and DeCoursey, 2000). Instead of the 60% of total revenues promised, the actual proportion provided has fallen steadily from 41% in 1992 to 4.5% in 1997, when UMCDP received only US\$25,000 out of total tourist revenues of nearly US\$550,000. Since the residents of Mustang know how many tourists visit each year and can easily calculate total revenues, they are 'understandably angry and frustrated at this breach of faith . . . and know that they are being cheated' (Gurung and DeCoursey, 2000).

The detailed politics were complex, involving a range of Nepali government agencies and a range of international agencies. In essence, however, it seems quite simple: the government and tour operators allowed and encouraged an expansion of tourism at far too rapid a pace, purely in search of profit, and failed to provide the UMCDP with the promised proportion of revenues to carry out its land management and community development programme. In addition to trekkers, Mustang was 'deluged by foreign dignitaries, film makers and photo journalists . . . helicopters buzzed back and forth from Kathmandu every day . . . the Mustang Dog and Pony Show had begun' (Gurung and DeCoursey, 2000). The result was 'local leaders begging for projects with foreign donors as well as common people begging for anything they could get from outsiders'. In addition, prices sky-rocketed and art objects were sold or smuggled out. Gurung and DeCoursey (2000) conclude that, 'in order to operate effectively, UMCDP needed the support of clearly written rules and regulations and the authority to enforce them'. In practice, it appears that it was given responsibilities which it enthusiastically attempted to discharge, but did not receive either the authority or the funding to do so properly, and the net result has been tourism development that is far from ecotourism.

## **Baghmara Community Forest, Nepal**

The Baghmara Forest is a replanted and regenerated forest area forming a buffer zone adjacent to the Royal Chitwan National Park in Nepal. It was established in 1989 following gradual degradation of the park itself over the preceding two decades. It is managed by the Bachhauli Village Development Committee and, since 1993, by the Baghmara Forest User Group, one of many such groups established under the 1993 Forest Act in Nepal. As of the mid-1990s, the forest provided habitats for 15 rhinoceros, as well as hare, jackal, deer, monkey, mongoose, otter, crocodile, turtle, various snakes and lizards and almost 200 bird species. It does not yet support tiger, one of the principal attractions at the Royal Chitwan National Park, although it did so in historical times and may yet do so again (Rijal, 1997).

The villagers use the forest both for forest products and for ecotourism. As of the mid-1990s, it provided over 50% of local requirements for fuelwood and thatching materials and in future is expected to meet these needs entirely. The Baghmara Forest was opened for tourism in 1995, and tourist revenue to the local community in 1996 totalled US\$21,600 (Rijal, 1997). The Forest Users Group has constructed wildlife viewing towers, which also incorporate tourist accommodation, and local residents have built guest houses and established guided tours, including canoe tours. As the forest continues to regrow and wildlife to return, tourism opportunities will continue to increase.

Revenues to date have been used to hire forest guards, train local guides, contribute to three local schools and build embankments to reduce flooding. The Forest User Group has also established a monitoring committee, which has the authority to restrict the number of visitors in the forest. In addition to direct economic benefits from forest products and tourism, the community forest provides a buffer from wildlife in Chitwan National Park, which might otherwise damage crops and attack livestock. Clearly, however, as the forest ecosystem and wildlife population in the community forest continue to recover, its value as a buffer zone to the community will be reduced at the same time as its value for conservation and tourism are increased.

Overall, it appears that the Baghmara Community Forest has successfully prevented further degradation in the Royal Chitwan National Park, established additional habitat for forest wildlife and provided income for local residents, both as a source of forest products and as an ecotourism attraction. Unlike nominal buffer zones around some conservation reserves, which have been completely denuded and heavily settled, the buffer zone at Baghmara has apparently been successful in restoring a heavily degraded area to forest cover.



## **Suba Olango Ecotourism Cooperative, Philippines**

Olango is an island near Cebu City in the central region of the Philippines. Residents in the fishing village of Suba have established a community business venture known as the Suba Olango Ecotourism Cooperative, which runs the Olango Birds and Seascape Tour. The tour started in March 1998, with technical assistance from the Coastal Resource Management Project (CRMP), a USAID-funded initiative of the Philippine government. The tour includes birdwatching, a coastal hike, canoeing, snorkelling and swimming. Interpretation is provided by a naturalist guide, with particular focus on migratory birds (Flores, 2001; CRMP, Philippines, 2002).

Suba village is adjacent to a protected wetland area, the Olango Island Wildlife Sanctuary, which is a declared Ramsar site and an internationally important wetland for migratory birds. The Sanctuary was at risk from illegal harvesting, and CRMP proposed the ecotourism venture as a means of involving the local community in wetland protection. The tourism venture is viable because Olango Island is only 4 km from Mactan Island, which is the Philippine's second largest tourism gateway, with an international airport and numerous five-star resorts. The interpretation programme on the bird and seascape tour draws the attention of tourists to the role of the tour in conservation.

The project received a boost from a Pacific–Asia Travel Association (PATA) Conference held in Mactan in 1998, when PATA delegates were invited on a pilot version of the Olango Bird and Seascape Tour. In the 6 months following the PATA Conference, CRMP contacted national and local government agencies to provide support for the project and established marketing links with existing tour companies in Cebu. A series of training workshops and community meetings were also held. No infrastructure was built.

During 1999, the tour began full commercial operations and administration was taken over by the Suba community. The community formed two subsidiary groups: a Paddlers Group, which established the guidelines for accrediting and managing the canoe paddlers and guides; and a Women's Group, which covers the administration and hospitality aspects of the tour. Best-practice guidelines for minimizing impacts in the Sanctuary were also agreed, and CRMP has sought to involve the Suba Olango Ecotourism Cooperative in visitor management, rehabilitation and research in the sanctuary. The tour had 360 visitors in 1999, 460 in 2000 and about 750 were projected for 2001. During 2001, CRMP involvement was also due to be phased out (CRMP, 2002).

To date, therefore, it appears that the project has successfully used ecotourism as a mechanism to involve a local community in protecting an internationally significant conservation area, rather than posing a continual threat to its ecological integrity. The Olango Bird and Seascape Tour incorporates a nature-based product, minimal-impact management, an

environmental education component, a contribution to conservation and community involvement: a textbook example of ecotourism.

Of course, it has further tests to face. The first will be its financial viability when USAID/CRMP support is withdrawn. This will depend on community skills in establishing a marketing plan, with effective links to existing tour operators in Cebu. The second test will come if and when it does in fact achieve major commercial success, so that the number of tourists grows to the point where the tour itself causes impacts on the Olango Island Wildlife Sanctuary. At this point, the Suba Olango Ecotourism Cooperative will face a conflict between short-term profit and long-term viability of the ecotourism business, and some community division may be anticipated at that point. Since the Sanctuary is an internationally recognized Ramsar wetland, however, this should provide a layer of protection above the Cooperative itself.

### **Noslek Arbor Canopy Walk, Philippines**

The Noslek Arbor Canopy Walk, on the island of Mindanao, was first proposed by the Philippines office of Conservation International (Garcia, 2000). A group of local mountaineers built the canopy walk with assistance from the local community and funding from the Philippines Department of Tourism. Construction cost was 1 million Philippine pesos (US\$20,000). They also formed a tour company, based in the regional gateway city Cagayan de Oro, which takes tourists on 1-day and overnight river and forest treks featuring the canopy walk.

The forest area is vulnerable to illegal logging and to damage from traditional forest agricultural practices. It is these activities, however, which have historically provided economic support for local communities. In choosing a site for the canopy walk, therefore, forest areas used intensively by local communities were avoided. Under Philippines legislation the site also had to be outside the National Integrated Protected Area System. To protect it from illegal logging, the site eventually selected was declared a tourism zone by the local municipal government.

The canopy walk and observation decks are attached to trees up to 30 m tall, using strap binders. No trees were cut, and access is along existing local trails. Smoking is prohibited and the maximum tour group size is ten people. Local residents were hired to construct the canopy and to carry out routine maintenance and cleaning of the trail, canopy walk and associated toilet facilities, as well as acting as tour guides. Each tour group is accompanied by five guides, and guiding jobs are rotated in the local community so as to spread the income from the project (Garcia, 2000).

According to Garcia (2000), locals have come to rely upon this income at times when subsistence harvests are lean. Since these are the times at which they would otherwise cut trees to sell as lumber or clear additional

forest areas for agriculture, the canopy walk makes a significant local contribution to forest conservation. In addition, a proportion of the tour revenue goes to the local *barangay*, the smallest administrative unit in the Philippines, and a portion to the local municipal government. Before the canopy walk was constructed, *barangay* officials were implicated in illegal logging in this area. Since the canopy walk started operations, illegal logging has been reduced by 95%, with *barangay* officials actively prosecuting any culprits caught (Garcia, 2000).

Overall, therefore, it appears that, though small-scale, the Noslek Arbor Canopy Walk has made significant local contributions to forest conservation and local communities. Future development plans include trails to waterfalls in the area, overnight tours with guests camping near the canopy walk and extensions to the canopy walk and observation decks (Garcia, 2000).

### **Kanchanaburi Ecotourism Cooperative, Thailand**

Kanchanaburi is the third largest province in Thailand, almost 20,000 km<sup>2</sup> in area. It contains nine conservation reserves of various types, mostly with mountainous limestone terrain. Tourist attractions include numerous scenic waterfalls and caves, some containing prehistoric artefacts. These areas have been subjected to ad hoc tourism development, with significant environmental degradation and relatively little local community benefit (Pitamahaket, 1997).

The Kanchanaburi Ecotourism Cooperative Company (KECC), incorporated in 1995, aimed to involve local communities and tourism businesses in protecting the region's natural assets. Its professed objectives are to: promote and develop high-quality ecotourism with minimal environmental and cultural impact; control tourism in respect of carrying capacities; monitor tourism impacts; develop ecotourism activities with high safety standards, responsibility and integrity; train nature tour guides to provide high-quality interpretative tours; work with staff and communities to foster environmental and cultural awareness; and combine local wisdom with modern knowledge to develop activities that support cultural-heritage preservation.

KECC aimed to fund its operations through a combination of membership fees, donations, issuing shares and running commercial ventures, such as handicraft production, botanical gardens, traditional medicine, an elephant village and a community bank. It is not clear how it has progressed in practice.

### **Coastal Kampung Tourism, Malaysia**

The eastern coastline of peninsular Malaysia is dotted by small fishing villages known as *kampungs*. The beaches, islands and forests of the eastern

coastline have attracted foreign visitors since the early 1970s. Early visitors were mostly low-budget independent backpackers, described by Hamzah (1997) as an extension of the 'hippie trail' into Malaysia in the early 1970s. I visited the area myself in 1973. The growth of tourism during the 1970s was gradual and low-key, based largely on home-stay and small-scale accommodation in active fishing villages. During the 1980s, tourism development expanded in both scope and extent and, since a marketing campaign known as Visit Malaysia Year in 1990, there has been rapid and larger-scale development of tourism along the eastern coastline (Hamzah, 1997).

In the village of Cherating, about halfway up the eastern coastline, there were apparently 19 tourist huts in the mid-1970s, 189 by 1990 and 356 by 1994, with a further 192 either in construction or awaiting development approval (Hamzah, 1997). The near-shore islands have been particularly popular tourist destinations. These include Pulau Kapas, Pulau Redang and Pulau Perhentian off the northern coastline and Pulau Tioman, Pulau Aur, Pulau Rawa, Pulau Besar, Pulau Sibu and Pulau Tinggi off the far southern coastline. As of the mid-1990s, for example, there were 1435 tourist rooms with 263 different owners and one resort with 349 rooms (Hamzah, 1997). In 1973, in contrast, the best-known island was Pulau Kapas in the north, accessible by fishing boat from Batu Rakit, but there were no facilities on the island and, while it was possible to camp on the beach, visitors had to be entirely self-sufficient during their stay on the island.

A review by Hamzah (1997) tracks the history of small-scale kampung tourism, the gradual change from government disapproval to government encouragement and its social and economic impacts on the communities concerned. For example, at Pulau Tioman in 1983, most residents were engaged in subsistence fishing, whereas, by 1992, 90% were directly or indirectly involved in tourism. According to this analysis, there has been a gradual progression whereby villages initially visited by foreign backpackers have subsequently become popular destinations for domestic tourists, and the backpackers have then moved to new villages. In the process, the layout, structure and social life of the villages have changed considerably, many villagers have become highly successful entrepreneurs and there has been considerable and extensive damage to near-shore marine and coastal environments. At Pulau Tioman, for example, by 1984 over 50% of the coral colonies had been damaged by boat anchors; by 1995, 20–40% of individual coral colonies had been killed by sedimentation; and concentrations of the faecal bacterium *Escherichia coli* in the coastal waters were almost 100 times higher than the global recommended standard for safe bathing (Hamzah, 1997).

Overall, it appears that, while the early stages of tourism development in the kampungs of the eastern coastline might well have been characterized, in today's terminology, as successful community-based tourism or even ecotourism, in retrospect it has become clear that this

was merely the beginning of large-scale unplanned and uncontrolled beach tourism development, bringing with it major social, economic and environmental disruption. The only characteristic that still reflects community development paradigms is the dispersion of ownership among many small-scale businesses, rather than concentration into a few large-scale resorts. Even this, however, may well be changing.

### **Kuantan Fireflies, Malaysia**

Kampung Kuantan is a coastal village in the state of Selangor, Malaysia, renowned for the opportunity to watch fireflies in a mangrove wetland area on the Selangor River. Accordingly to Othman and Othman (1998), the Firefly Park Resort provides low-impact accommodation and tours for visitors to see the fireflies. Accommodation consists of cabins built on stilts above the water, and sightseeing tours to view the fireflies at night are operated by an electrically powered boat to minimize noise and air pollution. According to Othman and Othman (1998), firefly tourism is currently of considerable economic value to the local community and the country, but the area is threatened by nearby development proposals that would damage the mangrove environments.

### **\*Bardia National Park and Lodges, Nepal**

Royal Bardia National Park lies in the Terai area of southern Nepal near the Karnali River. Originally gazetted in 1976 as a 368 km<sup>2</sup> hunting reserve, it was expanded to 968 km<sup>2</sup> in 1988 and regazetted as a national park. It is the largest and least disturbed wilderness area in the Terai (Nepal Tourist Board, 2002; Visit Nepal, 2002), and provides habitat for a range of endangered animal species, such as the Bengal tiger, rhinoceros, elephant, gharial, Gangetic dolphin, swamp deer and black buck. Other wildlife species include the leopard, jungle cat, civet, mongoose, hyena, sloth bear, langur, otter and nilgai, as well as over 400 bird species.

The park is known particularly for the opportunity it provides to see Bengal tiger in the wild from elephant back. Indeed, given the complex mosaic of swamps, rivers, dense brush, tall forest and elephant grass, an elephant is probably the only mode of transport that can provide access in reasonable safety.

Tourist accommodation is available at a number of local lodges: these include Tiger Tops Karnali, a member of the Small Luxury Hotels of the World; and Bardia Jungle Cottage, established in 1994 by a retired employee from the national parks service. Bardia Jungle Cottage consists of a set of bungalows using solar power, paraffin-oil lamps and candles.

The growth of tourism at Bardia has provided employment and revenue for local communities, who were formerly very antagonistic to large wildlife because of the damage caused to crops. Similarly, tourist revenues have reduced illegal commercial cutting of timber within the park. Local subsistence access for thatch and similar materials, however, is apparently still permitted.

## **Sagarmatha National Park, Nepal**

The area around Mt Everest, the world's highest mountain, is incorporated in a national park known as Sagarmatha. With an area of approximately 1150 km<sup>2</sup> and an altitude above 3000 m, the main vegetation of the park is alpine and subalpine pine, juniper, fir and rhododendron forest. The area forms the catchment for several well-known rivers, including the Dudh Kosi and Bhote Kosi (Nepal, 2000a,b). The total population is a little over 3000, with the majority being Sherpa people. Less than 3% of the land area in the Sagarmatha district is cultivated.

Tourism is an important part of the regional economy with 224 lodges and approximately 17,000 visitors annually, generating entry fees of around US\$200,000 per annum (Nepal, 2000a,b). During the peak tourist months, the total number of visitors, including their guides and porters, exceeds local populations by around five times. The centre of this tourist activity is Namche Bazar.

Even though Namche Bazar itself has reticulated electricity and many of the lodges use alternative energy sources, firewood is still a major source of energy for most of the lodges and timber is the main construction material. During peak tourist seasons, lodges apparently consume over 9 t of firewood daily (Nepal, 2000a,b). This timber is cut in areas immediately outside the park boundary.

Litter is also a major environmental management issue in the Sagarmatha area. Mt Everest itself has been described as the world's highest junk-yard and the trail to the Everest Base Camp as the garbage trail (Nepal, 2000a,b). During 1996/97, the Sagarmatha Pollution Control Committee, a local non-governmental organization supported by the government of Nepal and the WWF, collected 243 t of garbage in the Sagarmatha area, 60% from Namche Bazar. In addition, over 12% of park trails have apparently suffered deep erosion and expansion to the point where immediate maintenance is required (Nepal, 2000a,b).

The growth in tourism has apparently also had a significant effect on Sherpa communities. On the one hand, high-altitude trekking and mountaineering provide income for over 60% of Khumbu families; but on the other, community stewardship of communal forests, friendly relations between neighbours and communal activities appear to have broken down (Nepal, 2000a,b).

## Makalu-Barun National Park, Nepal

The Makalu-Barun National Park and Conservation Area is much less heavily visited than the Khumbu and Annapurna regions in Nepal, receiving about 500 to 1000 visitors per year in the mid-1990s (Odell, 1996). The Makalu-Barun Conservation Project is intended to promote local community development initiatives to increase and diversify local incomes without increasing environmental pressures on the core conservation area. These initiatives include the production of textiles, paper and other artefacts from local resources, as well as direct involvement in tourism as in more heavily visited regions. The Makalu-Barun National Park apparently still supports thriving populations of indicator species, such as musk deer and Himalayan tahr (Odell, 1996).

As of the mid-1990s, handicrafts had generated additional local revenues of around US\$15–30 per family per year, as compared with an average total annual income of around US\$150–190. Particularly successful has been production of woven textiles from a local fibre known as *allo*, derived from a giant stinging-nettle. Trekking tourism, though on a far smaller scale than in the Annapurna or Everest areas, generates around US\$50–100 per family involved and around five to ten times as much as local handicrafts for the region as a whole (Odell, 1996). The National Park itself charges an entrance fee of US\$12 per trekker, and visitors spend an average of US\$10 per day in local communities, for an average stay of 15 days. Total revenues to local communities, through payment for porters, lodging, food and supplies and handicrafts and souvenirs, are hence over ten times the fees paid to the park.

The Makalu-Barun Conservation Project reports several indications that local communities are supportive of its efforts (Odell, 1996). Most importantly, villages that were previously opposed to the establishment of the Park have now petitioned to be included within the project area. Local village leaders have donated land for the Project offices and for helipads. Local villages have arrested a poacher and turned him in to authorities along with his gun and snares. Villagers have also confiscated and reported illegally harvested *lokta* bark used to manufacture handmade Nepali paper.

In the more heavily visited areas of Nepal, trekking tourism has provided substantial incomes for local people, who have gradually moved from employees to owners of trekking tourism operations. Sherpa people formerly employed as porters, guides and cooks now own trekking agencies, lodges, restaurants and a helicopter airline. As of the mid-1990s, the Makalu-Barun area was receiving only about one-twentieth as many visitors annually as the high Khumbu region, but the numbers are expected to grow, at least once the current political situation in Nepal stabilizes.



## Gobi Gurbansaikhan, Mongolia

The Gobi Gurbansaikhan Mountains in southern Mongolia have been visited by Russians for over 30 years, but first became generally accessible to international tourists in 1990 (Saffery, 2000). The Gobi Gurbansaikhan National Park is Mongolia's second largest protected area, almost 22,000 km<sup>2</sup> in area. The park includes gravel and sandy plains, rocky gorges, saline marshes, springs and oases, montane steppe, juniper shrublands and alpine meadows, with mountains reaching 2835 m in elevation. Of its 290 known vascular plant species, 46 are rare or endangered. Similarly, eight of its 52 mammal species, which include snow leopard, argali, ibex, wild ass and gazelles, are also endangered. Fourteen of Mongolia's 20 species of reptile occur in the park, four of them endangered, and over 200 bird species have also been recorded. The park is also inhabited by over 4000 nomads, some with over 1000 livestock each, and more people are moving into the park every year. They live in traditional round tents, known as *gers*. The park is managed by the South Gobi National Protected Areas Administration (SGNPAA), which employs 11 of the resident livestock herders as part-time rangers. The SGNPAA is headed by the Protected Areas Bureau of the Ministry for Nature and Environment. Since 1995, the German bilateral aid agency has also provided technical expertise in nature conservation (Saffery, 2000).

The major tourist attractions are Yolyn Am Gorge, which retains a permanent ice sheet all year round, and the singing sands of Khongoryn Els, a patch of sand dunes 190 km in length and up to 180 m in height. There are currently four tourist *ger* camps of various sizes. Since 1999, tourism policy has been controlled by the National Tourism Council, which includes private-sector representatives, as well as relevant government ministers. The Mongolian National Tourism Centre is responsible both for regulating and for promoting tourism. Tourism development projects in Mongolia have also been supported by a wide range of multilateral and bilateral development assistance organizations, including the WTO, the International Finance Corporation, the United Nations Development Programme, and aid agencies from Japan and Denmark. As of 1995, tourism contributed about 4.5% of Mongolia's gross national product.

While marketed as an ecotourism destination and, indeed, with very considerable potential in this regard, it appears that tourism development in the Gobi Gurbansaikhan is currently proceeding pell-mell, limited only by climate and poor roads. According to Saffery (2000), 'park regulations, adopted zoning, tourism information, defined camping or picnic places and measurements for carrying capacities are largely non-existent'. Because of limitations on access and the prior history of tourism, most tourists visit



precisely those areas of highest conservation significance, around Yolyn Am. In addition to impacts on plants and wildlife, dinosaur fossils have been excavated illegally and rubbish has been dumped within the park. There is a significant degree of wildlife poaching, including poaching of snow leopard to sell skins to tourists. Hunting tourism is also available, conflicting with wildlife-watching tours.

The park charges very small entrance fees, just over US\$1.00 per person per day and about US\$3.50 per vehicle per day, but according to Saffery (2000), tour operators often refuse to pay even these fees and ignore park regulations – even though a survey of 200 tourists carried out by SGNPAA in 1998 found that tourists would be glad to pay higher fees, and expressed concern over conservation of the park. Tour operators have apparently erected tourist infrastructure at Yolyn Am Gorge without approval and also apparently intend to erect tourist accommodation.

To date, the local nomadic livestock herders within the park have barely been affected by tourism, except in heavily visited areas such as Yolyn Am, where a number of locals offer horses for hire and paintings and carvings for sale. Most of the tour guides, however, apparently originate from the national capital at Ulaanbaatar. The option of using a local to provide accurate information and local knowledge and a guide from the capital to provide translation and manage logistics has apparently not yet been adopted.

### **Kanha National Park, India**

Kanha National Park is in the Mandla District of Madhya Pradesh, India. According to Ceballos-Lascurain (1996), it was the first national park in India to develop a visitor interpretation programme and centre. Capital funding was provided by the Indian government and relevant policy also allowed the park to retain revenues generated from the centre. Technical assistance was provided by a nearby centre for environmental education, and community support was generated by employing local residents as guides and drivers.

According to Ceballos-Lascurain (1996), the park service initially lacked the skill, scientific knowledge and desire to provide interpretative services and, indeed, it is not clear where the impetus for the project originated. The project was completed using local designers, managers and products, and incorporates an interpretation centre, two visitor centres, two welcoming centres, maintenance manuals, interpretative signs, educational materials and souvenirs. In particular, there is a sound and light display that re-creates the atmosphere of the forest at night.

The project involved extensive cooperation between community groups, local businesses and government organizations and took 8 years

to complete, but was ultimately successful in improving interpretative facilities, regulating visitors to the park and generating local revenue.

## Tourism and National Parks in Vietnam

Despite wars, defoliants, logging and agricultural clearance, which have reduced the primary forest cover in the country to a mere 20,000 km<sup>2</sup>, Vietnam still contains about 275 species of mammal, 800 bird species, 260 reptile and amphibian species and around 12,000 plant species (Cresswell and McLaren, 2000). The north-western part of the country has become internationally famous in recent years because of the discovery of two species of mammal previously unknown to international science, the saola, *Pseudoryx nghetinhensis*, and the giant muntjac, *Megamuntiacus vuquangensis*. The continued survival of these species, however, is by no means assured, given the scale of the illegal wildlife trade in Vietnam and the resource demands of the 30,000 residents in and around the newly formed Vu Quang Conservation Project.

As of the mid-1990s, Vietnam had ten national parks and 61 nature reserves, with a total area of around 20,000 km<sup>2</sup>, providing the only current protection for Vietnam's 365 endangered animal species (Cresswell and McLaren, 2000). For example, the population of tigers in Vietnam shrank from around 3000 in 1970 to around 200 in 1994 (WWF, 1996), and in late 1999 I myself found dried tiger paws openly on sale in a shop and café catering for Asian business people but not Western tourists.

Tourism to Vietnam grew very rapidly during the 1990s, with over 1.3 million international visitors in 1995, bringing in around US\$540 million (Cresswell and McLaren, 2000). As of 1994, however, it was estimated that 35% of visitors who arrived on tourist visas were in fact also examining commercial trade and market opportunities. Many other tourists are attracted by either its recent history during the period of the Vietnam war, known in Vietnam itself as the American war, or by its more ancient history, culture, buildings and traditions.

National parks, such as Cuc Phuong, Tam Dao, Ba Vi and Bach Ma, are heavily visited, but most of the visitors are domestic tourists and, while many international tourists do visit the parks, this is generally not their primary motivation for travelling to Vietnam. One reason for this is that, while Vietnam does indeed possess highly endangered and internationally significant wildlife species, such as the saola and giant muntjac, no tourist or scientist has ever seen either of these animals in the wild. Similarly, the chances of wildlife tourists seeing tigers or Javan rhinoceros in Vietnam are negligibly small. There is, however, a significant opportunity for bird-watching tourism in Vietnam, since the national parks support a wide variety of bird species that are relatively easily seen (Cresswell and McLaren, 2000).

### **\*Halong Bay, Vietnam**

On the coast of northern Vietnam, east of Hanoi, lies Halong Bay, famous for its limestone islands, such as the World Heritage site of Cat Ba. The port of Halong City receives around 1 million visitors a year, of which about 350,000 take a boat into the bay and about 45,000 visit the island with the main caves. There are 24 caves in all, but only two are heavily visited. These have formed tracks, lighting, interpretative signs and guides. There are also jetties for tour boats to pull up to, chemical toilets, a generator to power the cave lighting system and a kiosk selling food and drink. A small fee is charged to enter the caves. There is a Halong Bay Management Authority, which includes staff responsible for managing the caves themselves.

Most of the islands in Halong Bay are relatively small, with steep limestone walls, and are undeveloped. One, however, contains a large marine lagoon accessible to tour boats and used for snorkelling. Another has been developed as a small beach resort by a Chinese joint venture. There is also one island with a private beach and house reserved for recreation by government officials. The Halong Bay Management Authority is considering importing sand to create artificial beaches closer to Halong City.

Cat Ba, the best-known island within the Halong Bay area, has become a major tourism destination within Vietnam. It receives around 45,000 visitors annually, of which 20,000 are foreigners. In late 1999, there were about 30 small hotels in the main port on Cat Ba, with more under construction. Five years previously, apparently, there had been only three hotels. There is a government quango, the Environmental and Urban Company, responsible for municipal infrastructure, such as drains, sewerage and street sweeping. This is funded in part by an environmental levy on tourist boats in Halong Bay.

Part of Cat Ba is reserved as a national park, but only about 800 ha still retain its original forest cover. The rest has been cut in the past for firewood and is currently regrowth. The park is known for white-headed monkeys, with a remaining population of about 100–150 individuals. Visitor access to the park is through a heavily fenced and gated road, with guards and a military-style compound, but how far around the park this fence extends is not clear. The entrance area is effectively a small village with tourist shops and restaurants, staff accommodation, etc. It also incorporates an environmental education centre, funded by overseas aid. There is an interpretative leaflet in French and Vietnamese, also funded by an international donor. There are two formed trails, a short one to the top of a limestone peak near the entrance area, and a longer one that requires overnight backpacking (Buckley, 2003a).

## **Rennell Island, Solomon Islands**

The Solomons are an island chain in the Pacific Ocean north-east of Papua New Guinea, with a total land area of 28,000 km<sup>2</sup> and a population of around 400,000. About 90% of the population is dependent on subsistence agriculture, but only 2% of the land area is cultivated. Large areas of the Solomon Islands are forested, and there has been extensive logging in some regions. Traditional and postcolonial systems of land tenure overlap, and establishing a land title and development rights appropriate for a long-term tourism venture in any area outside the main capital city is remarkably difficult.

The Solomon Islands are an internationally famous destination in the dive tourism industry, with a strong focus on wrecks from the Second World War. There is excellent potential for other forms of nature, eco- and adventure tourism, including surf tourism and other coastal water sports, and lodges and trails in rainforest areas, with waterfalls, wildlife and colourful plants and insects as the primary attractions.

The complexities of land tenure, however, have to date favoured short-term exploitative logging over long-term tourism, since the former requires only one-off permission for access by any individual with temporary political power, whereas the latter requires a stable agreement between all interested parties that can survive challenge under either traditional or contemporary legal systems.

Currently, village residents in the more remote areas of the Solomon Islands do obtain some income from tourism by selling wood carvings and other artefacts, at international prices, to visiting dive tour boats; and some have also constructed holiday houses which they rent out to surf tour operators and to other visitors who happen to know of their existence, such as expatriates working in the capital city of Honiara. Access to these areas relies on local air transport between the islands and local boats to reach individual villages.

Several specific locations in the Solomon Islands have been identified as particularly high in ecotourism potential. The southern sector of Rennell Island, at the southernmost end of the archipelago, is listed as a World Heritage site, but is apparently not yet protected under any national legislation within the Solomon Islands. A relatively young volcanic island, Rennell contains the largest enclosed water body on any of the Pacific islands, Lake Tenggano. It is also the world's largest raised coral atoll and supports a number of endemic plant, bird and bat species. It is 370 km<sup>2</sup> in area, with a relatively small population and little infrastructure other than a local airport. Like all the Solomon Islands, it is at immediate risk from logging unless its

traditional landholders establish an alternative source of cash income, such as ecotourism (Knox, 1991; Sevilla, 1999; WCMC, 2002).

Also under consideration for World Heritage listing is Marovo Lagoon, on Uepi Island, north of Rennell. An Australian tour operator has been negotiating for some years to establish a small-scale tourist resort on an island in the Lagoon, offering daily activities such as surfing, diving and day-trips to forests, waterfalls and villages on the main island. Designs are well advanced, including a fully self-contained sewage digestion system, but the project has been stalled by internal local disputes over land ownership. This is not an issue to be taken lightly in the Solomon Islands, since local residents burnt another resort to the ground during a dispute on one of the other islands.

The dive tourism industry in the Solomon Islands, meanwhile, continues to flourish, with the best-known boats booked up several years in advance despite high prices. Being self-contained and unaffected by uncertainties over land ownership, the dive tourism industry has been able to take advantage of the island's natural attractions in a way that land-based operations have not yet been able to copy.

## **Komodo National Park, Indonesia**

As the world's largest lizard, the Komodo dragon, *Varanus komodoensis*, forms the basis for a specialist wildlife tourism industry on Komodo Island in Indonesia (Terzich, 1997). A significant area of its habitat is protected within Komodo National Park, which was established in 1980 and is hence one of Indonesia's oldest national parks. Komodo National Park lies in the Lesser Sunda Islands, in the Province of East Nusa Tenggara, Indonesia. It includes the three islands of Komodo, Rinca and Padar, plus smaller surrounding islets, channels between the main islands and all surrounding water to within 1 km of the shore. The park provides the principal habitat for the Komodo dragon.

Komodo Island is accessible by ferry or private boat, and the number of visitors grew from 664 in 1981 to 17,231 in 1992, with 95% of these being international visitors (Terzich, 1997). In 1995/96, almost 30,000 tourists visited Komodo National Park, with 93% of these coming from overseas, and 40% being cruise-ship passengers (Walpole and Goodwin, 2001). Unless arriving by cruise ship, all visitors to Komodo National Park pass through one of two gateway towns: Sape on Sumbawa, or Labun Bajo on Flores. Labun Bajo accounts for over 95% of tourist bed-nights and 80% of tourist expenditure, around US\$800,000 in 1995/96 (Walpole and Goodwin, 2001). A survey of 400 households in these two gateway towns in 1996 found that 94% of respondents supported the protected-area status of the park; that 90% believed that the park was the main attraction for tourists; that 93% would be happy to see more tourists; and that 89% would be

happy for their children to work in the tourism industry. About half of respondents felt that the entire community benefited from tourism, but that richer locals benefited more and that tourism had increased prices for locals. Some cultural impacts were also noted (Walpole and Goodwin, 2001).

The annual operating budget for Komodo National Park from 1990 to 1995 was around US\$218,000 per annum, whereas tourism revenues from entrance fees averaged US\$15,000 per annum during this period, or less than 7% of total expenditure (Walpole *et al.*, 2001). A contingent valuation survey of visitors to the park carried out in 1995 by Walpole *et al.* (2001) found that visitors were willing to pay over ten times the current entrance fee, which at that time was US\$0.87. Of those surveyed, 35% wanted any additional revenue spent on conservation management and 28% wanted additional visitor services and facilities.

By the early 1990s, Komodo National Park was showing significant environmental deterioration as a result of increasing visitor numbers, ad hoc tourism development, a lack of planning, and a lack of funding for the national parks agency. Visitor facilities were also deteriorating, and visitors complained about low standards and high fees (Terzich, 1997). In 1993, therefore, with assistance from the US Forestry Service, the Indonesian Ministry of Forestry undertook a nature-tourism planning exercise for Komodo National Park. The principal aims were to improve interpretative facilities, provide opportunities for tourists to disperse away from boat-docking points and conduct market research on visitor preferences.

To improve interpretation, the study recommended redesign and upgrading of the two existing visitor centres and the production of maps and signs providing information about transportation, accommodation and food, park regulations, park fees and services, wildlife viewing and other activities. Guided ranger walks, self-guided interpretative trails and slide shows at the visitor centres were also designed. To assist in dispersing visitors away from the more commonly visited and crowded areas, a range of activities, transportation links, visitor facilities and interpretative materials were designed for nearby Rinca Island, also within Komodo National Park. These additional opportunities were also expected to extend the average length of stay, with consequent economic benefits for the local tourism industry.

In the years following this planning exercise, a number of the measures suggested were indeed carried out, with the main focus on interpretation and limited infrastructure. As commonly happens, funding provided for implementation by the Indonesian Ministry of Forestry fell substantially short of that envisaged in the plan, so some of the larger components were not constructed (Terzich, 1997). Information signs were installed, however, and an audiovisual programme was produced. Visitor surveys were conducted, mooring buoys were installed to protect the marine environment from anchor damage and two powerboats were purchased for monitoring and enforcement.

## Tangkoko DuaSudara, Indonesia

In recent years, the area of Manado in North Sulawesi, Indonesia, has become a significant international tourist destination, famous for diving and forest wildlife (Brandon, 1996; Kinnaird and O'Brien, 1996; Wall, 1997). The Tangkoko DuaSudara Nature Reserve, 60 km from the town of Manado and 90 km<sup>2</sup> in area, incorporates coastline and coral gardens, a well-known scenic waterfall and 90 km<sup>2</sup> of forested hills. The area is famous as habitat for endangered wildlife species, including: the tarsier, the world's smallest primate; *maleo* birds, the size of a large hen but with eggs five times as large as a hen's; the buffalo-like anoa; and the pig-like babirusa.

The Manado area is promoted by the Indonesian government as an ecotourism destination, and by 1993 the Reserve was receiving over 15,000 international visitors annually. Independent evaluations in the mid-1990s, however (Brandon, 1996; Kinnaird and O'Brien, 1996), indicate that, while the Reserve is supporting a significant tourism industry, very little of the revenue raised is returned to conservation management and only a few individuals in local communities benefit. These evaluations found that, of the total income generated by tourism to Tangkoko DuaSudara, 47% is retained by the major local tour company, 44% is received by hotels, 7% is paid to local guides and only 2% is taken as park fees. In addition, entrance fees are not retained by the individual park, but are returned to the North Sulawesi Government. The Reserve's only funding is from a government allocation and is insufficient for management, maintenance or anti-poaching patrols.

Macaque populations, in particular, have declined seriously as a result of illegal hunting. Tourists to the reserve have complained about hunting, fires and litter in the reserve, as well as the poor quality of guided tours. Wildlife behaviour in the reserve has apparently been affected by tourism as well as by hunting.

Local community benefits from tourism in Tangkoko DuaSudara Nature Reserve appear to be limited to rather few individuals (Brandon, 1996; Kinnaird and O'Brien, 1996). The official Reserve guards provide the only guiding services and also own all the local accommodation services, which are concentrated in one of the many villages adjacent to the reserve. These guards spend their time running tours and accommodation, rather than patrolling for poaching. In addition, 20% of total guide fees are retained by a single head guide.

Overall, therefore, it appears that, while the Manado area in general and the Tangkoko DuaSudara Nature Reserve in particular have considerable potential for ecotourism, tourism as it is currently occurring in the area is producing negative rather than positive impacts on the Reserve and contributing little to local community development.



## **Khao Yai National Park, Thailand**

Khao Yai is Thailand's oldest and most heavily visited national park and a major source of revenue for the country's protected-area system (Wells and Brandon, 1992; Weaver, 1998). As of the early 1990s, Thailand had over 40 major protected areas nationally, making up 12.6% of the country's overall area: a higher proportion than any other Asian nation except Bhutan, and one which puts most developed nations to shame. By the early 1990s, the protected-area system was receiving a total of over 10 million visitors annually, most of them Thai nationals. Because of its position only 160 km from Bangkok, Khao Yai is particularly popular, receiving about 5% of the total visitation to the entire protected-area system. While most visitors quote their primary motivation for visiting the park as viewing scenery, waterfalls and wildlife (Weaver, 1998), over a quarter of visitors also list picnicking as an important attraction.

There are around 150 villages in the immediate vicinity of Khao Yai National Park, with over 50,000 residents in total in the early 1990s. There have apparently been conflicts, including armed clashes, between parks staff and local villagers engaged in poaching and illegal logging within the park (Wells and Brandon, 1992). As in similar situations worldwide, most of this illegal harvesting within the protected area takes place in the more remote parts of the park, where it is less likely to be detected and where there are commonly more resources available for harvesting. While poaching is unlikely to represent a threat to tourists, therefore, it may well threaten conservation values (Weaver, 1998).

In an attempt to reduce damage by local villagers, international environmental groups funded the establishment of showcase prototype villages, which were intended to act as demonstration projects in environmentally sustainable activities. Funds were used to train locals as trekking guides, to plant trees and to provide loans for new businesses. According to Wells and Brandon (1992), however, these attempts were relatively unsuccessful.

## **Ecotourism Potential in Southern Thailand**

In 1994, a group from the Faculty of Forestry at Kasetsart University in Bangkok compared 109 sites in 14 provinces of southern Thailand to assess their potential for ecotourism (Emphandu and Chettamart, 1997). The study was funded by the Tourism Authority of Thailand (TAT). The sites included national parks, forest parks, wildlife sanctuaries and other natural areas. The group interviewed tour operators, land managers and local representatives of TAT in order to score each site for: attractiveness to tourists; resistance to tourist impacts; educational opportunities; diversity of potential activities;

and compatibility with other tourism development in the area. The study did not include either local community participation or the actual or potential contribution to conservation agencies. The five criteria listed above were weighted equally, except that the diversity of potential activities was down-weighted to 60% of the others.

Of the 109 sites investigated, the study group concluded that 17 had high potential for ecotourism, 56 had medium potential and the remaining 36 had low potential. Of the 17 high-potential sites, 12 were within national parks and the remainder were natural areas and wildlife sanctuaries of various types. Of the 17, seven are terrestrial, three are wetlands and seven are marine. The two top-ranked sites were Khao Sok and Khoa Luang National Parks. The marine sites are all in Satul, Phang-nga and Krabi provinces.

The group recommended that ecotourism development should not be encouraged in wildlife sanctuaries, because of regulatory constraints. It recommended that ecotourism should be promoted in national parks, since these were already being used for public recreation. Interestingly, one of the major reasons why 36 sites had low potential for ecotourism was that the sites had already been subjected to intensive or large-scale tourism development.

### **Muthurajawela Wetlands, Sri Lanka**

The Wetland Conservation Project (WCP) is an initiative of the Central Environment Authority of Sri Lanka. In 1996, the WCP established a visitor centre with funding from the government of The Netherlands. The centre currently covers its own costs (Ellepola *et al.*, 2002) and is intended to become an independent institution. It has created 22 full-time jobs for local community members and established local recognition for Muthurajawela and Negombo Lagoons. The project has generated around 2.5 million Sri Lankan rupees annually (US\$27,000) and has been identified as one of nine top ecotourism destinations in the country. The visitors' centre provides English-speaking guides for foreign tourists and also runs guided boat trips and programmes for schools and local visitors. There was initial opposition to the project from local fishermen, but the project now has community support (Ellepola *et al.*, 2002).

## **\*Earth Sanctuaries Ltd, Australia**

Earth Sanctuaries Limited (ESL) was established in 1969 by Dr John Walmsley at Warrawong, a 14–15 ha former agricultural property in the Adelaide hills. Over the next 20 years, Walmsley planted over 100,000 native trees and shrubs, built a vermin-proof fence, eradicated feral cats, foxes, goats and rabbits, successfully reintroduced a range of endangered wildlife species and set up a platypus breeding programme (Harris and Leiper, 1995; Buckley and Sommer, 2001; ESL, 2002). Endangered species reintroduced on to ESL properties include numbat, platypus, bilby, eastern quoll, southern hairy-nosed wombat, yellow-footed rock wallaby and mallee fowl. Operating costs have been funded through: on-site tours and accommodation; a craft and souvenir shop; conference facilities and a cafe; sales of native plants, captive wildlife and building materials; and education, film and photographic revenue.

Following the success of Warrawong Earth Sanctuary, Walmsley established two further sanctuaries, Yookamurra and Scotia in New South Wales (NSW). Three more, at Buckaringa, Tiparra and Duffalunta, were under development during 2001, but were sold in 2002 owing to financial difficulties (ESL, 2002). As of late 2001, Earth Sanctuaries managed a total area of 880 km<sup>2</sup>.

The largest Earth Sanctuaries project was at Scotia, between Wentworth and Broken Hill in NSW. With a total area of around 650 km<sup>2</sup>, this is not yet fully fenced, but the reintroduction of endangered wildlife species has already commenced. With a total boundary length of 250 km, the cost of fencing the whole of Scotia Sanctuary has been estimated at Aus\$5 million. To date, bilbies, bridled nailtail wallabies, greater sticknest rats, woylies and

plains rats have been reintroduced. For example, six bridled nailtail wallabies were purchased from a colony in Queensland and released in Scotia Sanctuary, where the population has currently expanded to around 65 individuals (ESL, 2002). Walmsley also planned to reintroduce seven further endangered Australian mammals: the western barred bandicoot, golden bandicoot, brushtailed bettong, red-tailed phascogale, chuditch or western quoll, mala and numbat. These species are all extinct in NSW, but survive in other states, such as Western Australia, where indeed they form the basis of a fledgling wildlife tourism industry (Higginbottom *et al.*, 2001).

Earth Sanctuaries describes its priority aim as restoration of ecosystems to their former state at the time of European colonization, which requires broad ecosystem restoration as well as the reintroduction of locally extinct species (ESL, 2002). It aims to lead by example and education. The individual sanctuaries are also expected to operate in a sustainable manner, with reforestation programmes planning to outweigh consumption of non-renewable energy and production of greenhouse gases and steps taken to maximize recycling and minimize pollution.

In its early phases, Earth Sanctuaries was privately owned, but in May 2000 the company was listed publicly on the Australian Stock Exchange in order to fund expansion. Its aim at listing was to buy up to 1% of Australia's total land area, to rehabilitate and restock the land and to fund future operations from ecotourism (Hares, 2002). Shares were listed at Aus\$2.50, and the initial float raised Aus\$6.28 million (Hares, 2002). As of late 2001, there were around 4500 shareholders. The value of shares rose 30% in the first year after listing, largely because of an increase in the book value of endangered wildlife, which were counted as company assets. This was possible through the Australian Accounting Standard for Self-generating and Regenerating Assets, AASB 1037. This accounting standard, originally developed for industries such as viticulture and silviculture, has meant that threatened Australian animal species protected by ESL can be valued at between Aus\$1250 and Aus\$5000 each and the biological increase in wildlife can be added to financial statements.

While listing as a public company allowed Earth Sanctuaries to raise cash, take over more land and protect more animals, however, it also exposed it to the vagaries of the stockmarket. Early in 2002, facing financial difficulties, ESL appointed Challenger Corporate to examine possibilities of asset sales and corporate restructure, and share prices plunged to Aus\$0.17 (Hares, 2002).

In April 2002, ESL sold its Scotia, Yookamurra, Buckaringa and Daka-lanta Sanctuaries to Australian Wildlife Conservancy (AWC) for Aus\$5.2 million (currently US\$2.9 million). In May, it sold Blue Mountains Sanctuary for Aus\$1.17 million to a company owned by the former chairman of ESL (Earth Sanctuaries Ltd, 2002). ESL's losses amounted to Aus\$11.7 million (US\$6 million), of which Aus\$4.8 million was from losses on asset sales and

Aus\$4.2 million from writing down values of assets retained. As of September 2002, the four properties bought by AWC were not yet listed on AWC's website. AWC owns a further six properties with total area 4,500 km<sup>2</sup> (AWC, 2002). ESL currently retains three Earth Sanctuaries, at Warrawong, Little River and Hanson Bay, with Aus\$5 million in cash reserves (ESL, 2002). The purchasers of the properties sold intend to continue operating them as wildlife sanctuaries. ESL also retains a 5-year option to repurchase its Blue Mountains property.

Walmsley himself has been described as a somewhat controversial individual and his relations with government agencies responsible for endangered-species protection have not always been entirely cordial. He deserves enormous credit, however, for his efforts to protect Australian wildlife and their habitat. It certainly appears that ESL has indeed made a very significant contribution to the conservation of endangered Australian wildlife, not only by protecting habitat and reintroducing individual animals, but also by increasing public interest in endangered-species conservation. It would be unfortunate indeed if the organization were to collapse, and hopefully by the time this book is published a restructure, corporate donors or perhaps a partnership with government may allow it to continue its work.

### **Yellow-eyed Penguin Reserve, New Zealand**

The Yellow-eyed Penguin Reserve is a private conservation area near Dunedin on New Zealand's South Island. Information given here was provided by the Reserve, as summarized previously by Buckley and Sommer (2001). No independent audit has been identified.

The Reserve aims to preserve the world's most endangered penguin from extinction, and is funded entirely through profits from its daily tour operation. Established in 1985 by Howard McGrouther and Scott Clarke, it is now considered to be one of the premier tourist attractions in New Zealand's Otago Region.

All tours are small and accompanied by a guide. They begin with a 20-min multilingual talk and slide show on the Reserve. The number of visitors is set by monitoring the penguins for behavioural changes that indicate adverse impacts from tourists. Currently the Reserve receives under 40,000 visitors per year, well below the anticipated capacity of 90,000 per annum. Over the past 14 years, the population of yellow-eyed penguins in the Reserve has increased from 30 to 200.

The Reserve carries out its own scientific research, visitor management, reforestation, revegetation and penguin habitat management. It has developed a large wetland area and a bird hospital, established a colony of little blue penguins and provided protection for fur seals. It has also built a reception area, lecture theatre and shop. All activities are financed by revenue raised through visitor entry fees.

In particular, the Reserve has constructed a system of hides and inter-connecting tunnels that blends into the landscape and allows close access to the yellow-eyed penguin without causing undue stress. Special penguin nesting boxes have been constructed to protect young birds and a system of cooling ponds has been developed to reduce heat stress in adults.

### **Fraser's Selection, Land for Wildlife, Australia**

Land for Wildlife is an Australian government programme that aims to encourage private landholders to provide habitat for wildlife, while continuing to use the land for primary production. It is a voluntary scheme that operates by providing advice and incentives for landholders. These include free tree grants, newsletters, an identification sign, literature kits, workshops, visits to the property by trained extension staff and networking opportunities with other eligible landowners.

An example is provided by Fraser's Selection, an 85 ha rural mountain property north of Brisbane, Queensland, which registered for the Land for Wildlife programme in 1998. Fraser's Selection is a diverse working property that contains wet and dry sclerophyll forests, remnant rainforest, waterfalls, creeks and a number of rare and endangered species of flora and fauna. It operates two tourist cabins with a high occupancy rate, supported mainly by word-of-mouth referral. Membership of the Land for Wildlife programme was used to support an application for Advanced Accreditation under the National Ecotourism Accreditation Program (Buckley and Sommer, 2001). No independent audit has been identified.

### **Undara Experience, Australia**

Undara Experience is a family-operated tourism business in Queensland, on the eastern edge of the Gulf savannah region of northern Australia. It is adjacent to the Undara Volcanic National Park, containing the Undara crater and associated geological features, notably the Undara lava tubes. The Undara lava tubes were formed some 190,000 years ago when an estimated 23 billion m<sup>3</sup> of lava flowed from a major volcanic crater on to the Atherton tablelands. Molten lava flowed out under a solidifying crust, leaving a series of long, hollow tunnels. Roof collapses in some areas created deep, dark, damp areas which support unique pockets of rainforest.

Undara Experience was established in the late 1980s by the Collins family. The family surrendered part of their special lease to the Queensland Parks and Wildlife Service (QPWS) for the development of a national park; established the Undara Lava Lodge; and made a legal agreement with

QPWS that gave Undara Experience sole rights to run commercial tours in the Undara lava tubes (Buckley and Sommer, 2001).

Undara Experience is a member of Savannah Guides, which promotes high standards of environmental interpretation and management. A variety of tours are offered, with multilingual interpretation. Tourist accommodation includes: Undara Lava Lodge, a modern building with a 50-person conference venue; restored turn-of-the-century railway carriages; a permanent tented camp; and a campground and caravan park with full facilities.

### **\*Seven Spirit Bay, Australia**

Seven Spirit Bay is an up-market ecolodge on the north shore of Cobourg Peninsula, in Australia's Northern Territory. The Cobourg Peninsula is a national park under Aboriginal ownership, held by the traditional owners through a land trust and managed by the Cobourg Peninsula Sanctuary Board. About 50 of the traditional Aboriginal owners currently live within Gurig National Park. The park contains a high diversity of coastal ecosystems, including beaches, dune, mangroves, freshwater swamps, monsoon vine thickets and areas of closed forest.

Seven Spirit Bay is sited in open woodland on a low cliff, which provides views, cooling by sea breezes and protection from cyclone swells. It is accessible by light plane from Darwin. It houses a maximum of 48 guests, in 24 individually secluded open-sided hexagonal apartments, reached by paved tracks. As originally constructed, the bathrooms were close to but separate from the sleeping areas, private but open to the bush. A central building houses an extremely good restaurant, bar, library and small conference room. Activities include sailing, wildlife watching, fishing and guided walks (Buckley, 1995).

All buildings are inconspicuous and, indeed, barely detectable from the bay. During construction, equipment and material were landed on the beach, using geotextiles to minimize impacts. Service trenches are confined to access tracks. All earth-moving equipment was cleaned before arrival to avoid introduction of weeds and pathogens and landscaping plants were quarantined before delivery. All construction staff were confined on site by a temporary fence, and contracts included penalties for leaving the fenced area and for littering, damaging vegetation, lighting fires, possessing firearms, importing plants or animals or interfering with native flora and fauna. Containers for fuels, oils, paints, etc. were returned to Darwin at the end of construction. Since there is no regular boat to Darwin currently, however, solid wastes generated during operations are now buried in landfill on site.

Seven Spirit Bay has been operating since 1990. Initial construction was financed by six private shareholders at a total cost of Aus\$8.5 million, but the property was put up for sale some years ago at a significantly lower



price. The Lodge has a 25-year lease on the site, with a 25-year option to extend. It pays a flat rent to the traditional owners, plus a proportion of turnover. Despite its excellent facilities, its principal difficulty has been its remoteness from the major international tourist routes, which make it difficult to maintain high occupancy rates (Buckley, 1995; Seven Spirit Bay, 2002).

### **Broome Bird Observatory, Australia**

The Broome Bird Observatory is a self-funded facility operated by Birds Australia at Roebuck Bay, near Broome in the Kimberley region of north-western Australia. Roebuck Bay is an internationally declared Ramsar wetland, and over 800,000 birds migrate there from the northern hemisphere each year. It is regarded as the most significant viewing site for migratory shore birds in Australia and the fourth most significant in the world (Broome Bird Observatory, 2002). Habitats available include intertidal mud-flats, marshes and freshwater lakes, as well as open grassy plains and dry scrub. Over 300 bird species have been recorded in and around Broome, more than one-third of the total bird species in Australia. These include 50 species of wader, about one-quarter of the world's total (Broome Bird Observatory, 2002). Twenty-two of Australia's raptor species are also recorded from around Broome.

The Bird Observatory is a research and education facility established in 1988 specifically to contribute to the conservation of migratory shore birds. It occupies a 2.8 ha site at Roebuck Bay, and provides basic accommodation and facilities for bird-watchers and other visitors. Facilities include a natural-history library and marked self-guided trails. In addition, Birds Australia operates several tours from the Observatory, including a shore-bird tour, a mangrove bird walk and a four-wheel-drive (4WD) bush bird safari. The Observatory also runs specialist courses, ranging from single-day courses in bird identification and bird-counting skills, to 5-day courses on bird banding, bird population monitoring, bird handling, shore-bird identification and shore-bird biology and conservation.

Facilities are low-key and low-impact. In particular, the Observatory has installed a 3.6 kW hybrid solar–diesel power system, with computer-controlled solar tracking, to minimize the impacts associated with power requirements on site.

Overall, the Broome Bird Observatory operates as an ecotourism facility for amateur bird-watching tourists, with minimal-impact design and management and a high level of environmental education. It contributes to conservation by using these activities to support research and educational activities by professional ornithologists.

## **Eco Beach Retreat, Australia**

Eco Beach Retreat at Cape Villaret in Western Australia's Kimberley region consists of a collection of 40 timber cabins, a central dining area and staff quarters. It is 27 km by boat from the town of Broome, or 127 km by road. Some of the cabins have *en suite* bathrooms, but most have outdoor showers and access to a central ablutions block. The area is popular for fishing, but a range of water sports and wildlife-watching opportunities are also available. Electricity is supplied by a diesel generator and solar bank, and the kitchen is gas-powered. The climate is tropical and arid and water needs to be heated in only 3 months of the year.

Facilities are relatively minimalist, and guests are expected to minimize water consumption and the use of electrical appliances (Eco Beach Retreat, 2002). Whether this constitutes ecotourism may be a matter of interpretation. In a developing country, however, low-key tourist accommodation with low-key activities similar to those practised by local residents would no doubt be labelled as ecotourism – so arguably this should also apply in Australia.

## **Pajinka Lodge, Australia**

Pajinka Lodge at the tip of Cape York in far north-eastern Australia was originally established as Cape York Wilderness Lodge by a regional airline in 1986, but did not operate profitably. It was subsequently sold to the Injinoo Aboriginal Community, who were concerned to recover control over the lease area as well as the tourism business (Roberts, 1996). Cape York is a popular destination for independent recreational 4WD trips, as well as a limited number of commercial 4WD tours. Many of these cross the two major rivers in the northern part of the Cape in order to drive right to the tip of Cape York. According to Roberts (1996), approximately 20,000 tourists make this trip every year, but relatively few of these visitors stay at Pajinka Lodge itself. Most of them are equipped for camping, and campsites near creeks and watercourses are heavily used. This has led to significant erosion of tracks and campsites and nutrient pollution of watercourses.

The Injinoo Aboriginal Community charges an access fee, which covers the cost of a return ferry trip over the northernmost river and includes access to ten bush camping and recreational sites for 2 weeks (Roberts, 1996; Injinoo Aboriginal Community, 2002). Pajinka Lodge does not offer scheduled guided tours or cultural displays by the Aboriginal community, but, where other commitments allow, community guides can introduce guests to Aboriginal culture and heritage and traditional food and medicine. The lodge currently uses a septic sewage-treatment system, although

an upgrade is planned. Solar power for hot water, recycled paper and biodegradable cleaning materials are used routinely (Injinoo Aboriginal Community, 2002). Pajinka Lodge is closed for refurbishment until mid 2003.

### **\*O'Reilly's Guesthouse, Australia**

One of the oldest forest lodges in Australia is O'Reilly's at Green Mountains, the more westerly of the two main gateways to Lamington National Park in south-eastern Queensland (O'Reilly's Guesthouse, 2002). The park is now a major component of the Central Eastern Rainforest Reserves Australia (CERRA) World Heritage Area, a collection of individual reserves that extend from southern Queensland to mid-north NSW.

O'Reilly's was originally a dairy farm, established well before the national park was declared. It is still owned by the original O'Reilly family, is still operated as a cattle farm as well as a tourist resort and is still an enclave of private land within the national park. Currently, it provides tourist accommodation ranging from a self-catering bunk-house to luxury units with full board, and is an internationally known tourist destination with a very high occupancy rate and high-repeat business. It also operates a restaurant and souvenir shop for the many day-trippers who come to visit Lamington National Park via the Green Mountains road.

O'Reilly's is known in particular for a bird-feeding area where tourists can routinely expect to have colourful king parrots and crimson rosellas perch on their hands and heads. More discreet feeding programmes also ensure that guests at the lodge itself, as well as day visitors to the nearby campsite and picnic area run by the park, have a particularly good opportunity to see otherwise secretive bird species, such as the metallic purple satin bower bird or the brilliant black-and-gold Regent's bowerbird, which is used as the logo of the O'Reilly's Resort. Bird feeding has been a source of continual tension between the resort and the parks service. The parks service bans bird feeding within the park itself, including the picnic ground, because of a variety of potential risks to local populations of these and other species. In practice, this ban is ignored by many day-trippers, who may often be seen feeding bower birds and other species with a range of highly inappropriate foodstuffs.

O'Reilly's Resort also runs a small fleet of customized buses, which take guests on tours to local areas either within the O'Reillys private landholding or accessible from the park entrance road. This includes spotlighting tours at night, when the park is otherwise largely empty except for lodge residents and visitors camped in the park campsite.

O'Reilly's is accredited as an ecotourism operator under the Nature and Ecotourism Accreditation Programme run by the Ecotourism Association of

Australia (EAA), and Peter O'Reilly is a former president of the EAA. Accommodation and other facilities have been constructed gradually over many decades, and design standards have changed significantly during this period. Fresh water is supplied from one of the rivers within the park, by gravity feed through a plastic pipe many kilometres in length. In the late 1990s, the lodge installed a self-contained integrated sewage-digestion unit, replacing a former septic system.

### **\*Binna Burra Lodge, Australia**

Binna Burra Lodge lies at the end of the more easterly road access to Lamington National Park, in Queensland, Australia. Lamington National Park is described above.

From a tourism marketing perspective, Binna Burra Lodge appears as a direct and equal competitor to O'Reilly's, but its history, land tenure and ownership structure are rather different. Like O'Reilly's, Binna Burra is now an internationally known destination, offering full-board up-market accommodation with very high occupancy rates and repeat business. The Binna Burra logo, a colourful parrot wearing hiking boots, is widely promoted and recognized in nature-tourism circles worldwide. The lodge has accommodation for 115 guests in timber cabins. It also operates a permanent tented camp with 17 tents for two to four people each, and a public campsite. Binna Burra Lodge runs a restaurant and souvenir shop for day visitors; and a variety of tours and activities, including abseiling and a cable trapeze or flying fox, as well as guided nature walks.

Binna Burra Lodge was built by Nature Australia Limited, an unlisted public company established by Romeo Lahey and Arthur Grew, two individuals who had campaigned strongly for the declaration of Lamington National Park. Both were also founding members of the Queensland National Parks Association. The original mission statement for Nature Australia Limited was:

to provide tourist facilities and accommodation in beauty spots throughout the state of Queensland and as far as possible to assist in preserving such in their natural state for future generations in accordance with the ideals of the National Parks Association of Queensland.

More recently, Nature Australia Limited has modified its mission statement to focus on the educational role of visitor facilities and experiences, recognizing that preservation of natural environments is primarily the responsibility of the parks service (Coomber, 1996; Binna Burra Mountain Lodge, 2002). Binna Burra is certified under the Green Globe 21 tourism ecocertification scheme.

## **Crystal Creek Rainforest Retreat, Australia**

Crystal Creek Rainforest Retreat lies on 140 ha of subtropical rainforest adjoining Numinbah Nature Reserve in northern NSW, also part of the CERRA World Heritage Area. The area is a former agricultural property, of which 20 ha had been cleared as a banana plantation (Crystal Creek Rainforest Retreat, 2002). Accommodation and infrastructure were restricted to the previously cleared area, much of which has now been replanted with over 10,000 indigenous rainforest trees, most of them raised in a nursery on the property. A Voluntary Conservation Agreement with the NSW National Parks and Wildlife Service (NPWS) in May 1997 protects 90 ha of the property from any future development. Under this agreement, the parks service installed interpretative signs along walking tracks in the area concerned.

Crystal Creek contains seven self-contained cabins, each with one fully glassed wall to provide views of the rainforest. It also contains a reception building and seminar room. It has advanced accreditation under the Australian Nature and Ecotourism Accreditation Programme and has received a range of environmental tourism awards, including a British Airways Tourism for Tomorrow Award.

A number of measures were taken to minimize environmental impacts during construction. Insulated cables are used for the mains power supply, to reduce fire risks without clearing a corridor through the trees. Electricity reticulation to cabins is underground. Sewage is treated in a self-contained integrated unit, with effluent used for irrigation. Building design and colour schemes are unobtrusive. Earthworks and tracks were constructed to minimize disturbance to vegetation. Operational aspects of environmental management include a feral-animal eradication programme, a recycling programme, avoidance of phosphate-based detergents and chlorine cleaners and limited water-quality monitoring. Interpretation programmes include guided walks for guests and use of the property by educational and community groups. Guests may also be involved in rehabilitation of injured native wildlife through the local Wildlife Carers Association and in planting birdwing vines to provide breeding habitat for the endangered Richmond birdwing butterfly (Crystal Creek Rainforest Retreat, 2002).

## **\*Silky Oaks Lodge, Australia**

Silky Oaks Lodge and Healing Waters Spa is built on the banks of the Mossman River, 20 minutes by sealed road from Port Douglas, north of Cairns, Queensland, Australia. It lies on a 31 ha property that adjoins the Daintree National Park to the south and east. It is owned by P&O Australian Resorts, which also operates lodges at Lizard Island, Dunk Island, Bedarra Island, Brampton Island and Heron Island in Queensland and Cradle Mountain Lodge in Tasmania. Silky Oaks Lodge incorporates 50 individual

cabins, a central lounge and dining area, an interpretation centre and a swimming-pool and garden area, as well as the spa (Silky Oaks Lodge, 2002). Construction is largely from timber, and the cabins are very well designed and appointed.

The grounds immediately in and around the accommodation and facilities are landscaped, with wooden walkways and a mixture of native and exotic tropical plants. Parking areas, driveways and access roads are sealed and bunded with low walls to trap erosion. There is one walking track, to Melaleuca Island and Figtree Rapids upstream, a 3.5 km round trip. The track is well maintained, and individual trees are identified by signs. The lodge offers a variety of local guided walks and activities, and platypus are often seen in the large pool immediately below the lodge dining area.

Silky Oaks Lodge opened in 1985 with only six rooms. Over the next 9 years it was built up gradually to include 35 cabins. In 1993 it was bought by P&O Australian Resorts, which built an additional 25 chalets and expanded the main lodge area. In 2001, capacity was reduced from 60 to 50 rooms, 25 of the original rooms were completely refurbished and the spa was added.

Water for the lodge is drawn from the Mossman River and treated on site with a sand-filtration and chlorination plant. Electricity is derived from a mains supply with a backup generator. Fluorescent globes, key-tag systems, etc. are used to conserve power. Garbage is sorted and recycled. Kitchen fats are collected and recycled. All cleaning chemicals are biodegradable and low in phosphorus.

Silky Oaks Lodge has its own sewage-treatment plant, which was upgraded in 1994 to a standard consistent with World Heritage guidelines. The sewage is gravity-fed to wells situated around the property, each with macerators and submersible pumps, which pump it automatically to the treatment plant. Grey water from showers is also fed to the treatment plant. Water from kitchen drains and sinks passes through grease traps and then to the treatment plant. The plant is an open-topped packaged steel system with a clarification step as well as aerators. Sodium aluminate and a final sand filter are used to reduce phosphorus, and the final effluent specifications are < 1 p.p.m. phosphorus, < 10 p.p.m. nitrogen, < 10 p.p.m. biological oxygen demand, < 15 p.p.m. suspended solids and < 200 faecal coliforms per 100 ml. This yields a final effluent of near-tertiary standard, and is used to irrigate rainforest rehabilitation areas on site. Total throughput is around 50,000 to 60,000 l per day. Three of the lodge staff are certified sanitation engineers, qualified to maintain the sewage-treatment system. The lodge also retains consultant sanitation engineers for additional assistance if required. Overall, the sewage-treatment system is possibly one of the best maintained of all those inspected while compiling this book.

Silky Oaks Lodge has a documented Integrated Environmental Management System (IEMS), which was prepared as one component of the development application for the former expansion. The first principle

expressed in the IEMS is that 'the net long-term effect of the resort on the local environment must be zero'.

Overall, Silky Oaks Lodge has a very high standard of design, operation, maintenance and service, including environmental management technologies and training for its staff and environmental education and interpretation for its guests. Prior to construction of the lodge, the entire property had been modified historically through logging, grazing and partial clearance. The resort halted that process and is rehabilitating rainforest, so that the property acts as an effective extension and buffer zone adjacent to Daintree National Park, which is part of the Wet Tropics of Queensland World Heritage Area. Overall, Silky Oaks Lodge would appear to be an excellent model for a commercially successful, low-impact, nature-based tourism facility and well deserves the title of ecolodge.

### **\*Daintree Ecolodge, Australia**

The Daintree Ecolodge and Spa lies on the access road to Daintree Village north of Cairns in northern Queensland, Australia. It is built at the down-slope end of a 12 ha hillside block backing on to the Wet Tropics of Queensland World Heritage Area. The Ecolodge consists of 16 individual villa cabins plus a restaurant, spa and reception area. The individual villas are luxurious, with their own spa baths set in glassed-in balconies that look out into the rainforest. A small creek runs through the property, and drinking-water is provided directly from this creek, with no treatment required. Non-drinking water is provided from a bore.

There is a short walking track up the creek to a small waterfall. Aboriginal guided walks along that track are also available, together with demonstrations of bush foods and medicines and Aboriginal painting. The principal Aboriginal guide is the son of a traditional elder for the region, who is also a ranger for the QPWS, which manages the World Heritage Area. The Daintree Ecolodge is owned by a local family, which purchased it from the original owner. The current owners have increased the environmental focus, including hiring an environmental consultant to liaise with the local Aboriginal communities and to design tracks.

There is a backlog of basic maintenance to be carried out, and the buildings are in some need of external repair, though very well appointed internally. Since they are situated inside the rainforest canopy, in one of the wettest parts of the country, maintenance requirements are high. Sewage is treated in a multi-chamber biocycle system located between the villas and the restaurant. This was in need of maintenance during my visit and detracted considerably from the experience. Power is supplied from a mains line along the nearby road to Daintree Village. Used kitchen oils are collected and returned for reprocessing. Apparently, however, there are currently no appropriate recycling facilities in Douglas Shire, the local



government area (Daintree Ecolodge, 2002; Z. Dragic, personal communication, 2002), even though Douglas Shire has been accredited as a Green Globe 21 destination.

The principal marketing focus appears to be on the Spa, which offers a range of treatments, which apparently cost up to US\$500. While the treatments claim to use 'ancient Aboriginal techniques' and 'ancient indigenous medicines', it is not clear that the Spa can be considered, or is indeed intended, as an ecotourism experience. With rack rates of US\$320 per person per night in the villas, and spa treatments as above, the Daintree Ecolodge and Spa is clearly aiming for the top end of the ecotourism market, and apparently most of its clients are from the USA and Europe.

Guests are given a bird list and a table describing 22 of the more readily identifiable local plants, with Aboriginal uses in some cases. Information is also provided on two self-guided walks, but these are simply along the access road, either to Daintree Village or back in the opposite direction. The Ecolodge also provides its guests with information on half a dozen local tours run by other operators in the surrounding area.

### **\*Crocodylus Village, Australia**

Crocodylus Village is a low-key rainforest lodge near Cow Bay north of the Daintree River in Queensland, Australia. Readily accessible by road from Cairns and Port Douglas, it caters largely to international backpackers, who arrive in the lodge's own transfer bus from Cairns, and domestic tourists in their own cars. The lodge can accommodate up to 130 guests, in two different styles of accommodation: bunks in large permanent tents with a common ablutions block, and private cabins that contain a double bed and three sets of bunk beds, suitable for a family or group. There are two central kitchens, one that caters breakfast, lunch and dinner at very reasonable rates, and one where visitors can cook their own food. Guests can also earn meals by helping with cooking or washing up. The dining area is outdoors but covered between the kitchen and the bar. Despite its rainforest setting, Crocodylus provides dial-up internet access for backpackers to check e-mails. There is a short, but diverse and informative, self-guided loop trail through the rainforest, with 37 numbered stakes and printed brochures to identify rainforest plants. The lodge offers a variety of activities, including guided walks to a rainforest swimming hole, spotlighting walks at night and sea-kayaking using sit-on-top kayaks. The lodge is close enough to Daintree Village and Port Douglas for its guests to take tours from either starting-point, including boat tours to the Great Barrier Reef.

Sewage from the cabins and the communal ablutions blocks runs by gravity to eight independent septic-tank systems, which are pumped out periodically by a tanker from Port Douglas. Sullage runs to soakage drains and sumps. Power is provided by a diesel generator, which runs from 5 a.m.

to midnight. The kitchens and showers run on gas. There are five staff and a manager, who live on site in caravans and a manager's house.

The entire lodge was destroyed by a cyclone a few years ago and had to be completely rebuilt. Crocodylus Village is very different indeed from up-market establishments such as Silky Oaks and the Daintree Ecolodge, but it also deserves the ecolodge tag and is a very friendly and congenial place to encounter the tropical rainforests of north Queensland.

### **Lemonthyme Lodge, Australia**

Lemonthyme Lodge, near Cradle Mountain National Park in north-west Tasmania, is a small luxury lodge in cool temperate forest overlooking a lake. It has relatively high power requirements, for on-site laundries and catering facilities and for individual guest spas. Electricity is supplied by a dedicated micro-hydropower system, which is successfully providing reliable electricity with less noise impact than diesel generators and less impact on the physical environment than connection to mains power. The initial capital cost was Aus\$130,000 (US\$65,000), with an anticipated payback time of 5 to 8 years and an expected life of 50 years (Lemonthyme Lodge, 2002).

### **Jemby-Rinjah Lodge, Australia**

Jemby-Rinjah Lodge is a 9 ha private property adjacent to a national park in the Blue Mountains in southern NSW, Australia. The Blue Mountains were listed as World Heritage in 2001. The Lodge consists of nine bush cabins, three ecolodges, a central lounge and dining area and a conference centre (Harris and Varga, 1995; Jemby-Rinjah Lodge, 2002). The buildings and most connecting walkways are constructed on raised poles with pipes and cables suspended underneath, minimizing the lodge's footprint. Building design, skylights and energy-efficient combustion stoves are used to minimize energy consumption. All bathrooms use composting toilets, with the compost and kitchen waste used as garden fertilizer. An enzyme-based cleaner is used for toilet cleaning. Only biodegradable detergents are used. Grey water is disposed of in settling tanks. The Lodge has won a number of environmental awards and has an occupancy rate of 90% for the bush cabins.

### **\*Arthur's Pass Wilderness Lodge, New Zealand**

Arthur's Pass Wilderness Lodge is an up-market 20-room lodge on a high-country sheep station near Arthur's Pass National Park in New

Zealand's Southern Alps. The current owners, who developed the lodge, have followed a deliberate strategy of reducing sheep-stocking rates to allow recovery of native vegetation and soil, and of promoting tourism as an additional source of revenue to operate as a mixed commercial venture. This strategy has been successful and has generated significant conservation benefits for the previously degraded sheep-grazing areas.

### **Discovery Ecotours, Australia**

Operating principally in Australia's Northern Territory, Discovery Ecotours has earned a particular reputation for its knowledge of outback environments, its good working relationships with Aboriginal communities and its practice of taking clients to visit scientific research sites and paying the scientists to explain their research to the tourists.

In addition to running tours since the company was established in 1987, the owners of Discovery Ecotours have continually exerted their efforts to improve the contribution of tourism to conservation of biodiversity and Aboriginal cultures in Australia. In 1992, for example, at a national conference on biodiversity, they suggested a substantial levy on tourism revenues, their own included, to contribute to the conservation of biodiversity. More recently they produced an oft-quoted report entitled *Two-Way Track*, also arguing for the responsibility of the tourism industry to assist in conserving Australia's plants and animals in addition to packaging them as tourist products (Preece *et al.*, 1996).

Guides at Discovery Ecotours have tertiary qualifications and are skilled in communication as well as science. The environmental interpretation programme includes broader-scale global issues, as well as local and natural history. Guests are also given pointers on appropriate behaviour within potentially sensitive cultures and fragile environments. In some tours, traditional landowners are employed to accompany guests through their traditional lands and pass on cultural and historical knowledge. Indeed, many Aboriginal communities in the Northern Territory currently insist that tour groups take local residents as guides. Guides are also responsible for ensuring that no litter is left behind, vegetation damage is minimal, campsites are restored and containers are recycled (Discovery Ecotours, 2002). Despite winning a 1993 Australian Tourist Award for Environmental Tourism and a 1996 Banksia Environmental Award for Ecotourism, Discovery Ecotours has apparently found that travel agents do not differentiate its products from those of other companies which, in their view, use the ecotourism label undeservedly.

## LANDSCOPE Expeditions, Australia

LANDSCOPE Expeditions are commercial research projects operated by the Western Australia Department of Conservation and Land Management (WACALM), in conjunction with the adult and community extension programme of the University of Western Australia. Scientists from WACALM design and lead the projects and expeditions, which are limited to 12 fee-paying participants each. The University is responsible for administration and marketing. Logistics are provided by private tour operators and local communities under contract (WACALM, 2002).

Recent LANDSCOPE Expeditions have included biological and habitat studies in Purnululu National Park in the Kimberley region of north-west Western Australia; mammal and reptile surveys in Pilbara region; reintroduction of endangered species and tracking feral predators at the Peron Peninsula, Shark Bay; assisting a team of international shore-bird experts in studying birds, habitats and diets along the 80 mile beach near Broome; and trips to the Mitchell Plateau, Pilbara region, Murchison Ranges, Gibson Desert, Shark Bay and the Lacepede Islands.

## Desert Tracks, Central Australia

Desert Tracks is a camping tour operation on the 1000 km<sup>2</sup> traditional lands of the Pitjantjatjara and Yankunytjatjara people in central Australia. The company is 100% Aboriginal-owned and offers three tours: a 1-day tour to Cave Hill, a 3-day tour focusing on traditional rock art and a 7-day tour operating from a permanent base camp. In the longer tours, guests learn about the historical background of the local people, bush food and bush medicine, identification of animal tracks and other aspects of Pitjantjatjara culture.

Originally, at the request of the Traditional Elders, the base camp was moved every few tours so that there would be no permanent tourist structure at the site. As tourist numbers and resulting impacts increased, however, the Elders decided instead to use a permanent campsite to localize environmental degradation. The site chosen is in the lee of a hill, which provides protection from winter winds. It is close to a stand of mature mulga trees, an acacia species that is the dominant tree in the central Australian dune fields and provides shade in summer. The campsite is also close to a rock hole, which provides permanent water.

The campsite is centred around a traditional *wiltja*, an open semicircular shelter constructed from the desert oak *Casuarina*, with thatching of spinifex, a desert hummock grass. Cooking is on a fireplace, and fuel wood is brought in to avoid cumulative impacts on the surrounding area. Lighting, refrigeration, water pumps and water heating are run from a bank of batteries charged by solar panels. Washing water is provided from a bore, and

drinking-water is stored separately. The camp has a bucket shower and pit toilets. Guests may not bring alcohol, tape recorders or video cameras to the camp, and are expected to carry out any rubbish from their own personal effects. Non-biodegradable waste from the camp is taken to nearby Uluru for disposal (James, 2002).

### **Umorrduk Safaris, Australia**

Arnhem Land is a large Aboriginal homeland area adjacent to Kakadu National Park in the north-eastern Northern Territory, Australia. Arnhem Land is owned by a small number of interrelated Aboriginal families, and entry is by permit only. As of 1998, only four local tour operators had permission to operate in Arnhem Land. Umorrduk Safaris is one of these, and operates a small tented safari camp in western Arnhem Land (Zeppel, 1998). The area is part of the homelands of the Gummulkbun people, and Umorrduk Safaris is operated by the daughter of one of the Gummulkbun elders and by her husband, who is also of Aboriginal descent. Permission for the tour company to operate in the area was granted by the elder concerned.

The company pays a per capita entry fee to the Gummulkbun people. As of the early 1990s, this fee was Aus\$25 per person, currently around US\$12.50. The safari camp contains eight twin-share tents, which can accommodate a maximum of 16 tourists. Groups are flown from Darwin directly to the Umorrduk camp, which receives 400–500 tourists a year, of which 70% are from the USA (Zeppel, 1998).

The key attractions are rock-art galleries with paintings up to 20,000 years old, and tourists are apparently prepared to pay Aus\$280–400 per person for a 1-day fly-in visit (Brookes Australia Tours, 2002). The area also contains ancient burial sites in rock shelters, which are closed to photography. All visitors are required to sign an agreement that specifies the conditions of entry for traditional lands. These include respecting instructions from the guides, e.g. in regard to areas where photography is prohibited and the right of the traditional owners to close particular areas for ceremonial purposes. Umorrduk Safaris employs Gummulkbun people as tour guides, and has a 5-year lease on the tented campsite. According to Zeppel (1998), one option was for the Gummulkbun people to purchase the business, with the current owners staying on as managers, but this does not seem to have happened (NTVC, 2002).

### **\*Southern Sea Ventures, Australia**

Southern Sea Ventures operates sea-kayaking tours around Hinchinbrook Island near Cardwell in North Queensland, Australia (Southern Sea Ventures, 2002). It also offers sea-kayak tours in Fiji, Tonga and the Arctic

and Antarctic. The tours are also marketed through World Expeditions. The Australian tour starts and finishes from Cardwell, circumnavigates the whole of Hinchinbrook Island and also visits two smaller islands nearby. It is a multi-day tour, camping on designated beaches on Hinchinbrook Island, which is a World Heritage-listed national park. The marine environments lie within the Great Barrier Reef Marine Park, which is also World Heritage-listed. The guides are concerned principally with safety and logistics, and environmental interpretation is somewhat limited.

The tours follow minimal-impact camping practices (Buckley, 1999). In particular, on some of the island beaches, there is a national-parks requirement to remove all human waste, and to comply with this requirement the company has constructed custom-built portable toilets, which can be carried on one of the guides' kayaks. Unlike the standard portable toilets used in commercial rafting trips, which are rectangular steel constructions based on military-surplus 'rocket boxes', the sea-kayak design uses a length of plastic piping for the main body, with a detachable funnel and seat that can be carried separately within the narrow hull of a sea-kayak.

### **\*World Expeditions, Rafting and Sea-kayaking, Australia**

World Expeditions is an Australian company, originally established in 1975 as Australian Himalayan Expeditions, with a focus on guided trekking tours in Nepal. It subsequently expanded to include white-water rafting, sea-kayaking and bicycle tours, as well as hiking, in Australia and throughout the world, and now offers over 140 small-group tours (World Expeditions Inc., 2002). Its tours generally follow minimal-impact practices, and the company has its own code of environmental practice, which covers the social as well as the natural environment (Buykx, 2001).

According to World Expeditions Inc. (2002), the company received an award for its *Responsible Travel Guide Book* and is the only commercial tour operator officially endorsed by the Wilderness Society. I have carried out audits of two of its routine commercial white-water rafting tours in Australia, on the Franklin River in Tasmania and the Nymboida River in north-eastern New South Wales. Coincidentally, both were led by the same guide. On both tours, while joining the trip as a commercial client, I travelled in my own white-water kayak to allow greater flexibility in checking environmental management practices, notably the condition of campsites when we left. Both tours were multi-day trips with skilled guides and a small group of clients, providing optimum conditions to train clients in minimal-impact practices.

Both used small paddle rafts, where the clients form a paddling team under the direction of a guide. Both the Franklin River and the Nymboida River are narrow technical creeks, where the larger oar rafts favoured on rivers such as the Colorado cannot be used. Both the Nymboida River and

the Franklin River are heavily used by a number of commercial white-water rafting operators and also by private groups. Especially on the Nymboida, the World Expeditions tour travelled more slowly and spent more nights on the river than most others. This allows more time for training and interpretation. In addition, when coupled with small group size, it allowed the World Expeditions group to camp on its own at small and rarely used campsites, rather than at the heavily used and crowded sites used by tours that travel the river as fast as possible.

Techniques and equipment to minimize environmental impacts of back-country white-water rafting have been examined extensively and are available as *Leave-No-Trace*<sup>®</sup> booklets in the USA, as a *Green Guide* in Australia (Buckley, 1999) and as minimal-impact guidelines produced by the Australian Alps National Parks. While there are differences in detail between different ecosystems and different types of river, these guidelines are very similar in most regards, and best practices are generally well established and agreed (Buckley, 2002a). Broadly, they may be divided into: access to the river; travel downstream; and camping beside the river. There are guidelines for: where to camp; cooking, cleaning, washing, heating and lighting; disposal of human waste, organic food scraps, grey water and garbage; minimizing noise and disturbance to wildlife, to other users and to riverside heritage sites; avoiding the introduction of weeds and pathogens; and so on. Both the Franklin River and Nymboida River rafting trips followed accepted best practice in all aspects of their operations.

The environmental interpretation component of both rafting tours was focused principally on minimal-impact practices. Land-use history and environmental politics were discussed briefly. The natural-history component, such as identification of plants and animals, was rather limited. In addition to statutory tour-operator permit fees and *per capita* visitor fees payable to parks agencies, World Expeditions has on occasion taken an active political role in conservation disputes (Buykx, 2001).

In particular, there was a long-running controversy over an antecedent 4WD track in the south-west Tasmania World Heritage area, through which the Franklin River flows. The track provides access halfway down the wilderness section of the river. Conservation groups had long argued either that it should be closed entirely and rehabilitated, or that it should be closed to commercial and recreational use and maintained only as a management access track. In addition to concerns over wilderness quality, continued access by non-quarantined vehicles increases the risk that visitors may start fires or introduce weed species. Most importantly, it risks dispersing the cinnamon fungus, *Phytophthora cinnamomi*, the causal agent of the virulent jarrah dieback disease, which attacks a wide range of native Australian plants species and currently causes major problems for protected-area management in Tasmania.

Several commercial tour operators run white-water rafting trips on the Franklin River, and they were divided over the use of this access track. One



major operator uses the track for access, so as to run shorter trips. This operator lobbied to keep the track open. The others offer only full-length rafting trips through the wilderness area and do not use the midway access track. These operators, including World Expeditions, were generally in favour of closing the track. Only World Expeditions, however, lobbied actively in support of the conservation viewpoint, even though this made it unpopular with larger-scale tourism interests, who were against closing any recreational access anywhere. Of course, it could be argued that World Expeditions had commercial interests in seeing the road closed, since the company using it was a competitor. It would, however, have been equally possible for World Expeditions to offer short-duration trips using the access road, as well as the full-length trips. On balance, therefore, it does seem that their actions were driven by conservation concerns rather than commercial competition.

Overall, therefore, it would appear that, at least on the basis of the tour products I have been able to audit, World Expeditions would indeed qualify as an ecotourism operator, even though it does not advertise itself in these terms.

### **\*Taka Dive, Australia**

An example of live-aboard dive operations on Australia's Great Barrier Reef is provided by Taka Dive, which has converted a 22 m former prawn-trawling vessel into a very efficient diving platform for up to 26 certified divers, plus a crew of seven or eight (Taka Dive Australia, 2002). As required for all licensed tour boats of this size in the Great Barrier Reef Marine Park, the vessel is fitted with holding tanks and must bring all garbage except food scraps back to port for disposal on land. Sewage and grey water, however, are not pumped out on land, but macerated and pumped out when the vessel is well offshore and in motion.

Passengers are told not to throw any litter overboard, including cigarette butts; how to separate garbage for recycling; and how to avoid damaging the reef while diving. Since in general only experienced divers would take a specialized trip of this nature, these instructions are readily followed. There is a briefing before each dive, which covers animal species of particular interest at the site, as well as safety and navigation aspects. The boat carries a video photographer, who is also a highly competent marine naturalist, and the video from each dive is played back in the evening with an accompanying commentary. Broader environmental issues, however, are not discussed. These could include: management of the Great Barrier Reef Marine Park; the environmental impacts of tour boats and other activities in the area; or local or global environmental threats to coral reefs, such as the crown-of-thorns starfish or coral bleaching associated with global warming.

## **Great Adventures Reef Cruises, Australia**

One of the largest investors in the Cairns tourism industry has been the Daikyo Group from Japan. In particular, Daikyo was responsible for major redevelopment of the resort on Green Island, a coral cay quite close to Cairns. A subsidiary company, Great Adventures, runs high-speed catamarans to Green Island and also to floating pontoons at Norman Reef and Moore Reef on the outer barrier. Activities offered at the pontoons include coral viewing from underwater observatories and semi-submersible boats, snorkelling, introductory and certified scuba-diving and scenic helicopter flights (Ilett *et al.*, 2000). Interpretation is available through: a video and commentary on board the boat; guided walks, snorkelling and boat tours; and a video and audio hook-up from an underwater observatory to a scuba diver, which allows tourists in the observatory to talk to the diver and see what the diver is seeing. Along with other marine tourist operators in the Great Barrier Reef Region, Great Adventures also assisted in the development of the Great Barrier Reef Marine Park Authority (GBRMPA) Staff Certificate Marine Biology Course (Great Adventures, 2002; Green Island Resort, 2002).

## **\*Quicksilver Connections, Australia**

Perhaps the best-known of the large-scale reef tours on Australia's Great Barrier Reef is operated by Quicksilver Connections out of Port Douglas, north of Cairns. Started in 1979 as a small family business, by the late 1990s it employed 156 staff and catered for around 200,000 clients annually (Harris and Leiper, 1995; Basche, 1998). Quicksilver currently runs four tour boats: a 45 m high-speed wave-piercing catamaran with a speed of 35 knots, which transports passengers to permanent pontoons at Agencourt Reef; a 30 m sailing catamaran; and two specialist dive boats, 24 m and 15 m, respectively (Quicksilver Connection, 2002). The pontoons incorporate underwater observatories, underwater communication facilities and high-pressure air and diving platforms for scuba-diving. Helicopter over-flights are also available. A subsidiary company, Reef Biosearch, carries out interpretation on the tours, and also conducts monitoring and research, as required by the GBRMPA, which is the management and permitting agency for the area. Quicksilver is a high-volume tourist business that has managed to maintain ecotourism principles of minimal-impact operation and effective environmental education. Passengers receive briefings, videos and printed materials emphasizing that Quicksilver operates in the Great Barrier Reef Marine Park and that all marine life is protected. The same message is reiterated by dive and snorkel guides. The boats and pontoons contain sewage-holding tanks and no sewage or other rubbish is discharged on the reef.

## **Reef Biosearch, Australia**

Reef Biosearch is an organization of marine biologists and educators in Queensland, Australia. It was established in 1986 with the aim of combining tourism education and research. Reef Biosearch provides the interpretation component of commercial tours operated by Quicksilver Connection in the Great Barrier Reef Marine Park, using guided walks and snorkel trips to teach visitors about reef and island ecology, minimal-impact behaviour, and global threats to reef environments (Reef Biosearch, 2002).

Reef Biosearch also carries out general marine education programmes in schools, the tourism industry, training institutions and the broader community. It conducts environmental research and monitoring on the Reef and acts as advisers and consultants to the reef management agencies.

Research conducted by Reef Biosearch enables operators and the tourism industry to differentiate between anthropogenic and natural changes on the reef. This distinction can only be made through long-term research and monitoring. This is vital for reef conservation and also for tourism planning. Reef Biosearch has tested the effects of tourism operations on reef fish populations, coral communities and water quality. This research has been made possible through the close connection with Quicksilver Connections, which provides logistic support. Research funding is provided by government and university grants and profits from snorkelling trips and T-shirt sales.

Reef Biosearch staff are involved in a range of environmental education programmes on coral reefs and associated ecosystems. They have had organized school programmes with reef field trips; developed primary-school teaching manuals; run courses in reef biology for the tourism industry and the broader community; and taken part in various coastal restoration and catchment management projects.

## **Australian Trust for Conservation Volunteers and Nomad Backpackers**

The Australian Trust for Conservation Volunteers (ATCV) is a large non-profit, non-political organization that contributes to conservation by involving volunteers in practical conservation projects every year. Landholders and land management agencies provide equipment and materials, expertise and on-site supervision. ATCV provides labour. ATCV's projects include: tree planting, erosion and salinity control, collecting seeds of indigenous plants, building and maintaining bush walking tracks, restoring historical buildings, surveys of endangered flora and fauna, habitat restoration and weed eradication.

Recently, ATCV has formed a partnership with Nomad Backpackers to sell special 6-week working conservation holidays to international visitors (Buckley and Sommer, 2001). Marketed as the Conservation Experience,

these programmes cost Aus\$20 a night, including food, accommodation and project-related travel. This initiative allows international visitors to experience a variety of conservation projects in different parts of Australia, including remote and pristine locations that are off the beaten track of traditional tourist trails. To date, more than 800 overseas visitors have booked these packages.

Another recent initiative by ATCV is the Aboriginal Culture Tourism Project, which aims to link Aboriginal communities, ATCV, Parks Victoria and visitors to south-west Victorian protected areas. The intention is that project participants will spend 10 days with local indigenous communities along the coast, rivers and mountains of south-west Victoria.

### **Manyallaluk, Australia**

Manyallaluk, Frog Dreaming, is a community of about 150 Aboriginal people 100 km east of Katherine in the Northern Territory, Australia. Formerly the cattle station Eva Valley, Manyallaluk is 3000 km<sup>2</sup> in area and is bordered by Arnhem Land, Nitmiluk (Katherine Gorge) National Park and Kakadu National Park (Zeppel, 1998; Schmiechen, 2002).

In 1990, the Manyallaluk community entered a joint venture with Terra Safari Tours. Six Aboriginal people, including former cattle stockmen, were trained as tour guides and now conduct cultural tours 1–5 days in length. During these visits, tourists are given the opportunity to try their hand at making and using various traditional artefacts, such as spears, baskets and firesticks; to learn about bush food and medicine; and to visit various traditional rock-art sites (Schmiechen, 2002). Tourists can arrive at the property in coaches or their own cars, but are not allowed beyond the homestead area unless on a guided tour. Tourists may not enter the community living area, and no alcohol is permitted on the property. Only local Aboriginal people may act as tour guides: ‘the people of Manyallaluk make it clear that it is their country and they alone have the right to show it to others’ (Zeppel, 1998). Manyallaluk also operates a caravan park and camping ground, and a store selling local artefacts.

### **\*Waitomo Glow Worm Caves, New Zealand**

The Waitomo Caves in New Zealand’s North Island offer one of the world’s more famous opportunities to see large numbers of glow worms in an extensive underground cave system. They have been open to the public as a tourism destination for many decades and receive over 400,000 visitors a year, who travel through the caves on foot and by boat along an underground stream. The caves are part of a national park and are of

considerable conservation significance, for pre-Maori historical heritage reasons as well as conservation of specialist cave-dwelling animal species.

One of the principal impacts of high visitation has been an increased level of carbon dioxide in the cave atmosphere. The right to take visitors through the caves is leased by a concessionaire, and the concession is tradable. According to a number of reports (Waitomo Caves, 2002), the parks agency has specified an upper limit for carbon dioxide concentrations in the cave atmosphere, but has not imposed a visitor quota directly. This has led the tour operator to disperse tour groups further around the caves, alternating tour paths and closing parts of the caves at different times of the day.

### **\*Jenolan Caves Reserve, Australia**

Jenolan Caves, in the Blue Mountains 180 km west of Sydney, are a heavily visited tourist attraction, with several hundred thousand visitors a year and a range of on-site accommodation and infrastructure. It is managed by the Jenolan Caves Reserves Trust. The caves provide habitat for a number of endangered species. As visitor numbers continued to increase at 5–6% per annum in the early 1990s, concerns were raised over the ecological impacts of high visitor numbers, such as elevated carbon dioxide levels and contamination of underground streams. The Jenolan Caves Reserve Trust commissioned a research project to design minimal-impact infrastructure within the caves, determine appropriate visitor numbers and establish a monitoring programme reflecting tourist impacts. Some areas of the caves were also closed to visitors as a result of this study. Commercial tour operators and the local resident community were involved in the design of transport, infrastructure and visitor management systems (Australia, Department of Industry, Science and Tourism, 1996a,b). Visitor management at Jenolan was also the subject of a PhD study by MacArthur (2000).

### **Royal Albatross Colony, Taiaroa Head, New Zealand**

Taiaroa Head is an exposed headland on the Otago Peninsula 30 km from the city of Dunedin in the South Island of New Zealand. One of its principal tourist attractions is a small breeding colony of northern royal albatross, established by seven birds about 80 years ago. This is the only mainland breeding colony of this species, which otherwise breeds only on two very remote outlying islets in the Chathams group east of the New Zealand mainland. Ornithologist Lance Richdale began observation and study of the colony in 1933 and a caretaker of the colony was appointed in 1951. Taiaroa Head was designated a flora and fauna reserve in 1964.

The breeding season starts in September, with nest-building and egg-laying in November. The chicks hatch in late January or early February and are guarded by the parent birds for 30–40 days after hatching. There were 64 adult birds and 22 nests at the colony in the 2001/02 season.

Guided tours of the albatross colony have been conducted since 1972. These tours are operated under licence by the Otago Peninsula Trust, which was formed in 1967. Until the mid-1980s, tourists were taken only in small groups, with a maximum of ten people, on 3 or fewer days per week. In 1983, however, a specialized viewing observatory was constructed, able to accommodate up to 15 people. By 1991 up to 21 daily tours were offered, departing half-hourly between 9.30 a.m. and 8.00 p.m. every day of the year.

According to Higham (1998), the total number of visitors who took guided tours of the colony increased from 19,000 in 1987/88 to 38,000 in 1990/91, and the proportion of international visitors increased from 45 to 56%. In addition, a higher proportion of tourists arrived during a peak visitation period from December to March and more and more arrived in coach tours. Until the mid-1980s, wildlife experts outnumbered mainstream tourists; since then, tourists with no specialized knowledge have outnumbered those with a particular interest in albatrosses.

Higham (1998) notes that the facility is increasingly hosting tourists who know less about the albatrosses, have inappropriate expectations, do not appreciate their impacts on the birds and have no particular motivation to visit the site, except that it is part of a package tour. At the same time, albatrosses have moved their nests from the area in view of the observatory to a much more marginal site on the northern side of the headland, where many of them are no longer able to raise their young successfully on their own, but only because of supplementary assistance from parks staff.

### **\*Phillip Island Penguin Reserve, Australia**

Phillip Island, south-east of Melbourne in Victoria, Australia provides one of the main breeding-grounds for the little penguin, *Eudyptula minor*. Visitors have been travelling to the island since the 1920s to watch penguins, and the main breeding colony is enclosed in a 340 ha reserve, Phillip Island Penguin Reserve. Construction of a short bridge linking the island to the mainland led to a rapid increase in visitation during the 1940s, 1950s and 1960s, causing major damage to the penguins' nest burrows in the coastal dunes. The ease of access across the bridge also allowed proliferation of holiday homes for Melbourne residents.

A series of fences and viewing platforms were erected in the early 1960s in an attempt to limit damage to the penguin breeding area, but the penguin population continue to decline. In response to public concern, the state government established a Penguin Reserve Committee of Management and

a Penguin Protection Plan in 1985, by which time the penguin colony was extremely threatened (Scrase, 1995).

A heavily hardened viewing area was constructed at a cost of Aus\$3.6 million (approx. US\$1.8 million), with tiered arena-style viewing benches surrounding the area where the penguins generally come ashore at dusk. Access from the carpark to the viewing area and within the viewing area itself is on raised walkways, so that visitors do not crush the penguin burrows or the burrows of the short-tailed shearwater, known locally as mutton-birds. The Management Committee also installed interpretative signs and marketed the site as a tourist attraction, with considerable success. Indeed, for Japanese visitors to Australia, it has become one of the country's icon attractions. The decline in the penguin population was successfully arrested and, by 1995, the penguin numbers reached their highest recorded level, despite being viewed by 500,000 visitors annually. By the mid-1990s, tourism based on the Phillip Island Penguin Reserve was estimated to contribute around Aus\$50 million per annum to the state economy. Funds raised from entry fees, donations, souvenirs and refreshment sales covered the costs of purchasing additional land, rehabilitating areas within the reserve, controlling predators and reintroducing penguins to other former breeding-grounds.

According to Scrase (1995), in the early 1990s the principal threat to the penguin colony was no longer tourism, but nearby housing development in an area known as the Summerland Estate. The Victorian government initiated a plan many years ago to purchase the 776 allotments in this estate (Phillip Island Penguin Parade, 2002), and many have indeed been repurchased and rehabilitated. The buy-back is not yet complete, however, and remains contentious.

### **\*Green Mountain Canopy Walkway, Australia**

Treetop walkways that provide direct tourist access to the upper canopy of tall forest have become a significant tourist attraction in many areas worldwide. Near O'Reilly's Guesthouse at Green Mountains in Lamington National Park, Queensland, Australia, there is a multi-span suspended canopy walkway constructed and maintained with funds donated by members of a local natural-history association. Although there is apparently no counting device in place, estimates suggest that it probably receives many tens and perhaps hundreds of thousands of tourists each year. No fee is charged to use the walkway, either for members of the public or for commercial tour operators. Interpretative signs at intervals along the walkway illustrate some of the species visible, including epiphytes as well as canopy trees. There is also a series of ladders, enclosed in safety mesh, to viewing platforms near the top of one of the highest trees in the vicinity. The walkway has proved both very popular and very educational, and in the process contributes to



ongoing support for Lamington National Park. Its footprint is very small in both physical and ecological terms, and its impacts minimal.

### **\*Great Barrier Reef, Australia**

The Great Barrier Reef in north-eastern Queensland is one of the icon nature tourism destinations in Australia. As a World Heritage Area, it is managed jointly by state and federal government agencies, notably the QPWS and the GBRMPA. Zoning plans permit a range of different uses, including conservation, public recreation, commercial tourism and recreational and commercial fishing. Commercial tours to various parts of the Great Barrier Reef operate from a number of coastal towns, but the principal gateway is undoubtedly Cairns, generally viewed as the adventure-tourism capital of Australia.

The world's largest barrier reef system, the Great Barrier Reef is around 2000 km in length and covers a total area of around 350,000 km<sup>2</sup>. Most of it lies within the Great Barrier Reef Marine Park, and in 1981 it was designated as a World Heritage Area. In addition to commercial fishing in some zones, it supports a very large commercial tourism and recreation industry, valued at over US\$1 billion at the end of the 1980s (Craik, 1992) and well above that currently. Indeed, based on the increase in visitor numbers (Buckley, 2002a) and allowing for inflation in currency values, this figure suggests that the industry would now be worth between US\$5 and \$10 billion per annum. In 1988, Great Barrier Reef resorts recorded over 900,000 visitor nights, and Great Barrier Reef tour boats carried around 1 million passengers. There are more domestic than international visitors, but international visitors spend more (Craik, 1992).

Dozens of reef tour boats operate out of Cairns and nearby ports, such as Port Douglas. Some of the boats are high-speed catamarans, which can carry several hundred people on day-trips to the inner patch reefs and the outer ribbon reefs. Permanent pontoons are installed on various reefs, as a convenient and safe way to get large numbers of tourists from the boats into the water and back again. There are also numerous permanent moorings installed on a wide range of individual reefs, to avoid anchor damage from visiting tour boats and private recreational vessels.

As well as snorkelling for all passengers, many of the day-trip boats offer diving opportunities for certified divers. Some also offer so-called introductory dives, where passengers who are not certified divers can dive in the company of a trained instructor. The most recent innovation is hookah dives inside training cages on the pontoons. All of these options are extremely popular. In addition to the day-trip vessels, there are a number of fully equipped live-aboard dive tour boats, which operate multi-day diving trips to reefs further away from Cairns, including icon dive sites, such as the Cod Hole on the outer ribbon reefs and Osprey Reef in the Coral Sea.

Despite the enormous contribution of the Great Barrier Reef to the tourism sector and to the regional, state and national economies, the bulk of management costs for the Great Barrier Reef Marine Park are met by Australian taxpayers. As of the early 1990s, annual management costs for the Great Barrier Reef Marine Park were around Aus\$15 million per annum, or about 0.75% of the annual contribution of the Reef to the region, state and national economies. The GBRMPA charges a user fee for all tourists and visitors in the Park, at a rather low rate (Aus\$4.00 per person per day) (GBRMPA, 2002). Various concessions are available for part-day tours, multi-day tours and multiple activities in a single day, so that overall the fees contribute less than 25% of the total operating costs for GBRMPA and less than 0.2% of the total revenues attributable to the Reef.

### **\*Coral Reef Monitoring Programme, Australia**

One of the ways in which ecotourism can contribute to conservation of the natural environment is by assisting in monitoring its own environmental impacts. The most reliable way to do this is probably to contribute funding to relevant research by qualified ecologists.

A number of organizations, however, have promoted the idea that commercial tour operators should provide opportunities for either their staff, their clients or both to collect environmental monitoring data directly, as part of their normal commercial tour operations. Indeed, at least one government tourism promotion agency has recently commissioned consultants to prepare a rather broad and general manual for this process. While no doubt valuable as a green marketing exercise, it seems unlikely that this approach will in fact contribute greatly to ecological knowledge of the areas concerned except under rather specific circumstances.

One approach that has now been tested quite extensively is that developed by EarthWatch, where: scientists design projects specifically to make use of educated, interested but previously unqualified volunteer labour; clients pay to take part in such projects; the project staff train the clients in the specialist scientific techniques needed for their specific projects; the clients collect data under the direct supervision of research scientists, not tour guides; and the scientists analyse and publish the data subsequently.

A second valuable approach is possible where owners, guides or other staff of an ecotour company have relevant ecological expertise and interest themselves and can take advantage of the opportunity to return repeatedly to the same sites with commercial clients in order to carry out repeated monitoring of ecological parameters that can be observed and recorded rapidly. This approach can be particularly useful, for example, in monitoring populations of particular wildlife species in relatively remote areas.

A third approach is where a commercial tour operator simply provides logistic support for scientific researchers, typically accommodation or

transport. For example, Explorer Shipping routinely provides transport to subantarctic islands and the Antarctic peninsula for researchers from the USA and UK, and Aurora Expeditions does likewise for Australian and New Zealand researchers. A number of commercial whale-watching operations provide space for whale researchers, who also carry out the interpretation programme for the commercial clients. Some tour operators also sponsor the purchase of research equipment and, in a few cases, have even established research positions, such as the Chair in Snow and Avalanche Safety sponsored by Canadian Mountain Holidays at the University of British Columbia.

To involve large numbers of single-trip commercial tourists in useful environmental monitoring is a much more difficult proposition. One ecosystem where the approach does seem to have been successful is in coral reefs. Typically, these extend over a large geographical area and, while aerial surveys and satellite imagery may provide broad information on large-scale impacts and condition, detailed ecological monitoring can only be carried out by boat-based divers. There are over a dozen volunteer-based coral reef monitoring programmes worldwide, and several of these operate in Australia's Great Barrier Reef Marine Park (Well, 1995; Musso and Inglis, 1998). There are over 700,000 qualified divers in Australia (Davis *et al.*, 1995), and the Great Barrier Reef is the country's best-known diving destination for both domestic and international tourists, so if this approach to environmental monitoring is likely to work anywhere, the Great Barrier Reef provides a very good opportunity.

The first of the Great Barrier Reef monitoring programmes to involve tour operators was established in 1993 and focused on anchor damage. The second, started in 1994, reported the distribution and density of the crown-of-thorns starfish and associated areas of dead coral. A current programme, established in 1998, aims to monitor changes in coral-reef benthic communities (Musso and Inglis, 1998). A series of pilot studies were used to establish an appropriate sampling protocol and develop a training programme, including a handbook, photographic guide and instruction manual. Questionnaires distributed to participants indicate that the project improves awareness of the marine environment by tour-operator staff and clients and that taking part in the research programme enhanced the overall recreational experience for the tourists involved. The programme only proved suitable, however, for overnight live-aboard dive tours of at least 3 days' duration. Tourists on shorter trips were less interested in taking part in the research and did not have time to assimilate the sampling instructions adequately (GBRMPA, 1998).

## **Montague Island Nature Reserve Tours, Australia**

Montague Island is about 10 km offshore from Narooma in southern NSW, Australia. The Island is a Nature Reserve managed by the NSW NPWS.

Commercial tours to the island are offered by Narooma Cruises. There are currently 4500 visitors annually (Buckley and Sommer, 2001).

Narooma Cruises operates two vessels, and NSW NPWS provides four rangers to act as tour guides. These guides receive specific training in interpretation, management practices on the Island and the conservation goals of NSW NPWS.

Narooma Cruises earns 70% of its total revenue from the Montague Island tours. In 1998 the tours grossed approximately Aus\$200,000, with 12% returned to local ticket-sales outlets and Aus\$70,000 returned to NSW NPWS as landing fees. All landing fees are put towards restoration projects, maintenance programmes, guide salaries and tour administration at Montague Island.

### **\*Rottnest Island, Australia**

Rottnest is a small island, 1.9 km<sup>2</sup> in area, a short ferry ride from Perth in Western Australia. It is managed by a statutory agency, the Rottnest Island Authority. Most of the island is a wildlife reserve, including salt lakes significant for migratory birds and the island is surrounded by marine reserves extending 800 m from the shore. Settlement is restricted to an area at the eastern end of the island, which contains a resort, hotel, youth hostel, environmental education centre, camping area and 250 houses (Back, 1995).

Rottnest Island is famous as the only habitat of the quokka, a small and unusual marsupial species. The island was first named in 1696 by a European explorer, De Vlamingh, who understandably mistook the abundant quokkas for rats, and named the island 'Rats Nest' in consequence. It is also a popular destination for residents of Perth, who visit it for its beaches, surf breaks, fishing and diving opportunities. Recreational fishing is prohibited in some areas, designated as marine conservation reserves, but permitted in others. Commercial fishing is prohibited in all the marine reserves around the island. Overall, the island receives at least 400,000 tourists each year (Southern Cross University, 1997).

The island uses a range of energy-saving devices, including solar energy for water pumps, navigational aids, composting toilets, ventilation fans, electric fencing, street lighting in remote areas, hot-water systems and desalination plants. The Rottnest Island Authority manages a register of 250 volunteer guides, who lead cycling tours and birdwatching walks. It is also constructing interpretative centres and trails (Rottnest Island Authority, 2002).

Heavy use of the area for recreational boating has caused extensive damage to sea-grass meadows around the island (Hastings *et al.*, 1995). Damage was assessed by comparing aerial photographs taken between

1941 and 1992 in two heavily used bays, one exposed to the prevailing westerly swells and the other more protected. In the exposed bay, where three-chain cyclone moorings are in common use, 18% of total sea-grass area was lost over the period studied, most of it in the final decade. In the protected bay, 5% of total area was lost.

### **Naracoorte Caves, Australia**

Providing opportunities for tourists to watch wildlife in their natural habitat without disturbing them is particularly problematic in the case of nocturnal species. In addition to limestone caves and fossils, the World Heritage-listed Naracoorte Caves Conservation Park in South Australia provides the critical habitat for Australia's largest population of the common bent-wing bat. The park receives around 50,000 visitors each year (Australia, DIST, 1996a,b), many of whom express considerable interest in the bats as well as the limestone formations. To avoid disturbing the bats, however, visitors are not permitted to enter the area of the cave containing the colony. Historically, therefore, visitors have only been able to view the bats as they leave the cave during summer evenings, and only 2–3% of visitors have in fact stayed at the park until night-time to take part in evening tours.

To overcome this difficulty, the state parks agency that manages the area installed four remote-controlled video cameras within the bat cave, with images relayed to a visitor centre, which is designed to resemble a real cave. The video cameras use infrared lighting and image enhancement to provide a clear view of the bats, and the cameras can be manipulated remotely by visitors so as to observe different parts of the colony and watch different bat behaviours in real time. The facilities were funded partly by the state parks agency in South Australia and partly by a grant from the federal government and appear to have been highly successful.

### **Hamelin Stromatolites, Australia**

Marine stromatolites are one of the oldest life-forms still in existence, essentially unchanged from their earliest fossils 3.5 billion years ago. They are mushroom-shaped structures up to a metre tall, formed by micro-organisms in hypersaline waters. Modern stromatolites have been found in only two locations worldwide, and one of these is Hamelin Pool in the Shark Bay World Heritage Area of Western Australia. This is also the only site where public access to a living stromatolite colony is permitted.

Historically, Hamelin Pool had no infrastructure, facilities or interpretative materials. Many visitors trampled directly on the stromatolites, which caused significant damage, since the microorganisms are extremely slow-growing, and it may take over 100 years for the imprint of a footprint to

grow out (Australia, DIST, 1996a,b). Many visitors did not even realize that the objects they were walking across were in fact the stromatolites they had come to see.

Accordingly, the state parks agency, constructed a wooden walkway to avoid trampling damage, with self-guiding interpretative signs using a cartoon character, 'Stumpy the Stromatolite', to illustrate stages in stromatolite life history and issues in stromatolite conservation.

The microorganisms that form the stromatolites are light-dependent, so the decking of the walkway was designed to maximize light passing through the structure, while still providing adequate safety for pedestrians. The timber used to construct the walkways was not chemically treated, since it was not known whether this might have a detrimental effect on the stromatolites. Construction was carried out carefully so as to minimize disturbance to the substrate.

The interpretative walkway has been very successful, providing a good view of the stromatolites, reducing trampling damage and increasing visitor satisfaction, while allowing a continuing increase in visitor numbers. Not all visitors, however, remain strictly on the wooden walkway: it is estimated that 10% leave the walkway and cause trampling damage (Australia, DIST, 1996a,b; WACALM, 2002).

### **\*Uluru–Kata Tjuta, Australia**

Formerly known by their European names of Ayers Rock and the Olgas, Uluru and Kata Tjuta are probably the most famous icons of the Australian outback and one of its major international and domestic tourist destinations. The principal attractions are massive red rock monoliths rising from a near-flat arid landscape covered by low-vegetated dunes. The site has been a national park since 1958 and World Heritage since 1987 (Environment Australia, 2002). The park is surrounded by pastoral leases used for cattle grazing, and further to the west there are large Aboriginal reserves and a number of outback Aboriginal communities.

In 1985, the Australian federal government transferred ownership of the national park land to the traditional Aboriginal owners, the Pitjantjatjara and the Yankunytjatjara people, collectively known as the Anangu. The transfer was coupled with a lease-back arrangement, under which the national park would be co-managed by the federal government environment agency. The park is run by a Board of Management with an Aboriginal majority. The Board appoints a member of the local community at a level equivalent to park superintendent, to represent local interests. The Uluru–Kata Tjuta National Park Plan of Management 2000 states that the park should be managed jointly by the Anangu and the Australian Parks and Wildlife Service to be culturally sustainable and to conserve natural and cultural values.

Historically there were a number of low-key motels and a campsite within the park itself, but with the construction of the Yulara village in the 1980s, tourist accommodation was moved outside the park boundaries, and the only visitor facility within the park itself is the visitor centre. The Mutitjulu Aboriginal community was established within the park, and a number of community members work as tour guides, but tourism activities are generally kept away from the community.

The Aboriginal community receives Aus\$75,000 in annual rent and 20% of all park entrance fees (Environment Australia, 2002). The parks service has also carried out community development projects, such as the provision of housing. The park receives around 40,000 visitors per year (37,200 in 1999), 60% of them on commercial tours and the remainder as independent travellers, so entrance fees generate a significant annual revenue. Historically, the principal goal of most visitors was to walk to the top of Ayers Rock itself. This is a relatively straightforward exercise, involving a steep scramble along a well-marked route with safety chains in the steeper sections. Since co-management arrangements began in the 1980s, however, the focus has switched strongly to interpretation of Aboriginal cultural values and lifestyles, including the meaning of Uluru and Kata Tjuta in Aboriginal tradition.

### **Mon Repos Turtles, Australia**

One of the two largest loggerhead turtle rookeries in the South Pacific is at Mon Repos Beach, 14 km east of Bundaberg, Queensland. The beach is within Mon Repos Conservation park (QEPA, 2002). The females lay eggs from December to February, and the juvenile turtles hatch and make their way to the sea 6 to 8 weeks later. Both these spectacles have become major tourist attractions, to the point where tourists present a significant threat to turtle conservation.

The state government parks service established a turtle research programme in 1968, because of the importance of the Mon Repos rookery to the survival of the species. In 1985 it also established an organized and guided turtle-watching programme, with around 25,000 visitors a year in the mid-1990s (Australia, DIST, 1996a,b). In addition to controlling visitor behaviour so as to minimize impacts on the turtles, the guided viewing programme is intended to educate visitors about turtle biology, enhance their experience through interpretation, stimulate them to think about broader conservation issues and draw their attention to the role of the state government agency in conservation management. Turtle watching is monitored by the parks service (QEPA, 2002).

Under this programme, the maximum number of people on the beach at any one time is restricted. There is a visitor centre with interpretative materials and presentations for visitors who are waiting their turn to visit the beach.



One critical environmental management issue for the turtle-watching programme and visitor centre is that artificial lighting can disorientate the turtles, particularly hatchlings trying to make their way to the ocean. It is therefore critical that no incandescent or fluorescent lighting is visible from the beach. On the other hand, visitors need to be able to find the visitor centre at night and later return to their cars. To comply with both these conflicting designer constraints, the visitor centre is a low-profile construction hidden from the beach by the dunes. Any exterior lights on the visitor centre are low-pressure sodium-vapour lights, which the turtles do not detect. Directions in the car park are provided by low-intensity backlit signs. Because of these measures, visitors can reach the interpretative centre safely, without the turtles being disorientated by artificial lights (QEPA, 2002).

Wooden walkways have been built over the dunes from the visitor centre to the beach to prevent erosion by pedestrian traffic. All staff at the visitor centre are trained in communication and presentation skills, as well as turtle biology, conservation, research and management. In addition to rangers from the state parks service, the visitor centre is staffed by volunteers, who help to run the shop and assist visitors. There are also a number of research volunteers, who are trained in the same way as the centre's staff and assist with visitor education, as well as turtle research.

### **Tree Top Walk, Australia**

While public forests in the USA, managed by the US Forest Service, are used extensively for recreation and tourism, this has been far less common in Australia, where public forests are managed by state governments. There are, however, two recent examples where state forestry agencies have constructed canopy walkways specifically as tourist attractions. At one site in the tall eucalyptus forests of south-western Western Australia, one particularly tall tree has for many years been accessible via a spiral staircase around the trunk itself. In recent years, this site has proved so popular that the trees began to suffer damage to their roots from heavy trampling by visitors. Unlike most Australian states and territories, until recently Western Australia had a single land management agency responsible for both parks and forests and, as a result, it had no difficulty in raising funds to construct an extensive enclosed canopy walkway, the Tree Top Walk. The site was closed from 1994 to 1997 for construction work (Buckley, 2002a). A fee of Aus\$6 per person is charged for access to the walkway (Buckley *et al.*, 2001).

### **\*Tahune Airwalk, Australia**

Until recently, recreation in the public forests of Tasmania was viewed by the state forestry commission partly as a public service and partly as a public relations exercise to counteract intense negative publicity associated with various high-profile logging proposals. In particular, a very large-scale pulp mill was proposed a decade ago by a large Canadian forestry company in consortium with an Australian mining company. Public concern over this proposal was so great that it led to the election of several green candidates to the State Parliament, ousting the right-wing government of the day. Logging in areas of high conservation value continued, however, and, when the World Congress of Adventure Travel and Ecotourism was held in Tasmania in 1994, ecotour operators from around the world saw the results firsthand. To offset the resulting negative publicity, Forestry Tasmania began to promote opportunities for forest recreation, as a public relations exercise rather than a commercial venture.

The person responsible for this aspect of the organization's activities, despite having no line authority over the major operating divisions and no access to their revenue, was able to obtain a federal government grant to construct a canopy walk, known as the Airwalk, at Tahune in south-eastern Tasmania. Opened in April 2001, the Airwalk proved an immediate commercial success, with revenue vastly exceeding projections. The walkway is located within Tahune Forest Reserve at the confluence of the Huon and Picton Rivers. The walkway rises to 45 m above ground level and runs for 500 m through the forest canopy (Forestry Tasmania, 2002).

The Tahune Airwalk is in a relatively small area of forest which is by no means pristine, and large clear-cut operations are continuing nearby. At an organizational level, it appears that Forestry Tasmania stills sees its role as facilitating timber production rather than managing forests. The financial success of the Airwalk project, however, has clearly demonstrated the revenue-generating potential of commercial recreation, and perhaps this may lead Forestry Tasmania to recognize in time that tall timber is often worth more left standing for tourism than felled for sawlogs, let alone woodchips. If so, the Tahune canopy walk and the vision of the person who conceived it will indeed have made a significant contribution to conservation.

## Monteverde Cloud Forest Reserve, Costa Rica

Costa Rica contains a number of private reserves, with a total area of just under 250 km<sup>2</sup> in 1991, or 0.5% of Costa Rica's total land area (Weaver, 1998). These include small reserves established for biological research at La Selva in 1963 and, more recently at Palo Verde and Las Cruces, and others established principally to provide ecotourism accommodation, such as the Rara Avis Waterfall Lodge and the Arenal Volcano Observatory (Honey, 1994; Weaver, 1998). The best-known and most heavily visited private reserve in Costa Rica, however, is the Monteverde Cloud Forest, which is owned and managed by the Tropical Science Centre in San Jose. Monteverde is famous not only for the cloud forest itself, but for a significant population of the resplendent quetzal, an endangered bird species with considerable cultural as well as conservation significance.

The seed of Monteverde was sown in the 1950s, when an area of 14 km<sup>2</sup> was bought for farming by Quakers immigrating from the USA. In a move that many modern farmers and government agricultural agencies could do well to emulate, the Quakers allocated well over one-third of the area specifically for watershed protection. In 1972 this area was formally established as a Reserve, and more land was added gradually until by 1990 the total area was over 100 km<sup>2</sup>. The number of visitors grew from 300 in 1973 to 50,000 per annum by 1993, nearly all from overseas and most from the USA. As a private reserve, Monteverde charges entrance fees, and by the early 1990s it was earning around US\$850,000 per annum, of which 95% is used for operating expenses, an endowment fund and research within the reserve (Honey, 1994). Visitors to the Cloud Forest also support a range of local ecotourism businesses outside the reserve itself,

including a women's handicraft cooperative with 135 members in the early 1990s (Honey, 1994).

As visitor numbers grew, trail erosion became a significant problem, even though the trails themselves constitute only 2% of the reserve as a whole (Honey, 1994). In addition, access roads have apparently experienced haphazard strip development, with local people moving to the area to take advantage of tourism opportunities (Aylward *et al.*, 1996; Weaver, 1998).

### **Fazenda Rio Negro, Brazil**

Fazenda Rio Negro is a tourist lodge in the Pantanal Wetlands in Mato Grosso do Sul in Brazil. It is accessible year-round by planes from Aquidauana or Campo Grande, and by road during the dry season from July to October (Conservation International (CI), 2002b; Fazenda Rio Negro, 2002). The Fazenda Rio Negro property is 77 km<sup>2</sup> in area, and was formerly operated as a farm until purchased by CI and converted to a private protected area. For the past 10 years, the Fazenda building itself has been operated as a scientific station and ecotourism lodge. Activities available include birdwatching, wildlife viewing, canoe trips, horseback riding and catch-and-release fishing. Over 150 bird species have been recorded, including hyacinth macaw, jabiru stork, rhea and roseate spoonbill. Wildlife include caiman, capybara, giant river otter, giant anteater, tapir and occasional jaguar. Current scientific research projects include studies on jaguar, otter and macaw. In addition to the original Fazenda built in 1920, there is a ten-room guest house and a training centre for local residents.

### **Una Ecopark, Brazil**

Una Ecopark is a private reserve with a canopy walkway and visitor centre in the Atlantic Forest of Southern Bahia, Brazil (Una Ecoparque, 2002). Only 8% of this original forest remains, providing critical habitat for endangered species, such as the golden-headed lion tamarin and yellow-breasted capuchin monkey. The reserve lies on the banks of the Maruim River, opposite the Una Biological Reserve, which is a core conservation area where no visitors are permitted. The Una Ecopark provides visitors, including local Brazilians, with information on the environmental values of the Atlantic forest and its significance for future generations. The Ecopark and canopy walkway were created through a partnership between CI, the Institute for Socioenvironmental Studies of Southern Bahia and Anheuser Busch (CI, 2002e). It incorporates a 2 km hiking trail, and a suspended walkway 20 m above ground, constructed without using nails. The Ecopark charges entrance fees, and a proportion of these are allocated to other conservation

projects in the remaining Atlantic forest areas. Over 200 bird species occur in the area, and visitors may also see monkeys and other forest wildlife.

### **Chaa Creek Ltd, Belize**

Chaa Creek Ltd is a 135 ha private nature reserve and resort set along the Macal River and foothills of the Maya Mountains in Belize. While operating as a commercial ecotourism venture, Chaa Creek has taken an active role in preserving the ecological, cultural and archaeological aspects of the local Belize culture (Buckley and Sommer, 2001).

Chaa Creek carries out a range of reafforestation programmes, including river-bank erosion controls and replanting of commercially used palm species. It takes part in local land and wildlife conservation programmes for birds and howler monkeys. It has assisted in developing a natural-history museum and a butterfly-hatching project. It has helped to develop a natural-history curriculum in local secondary and tertiary institutions and mobile displays to take educational programmes to students outside the local area. Chaa Creek also provides advice on local development issues to policy-makers in local and national government; and works with non-governmental organizations (NGOs) to promote environmental education and conservation.

Chaa Creek currently employs 47 local Belize people. It runs local art and craft exhibitions, sponsors local events and uses local people to produce uniforms, furniture and foodstuffs.

### **Wekso Ecolodge, Panama**

Wekso Ecolodge lies an hour by boat up the Teribe River from Changuinola in Panama. It is accessible year-round. The Teribe territory is adjacent to la Amistad International Park in the Bocas del Toro region of Panama. The Wekso Ecolodge is a former jungle training camp, converted into a community-run ecotourism enterprise by the indigenous Naso people, with support from CI (2002c). Members of the 11 Naso communities along the Teribe River created a local non-profit organization, Grupo Odesen (2002), which manages the ecolodge and distributes revenues. The ecolodge is a small, low-impact, bungalow-style cabin with three rooms, which can accommodate two to four people each. Members of Grupo Odesen prepare traditional Naso food for visitors. The lodge generates income for 11 families and has helped the Naso communities to retain their own language, traditions and medicinal knowledge (CI, 2002c).

According to CI (2002c), the forest surrounding Wekso Ecolodge is the convergence point for 75% of all migratory birds in the western hemisphere, and also provides habitat for the harpy eagle and the quetzal. There are two

hiking trails, one through primary forest and the other through a regrowth area of secondary forest. Visitors can also travel on the Teribe River on traditional rafts and visit local communities.

### **Rara Avis, Costa Rica**

Rara Avis is a rainforest lodge at 700 m elevation, in a private reserve bordering Braulio Carrillo National Park and the Zona Protodora La Selva in Costa Rica. It is reached by tractor from the road at Las Horquetas. Over 360 bird species have been recorded from the area around Rara Avis, including great green macaws, umbrella birds and sun bitterns (Rara Avis, 2002). Through research at its biological station, the flora and fauna at Rara Avis are much better known than in most primary tropical rainforests.

Rara Avis is a publicly held Costa Rican corporation established in 1983. The company purchased 400 ha of primary rainforest adjacent to Braulio Carrillo National Park and found independent buyers for a further 558 ha (Rara Avis, 2002). The company operates two lodges on these two properties, Waterfall Lodge, with ten private rooms, and El Plastico Lodge and Biological Station, with 29 beds in seven rooms. The hotel has operated at a profit since 1990. Expansion of the hotel is planned.

Rara Avis sponsors a butterfly-breeding project for export to northern-hemisphere zoos; cultivates tree seedlings for reforestation; maintains a live collection of canopy orchids; and supports a range of research and education projects. The main tourist activities are rainforest walks and canopy climbs, principally to watch birds and other wildlife and visit forest pools and waterfalls.

### **Chalalan Ecolodge, Bolivia**

Chalalan Ecolodge lies in the 45,000 km<sup>2</sup> Madidi National Park in the Bolivian Amazon. The Ecolodge is reached by flying from La Paz to Rurrenabaque, followed by a 6-h boat trip up the Beni River. The lodge was a joint initiative by CI and the local rainforest community of San Josa de Uchupiamonas. The project started in 1995 with a grant from the Inter-American Development Bank. Training was provided by CI and in April 2001 the lodge was handed over in its entirety to the community. Currently, it provides regular economic benefits for 60 families (CI, 2002f). The lodge includes a set of cabins built in local style, with four bathrooms, a professional kitchen, bar, dining area and library. Maximum capacity is 24 visitors. Running water is provided by a solar-powered plumbing system. There are 25 km of hiking trails around the Ecolodge, within Madidi National Park. Canoes are also available, as well as guided walks. Over 340 bird species and a range of wildlife species occur in the area. The Ecolodge

has provided employment opportunities as an economic alternative to logging.

### **Posada Amazonas and \*Tambopata Reserve and Research Centre, Peru**

Posada Amazonas is a rainforest lodge established as a joint venture between a tour operator, Rainforest Expeditions (RFE), and a community landholder, la Comunidad Nativa de Infierno (CNI). The CNI is a local community of the Ese'jea people, part of the Tacana linguistic group, which has traditionally occupied forest areas along the frontier zone between Bolivia and Peru (Nycander and Holle, 1996; Nycander, 2000, 2002). CNI consists of about 80 families, scattered through 100 km<sup>2</sup> of forest near the Tambopata River. RFE has successfully operated the 13-bedroom lodge at the Tambopata Research Centre for well over a decade (RFE, 2002). Under a joint venture signed in May 1996, Posada Amazonas was constructed as a 24-room lodge, built principally of bamboo and palm and other local materials. The joint-venture agreement provides for a 60/40 profit-sharing arrangement between CNI and RFE, with a similar division in responsibility for environmental management.

The Posada Amazonas site provides opportunities to see a variety of forest wildlife, including harpy eagles and occasionally jaguar. It also provides an opportunity for tourists to break the 8-h journey from the airport at Puerto Maldonado to the Tambopata Research Centre, reached along the Tambopata River. Most of the communities along this river are agricultural settlements, with CNI being the only native community (Nycander, 2000).

According to Amazon Adventures (2002), Tambopata Reserve covers an area of 15,000 km<sup>2</sup> and includes the watersheds of three rivers and some of the last remaining intact cloud forest in the Amazon basin.

The Tambopata River is part of the Amazon tributary system, and the airport at Puerto Maldonado provides an opportunity for visitors to Peru to include part of the Amazon rainforest in their itineraries. As a result, the Tambopata area has been a significant tourist destination for over two decades and, according to Nycander (2000), around 40–50 tourists arrive at Puerto Maldonado every day. The Posada Amazonas joint venture has given members of CNI the opportunity to gain an economic benefit from this existing tourist activity.

The joint-venture agreement provides RFE with exclusive ecotourism rights and prevents any member of CNI from establishing a competing business. In addition to the lodge itself, the project includes forest trails, a catamaran on a nearby lake, and a 40 m canopy observation tower.

According to Nycander (2000, 2002), Posada Amazonas is not without its critics. In particular, indigenous-rights activists have apparently argued that, if ecotourism is a viable land-use strategy for wet tropical rainforests,



then indigenous communities should undertake their own ecotourism ventures without involving outside commercial ventures. As noted by Nycander (2000), however, the great advantage of such a joint venture, particularly with a company that already has a well-established and successful ecotourism venture nearby, is that it provides effective marketing and immediate access to paying customers.

According to RFE (Nycander, 2000, 2002), the joint venture has led to: improvements in biodiversity conservation; protection of local traditions and cultural values; and economic benefits for the local community. Posada Amazonas has received an Award for Excellence in Ecotourism from CI. It has also received financial support from the Canadian bilateral aid programme and the McArthur Foundation.

### **Cristalino Jungle Lodge, Brazil**

Cristalino Jungle Lodge (CJL) lies in a private reserve adjoining the 680 km<sup>2</sup> Cristalino State Park in Brazil's Mato Grosso region. The State Park includes a section of the Cristalino River in the Alta Forest highlands of the southern slope of the Amazon River, downstream of a much larger area, 21,588 km<sup>2</sup>, controlled by the Brazilian Air Force (CJL, 2002). The State Park thus acts as buffer between the relatively undisturbed air-force area to the north and wholesale logging, ranching and clearance to the south (CJL, 2002).

The area of the private reserve itself is apparently not mentioned by CJL (2002), so presumably it is small. The Alta Floresta region as a whole supports over 500 different bird species, many endemic. Examples include red-throated piping guan, bare-throated fruit crow, white-bellied parrot and ladder-tailed nightjar. The lodge has a 50 m observation tower, a set of trails and a boat, and seems to be aimed principally, though not exclusively, at international birdwatchers.

The family da Riva Carvalho, owners of the CJL and private reserve, also operate the Cristalino Ecological Foundation (CEF) and its field station on Cristalino Island. According to CJL (2002), the aims of the CEF are: to buy primary forest for conservation; to manage production forest, in partnership with timber companies, so as to comply with the certification requirements of the Forest Stewardship Council; and to operate the field station. CJL is a corporate member of The International Ecotourism Society, and during 2002 it offered a tour to see giant river otter, at a retail price of US\$850 per person, of which US\$174 per person was to be donated to The International Ecotourism Society. According to CJL (2002), CEF has also assisted CI in running ecotourism training workshops, established the CJL reserve as a legally designated Reserva Particular do Patrimonia Natural (RPPN) and lobbied strongly and successfully for the creation of Cristalino State Park. CEF is currently endeavouring to establish syndicates to buy more land along the Teles Pires and Cristalino Rivers and establish further RPPNs.

## **Pousada Caiman, Brazil**

Pousada Caiman is one of four lodges on a large cattle ranch 220 km west of Campo Grande in the Pantanal region of Brazil (Ladatco Tours, 2002). Designated as the Caiman Ecological Refuge, the 550 km<sup>2</sup> ranch still runs cattle as its primary business, though an adjacent area of 72 km<sup>2</sup> is set aside as a private ecological reserve (Ladatco Tours, 2002). Pousada Caiman, the former residence of the ranch's owners, is the main lodge, with 11 guest-rooms and its own restaurant. The Pantanal has a wet season from December to March and a dry season from July to August, with transitional periods in the intervening months. Many of the birds nest during the wet season, but wildlife are seen more easily around waterholes during the dry season, and many of the trees are also in flower at that time. Pousada Caiman offers treks around the Caiman Ecological Refuge on foot, on horseback, by four-wheel-drive (4WD) or by boat. As with other areas in the Pantanal, the Refuge offers the opportunity to see hyacinth macaw as well as rhea, caiman, anaconda, capybara and a great diversity of water-birds. It provides an example of a private farming ranch that has successfully added an ecotourism component and contributes to local conservation in the process.

## **Ixcan Biological Station, Mexico**

Ixcan Biological Station is a low-impact research and ecotourism facility on the Lacantun River in the Montes Azules Biosphere Reserve in Chiapas, Mexico. The surrounding Lacandona Forest covers an area of over 6500 km<sup>2</sup>, supporting a number of endangered plant and animal species. Tours to the station are offered by a number of Mexican in-bound tour operators, including Akianto, Viajes Marabasco and Miramar (CI, 2002a). Visitors arrive via Tuxtla Gutierrez or Villahermosa. Commonly, they also visit other Mayan destinations, such as Yaxchilan and Palenque. The Ixcan facility can accommodate up to 20 people, and includes a lounge area for lectures and presentations. Boat trips are offered to Mayan ruins at Chanatun, and local guides will take visitors along hiking trails, where they may see macaws, toucan, crocodile and spider monkeys.

Since 1996, the Ixcan Biological Station has provided local economic benefits through employment of local residents, and encouraged locals to stop logging, slash-and-burn agriculture and further settlement in the reserve. The local community has founded a cooperative group, the Sac Bahlan Sociedad Cooperativa, which carries out training for local staff in conjunction with the biological station (CI, 2002a).

## Costa Rica Expeditions, Costa Rica

A long-established nature and adventure tour company in Costa Rica, Costa Rica Expeditions (CRE) argues that, 'if tourism does not contribute to the protection of flora and fauna, the prevention and repair of environmental degradation, the economic well-being of local communities, and respect for local cultures, *it is not a justifiable activity*' (CRE, 2002, emphasis added).

The company is known particularly for its white-water rafting expeditions and for tours to the Monteverde mountain lodge, the Tortuga rainforest river lodge, and the Corcorado tented camp on a family farm. These three lodges, owned by CRE, use solar energy systems and water-saving fixtures (CRE, 2002). CRE's conservation efforts include: a campaign to oppose a road into Tortuguero Conservation Area; a lead role in prosecuting people who bulldozed an illegal road in Tortuguero National Park; donations of US\$3000 per annum for 5 years to the Costa Rica National Parks Foundation when it was first established; donations of US\$3600 per annum for 4 years to the Costa Rica Conservation Association; and donations in cash and in kind to the Costa Rica National Parks Service (CRE, 2002). The company buys supplies and services locally, contributes to local communities and has trained many of Costa Rica's naturalist field guides and white-water guides. It also supports research on the Pacific Ridley sea turtle and the squirrel monkey, in conjunction with the Organization of Tropical Studies and others. Costa Rica Expeditions has run donor trips for the Nature Conservancy, the World Wide Fund for Nature and CI, and has a high reputation internationally as a conservation-conscious tour operator.

## Horizontes, Costa Rica

Horizontes Nature Tours operates a very broad portfolio of tours throughout Costa Rica, including white-water rafting and forest birdwatching but also beach-resort holidays and 'honeymoon specials' (Horizontes, 2002). The adventure tours include hikes, sea-kayaking and white-water rafting, mostly at a relatively unskilled level. The birding trips offer the chance to see resplendent quetzal, scarlet macaw and a range of toucans, trogons and tanagers. Horizontes has received a Certificate for Sustainable Tourism (CST) from the Costa Rica Tourism Institute. The CST system has been described by ecocertification critics Honey and Rome (2001) as 'one of the most widely respected sustainable certification programs'. The Horizontes (2002) website offers '10 tips for responsible travel', used by its guides to encourage minimal-impact behaviour by clients. The company has made donations totalling US\$25,000 over 10 years to the Costa Rica National Parks system and to environmental non-government agencies, such as the Caribbean Conservation Corporation and two local training foundations.

### **\*Jatapu River, Brazil**

The Jatapu River is a fifth-order tributary of the Amazon River, accessible from Manaus by a 3-day journey on a local bus, a small river boat and finally a dugout canoe. It is upstream of a stretch of rapids several kilometres long, where dugout canoes must be pushed upstream by wading alongside them. Since these rivers are inhabited by piranha and large razor-toothed catfish, as well as caiman, an experienced local guide is essential. When I visited the area in 1993, I was fortunate to be guided by Señor Carlos Colares, a member of one of the local indigenous communities, who had spent substantial time abroad and combined a very high level of local skills and knowledge with a very considerable level of international sophistication. At least in 1993, the area upstream of the rapids was essentially unvisited, since access was too difficult for either primary industry or subsistence agriculture. We had close encounters with a range of interesting local fauna, including army ants, caiman and piranha, as well as various snakes, and jaguar are apparently also not uncommon in the area. Again, a knowledgeable guide is essential.

The area provides extremely good opportunities to see a range of uncommon Amazonian wildlife at close range in the wild. In the slow-flowing river sections downstream of the rapids, the pink and grey freshwater Amazon dolphin is relatively common, together with a considerable array of native bird species. In the narrower channels and denser forest upstream of the rapids, caiman are plentiful, and one can also see river otter, macaws and hoatzin, an unusual bird whose nestlings elude raptors by leaping into the water when disturbed, and subsequently climbing back up the trunk of the nest tree.

Señor Colares has guided a wide range of international clients through this area, including royalty. Bookings and logistic arrangements were handled by a Brazilian tour company run by Señor Fabio Bueno Netto. We used local transport, namely a scheduled bus service, a river boat and crew hired on the river-bank, and a dugout canoe and two local boys hired from the last subsistence homestead below the rapids. We slept in hammocks either in the river boat or slung between trees under a tarpaulin.

All food was locally supplied, principally fish from the river and a large bag of coarse cassava meal bought from one of the riverside smallholdings downstream, in return for a coil of rope. All cooking was on small wood fires, using palm fronds to shield the fire from the frequent heavy rainfalls. We had nothing with us to generate litter, and the only sign of previous trips to the same area were saplings cut as poles to support the tarpaulin over the hammocks. In addition to learning about plants and animals, educational experiences included using lianas to provide drinking-water, using tree buttresses as signal drums, catching (and releasing) caiman at night using string and a stick and learning where it was safe to swim and where it was most emphatically not. In addition, I learnt something of the various groups

of people living in the area including indigenous peoples, rubber tappers, gemstone prospectors and subsistence squatters; and I also learnt something of the broader attempts at industrial development, including a failed mine not far from the rapids, and the environmentally destructive Bilbao dam on the Jamari River downstream of the Jatapu. Finally, I learnt of Colares' efforts, largely single-handed, to have the Jatapu area declared as a conservation reserve, an effort for which his guided tours provided support.

Perhaps one day the area which I visited with Colares will be a national park, perhaps a World Heritage site, well-known on the world's wildlife tourism itineraries. If so, I can only hope that, while tourism may provide an economic justification for protecting the area from settlement and industrial activity, the number of tourists can be limited, so that the otter, macaw and hoatzin continue to thrive and perhaps also so that visitors may have an opportunity to see them in their natural state.

### **\*Expediciones Chile, Patagonia**

Expediciones Chile is a white-water kayak camp on the Rio Futaleufu in the Patagonian region of southern Chile, owned and operated by former white-water rodeo champion Chris Spelius. The company also offers white-water kayak safaris to a range of other rivers, such as the Rio Fuy in Chile and the Rio Manso in nearby Argentina, as well as rafting and sport-fishing on the Rio Futaleufu, but the kayak camp is the core business. Operating on an area of riverside land purchased from a local farmer, the camp has two principal buildings: a kitchen and dining area and a sauna and hot-water system. Clients bring their own tents for sleeping accommodation, but all meals are catered by Expediciones Chile. The sauna and hot-water system make an enormous difference to the comfort of kayaking clients who have paddled all day in cold Class IV–V white water, sometimes with rather inclement weather. The camp is in an extremely scenic location, with views across the blue waters of the Rio Futaleufu to the snow-covered peaks of Tres Monjas.

From a commercial perspective, the core business of Expediciones Chile is to enable experienced kayakers to paddle the legendary white water of the Rio Futaleufu under the guidance of equally legendary kayakers, such as Spelius and his staff. Originally, Expediciones Chile also offered kayak trips on Chile's other famous high-volume white-water river, the Rio Bio Bio. Some years ago, however, the Bio Bio was dammed for hydroelectric power generation, flooding its most famous rapids. The Rio Futaleufu is considerably further south than the Rio Bio Bio and, because of the shape of the Chilean coastline, there is no road access within Chile between the Futaleufu region and the main electricity-demand areas in and around the capital city of Santiago. The Futaleufu region is accessible only by air or boat to the small port of Chaiten, and a narrow dirt road that runs up the Futaleufu River and eventually through a mountain pass into Argentina. It would

therefore be very difficult and expensive to link a hydroelectric power plant on the Rio Futaleufu into the Chilean national grid, and it therefore seemed likely that the rapids on this particular river, at least, were relatively safe from the fate of those on the Rio Bio Bio.

Electricity quangos, however, appear to have an irresistible addiction to building dams. National borders are little barrier, as demonstrated by cross-border projects between Canada and the USA and between Nepal and India. Inability to connect to existing demand is no barrier, as demonstrated by the Hydro Electricity Commission (HEC) of Tasmania, Australia, which continued to build dams and power plants vastly exceeding demand in Tasmania, even though there was no way to connect them to the mainland Australian grid across the Bass Strait. Ultimately, the HEC subsidized the price of electricity in Tasmania to the point where a major aluminium producer shipped bauxite from Australia's far north to its far south simply to get cheap electricity for smelting.

A similar situation has occurred in Chile, where the national electricity quango is keen to dam the Rio Futaleufu in order to sell power to Argentina. This has forced Chris Spelius and Expediciones Chile, established simply as an adventure-tourism operation, into the role of environmental advocate and lobbyist. With some preliminary assistance from an American river conservation group, American Rivers (2002), Expediciones Chile established a local conservation foundation, Futafriends, funded by client donations and sales of company merchandise; made and distributed a video, the *Plight of the Futaleufu*; and lobbied government officials in Santiago.

Sections of the Rio Futaleufu below the Expediciones Chile camp are used extensively by commercial rafting and sport-fishing companies. The river is reputed to offer some the world's best fly-fishing for wild trout, one of the more expensive and up-market forms of freshwater sport fishing. In addition to tour operators, residents who currently occupy river-bank farms, run riverside guest houses or simply have private homes along the river valley roadside would all be flooded if the river were to be dammed. The local residents, accustomed to an independent gaucho lifestyle, had felt themselves to be powerless against a central government agency, an assessment that was probably perfectly accurate. Expediciones Chile has provided an avenue for their rights and concerns to be heard, though it remains to be seen if they will be taken into account. Even though he himself is a long-term Chilean resident and landholder, the views of Chris Spelius himself may carry reduced weight in a Latin American nation, simply because he is seen as a gringo.

The fate of the Rio Futaleufu and its valley will thus have considerable social and environmental implications for the Chaiten region and the northern Patagonian section of Chile. While Expediciones Chile did not set out to operate as an ecotourism venture and does not market itself that way, in practice it provides a nature-based adventure product, has very minimal environmental impacts, involves local communities strongly, educates its



clients about broad-scale environmental and social issues in the region and is actively involved in efforts to conserve the natural and social environment, both through the efforts of the company and its staff and through its clients. Thus, even while guides are more concerned with client safety than with identifying flora and fauna and even if minimal impacts are due more to design than to client training, in terms of its practical actions and effects Expediciones Chile merits recognition as ecotourism, perhaps more than many other operations that have laid claim to the title.

### **Community Baboon Sanctuary, Belize**

The Community Baboon Sanctuary, so-called, is an elongated area of approximately 40 km<sup>2</sup> along the Belize River near the village of Bermudian Landing in northern Belize. The species concerned is in fact not a baboon, but the black howler monkey, *Alouatta pigra*. These are known as baboons by local Creole residents, who are of African origin (Edington and Edington, 1997). The black howler monkey has a limited distribution in adjacent areas of Belize in Guatemala and Mexico, and is under threat from deforestation and hunting. The Sanctuary at Bermudian Landing contains approximately 1000 monkeys, which is a significant population.

The area is subject to a form of shifting cultivation, where patches of forest are cleared to grow rice and beans for a few years and then abandoned to forest regrowth while a new area is cleared. In the Sanctuary area, farmers conserve individual wild fruit trees in otherwise cleared areas, and leave tree corridors along river banks and between adjacent forest patches so that the monkeys can move through the canopy. The Sanctuary was initiated by two American biologists in 1984, who recognized the significance of the area, started relevant negotiations with local farmers and produced a handbook that now serves as a visitors' guide. The sanctuary now has a local manager, operating under the broad supervision of the Belize Audubon Society (BAS) (Edington and Edington, 1997).

In response to these efforts, the Community Baboon Sanctuary was established in 1985 by private landowners in eight local farming villages. Individual landowners can join the Community Sanctuary by adopting a voluntary pledge, which requires them to leave habitat for the black howler monkeys along the river corridor and along their property boundary and to preserve food trees. As of the early 1990s, there were over 100 members of the Community Sanctuary.

The main attraction for tourists is the opportunity to watch the monkeys in their natural habitat. There are also over 200 bird species, an on-site ethnographic and natural-history museum and interpretative trails through the forest. Visitors can hire guides from local villages and those staying overnight are accommodated with local families, where they have the opportunity to sample Creole cookery. As a tourist destination, the area has



the advantage of being only 43 km by road from Belize city, with excellent interpretative facilities and strong community participation (Edington and Edington, 1997). Concerns have been expressed, however, over the standard of overnight accommodation available (Edington and Edington, 1997). As of the mid-1990s, a total of 22 families from seven villages derived economic benefits from tourists visiting the sanctuary.

According to a recent review (Horwich and Lyon, 1999), villagers now treat black howler monkeys, *A. pigra*, as a valuable resource; the monkey populations have recovered extensively; and there is a viable community ecotourism industry. However, the Community Baboon Sanctuary was first established in 1985, so it has taken 15 years for solid success to be achieved. In addition, it appears that, under favourable conditions, the black howler monkey can multiply rapidly and recolonize vacant areas, including secondary forests disturbed by agriculture. These features do not apply for all endangered species.

According to Horwich and Lyon (1999), a number of interesting features have emerged from the project. Before the project was established, villagers viewed monkeys simply as an agricultural pest. Recently, however, when monkeys were translocated from the original Sanctuary to another area for conservation reasons, villagers of the Sanctuary saw this as a potential threat to ecotourism revenue, rather than a potential benefit for agriculture. Individual farmers in the Sanctuary area have apparently begun to encourage howler-monkey habitat on their lands, and parents have begun to point out the howler monkeys to their children.

Initially, tour operators from nearby cities apparently attempted to bypass local community involvement, bringing in their own guides and food and attempting to avoid payment of Sanctuary fees. This problem has apparently been resolved, with incoming tours making full use of community guides and local facilities. Currently, however, there is apparently competition between villages within the Sanctuary area, with concern that most of the economic benefits have accrued to a single central village, Bermudian Landing.

A survey of 50 households in three of the eight villages within the Community Baboon Sanctuary, carried out in 1997 (Alexander, 2000), found that a number of community members are dissatisfied with the project and have threatened to withdraw from the Community Sanctuary. Overall, the majority of residents strongly supported the Sanctuary, but argued that benefits were not evenly distributed. Many respondents considered that they had not received any benefits themselves, but hoped to do so in the future. Interestingly, households which were not members of the Sanctuary expressed greater support than those which were. Issues such as these, however, should not detract from the central observation that the Community Baboon Sanctuary does indeed seem to have used community ecotourism, on privately owned land, to conserve a viable population of an endangered animal species.

## Mapajo Project, Bolivia

The Mapajo project is a community ecotourism initiative in the 400 km<sup>2</sup> United Nations Educational, Scientific and Cultural Organization (UNESCO) Biosphere Reserve and communal lands of Origen Pilon Lajas in Bolivia. The Mapajo project is named after the characteristic local tree *Ceiba pentandra*, a tall tree that emerges above the rainforest canopy throughout the project area. The project was established in 1999 as an initiative of indigenous communities along the Quiquibey River, numbering 280 persons in all. Two principal Bolivian government entities are involved. The national parks agency, Servicio Nacional de los Areas Protegidas de Bolivia (SERNAB), is responsible for environmental protection and for management of the Biosphere Reserve. A community development agency, Programa Regional de Apoyo a los Pueblo Indigenas de la Cuenca del Amazonas (PRAIA), is responsible for financial and technical management and project supervision. Funding has been provided principally by a Canadian universities' NGO, CUSO (2002), which has provided US\$52,000 in technical assistance. Bilateral-aid funding has also been provided from the UK, totalling US\$57,000, and from France, totalling US\$5000. PRAIA's regional programme has provided US\$9000, and the in-kind value of local labour and material has been accounted at US\$62,000 (Schulze, 2002), though the basis for this calculation is not provided.

## Toledo Ecotourism Association, Belize

The Toledo Ecotourism Association is a consortium of five Mayan Indian villages in a rainforest area in southern Belize. It was founded in 1990 by a group of local residents.

With assistance from the World Wide Fund for Nature and the Nature Conservancy, the Association built five guest houses, one in each of the villages. In 1995, a further eight guest houses were constructed, with funding from US Agency for International Development (USAID) and the Belize Ministry of Tourism and Environment (Toledo Ecotourism Association, 2002). There was apparently a period during which the USAID-funded guest houses were operating in competition with those built directly by the local residents, but it appears from the Association's website that the aid-funded additions have now been incorporated into the original programme.

The guest houses are constructed along the lines of a traditional village house, but are divided internally into two sleeping areas, each able to accommodate up to four people, and with a shower and toilet adjacent (Edington and Edington, 1997). The beds are fitted with mosquito nets, a significant consideration since the area is plagued by sandflies, which transmit cutaneous leishmaniasis, as well as malarial mosquitoes (Edington and Edington, 1997). Visitors are fed in local households, with each successive

meal in a different house. Individual households take it in turn to provide tourist services, such as cooking, guiding and running the guest house.

To reach the Toledo villages, visitors must first fly or drive from Belize city to the coastal town of Punta Gorda and then travel by road to the Toledo area, either by hiring a local taxi or by waiting for the weekly local bus. The villages received an average of about US\$35 per person per day from visitors, including payments for accommodation, meals, local handicrafts and dance performances. The money is paid to the village association, and 80% of it is distributed directly to the families providing the services concerned, with the remaining 20% held in a central village fund. The tourism project is estimated to have raised village incomes by around 25%. According to Edington and Edington (1997), the project apparently has no marketing strategy other than word-of-mouth referrals and a rather rudimentary environmental interpretation programme, essentially restricted to guided scenic walks through the forest.

To date, between seven and nine families in each of 12 villages are involved in the organization. According to both the village communities and the individual families within them, each takes it in turn to act as host to tourists, so as to spread both costs and benefits evenly. The intentions are to provide the villagers with opportunities to work in the tourism trade but without abandoning other economic activities; to minimize conflict within and between the communities involved; and to minimize modifications to village culture through exposure to tourism.

### **Cockscomb Basin Wildlife Sanctuary, Belize**

In 1984, the government of Belize set aside an area of the Cockscomb basin as a wildlife reserve, principally to protect jaguar habitat. A subsidiary proportion, less than 1.5 km<sup>2</sup>, was specifically designated as the Cockscomb Jaguar Sanctuary in 1987. As of 1990, this was incorporated into the Cockscomb Basin Wildlife Sanctuary (CBWS), 415 km<sup>2</sup> in total area. Animal species present in the reserve include ocelot, Baird's tapir, anteater, armadillo, brocket deer, scarlet macaws, toucans and king vulture.

The Sanctuary is managed by an NGO, the Belize Audubon Society. During the 1990s, BAS has constructed a range of basic visitor facilities, including accommodation, toilets, drinking-water supplies, a visitor centre, a picnic area and walking trails. Initially, BAS funded these activities by charging entrance fees, but this is no longer permitted, and revenue is generated from accommodation charges, souvenir sales, donations, international aid and direct government support.

According to Lindberg *et al.* (1996), the CBWS gains tourism income from bunk fees for overnight visitors, donations from tourists and profits from the sales of books and postcards. By far the majority of its total income is from international aid donors, but only a small proportion of this,

estimated at 5% by Lindberg *et al.* (1996), is associated with tourism. Lindberg *et al.* (1996) also attempted to estimate the proportion of salary, maintenance and other management costs attributable to tourism. While the total costs were known quite accurately, however, the proportion attributable to tourism is difficult to define and was estimated to the nearest 10%. On the basis of these estimates, Lindberg *et al.* (1996) concluded that CBWS had earned US\$42,000 from tourism in the 2-year period from April 1991 to April 1993, and had spent US\$47,000 on tourism during the same period. Allowing for uncertainty in these estimates, they concluded that net tourism revenue might be anywhere between a profit of US\$22,000 and a loss of US\$85,000.

As a tourist destination, the CBWS is relatively difficult to reach. It is 11 km from the nearest highway, on an unsealed road accessible by 4WD during the dry season but generally inaccessible during the wet season, when the road is prone to flooding. The number of visitors has increased steadily from 25 in 1985 to over 2000 in 1990, and local residents are receiving financial returns from guiding and handicraft sales, but revenue generated is not yet sufficient to cover operating costs. The locally generated revenues, however, appear to have been sufficient for locals to support the preservation of wildlife within the reserve, and at least some species appear to have increased in number (Boo, 1990; Brandon, 1996).

## Quichua Communities, Ecuador

The Quichua are an indigenous Ecuadorean people originally from the foothills of the Andes (Schaller, 1995). Displaced by local population growth and agricultural immigration, however, groups of Quichua moved into forest areas in eastern Ecuador and established new subsistence communities in areas such as Capirona and Rio Blanco. Several of these communities have now established forest ecotourism ventures. The first to do so was Capirona (Brandon, 1996), whose residents had prior experience guiding for rainforest tours from the neighbouring town of Tena.

In 1989, Capirona residents constructed a guest house in local style and began to promote this as a tourism destination through regional and national indigenous organizations and through travel agents in the Ecuadorean capital city of Quito. These organizations also provided training in tourism hospitality and business management and in environmental science. The number of visitors grew from 12 in 1989 to 700 in 1995. According to Schaller (1995), the Capirona community expressed concern at this point that tourism was taking over a disproportionately large share of the local economy, with a risk of community social impacts through drugs and alcohol. The Capirona community therefore encouraged other local Quichua villages, such as that at Rio Blanco, to establish their own tourism ventures so as to distribute tourists more widely.

The communities concerned subsist on hunting, fishing and farming, including cash crops, such as coffee, cacao, rice and maize, as well as local food crops (Brandon, 1996). Tourism provides a supplementary rather than primary source of income. Funds earned from the tourist lodges, cooking and guiding have supported community development projects, such as schools and health-care facilities.

The tourist experience is centred in the forest areas, which currently make up less than 50% of the total community land at Rio Blanco, with the remainder cleared for agriculture. Tourists spend most of their time in primary forest areas, with local tour guides, who demonstrate subsistence harvesting techniques. As noted by Schaller (1995), the tourist experience is thus very different from the current lifestyle for local residents, who now spend almost all their time in cleared agricultural areas and little in the forest. Schaller found that tourists did not have an accurate perception of the community lifestyle and, in particular, that they did not appreciate the significance of commercial cash-crop agriculture in the local economy. He also found that tourists were confused by communal dances, where the Quichua people of Rio Blanco wear the traditional grass skirts and red body paint of their ancestors. The traditional music and dances were so different from the day-to-day life of the Rio Blanco community that tourists saw them as incongruous and unauthentic.

With the growth in visitor numbers to the Quichua communities, these new spin-off ecotourism ventures have apparently achieved rapid financial success. The Rio Blanco community ecotourism project, for example, was able to repay all the loans used to finance construction and development costs, within its first year of operation. A total of 158 tourists visited the community during this first year, and the project received a total of around US\$6000, of which US\$2400 was available for distribution to local families involved in the project. This amounted to US\$210 per family, about one-fifth of the annual family income. The community's intention is to increase the number of visitors to around 300 per year, but not more. Currently, visitors arrive either as small groups of independent tourists or as part of a tour run by a nearby biological field station.

According to these reports, therefore, these Quichua communities have successfully established tourism ventures, which provide a cash income from uncleared primary forests and make a significant, but not dominant, contribution to a diversified economy, with relatively little negative social or environmental impacts associated specifically with tourism.

Of course, in a larger context, the very existence of these communities in former primary forests has in itself created significant environmental impacts through hunting and forest clearance. Given that these communities were apparently displaced from areas they occupied previously, however, they can hardly be blamed for that. Similarly, as local populations in these communities continue to expand, so also will their environmental impacts; but, again, this is not different from human populations worldwide. If the

Quichua communities are able to conserve 50% of the primary forest in their local neighbourhood by using it for forest tourism rather than continuing to clear it for agriculture, they will have achieved more than much larger communities in more developed nations.

Whether this diversified economy and division of land use can remain stable in future, however, will depend on these communities' ability to resist a range of external and internal pressures, similar to those operating on small indigenous communities worldwide. As families come to rely on cash from tourism, for example, there will be pressure to expand the number of visitors, leading to increased social and environmental impacts and increased exposure to changes in tourist markets.

To date, Capirona has avoided this risk by diverting tourists to other Quichua villages, such as Rio Blanco. The economic consequences of this will depend on overall tourist demand to visit the Quichua communities, relative to the total supply of tourist opportunities which the communities have elected to provide. If demand weakens, the communities may be forced into local price competition. If it remains strong, they will be able to increase prices, which will also increase the proportion of community income generated by tourism. This in turn increases the risk that community cohesion and cooperative arrangements for distribution of tourism incomes may disintegrate, with competition between individuals to control a larger share of the revenues from tourism.

In addition, if the tourism product proves particularly successful, there remains a constant risk that the community ecotourism ventures will be either bought out or undercut by copycat operations established by larger national tour companies. Finally, as the demand for land by large agricultural and agroforestry concerns continues to increase, there remains the risk that the agricultural ventures which the Quichua communities have established may be swamped, legally or illegally, by larger concerns, or that the areas of forest which the communities have set aside for ecotourism may be occupied and cleared by such enterprises. All these risks, however, apply to most tourism enterprises worldwide.

## **RICANCIE and the Napo Runa, Ecuador**

The Napo Runa are an indigenous people who live in the Amazonian foothills of the Andes and for historical reasons are familiar with and influenced by Western cultures (Drumm, 1998). In 1990, the Napo Runa community of Capirona opted to become directly involved in the tourism business flowing through the area. Up to that point, local indigenous communities had been viewed simply as one of the area's tourist attractions. According to Drumm (1998), 'the success of the Capirona experience led to considerable interest from other Napo Runa communities; today a network (RICANCIE) of 12 communities exists'. RICANCIE has developed a tourism infrastructure that



includes guest cabins featuring traditional designs, material and techniques. In addition, RICANCIE has trained community guides and created tourism packages that include 'hikes in the forest, canoe trips, practicing traditional sports, knowledge of oral tradition, and the opportunity to share community daily activities'.

In an attempt to minimize cultural impacts, tourists, guides and the community are expected to adhere to a set of cultural guidelines, the *Capirona Guidelines*. These are comparable to similar cultural guidelines, produced by, for example, The International Ecotourism Society, and suggestions in academic texts, such as Mowford and Munt (1998).

The 12 communities in the RICANCIE network had a total physical capacity of 200 beds as of 1997, and received 1200 visitors in 1996 and 800 in 1997, mostly from North America and Europe. Benefits to date include the reinvestment of tourism revenues into other economic activities, such as farming and handicrafts, as well as provision of a radio communication system and motorized canoe transport. In addition, 'the success of RICANCIE has reinvigorated the role of elders as transmitters of culture, and women as repositories of traditional knowledge' (Drumm, 1998).

RICANCIE apparently faced a number of difficulties as a community network rather than a corporation and, after some initial but unsuccessful attempts to gain legal recognition as a community enterprise, RICANCIE reconstituted itself as a corporation in November 1997 (Drumm, 1998). This was necessary both in order to gain access to credit and in order to be legally entitled to promote itself as a tourism product.

## **TROPIC and the Huaorani, Ecuador**

The Huaorani are an indigenous forest people who live in and around Yasuni National Park, a UNESCO Biosphere Reserve in Amazonian Ecuador. According to Drumm (1998), the Huaorani had their first contact with the outside world in 1956, when they were visited by evangelist missionaries, and since then they have been subjected to a range of outside influences from missionaries, oil companies and tourists. According to Drumm, tourists are mostly low-budget backpackers, who hire guides from low-key tour companies in frontier gateway towns and take 3- to 8-day river camping tours, stopping in riverside communities to take photographs and buy local handicrafts. The guides apparently have little training, speak only Spanish and commonly carry shotguns.

The Huaorani ask for fees of US\$50–100 when tours enter their territory, but arrangements are highly informal and frequently open to conflict. For example, guides may make deals with single individuals in a particular community, leading to conflict with other members of the communities concerned. Guides may refuse to pay fees, either outright or by repeated



delay. On some occasions these conflicts have led to open hostilities, including confiscation of outboard motors and tourist cameras by the Huaorani. An attempt to establish a more organized system through the newly formed organization of the Huaorani people, ONHAE, was apparently unsuccessful because of strong resistance by tour guides and operators (Drumm, 1998).

The tour company TROPIC, based in the Ecuadorean capital Quito and owned by Andrew Drumm, has attempted to establish a more stable partnership with one Huaorani village at Quehueri'ono on the Rio Shiripuno. Drumm had previously assisted the community concerned in negotiations with an oil company, so the villagers were more disposed to pay heed to his suggestions. Accordingly, TROPIC built a cabin in traditional Huaorani style to receive up to eight guests once a month for stays of 2 to 6 days. The guest cabin is in the forest, a 45 min walk from the community itself, to minimize social disruption to the villagers. This arrangement was the culmination of 9 months' negotiation and discussion, which covered: the concepts of ecotourism and conservation, potential environmental and cultural impacts, management, income levels and distribution and guide training (Drumm, 1998). Concerns expressed by the community included issues such as potential concentration of tourist income in a single family, if visitors stayed in an existing home, and the creation of consumer habits, such as cigarette smoking and the use of sunglasses.

An agreement between the tour operators, TROPIC Ecological Adventures, and the village of Quehueri'ono provides: that visitors must always be accompanied by a Huaorani guide and a bilingual naturalist and translator; that the tour operator must use Huaorani canoes and canoe drivers; and that it will train Huaorani cooks, who will subsequently take over food services for tour groups. The villagers hunt local wildlife for food, but, to avoid increasing impacts on the species concerned, the agreement provides that food for tourists will be brought in from outside the village, except for local staples, such as papaya, manioc and bananas. Salaries paid to Huaorani staff from the Quehueri'ono village are set at twice the level paid to oil-company labourers. The tour operator also pays visitor fees per person per night, presented to the local president of the community at a community meeting held when each tour group arrives. As of 1997, this money was distributed evenly among all the families in the community. An additional fee of US\$5 per tourist is paid to ONHAE, in order to build capacity in tourism management at a broader level (Drumm, 1998).

The community meeting held at the arrival of each tour group is used to open exchange between tourists and visitors, and one of the longer-term aims of the project is to establish a constituency of international supporters for the indigenous peoples of Ecuador's Amazon rainforests. For example, visitors have donated cash to finance training workshops, radios and solar panels. They have also helped to establish a non-profit foundation, Accion Amazonia, which 'focuses full-time on generating political and economic

support for those Amazon communities seeking help to defend their environmental and culture integrity' (Drumm, 1998).

The stated aim of the tour operators is to use the Quehueri'ono lodge as a model for other Huaorani communities, intended to displace low-budget high-impact tours, which currently operate from the frontier towns of Banos and Coca and which have apparently led to extensive wildlife hunting, dynamite fishing and cultural disrespect.

The major challenge, according to Drumm (1998), is to establish and uphold a level of tourism activity that is large enough to make the programme economically worthwhile to the community, but small enough to avoid irreversible cultural change. According to Drumm,

the threat of unpredictable cultural impacts is always present and something that the conscientious operator is often more sensitive to than the tourist-keen community. It is very important to establish a range of indicators in conjunction with the community to facilitate the monitoring of social and cultural change.

### **The Cofan and Cuyabeno Wildlife Reserve, Ecuador**

The Cofan or Kuvan are indigenous forest people traditionally living in the upper Aguarico River in Amazonian Ecuador. Tourists from the USA have visited the Cofan routinely since 1979. In 1984, retreating from agricultural settlers and toxic-waste dumping by a large oil company (Drumm, 1998), several of the Kuvan families moved further downstream into the forest, to found a new community of Zabalo (Fundacion Sobrevivencia Cofan, 2002). They were accompanied by the principal tour guide, who is an Ecuadorean-born son of North American missionaries. The Zabalo community is now part of Cuyabeno Wildlife Reserve. An Ecuadorean tour operator started tours to Zabalo in 1991, and additional operators have also begun visiting the region more recently (Condor Journeys, 2002). Some of the Zabalo visitors now act as tour guides, canoe drivers and maintenance and construction workers for guest-cabin and trail infrastructure. Handicraft sales also contribute significant income to the local community (Drumm, 1998).

The success of this venture has apparently led to the establishment of a number of similar operations in the surrounding area, leading to price competition and a reduction in visitor numbers at the original community. The Zabalo community, however, has apparently been more successful than most in linking ecotourism and conservation. The community has zoned its territory, 100 km<sup>2</sup> in total, into areas for hunting and areas for ecotourism, where no hunting is allowed. The community has apparently also established a system of fines levied on individual community members who kill species of particular value for ecotourism, such as toucans and parrots. How well this operates in practice is something that can probably only be discerned by local residents themselves!

## Ecomaya, Guatemala

Ecomaya is a marketing company for community ecotourism businesses and language schools in the Petén regions of northern Guatemala. It was established in 1998 with assistance from CI (CI, 2001; E. Millard, Conservation International, personal communication, 2002). Petén is renowned for the famous Mayan ruins in Tikal National Park, which received 138,000 visitors in 1999. It is also the location of the 16,000 km<sup>2</sup> Mayan Biosphere Reserve. Established in 1990, the MBR is the largest intact rainforest in Central America and part of the Selva Maya biological corridor, which is critical to the protection of endangered species, such as toucans, river turtles, tapirs, jaguars and spider monkeys. It is zoned into national parks, biological reserves and multiple-use areas for the benefit of local residents and tourists.

Tourism is the second largest economic sector in Guatemala, with 826,000 visitors in 2000 contributing gross revenues of US\$518 million, 15% of export earnings. In Petén, however, average annual family income is less than US\$1000, mainly from agriculture; and population has grown from 25,000 in 1964 to 600,000 in 2000 (Corzo, 1998). Since Tikal can be reached by day visitors from Guatemala City or Belize, local businesses have historically received little income from tourism. Tikal is by no means the only attraction in Petén, however. There are ruins at Yaxhá and El Mirador; rainforest plants and birdlife, such as the scarlet macaw; and traditional forest communities.

To provide a local economic alternative to land clearance, hunting and logging, therefore, in 1993 CI helped to set up three local community ecotourism businesses and two local Spanish-language schools (Ecomaya, 2002). Each business is operated by a different local community and each offers a single tour, focusing respectively on the Mirador ruins, bat caves and scarlet macaw breeding areas. They are marketed jointly as EcoTrails (Ecomaya, 2002). Birdwatching tours and nocturnal wildlife tours are also offered from the Ecomaya biological research station (Ecomaya, 2002).

Inbound tour operators, however, showed little interest at first, so in 1998 these businesses established Ecomaya in conjunction with CI Guatemala. By this time, the Ecoescuela was attracting 1000 students a year. Tourism in Guatemala grew 60% from 1996 to 1999, and Ecomaya soon reached an annual turnover of US\$250,000 (E. Millard, personal communication, 2002). In 2001 the member businesses of Ecomaya were recognized by the local ecocertification scheme, Alianza Verde (2002) and, in 2002, several other members of Alianza Verde also joined Ecomaya, through the issue of new shares (E. Millard, personal communication, 2002).

Language schools and community ecotourism enterprises are unusual partners, but the combination seems to have been successful. An assessment carried out by CI in 2001 found that, for 100 families involved in the Ecoescuela, the area of land under cultivation fell by 39% from 1994 to

1998; and in 2002 the community of Paso Caballos won a conservation award for helping to protect the scarlet macaw (E. Millard, personal communication, 2002). These successes, however, required almost a decade of investment and encouragement by CI.

### **San Pedro Volcano, Guatemala**

San Pedro Volcano in Guatemala is a little over 3000 m high and capped with cloud forest. Historically, it has been accessible only by boat across Lake Atitlan, 20 km wide and lying directly at the base of the volcano. As of the mid-1990s, however, construction had commenced on a road linking San Pedro to San Tiaheo Atitlan (Parent, 1995). The cloud forest on the upper parts of the mountain apparently remains largely intact, but forest at the foot of the mountain has been cleared for subsistence agriculture and cash crops such as coffee.

Largely isolated until quite recently, the San Pedro region is occupied by a Mayan community which, according to Parent (1995), remains fiercely independent. The local communities have apparently established a monopoly over tourism in the San Pedro area, preventing foreign companies from establishing operations and resisting control by central government authorities in Guatemala. Local Mayan residents own and operate guest houses, guided tours, transport facilities and souvenir shops.

The situation of the Mayan community at San Pedro illustrates a dilemma faced by local communities in many developing nations. As in more developed nations, legal systems typically divide authority for control and responsibility for services between a central government and local communities. In more remote areas, particularly those occupied by peoples who are under-represented in the central government, central government services are often entirely lacking. This refers not only to issues such as provision of infrastructure, but to the proper operation and enforcement of legal systems, e.g. for planning and development control, fair trading, etc. A local community that relies on central support is liable to find, first, that its commercial opportunities are exploited by enterprises from outside the region and indeed, often with informal links to the central government itself; and secondly, that when the central government notices enhanced economic activity in a particular community, it is more likely to levy additional taxes than to provide support for local self-determination.

Hence, even though an exclusive monopoly, such as that described for the Mayan community at San Pedro Volcano, may or may not comply technically with national law, it is probably the only way in which that community can maintain an equitable share of the economic opportunities from tourism to the volcano. Again, the volcano may be of national and international significance both for tourism and conservation, but, if so, the

international and national tourism industry can bring tourists to the region, leaving the local community to guide them up the mountain.

### **Tela Ecotourism Project, Honduras**

Tela is a major port on the north shore of Honduras. To its west lies Punta Sal National Park, the country's newest protected area. The park is over 100,000 km<sup>2</sup> in area and consists primarily of lowland rainforest and freshwater and saltwater lagoons. There are 16 communities within the park's buffer zone and a total of approximately 13,000 people living inside the park. Most of these people, however, apparently moved to the area when they learnt it was being considered for protected status, in the hope that the government would have to pay them compensation to move out again (Ashton, 1999)! The park is managed by a regional conservation organization, PROLANSATE. The Tela Ecotourism Project was a 2-year exercise sponsored by the Institute of Honduran Tourism, funded by the United Nations Development Programme and an international development bank debt swap, and carried out by an ecotourism consultant company led by biologist Ray Ashton. Recommendations from the project may be summarized as follows.

Broadly, the project recommended that the National Park be divided into two principal zones: a core zone and a somewhat smaller buffer zone. In the core zone, no timber felling, agriculture, hunting or human habitation would be permitted. Landowners with legal title in the core zone should be moved elsewhere, particularly those who have only recently arrived. In the buffer zone, two subzones were recommended: an intensive-use zone, where there is a large agricultural population; and a restricted zone between the core and intensive-use areas, where land ownership is generally in public hands or uncertain.

In the restricted zone, commercial hunting would be prohibited; subsistence hunting would be permitted only for licensed local residents, in specified seasons and excluding protected species; commercial fishing, trawling and spear-fishing would be prohibited; sport-fishing would be restricted to catch and release; and subsistence fishing and lobster diving would be restricted and licensed. Residents with legal agricultural tenure could continue their agricultural activities, but with no further expansion. Where endangered native predators, such as the jaguar, encroached from core and restricted areas into stock-grazing areas in the intensive-use buffer zone, it would be illegal to shoot them. Note, however, that experience in Africa, Asia and North America suggests that a simple prohibition such as this will almost certainly be ignored, unless it is coupled with an adequately funded programme to recapture and relocate predators and compensate farmers for any loss of livestock.

The plan also proposes the deliberate development of native tree plantations and the prohibition of land subdivision, waste discharge to the major lagoons or the introduction of exotic species.

The plan suggests that 'there should be enough funding from ecotourism to pay for enforcement, training, and other programmes in the buffer zone' (Ashton, 1999), and also that tourism in the parks should be regulated, and that the 16 communities should each decide whether they wish to be involved in tourism. Experience from elsewhere, however, indicates that none of these goals will be straightforward.

The proposed administrative structure for the park consists of a two-tier authority. The overriding authority would be a trust, the Punta Sal National Trust. Subject to the overall authority of the Trust, the park would be managed by a Board of Directors, known as the Punta Sal National Park Authority, with representation from local communities, local government, conservation organizations, land management agencies, including the Honduran Forestry Corporation, and tourism interests. The Authority would be required to develop a balanced budget that includes park entrance and user fees, tour operator taxes and permit fees for farming, ranching, hunting and fishing. Because the park is so close to Tela, it is expected to receive around 400,000 visitors annually, which should establish a solid revenue base. There will, however, be considerable expenditure requirements for infrastructure, including sewage treatment, erosion control and visitor facilities. The proposed plan represents a very major departure from the situation in 1994, when the park's operating budget was so small that it could not afford to buy fuel for its patrol boat. It remains to be seen how successful it proves in practice.

## **Huascaran National Park, Peru**

Huascaran National Park covers an area of 3400 km<sup>2</sup> in the Cordillera Blanca, Peru's highest mountain range. It is easily accessible from Lima and is popular for mountaineering, rock-climbing, mountain-biking and hiking, as well as providing the only skiing in Peru. In consequence, it is second only to Macchu Picchu in popularity as a tourist destination (Torres, 1996). The park includes seven different ecological zones, with a high diversity of plant and animal species. It also includes 33 pre-Inca archaeological sites and incorporates a resident population that maintains much of its traditional Andean culture. The area immediately around the park supports around 230,000 people in rural agricultural communities, some of whom have grazing and harvesting rights within the park. Tourists to Huascaran fall into two main categories: sightseers on day visits, and nature and adventure travellers who stay for one or more nights. The latter sector is currently smaller, but growing much more rapidly (Torres, 1996).



To plan for growth in this sector, a Huascarán National Park Recreation and Tourism Use Plan has been developed with funding from USAID and the Dutch Embassy in Peru, at a cost of around US\$50,000. This plan aims to establish a tourism industry that contributes to conservation in Huascarán, as well as using its natural resources to provide benefits for local communities. It proposes management policies that include participation by local communities and tour operators, as well as government organizations. The plan covers aspects of park management such as regulations and zoning, a concessions system and fee collection, interpretative facilities and public education, waste management, environmental and social monitoring and staff training (Torres, 1996; APEC, 1997).

### **Atlantic Coastal Forest, Brazil**

The Atlantic Coastal Forest of Brazil, which once stretched along 3000 km of coastline and extended inland up to several hundred kilometres, has been reduced by farming, logging and urbanization to around 8% of its original area (Healey, 1999). The remaining areas are an extremely significant reservoir of biodiversity, containing 152 of Brazil's 207 listed endangered animal species, including monkeys, marmosets, tamarins, giant otter, maned sloth, yellow-throated caiman and 13 kinds of parrot. The Atlantic Coastal Forest also has a highly diverse vegetation, with 450 distinct species of trees recorded from a single hectare in southern Bahia.

The areas of Atlantic Coastal Forest that remain uncleared have been protected largely by terrain, typically in landscapes with steep slopes. The coastline south of São Paulo, which contains the largest remaining continuous area of Atlantic Coastal Forest, is traversed by highways but historically has been little visited by tourists, who have been interested only in the beach-resort towns along the coastline. Traffic along the inland highways is considerable, as beach resorts such as Guaratuba, with a permanent population of 18,000, can receive up to half a million tourists during peak seasons. The highways pass through the mountainous forest areas using tunnels and overpasses, and few of the beach tourists leave the road.

In recent years, however, tourists have also started to visit inland areas. These may be considered in three main categories (Healey, 1999). Farmers in areas immediately around the beach resorts have opened up areas of cattle pasture as campsites and sometimes also rent out rooms. There are publicly owned outdoor recreation sites, which are intensively visited by tourists. And, thirdly, there are a limited but growing number of outdoor nature and adventure tourists who are now visiting more remote areas in the Atlantic Coastal Forest.

The intensively visited areas include, for example: old colonial roads, such as the Graciosa Parana; a scenic railway line from Curitiba; and locally



well-known caves, such as the Caverna do Diabo in the Parque Estadual de Jacupiranga and Caverna do Santana in the Parque Turístico do Alto Riveria, both in the state of São Paulo. Small entrance fees are charged at both these caves, with revenue shared between local government agencies and the park agency that manages the caves. Also heavily visited are various waterfalls and natural swimming holes, which may receive several thousand visitors in a single weekend, as at Jureia (Healey, 1999).

Outside these large-scale destinations, there are tourists who visit the more remote beaches in their own boats, for swimming, camping or fishing; cavers and rock-climbers, who focus on particular sites; and, apparently, a relatively small number of backcountry nature tourists.

Various parts of the Atlantic Coastal Forest are protected as either federal or state parks, and the entire area is subject to a national *Law of the Atlantic Forest*, but practical management varies enormously between sites. A limited number of reserves are managed actively for ecotourism. At Jureia Ecological Station and at Ilha Cardoso State Park, for example, guided hikes and tours are available from both government personnel and tour operators (Healey, 1999).

There are also at least two privately owned areas used for small-scale ecotourism: Volta Velha in Santana Catarina, and Saltomorado, near Guaraquecaba. Private reserves in Brazil are encouraged by a federal programme that offers exemption from rural land taxes. Private reserves are the exception rather than the rule, however, with large tracts of private land deforested for plantations and stock grazing. This occurs even within areas federally designated for environmental protection, such as those around Guaraquecaba (Healey, 1999).

Land speculation is apparently also occurring in some areas, such as the island of Superagui. Apparently it is common practice to subdivide land in secret, in scenic but currently inaccessible areas, avoiding the public outrage that would occur if these areas were developed openly. Property developers then lobby for new roads and bridges to provide access and, since the subdivisions are already in place, there is by then little avenue for public complaint. Of course, this practice is by no means restricted to Brazil!

In addition, there are perhaps 10,000–20,000 subsistence dwellers, known as Caícaras, who live within the forest, but whose subsistence activities are now technically illegal under the *Law of the Atlantic Forest*. Since they have no alternative form of livelihood, however, these activities necessarily continue. Their impacts are small relative to those of commercial agriculture or logging. At Jureia, in a project sponsored by the park, Caicara families are now manufacturing banana candy for sale in São Paulo. Opportunities for sustainable harvesting of other artisanal foodstuffs, perhaps with an ecolabelling and accreditation scheme, are also being investigated. To date, the Caícaras do not seem to be involved in nature tourism to any significant degree, but clearly there is considerable potential for this (Healey, 1999).

## Cuatro Cienegas, Mexico

Cuatro Cienegas, Four Marshes, is a valley in the Chihuahuan Desert in Mexico, containing several hundred geothermal springs, lakes and streams, with highly variable temperature and water chemistry (Calegari, 1997; Anon., 2000; WWF, 2002b). The valley springs contain over 70 endemic plant and animal species, most listed as threatened or endangered within Mexico. These include a range of rare and endemic turtles, fish, shrimp, snails and freshwater molluscs. Many of these species occur only in a single spring or a small section of a single stream (WWF, 2002b). Some of these species, including the bighead pupfish, survive in water temperatures up to 44°C, a world record temperature for freshwater fish.

An area of 200 km<sup>2</sup> was declared as a National Protected Area in 1994. Despite its protected status, however, the Cuatro Cienegas ecosystems are threatened by water extraction, exotic species, industrial development, rapidly increasing tourism and local population growth. In particular, water is pumped from the valley for agriculture and for use in large steel mills in nearby Monclova (Anon., 2000). An article in the October 1995 issue of the *National Geographic* apparently drew national and international attention to the cobalt-blue desert lakes, attracting large numbers of well-meaning but potentially destructive tourists (Calegari, 1997). The local municipality of Cuatro Cienegas is also promoting the region as a tourist destination.

In 1989 a local volunteer conservation group, Los Guardianes de Nuestro Valle, was established in an attempt to halt environmental degradation. Initiated by a local couple and comprised mostly of local youngsters, the group approached PROFAUNA A.C., an existing environmental NGO, for environmental education and training. The Guardians have raised funds, produced and installed interpretative signs promoting habitat protection and minimal-impact behaviour, taken part in reafforestation programmes and environmental forums, run clean-up campaigns to remove the litter from pools and springs and acted as interpretative guides for tourists (WWF, 2002b).

In late 2000, the Texas Chapter of the Nature Conservancy provided US\$250,000 for the Mexican conservation group Pronatura Noreste to buy the 70 km<sup>2</sup> Rancho Cozas Azules, ranch of the blue pools, as part of a larger effort to protect the 2000 km<sup>2</sup> Cuatro Cienegas Nature Reserve (Anon., 2000).

## The Monarch Butterfly and Mountain Ecotourism, Mexico

The monarch butterfly migrates annually between Canada in summer and Mexico in winter. Its life cycle, migration route and overwintering grounds in the Sierra Madre were described in the *National Geographic* in 1976,

triggering the gradual growth of tourism to the Mexican Highlands specifically to see butterflies. By the 1980s, the expansion of local agriculture in the overwintering habitat had caused significant reductions in butterfly populations, and a Biosphere Reserve was created in 1986 with funding from the World Wide Fund for Nature to a newly formed Mexican conservation group (Barkin and Pailles, 1999; Barkin, 2000). The number of visitors continued to grow, from about 25,000 people per season in 1986 to about 250,000 in the 1998/99 season. Most of these visitors are from other parts of Mexico, with less than 5% being international tourists, and they all arrive within a 4-month period when the monarch butterflies are present.

Apparently, however, relatively few of the local communities benefit directly from butterfly tourism (Barkin and Pailles, 1999; Barkin, 2000); local agriculture is no longer profitable; and village farmers have been forced to turn to illegal logging for survival, supplying the Mexican pulpwood industry. Despite an international conference convened in 1999 by the North American Commission on Environment Cooperation, the environmental counterpart of the North American Free Trade Agreement, these conflicts apparently continue: an international ecotourism opportunity has become an international environmental and community problem.

According to Barkin (2000), since there are 65,000 people in the region, but since the sanctuary areas themselves are very small and the butterfly tourism season is relatively short, tourism based solely on this icon species cannot support the entire local community, which will therefore continue to pose a threat to butterfly habitat. The approach suggested by Barkin is two-pronged: first, to market the region as a nature tourism destination year-round to residents of Mexico City and Guadalajara; and secondly, to establish an organized agroforestry industry outside the sanctuaries, to complement income from tourism. The main vacation periods in Mexico are outside the monarch butterfly season, and the region is also rich in geothermal springs. Since the majority of tourists are domestic, therefore, the region could be developed as a nature and health tourism destination, with the butterflies as only one of many attractions. Finally, Barkin (2000) notes that the mountains in this region form the watershed for municipal water supplies in both Mexico City and Guadalajara. The time may soon come when the cities will need to fund reforestation in the mountains simply to protect their own drinking-water supplies.

### **\*Galapagos Islands, Ecuador**

The Galapagos Islands are an extensive archipelago lying in the Pacific Ocean around 1000 km from the west coast of mainland Ecuador. There are 12 major islands, and almost 50 smaller islands, islets and rocks. Total land area is around 8000 km<sup>2</sup>. Prior to recent extinctions, the major islands each had a different species or variety of finch and a different species or variety of

giant tortoise, famous for their role in the formulation of Darwin's original theory of natural selection (Weiner, 1994). Various parts of the Galapagos Islands were designated as Wildlife Sanctuaries in 1934, a National Park in 1959, a Marine Reserve in 1976, a World Heritage site in 1978, a Biosphere Reserve in 1984 and a Marine Resource Reserve in 1986 (Weaver, 2000). Currently, all but 3% of the land area lies within the Galapagos National Park, managed by the Ecuador National Parks Service (ENPS). ENPS also manages the marine reserves, 50,000 km<sup>2</sup> in area.

Tour boats began visiting the Galapagos in 1969. There were 45,000 visitors in 1970 and, by 1998, the islands were receiving 65,000 visitors per year (Weaver, 2000). Within the archipelago, visitors travel either in live-aboard cruise boats or on day cruises from hotels in the main town area. A park entry fee of US\$100 per person is payable by all international visitors and, until the recent growth of nature tourism in mainland Ecuador, the Galapagos Islands were the primary source of both parks and tourism revenues in Ecuador.

The Galapagos Islands National Park is divided into five zones, of which two are accessible to tourists. In zones designated for intensive visitor use, up to 90 tourists are allowed on shore at any one time. In those designated for extensive visitor use, no more than 12 visitors may be ashore concurrently. There have been various historical attempts to cap the total number of visitors reaching the islands each year, but the quota has continued to increase from 12,000 in 1973 to 25,000 in 1981 and 50,000 in the early 1990s (Weaver, 2000). As noted earlier, this quota is currently exceeded. The number of ships licensed to carry visitors has increased from about 20 in the early 1970s to about 90 in the late 1990s. Similarly, ENPS restricted tourism to small areas in a few islands only, but tourism interests have continually pressured for additional areas to be made available (Boo, 1990; Brandon, 1996; Sitnik, 1996; Roe *et al.*, 1997).

During the early 1980s, when I visited the Galapagos Islands myself, all tourists arrived at a single airstrip and could travel only in a commercial tour boat. Each tour boat had at least one guide from ENPS on board and was required to follow a set itinerary, which specified arrival and departure times from each anchorage. Landings were permitted only at designated sites and tourists were required to keep to trails and were not permitted to harass or interfere with wildlife in any way. If any tourist failed to comply with these directions, the ENPS guides had authority to confine them to their tour boats throughout the remainder of the voyage. If visitors arrived at the Galapagos in private yachts, they were also required to take on board a guide and follow a registered itinerary in the same way as locally based tour boats. At that time, this system worked well. Reports during the subsequent two decades, however, indicate a number of problems. The numbers of tourists has grown well above the limit specified by ENPS. More airports have been built.

A formalized guide-training programme was first introduced in 1975 and distinguishes between auxiliary guides and naturalist guides. The latter

must possess a 3-year university degree in natural sciences, be fluent in English, attend an intensive 1-month training course offered by the Charles Darwin Foundation on the islands and pass a specialist examination, in order to be licensed by the National Parks Service. Every boat carrying tourists in the Galapagos must be accompanied by a licensed naturalist guide, and no tourist may go ashore within the park area unless accompanied by such a guide. The normal ratio of guides to visitors is around 1:16, or occasionally 1:20 for larger cruise boats.

In addition to providing naturalist interpretation, the guides have considerable authority to control tourist behaviour. In particular, tourists must stay on trails, may not stay at any one point for more than a limited period, must remain within a specified distance of the guide, must keep noise to a minimum, must not remove anything from the islands and must not leave anything behind. Despite these controls, tourism has caused environmental impacts both locally and more broadly. Local impacts include erosion of tracks and disturbance to wildlife, such as nesting boobies. Perhaps more significant, tourist vessels have inadvertently transported a range of non-native insect species both to and within the Galapagos archipelago.

Not all of the guides are equally conscientious or capable in controlling visitor behaviour, and frequent violations of these regulations have apparently been observed, including leaving the paths, littering, harassing animals and exceeding the maximum permissible number of visitors on site (Weaver, 2000).

There are currently 60 individual landing sites within the islands where tourists are permitted, subject to their approved vessel itinerary and the availability of their guide. Islands which as yet do not appear to have been invaded by any alien species are generally closed to visitors, so the 60 sites are not spread throughout all 13 of the major islands. Not all of them are open at any one time, with some being closed for rehabilitation. About one-third of the sites are the most attractive for visitors, so these receive highest visitation. Some trails are too difficult for more elderly or unfit visitors, who therefore tend to remain concentrated near landing sites. Finally, visitation is not spread evenly over the year, but is strongly concentrated between August and January. Overall, therefore, the most popular sites receive heavy and concentrated attention by tourists during peak months, commonly with one group disembarking as another re-embarks.

Management of the Galapagos National Park depends heavily on a patrol boat donated by a Japanese businessman, and on donations from international environmental groups, including the Charles Darwin Foundation, the Galapagos Conservation Trust (GCT), CI and the World Wide Fund for Nature (Nolan and Nolan, 1998; Weaver, 2000).

Historically, only 20% of park fees raised were retained for park management, and this has been insufficient for patrols, monitoring and maintenance. Tensions between tour boats, ENPS and local fishermen have

apparently led to vandalism and deliberate injury to wildlife by fishermen. Tourism itself has caused significant environmental impacts, including disturbance to nesting birds, behavioural changes in sea lions, trail erosion, litter from tour boats and damage to coral reefs.

The growth in tourism has produced impacts on some of the Galapagos wildlife, including the displacement of some species from heavily visited areas (Honey, 1994). It appears that more and more Ecuadorean nationals began to visit the Galapagos Islands and had less concern and appreciation for minimal-impact behaviour than foreign ecotourists (Wallace, 1993; Weaver, 1998). In addition, park funding did not keep pace with increases in visitor numbers, and poorly managed tour boats began to proliferate. The park's funding problems were exacerbated in 1995, when the Ecuadorean government decided to divert all visitor fees to the central government treasury (Nolan and Nolan, 1998).

While the local impacts of tourism are clearly not insignificant (Burger and Gochfeld, 1993), it appears that they are minor in comparison with other external threats, some associated with tourism and others apparently not. The introduction of exotic plant and animal species is perhaps the most serious overall threat to the terrestrial ecosystems and endangered endemic species in the Galapagos Islands and, while tourist vessels and tourists have certainly been instrumental in spreading plants and insects, the major feral mammals, such as goats, pigs, dogs, cats, black rats and brown rats, were introduced either intentionally or inadvertently by early European sailors.

Another major threat derives from the large-scale migration of Ecuadorean residents from the mainland to the Galapagos Islands, in search of economic opportunities associated with tourism. This population growth has led to major impacts on the natural environment, which, while not caused by tourists directly, are still due indirectly to the growth of tourism on the islands. The resident population increased from 3500 in 1974 to 14,000 in 1998 (Weaver, 2000). These residents are confined to the area of 320 km<sup>2</sup> that is not part of the national park, and there are currently far more residents than tourists. On any given day, there may be around 1000 tourists spread throughout the islands, as compared with 14,000 residents. These immigrant residents have lobbied very strongly either for land to be excised from the park for agriculture, housing and fishing or for residents to be granted access to the park for the same reason (Honey, 1994). In addition, the migrants have introduced a range of exotic flora and fauna into the park, and attempts to control these introduced species consume an ever-increasing proportion of the park budget (Nolan and Nolan, 1998).

The greatest threat to the marine environment in the Galapagos archipelago is apparently not tourism but fishing. Industrial fishing by international factory ships is not legally permitted within the Galapagos Marine Resource Reserve, but commonly intrudes there none the less. In addition, it appears that a number of Ecuadorean vessels are carrying out



smaller-scale industrial fishing, within the reserve, under the guise of subsistence fishing, which is permitted for local residents. This has apparently included commercial harvesting of marine species such as sea cucumbers, for export to Asian markets. Fishing interests have apparently demonstrated considerable disregard for the law. In 1994 and 1995, when the government of Ecuador was endeavouring to control illegal fishing and impose controls to allow for regeneration of depleted fish stocks, a fishing-industry lobby group occupied the national park headquarters, blocked access to the Charles Darwin Research Station and threatened to take tourists and parks staff as hostages. An unidentified group had previously slaughtered 39 giant tortoises on the largest island, Isabela (Weaver, 2000).

In 1998, the government of Ecuador passed new legislation, the Galapagos Special Law, intended to coordinate environmental planning and policy within the Galapagos, expand the Marine Resource Reserve, restrict future migration from the mainland and reallocate entrance fees 40% to the national parks service, 40% to the local government authority and 5% each to the Marine Resource Reserve and to quarantine authorities on the islands. The Galapagos Special Law has faced challenges from the Ecuadorean fishing industry. A constitutional challenge to the law and its fishing restrictions was defeated in 2001, but the fishing community continues to push for rights to fish in the reserve (GCT, 2002; WWF, 2002a). Artisanal fisherman were granted exclusive fishing rights under the law, but exceeded seasonal catch limits in 2000/01. In 2001 the government of Ecuador increased the lobster quota and extended the 'no-limits' lobster season, effectively allowing unlimited lobster catches. Fish stocks were to be evaluated before the 2002 fishing season. Regulations are being drafted to impose further restrictions on artisanal fishermen, but are not yet finalized (WWF, 2002a). In addition, Galapagos National Park does not have sufficient resources to monitor illegal fishing activity (GCT, 2002).

As noted by Nolan and Nolan (1998), Weaver (1998) and Sanabria (2001), the Galapagos Islands have effectively become an international test case in the development of large-scale ecotourism destinations. The critical issue is how the Ecuadorean government, through support and funding for its own parks service, will respond to: the growth in tourist numbers and impacts; high-level political lobbying from powerful interest groups seeking to profit from tourism development; demands from new residents who have migrated to the area in large numbers, drawn by potential opportunities in the tourism sector; and growth of infrastructure supporting both the tourism industry and the new resident communities. These factors are replicated in many protected areas and other ecotourism destinations worldwide. The Galapagos Islands provide a particular test case because: they have been a protected area for over 40 years; they are extremely well known internationally for their conservation significance; and they are islands, where controlling visitors, tour operators and residents is logistically possible. If



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the Ecuadorean government cannot take steps to ensure that tourism and associated human activities remain sustainable in the Galapagos Islands, prospects for similar areas elsewhere must surely be bleak.

## Redberry Pelican Project, Canada

Redberry Lake near Hafford, Saskatchewan, in Canada supports 200 bird species, including nine classified as endangered, threatened or rare. Best known of these are the whooping crane, peregrine falcon and piping plover. The Redberry Pelican Project (RPP) Foundation is a non-profit society established in 1989 to promote ecotourism at Redberry Lake as a mechanism to conserve its bird life. It appears from the description by Kingsmill (2002) that Redberry Lake is a wildlife sanctuary that was threatened in the mid-1980s by a proposed 400-cottage residential development. The Lake is protected by municipal zoning by-laws, and islands that support bird nesting colonies are protected under the Wildlife Refuge Act. The Lake and its surrounds have been nominated as a United Nations Educational, Scientific and Cultural Organization Biosphere Reserve.

According to Kingsmill (2002), RPP has become a significant tourist attraction, bringing economic benefits to residents of Hafford. Apparently, however, only 5% of RPP's total revenues derived from local tourism, with the remainder from donations, partnerships and other businesses. Similarly, RPP devotes 15% of total expenditure to local conservation, monitoring and research, 10% to the delivery of tourism services at Redberry Lake and 10% to delivering local tourism services.

RPP has constructed an interpretative centre with funding from the provincial government and the town of Hafford, and has built a landing area and viewing platform on one of the lake's islands. It has produced a video about the pelican colonies and offers tours on Redberry Lake (RPP, 2002). No independent reports on this project have been identified.

## **Maho Bay, Virgin Islands, USA**

Perhaps the world's most heavily reported ecolodge development, tourist accommodation at Maho Bay is the brainchild of Stanley Selengut, whose personal marketing charisma has been highly successful in achieving a profitable occupancy rate in a relatively remote and expensive resort.

Currently, the development incorporates four components, namely the Maho Bay Campground, Harmony Studios, Estate Concordia Studios and Concordia Ecotents (Maho Bay, 2002). The complex lies on St John Island in the US Virgin Islands, readily accessible to US markets. The Maho Bay Campground was the first component to be developed, with 18 'tent cottages' established in 1974, and further tents constructed at intervals until there are now 114 units (Selengut, 1996; Honey, 1999; Maho Bay, 2002). Pedestrian walkways were built between the individual tent sites to minimize damage to vegetation through trampling and damage to coral reefs through soil erosion and sedimentation. The campsite is within a national park, immediately above a white sand beach surrounded by coral reefs. A range of water sports are available, including diving, snorkelling, sea-kayaking and sailboarding.

The most famous component of the development, however, is the second stage, originally known as Harmony Resort and now renamed Harmony Studios. Opened in 1993, these studios were designed as luxury guest houses, using best-practice environmental design and technologies. The buildings have a passive solar design, incorporating roof scoops, and are constructed almost entirely from recycled materials, including roof shingles made from waste cement and cardboard, floors made from recycled newspaper and floor tiles made from recycled lightbulbs (Selengut, 1996). As originally constructed, these guest houses were powered entirely from wind and solar power, and some units incorporate interactive computerized energy-monitoring systems that allow residents to match their short-term energy consumption to the wind and solar energy available. You cannot use the blender on a calm cloudy day!

Both Maho Bay Campground and Harmony Resort have proved to be highly successful business ventures, with consistently high occupancy and increasing demand (Selengut, 1996; Honey, 1999). As a result, the owners have more recently constructed two further components, Concordia Ecotents and Estate Concordia Studios. The Concordia Ecotents are apparently a luxury version of the Maho Bay Campground, with private baths and running water. The Estate Concordia Studios are not described in detail on the company's website (Maho Bay, 2002), so perhaps they do not feature the same level of environmental design as the original Harmony Studios. None the less, the Harmony Resort has had an influence well beyond its immediate clientele, by providing a well-known and practical demonstration that environmental design and sustainable technologies in tourist accommodation can prove highly profitable.

### **\*Betchart Expeditions, USA**

Based in California, USA, Betchart Expeditions specializes in natural-history expeditions worldwide, with a strong focus on the US not-for-profit sector: museums, zoos, universities and scientific and conservation organizations. Different tours are offered each year. In 2002/03 a total of 22 destinations are listed (Betchart Expeditions, 2002), some to well-established destinations, such as the Galapagos Islands, New Zealand and Alaska, and others specific to this year, such as the forthcoming total solar eclipse in South Africa. Tours typically incorporate a mixture of wildlife, scenery and cultural attractions.

I have taken part in three of Betchart Expeditions' standard tours, to Australia and New Zealand as a naturalist and tour leader and to the Galapagos as a client. All were many years ago. To judge from the website, the Australian and New Zealand trips are now much more specialized, but the Galapagos tour is similar except that the current trips use a much better boat than in the past.

Most of Betchart Expeditions' clients have an interest in natural history, are keen to absorb new information and need no coaching on minimal-impact behaviour in the field, e.g. when birdwatching. The guides are well qualified and knowledgeable. Most importantly, however, many of Betchart Expeditions' trips are run for specific not-for-profit organizations with conservation objectives, and a significant proportion of the total trip price is passed directly to the organizations concerned. The trip price, in other words, includes a donation to the organization. Betchart Expeditions benefits because these organizations assemble groups of their own members and alumni, so that Betchart Expeditions only has to market its trips to organizations rather than individual retail customers. The net outcome is a significant cash contribution to conservation and research organizations.

### **\*Aurum Lodge, Canada**

Aurum Lodge is a small-scale ecolodge on the shores of Lake Abraham, between Banff and Jasper in the eastern foothills of the Canadian Rockies. It is one of only two properties in Canada with a 5-star environmental rating by the Canadian Hotel Association. The Lodge serves as a base for hiking in summer and for cross-country skiing and snowshoeing in winter, in the Bighorn Backcountry immediately east of Banff National Park. The Lodge's owner offers informative guided walks to areas of scenic, historical, cultural and natural history interests. These include waterfalls, pioneer graves, Indian ceremonial buildings, and opportunities to observe the bighorn sheep for which the area is famous, as well as other wildlife and a variety of local environments.

Aurum Lodge is particularly deserving of the title ecolodge because of its integrated energy-efficient and low-impact environmental design and technologies, and because of its direct involvement in the conservation consequences of other local land-use practices. The latter includes land-use planning by the Alberta provincial forestry agency, which is responsible for the Bighorn Backcountry.

The site currently contains four buildings: the principal Lodge itself; two independent cabins; and a large workshop and plant room. The main Lodge is the showcase and is indeed intended as a demonstration model as well as a working ecolodge. It has received funding from two relevant Canadian government programmes, the Renewable Energy Deployment Initiative and the Commercial Business Incentive Program. The main building has three storeys, including a partly sunken, full-plan basement which forms an integral part of the building's air circulation and energy management system. Energy-saving design features include: dual insulated walls; overhanging eaves on both upper and lower storeys; windows largely on the southern side; an integrated air circulation system with both passive convective and active ducted-fan components; double-glazed windows; heat exchangers to pre-warm incoming air; and energy-saving appliances.

In addition to passive solar heating, there are various energy sources, storage systems and heat exchange mechanisms. There is a cast iron wood stove in the kitchen and a slow-combustion woodstove with a large-mass masonry mount in the main living area. A 2200 l double-wall hot water storage unit in the basement contains an inner 350 l section with hot water for human use, surrounded by an outer section which forms part of the heating system. Water is heated by a 23 m<sup>2</sup> bank of solar panels, using an automated switching system to ensure that stored hot water is not recirculated into the panels and piping whilst the latter are still warming up in the mornings. Individual radiator units in the guestrooms, utilizing stored hot water, provide fine-tuning of local temperatures. A propane-fired boiler provides a backup, but one which is rarely needed. Heat exchangers are used to recover heat from warm air and grey water leaving the building. Electricity is provided from a bank of photoelectric panels and a small wind generator, with a propane backup generator. A battery bank stores a day's supply of electrical energy.

Though straightforward in principle, in practice the overall energy management system is a great deal more complicated than a typical North American building of similar scale, and the description above outlines only the main features. Although largely automated, it does also rely on the technical skills of the Lodge's owner and active monitoring and maintenance. Overall, the Lodge's design and operation embody the principle that energy is valuable and should be treated as though it were scarce and expensive; and indeed it is, when it has to be generated on site. This contrasts strongly with most buildings in countries such as the USA, Canada and Australia, which rely on plentiful supplies of publicly subsidized energy, that they can

afford to waste. As the owner of Aurum Lodge points out, however, the design features and principles adopted in the Lodge are by no means unusual in the colder regions of Europe, notably the alpine nations and Scandinavia, where private residential houses commonly incorporate a wide range of energy-saving design features. Energy-efficient appliances are used throughout. Overall, the energy conservation design features made up 30% of the Lodge's capital investment, but save Can\$25,000 per annum in propane costs, with a 5-year payback period (Aurum Lodge, 2002).

The main lodge has an industrial-scale composting toilet system, originally developed for public toilets in remote locations such as parks and highways. It also has a septic tank system which can operate in parallel. This is a four-chambered system with 28 kl capacity and a 7-day relocation time, finished by an intermittent sand filter with infiltrators fed under pressure. Currently, some of the guest rooms are connected to the septic system and some to the composting system. Organic catering residues are also fed to the composting system. Water is sourced from an 80 m bore on the property. Specialist low-toxicity biodegradable cleaning compounds are used in the kitchen and laundry.

Whilst managed by the provincial forestry agency, the Bighorn Backcountry is bisected by the highway and has been subject to extensive mineral and petroleum exploration, as well as used heavily by sport hunters, and by snowmobile and off-road vehicle enthusiasts. In addition, close to Aurum Lodge is a much older and larger motel-style tourism development, and a relatively new helitour operation offering scenic flights over nearby glaciers. These activities all place significant pressures on conservation of the area's natural and cultural values.

The land management agency has recently released a zoning plan for the Bighorn Backcountry (Alberta, 2002) which divides the areas into six Forest Land Use Zones (FLUZ). Whilst these FLUZ do broadly promote non-motorized recreation in areas adjacent to Banff National Park, and more intensive motorized use further away, there are some anomalies. Except for two small sites designated as natural areas and one as an ecological reserve, the vast majority of the Bighorn Backcountry is available for high-impact adventure recreational uses. These include hunting, horse riding and snowmobile and off-road vehicles. Access is allowed both along former mineral exploration tracks and in open-access areas known as frolic zones. One access trail, open to horses and hunters though not off-road vehicles runs right along the border between the Bighorn Backcountry and the adjacent White Goat Wilderness area, ending at the boundary of Banff National Park. Another FLUZ permits off-road vehicle access right to the border of the Park. The entire area is also open to commercial trapping under permit.

All of these uses detract from the area's value both for conservation and for low-impact nature recreation as promoted by Aurum Lodge. The central road corridor, including the lake and dam, has been allocated for tourist

accommodation and other fixed-site facilities. Aurum Lodge, as well as the motel and helicopter facilities, are within this zone. In addition, one of the most scenic foothill areas has been allocated for mining development. In the face of these new land allocations, adopted shortly after Aurum Lodge was established, the Lodge's owners have been campaigning for improved conservation in the Bighorn Backcountry and restriction of higher-impact land uses such as motorized recreation. While clearly, Aurum Lodge has a commercial interest in maintaining the attractiveness of the area for its own clients, it is still very unusual for any private tourism operator to speak out in favour of improved conservation management, at the risk of offending other commercial interests in the tourism and other sectors. Aurum Lodge is to be commended for its stance, which is advertised publicly on the Lodge's website.

According to the website (Aurum Lodge, 2002):

the Alberta Government has now decided to trash parts of Bighorn Country by allowing mechanised recreation (ATV's (all-terrain vehicles), snowmobiles, dirt-bikes, helicopters, etc.) into one of the last wilderness areas of the Eastern Slopes, reversing long term conservation policy, to allow a small number of individuals to destroy this ecologically sensitive area right up to the boundary of our National Parks. This move sets a dangerous precedent for lifting prime protection status for many other natural areas in Alberta, allowing more resource and other development into pristine wilderness areas. By allowing the off-road community into untouched wilderness areas, the Government is playing out minority recreational interests against the (silent) majority population's need for more protected areas and environmental responsibility. This serves the Government well, because it diverts public focus, making it easier to push additional natural resource development (Oil & Gas and Logging) into the region.

### **Touristik Union International, Germany**

Touristik Union International (TUI), with headquarters in Germany, is Europe's largest tour-operating company. It has 160 subsidiaries in 26 countries, and takes over 7 million tourists each year to over 60 different countries (Middleton and Hawkins, 1998).

TUI runs its own environmental evaluation programme, both for tourist destinations and for tour operators, particularly accommodation providers. While TUI does not promote this as an ecolabel or accreditation programme, in practice it has many of the features of accreditation schemes, and may well be more effective than most (Font and Buckley, 2001). TUI's evaluations combine environmental quality criteria and environmental performance criteria (Buckley, 2001a). Performance criteria include aspects such as waste-disposal practices, waste-water management, air quality and noise and energy and water saving. Environmental quality criteria include issues such as overall ambience, landscape and nature, sea and shoreline,



freshwater supply, etc. TUI uses these evaluations to decide which destinations to market to its clients and which individual operators and suppliers it will use as subcontractors. It also produces environmental information materials for its individual clients, describing the programme and inviting them to contribute through a web-based reporting system.

## **Watchable Wildlife, California, USA**

The national Watchable Wildlife Program is a partnership of government agencies and private organizations coordinated by Defenders of Wildlife, a non-profit organization founded in 1947 and now with over 80,000 members and supporters.

In California, the California Watchable Wildlife Program includes the California Department of Fish and Game, the California Department of Parks and Recreation, the California Department of Transportation, the US Bureau of Land Management, the US Bureau of Reclamation, the US Fish and Wildlife Service, the US Department of Agriculture Forest Service, the National Fish and Wildlife Foundation and the Ford Motor Company (Clarke, 1992). The US National Parks Service, the US Army Corps of Engineers, the California Office of Tourism, the Nature Conservancy and the Wildlife Conservation Board are also involved.

The 1992 *California Wildlife Viewing Guide* (Clarke, 1992) contains access, land-tenure and wildlife-viewing information on 150 sites scattered through the state, which is over 1 million km<sup>2</sup> in total area. As part of the programme, a wildlife-viewing logo, a stylized representation of white binoculars on a brown background, has been placed along roads and highways to indicate wildlife-viewing areas. The *California Wildlife Viewing Guide* contains a brief check-list of minimal-impact wildlife-viewing hints and responsibilities, basic but none the less highly valuable.

Many of California's protected areas are designated as wildlife and recreation reserves, funded originally from fees and taxes on hunting and fishing. Wildlife watching is now the most popular activity in California's parks and reserves (Garrison, 1997). California's Watchable Wildlife Program has been able to provide a coordinating framework for wildlife viewing throughout the state, with advantages for tourism, regional communities and wildlife conservation across the state. The programme involved: the selection of sites suitable for wildlife watching; the provision of access and infrastructure, directional and interpretative signs and information; and a coordinated market-research and marketing programme.

Indeed, arguably it has many similarities to environmental certification programmes in providing a screening process, a guarantee of quality and a recognizable brand and icon. It is much broader than most certification programmes, however, in that: it has been proactive in searching out appropriate sites; it has considered all potential wildlife-watching sites

throughout the state; and, through the involvement of various government agencies, it has had access to funding to standardize signage and services across all sites.

In selecting sites for inclusion, the programme considered a range of factors, such as: individual species present at different times of the year; overall biodiversity; the quality and reliability of wildlife-viewing opportunities; the likely impact of tourists on wildlife and other conservation values; the durability of the area and its resources in regard to an increased level of tourism; and local access and infrastructure (Garrison, 1997). In addition to federal, state and local government, the site selection process included representatives of conservation groups, the tourism industry and local communities.

The interpretation programme, which is standardized and coordinated across the entire state, includes publications (Clarke, 1992), standardized road signs, viewing platforms and walking trails, and interpretative signs, exhibits and brochures. The overall intention is to allow visitor access to the best wildlife-viewing opportunities, while encouraging responsible visitor behaviour. The programme also conducts continuing market research and cooperative marketing efforts to improve consumer confidence and recognition and encourage consistency in conservation efforts, as well as tourism services. Reputedly, California's Watchable Wildlife Program has been both a successful conservation tool and an effective mechanism for distributing the costs and benefits of tourism equitably throughout the state.

## **EarthFoot Travel, USA**

EarthFoot is effectively an internet-based marketing service for very small-scale customized ecotours. Its aim is to link individual tourists directly with individual natural-history guides in little-visited areas, so that travellers can take advantage of expert local knowledge and knowledgeable locals can hire out their services without establishing full-scale tourism operations. The approach adopted is that EarthFoot posts sample itineraries on its website and, for a US\$20 connection fee, interested travellers are put in touch directly with the guides concerned, via e-mail. They can then design individualized itineraries in advance. Nominally, at least, the US\$20 connection fee is refundable if the traveller is dissatisfied.

The site also incorporates a section where returning travellers can post comments on trips and guides, as a form of quality control. Of course, this approach only works for travellers who have access to the World Wide Web and guides who have access to e-mail. Presumably, repeat visitors and their friends can bypass EarthFoot and approach the guides directly, but this is no different from any other form of travel agency. Equally, travellers who were satisfied with the EarthFoot service will presumably use it to contact guides at new destinations.

According to the EarthFoot (2002) website, the concept stemmed from its director's experience as a freelance travel writer, when he met many people with detailed knowledge of local natural history, folklore and traditional uses of plants and animals. Some of these had tertiary qualifications or more from Western universities, whereas others had no formal education.

EarthFoot (2002) describes its vision as to 'promote independent locally based ecotours worldwide, to help isolated communities attract tourism monies to their region'. When the company started operations in November 1998, it listed only a small number of itineraries, such as: the birds of Celestun Biosphere Reserve on Mexico's Yucutan Peninsula; the bromeliads of Chiapas, Mexico; the western Everglades in Florida, USA; the Swamp Forests of the Mississippi; and the ecology of the San Juan Islands off the coastline of Washington State, north-west USA. Currently, the site lists tours in a variety of different categories, such as wildlife, birding, hiking, home stays, green lodging and cultural tours (EarthFoot, 2002). These span countries such as Australia, Botswana, Brazil, Guatemala, India, Jamaica, Kenya, Mexico and the USA.

### **Baikal Watch, Russia**

Lake Baikal in southern Siberia is the world's deepest lake, World Heritage-listed and home to over 1500 endemic plant and animal species, including the world's only freshwater seal. However, it suffers significantly from pollution generated by lakeshore industries. Baikal Watch is a non-profit subsidiary of an international conservation group, the Earth Island Institute. It operates tours to various Russian parks and reserves, including the *zapovedniks*, with profits donated to parks and local conservation groups. The aim of the group is to increase the awareness by local people of the economic benefits available from environmental protection. The tours use local products, accommodation and transport, with a maximum of 18 people on each tour (Earth Island Institute, 1990; Drozdov, 1997; Nikitina, 1999; Baikal Watch, 2002).

According to Baikal Watch (2002), the organization has helped to create or support 25 environmental non-governmental organizations in Russia; trained over 500 park and government officials; developed a far-reaching ecotourism programme in Siberia; and helped to establish the largest environmental law network in Russia.

### **Dersu Uzala, Russia**

The Dersu Uzala Ecotourism Development Fund operates a range of nature, adventure and cultural tours in Russia, with a focus on the *zapovedniks*, protected areas designated principally for conservation and scientific research.

Tour options include game viewing, birdwatching and botanical tours; trekking, rafting and horseback tours; and archaeological, ethnographic and cultural tours. According to Dersu Uzala (2002), Russia has the world's largest system of protected areas, but they are greatly threatened by dramatic cuts in government funding during the 1990s. The main aim of Dersu Uzala is to raise revenue, through tourism and international aid, for the continued protection and management of these conservation reserves. Accordingly to its promotional materials, Dersu Uzala's tours practise minimal-impact camping techniques, respect local customs, contribute revenue to local communities, incorporate educational components and 'observe the carrying capacity' of the areas visited. The last of these involves currently contentious phraseology, but an understandable intention.

Some of the tours offered include: rafting in the Sayan Mountains; road and hiking tours through the Altay region; trips to the far eastern taiga, including a habitat area for the Amur tiger; and bird-watching tours around Lake Baikal. Facilities are relatively basic and most of the tours are several weeks in length.

With funding from US Agency for International Development (USAID) and the Worldwide Fund for Nature (WWF), Dersu Uzala has successfully catalysed ecotourism development in a number of Russian nature reserves, including the establishment of environmental education centres. Its ecotourism development activities have been focused principally in the far east and far north-west of Russia, at the opposite ends of the country. The former was funded by WWF and USAID, the latter by the TACIS Project (2001). In Kamchatka, ecotourism development projects have also been funded by the United Nations Development Programme. At Popov Island in Russia's Far East Marine *Zapovednik*, for example, the reserve's revenues from ecotourism are now comparable with government funding (E. Ledovskikh, Dersu Uzala, personal communication, 2002). Successes and other lessons from this project were then transferred to the Altay-Sayan and Caucasus regions under another USAID-funded programme, and ecotourism development is now under way in about 30 different *zapovedniks*. One of the principal outcomes of these projects has been an increase in the number of Russian citizens, as well as international scientists, visiting the *zapovedniks*, generating political support for the reserve system (E. Ledovskikh, Dersu Uzala, personal communication, 2002).

### **Beluga Whale Watch, St Lawrence River, Canada**

Belugas, also known as white whales, are a circumpolar Arctic species whose major populations are much further north, for example around Baffin Island in Canada, Greenland, Svalbard in Scandinavia and areas north of Russia and Alaska. The St Lawrence population, about 500–1000 individuals in total, was classified as endangered in 1983. Numerous

strandings, high mortality rates and low birth rates were noted, and are believed to have been caused mostly by increasing pollution in the aquatic environment. The population has continued to decline drastically, and it now appears that disturbance by commercial and recreational vessels is one of the principal causes of the decline. The St Lawrence River Estuary is the gateway to the Great Lakes from the Atlantic Ocean and consequently carries a large volume of commercial marine traffic.

The belugas are also visited repeatedly by whale-watching tours and other recreational vessels. Studies by the Canadian Department of Fisheries and Oceans have found that recreational disturbances cause belugas to prolong intervals between surfacing, increase average swimming speed and bunch into closer groups. Feeding and nursing are reduced and social groupings within pods are disrupted (Blane and Jaakson, 1994).

In particular, if feeding belugas are disturbed by boats, they do not immediately resume feeding after the boat has left. As a result of this research, it was recommended that the Canadian Department of Fisheries and Oceans should: forbid any further marina development within the St Lawrence Marine National Park; restrict and monitor boating in the region; limit the number of licensed whale-watching operators and discourage informal whale-watching; enforce boat-speed restrictions and beluga protection regulations and impose fines for breaches; and ensure that police boats do not cut through beluga pods.

Of course, none of these measures will be effective if the cause of population decline proves to be industrial pollution to the water and the belugas' food-chain organisms rather than direct disturbance by boats. But perhaps small boat owners are easier to regulate than large manufacturing corporations!

### **\*NOLS Seakayak, Prince William Sound, Alaska**

The National Outdoor Leadership School (NOLS, 2002), with headquarters in the USA, is an outdoor education provider rather than an ecotour operator. It runs a wide variety of courses, from a couple of weeks to 3 months in length, with a broad division into secondary-school, university and over-25 age-groups. It was founded several decades ago by Paul Petzoldt as a way to make future leaders of industry more aware of the natural environment.

Currently, the focus is on: backcountry travel skills, including the practicalities of navigation, camping, climbing, kayaking, etc.; leadership and group management; and minimal-impact techniques. Some courses also include a more specific natural-history component, such as identification of mountain wild flowers. NOLS has branch operations in Alaska, Canada and Chile and also runs semester courses in Kenya, India and Australia. It has similarities to Outward Bound, a worldwide outdoor education provider that originated in the UK (Outward Bound, 2002).

Historically, NOLS has focused more on university-age and older clients, Outward Bound more on schools, and NOLS has emphasized minimal-impact skills and leadership training, Outward Bound more experiencing a particular activity.

The distinction between a backcountry ecotour with a strong environmental education component and an outdoor education programme relying on backcountry activities is a rather fine one. In either case, commercial clients pay for a package that includes transport, use of equipment and skilled guides or instructors. One major distinction is that university students on a NOLS semester course can receive college credit. In addition, NOLS focuses far more on training students for lifetime skills, rather than simply guiding them safely through a holiday experience. The relationship between staff and clients is one of teacher and students, rather than professional guide and customer. And, finally, NOLS training in minimal-impact wilderness camping skills is particularly rigorous. Indeed, NOLS is the originator of the *Leave-No-Trace*® programme and principles, now disseminated widely through the US National Parks and National Forest systems.

My knowledge of NOLS' operations is derived from: visits to the headquarters and to the Alaska and Pacific Northwest branches; project work with the former Director of Research; interviews with the Director and a number of current and former guides; accompanying part of a sea-kayak course in Prince William Sound, Alaska; and taking part in a 2-week segment of the first NOLS semester course in Australia.

The Australian expedition was subject to a few shortcomings, as its leaders attempted to apply American approaches to the Australian monsoon tropics without appropriate adaptation. This led to: a provisioning shortfall occasioning undue haste; a navigational error, though not a serious one; and a degree of disrespect to ancient Aboriginal artworks. In addition, one of the group's campsites was apparently fire-bombed by the land management agency as part of a routine fuel-control programme. Despite all these difficulties, the course went well, the students learned a lot and NOLS has returned to the same area every year, establishing a long-term relationship with the Bardi Aboriginal people on one of the offshore islands.

Criteria used to define best-practice ecotourism products are well established both in the academic literature and in ecocertification programmes, such as Australia's Nature and Ecotourism Accreditation Program (Ecotourism Association of Australia, 2002). NOLS is a commercial organization that provides its clients with entirely nature-based products that are extremely minimal-impact and incorporate major environmental education components. In addition, one of its founder's primary goals, whether realized or not, was to contribute to conservation of the natural environment by instilling a minimal-impact ethic in future leaders of human social institutions, be they businesses, schools or government. On this basis, it would seem that NOLS courses, even though intended as educational rather than tourist experiences, would in fact easily exceed the criteria commonly used



to recognize best practice in ecotourism, including those used for upper-tier ecocertification.

### **\*Natural Habitat Adventures, Polar Bear Tours, Canada**

Natural Habitat Adventures (NHA) (2002) is a Colorado-based natural history tour company that focuses particularly on bear watching in Canada and Alaska. Churchill, Manitoba, on the west coast of Hudson Bay, is the world's prime site to see polar bears at close range, since they congregate there in October and November to await freeze-up of the sea ice; and this is the most southerly and accessible part of their range. A number of operators provide tourist transport and accommodation in and around Churchill, to watch bears in winter and whales in summer. These include hotels and lodges, charter buses, helicopter operations, and so-called tundra buggies, specialized vehicles with a raised chassis and oversized tyres which take tourists to see polar bears at close range.

Two companies have permits to operate a total of 18 tundra buggies, one with 12 and the other with six. Each of these also operates a bear-viewing lodge in the tour area, where tourists can stay overnight in a complex of tundra buggies linked end to end and modified with sleeping and catering facilities as well as bear-viewing areas. These two operators also carry out their own marketing and organize their own inbound tours (Great White Bear Tours Inc, 2002; International Wildlife Adventures, 2002). The majority of bear-watching tourists to Churchill, however, arrive in groups with inbound operators that subcontract local facilities and services. NHA is the largest of these, locally estimated to bring between 50 and 75% of the polar bear tourists.

NHA's flagship polar bear tour includes: two nights at White Whale Lodge on the northern side of the Churchill River, an area adapted for ground-level viewing of polar bear cubs and their mothers; 2 days and one night in tundra buggies in the main bear-viewing area east of Churchill town on the southern side of the river; 1 day by helicopter, viewing bears from the air along the ice edge south of Cape Churchill; and 2 days available for other local activities.

Bear tourism is closely interlinked with other aspects of polar bear management in the Churchill area, which faces a number of difficulties owing to a range of current and historical issues. A brief review of these factors is therefore needed to provide context for NHA's tours.

Hudson Bay provides habitat for seals, the polar bear's principal prey. It is also large enough to affect the local climate. The treeline separating treeless tundra from the boreal forest or taiga is much further south in areas near Hudson Bay than it is elsewhere in Canada or indeed Russia. In fact the treeline runs immediately south of Churchill itself, so that the Churchill coastal plains provide suitable habitat for polar bears. Unlike more northerly



populations of polar bears that remain on the polar ice year-round, the population of the Churchill area must come ashore when the sea ice melts in spring and remain ashore until it re-forms for winter. While ashore, the bears have very little food but, when they are on the winter ice seal populations are particularly dense and the bears feed well. Whereas the far northern populations of polar bear have access to food year-around, therefore, but only sparsely, the Hudson Bay bears go from winter feast to summer famine each year.

So after many months of famine over summer the bears are extremely keen to get back on the winter ice as soon as it re-forms. Because of the Churchill River and the shape of the coast, the sea ice forms first at Churchill. Fresh water flowing from the Churchill River floats on top of the denser seawater and also freezes at a higher temperature, so ice begins to form around the rivermouth before the rest of the Bay. In addition, wind and tidal currents in Hudson Bay set up a large-scale counterclockwise gyre which sweeps floating sea ice from further north against the coast at Cape Churchill. Every year, therefore, no matter where they may have come ashore from the ice in spring, the bears gradually congregate around Churchill in the last few weeks before freeze-up. Once they have arrived in the area, they have little to do but wait, so they are easily watched. It is these factors which give Churchill its unparalleled opportunities for tourists to see polar bears.

Unfortunately for the bears, the Churchill rivermouth was also attractive to Europeans during the historical settlement and development of Canada. A rail link and port facilities were built so as to ship grain from the agricultural areas of central southern Canada. As a result, Churchill also became an administrative centre, and a service and supply hub for smaller communities further north. The highest concentrations of polar bears and the highest concentrations of people are thus precisely in the same area, with consequent conflicts. In particular, because the bears are extremely hungry as they wait for freeze-up, they are strongly attracted to anything potentially edible, including food scraps and similar garbage. Indeed, at the tundra buggy camps they are even attracted to grey water, which is allowed to run directly on to the tundra.

Not only do bears come into the town of Churchill, but they are particularly attracted to the town dump, which contains organic as well as inorganic garbage. Historically, many polar bears were shot when they came into the town area; and the dump became internationally notorious as a place where soot-covered polar bears could be seen rummaging amidst burning car bodies. Bear management practices have improved somewhat in recent years, but still seem to have a number of easily-rectifiable shortcomings. The current strategy apparently relies on live-trapping bears who come near the town, or shooting them with tranquillizer darts; holding them in a windowless building, the so-called bear gaol, for up to 30 days; and then carrying them by helicopter 30 km from the town before releasing

them. Whilst held in gaol, the bears are given water but no food, since they would in any event not be eating until freeze-up, and feeding would make the gaol an attraction rather than a deterrent. The idea is that because of the unpleasant experience in the gaol, the bears will develop an aversion to approaching the town. When captured, each bear is given an ear tag; and bears which are caught three times are apparently considered as 'problem bears' and killed.

The principal weakness of the current approach seems to be that it has not given the bears a corridor to bypass the town, and has not removed the town's attractions to bears in the form of food sources, but simply attempts to counteract the attraction with an aversion. The bear traps themselves are of the culvert type and contain food as bait and this may attract bears towards the town from some distance away. The municipal garbage collection system apparently relies on conventional outdoor bins for each household, not bear-proof containers. There is apparently no garbage separation system and organic as well as inorganic refuse is taken to the town dump. The town dump is still not fenced, though for a community of 700–1000 permanent residents a municipal garbage landfill need not be large and could surely be fenced, even if this required drilling postholes into permafrost and using concrete rather than steel posts to avoid downward conduction of heat.

As a result, the dump still attracts bears; and though it is no longer part of the regular tourist circuit, it remains an ongoing problem for managing bears. It has even been suggested unofficially that the dump, which is some distance outside the town, may have been left unfenced deliberately, so as to attract bears away from town. An incident has been reported when numerous tubs of lard were apparently concealed amidst rocks along the coastline, to attract bears to places where they were easily seen (Pilkington, 2002).

There is also a private property not far from town whose owner charges a rather substantial fee for entry by tour buses. The nominal attraction is a large number of dogs, kept chained up outdoors in the usual manner for sled dog teams, though they are apparently not worked. The dogs are kept ostensibly for breeding purposes and this may indeed be the case. It appears, however, that certain large male bears have learnt that there is a plentiful supply of food for the dogs, and have taken up residence on site. This arrangement has been described by Pilkington (2002) as a 'legal racket' under which the bears provide the real tourist attraction. Certainly, the bear which I saw on site seemed to be a great deal plumper than those elsewhere. However, there may also be a tacit acceptance of this practice by tour operators, since it guarantees bear sightings.

The overall economic significance of tourism for Churchill residents is continuing to increase and the significance of the port is decreasing. Apparently, only eight ships loaded at the Churchill port facilities during 2002, yet the entire port facilities are enclosed by a heavy-duty fence, whereas the dump is not. Perhaps the time will come when the economic

significance of polar bears to Churchill residents will lead them to manage people so as not to inconvenience the bears, rather than managing the bears so as not to inconvenience the people. It would certainly not be impossible, for example, to surround the entire town with an electrified fence.

In the longer term, the major threat to the Hudson Bay polar bear population is not Churchill, but global warming. If the sea ice breaks up earlier and re-freezes later each year, then the period available for the bears to re-establish their fat reserves each year will decrease, and the period on which they must live off those reserves will increase. Given that the Churchill area is the most southerly part of their range, it would seem likely that the energetic balance of the bears is close to its limit for this population, and a relatively small change could make it impossible for them to continue surviving in the area. Young bears are particularly vulnerable in the first couple of years after they are weaned, when they first have to hunt independently. They lose heat more quickly because of their smaller body size and because they have not yet built up long-term fat reserves; they are less skilled in hunting and therefore expend proportionately more energy on unsuccessful hunts; and they are subject to harassment by larger bears. It is this age group, therefore, that is likely to feel the early effects of global warming most severely.

The effects of polar bear tourism in the Churchill area must be considered in the context of all the factors outlined above. In particular, it is tourism that brought the problems associated with the town dump to the public attention, as well as the practice of shooting bears that wandered within the town limits. The current practices involving the live trapping programme, the bear gaol and helicopter relocation may indeed have many shortcomings, but they are certainly an improvement on past practice. Similarly, whilst tourism currently may well have some negative impacts on the bears, these seem to be small in comparison to the impacts of the town itself.

As long as tourism operations do not feed the polar bears or harass them deliberately, the principal impact is likely to be inadvertent disturbance to resting bears and inadvertent effects on interactions between bears. Because the bears are temporarily concentrated in the Churchill area, there are many more interactions between individual bears than would be the case at other times of year. In particular, younger bears and female bears with cubs, must avoid the large males that could potentially injure or kill them. In practice, it seems that bears react far more to each other than to the tundra buggies. For example, a young bear may run close to a buggy so as to avoid an older bear. Bears do also stand up against the side of the buggies on occasion. At the lodge on the northern side of the Churchill River, the bears sometimes come right up to the windows or lower-level decking, which are enclosed by bars. Arctic foxes also come close to the lodge.

The tundra buggies travel principally on a network of former military roads through an area of tundra east of Churchill, but do leave the roads on

occasion when turning or when manoeuvring around each other or around bears. The tyres have an operating pressure of 6 psi (40 kPa), well below that of conventional four-wheel-drive vehicles, but still enough to crush tundra plants.

The buggy drivers and tour guides instruct passengers not to throw anything out of the buggies, including cigarette butts, and these instructions appear to be followed. Each buggy has a self-contained toilet facility, essentially a large plastic bag which is tied off and taken from the buggy at the end of every trip. Apparently these are then deposited in a holding tank, but it was not clear whether they are emptied into the tank for septic decomposition in summer, or simply left tied up to freeze. Tourist accommodation in Churchill town is connected to reticulated municipal utilities, including electricity, water and sewerage. Sewage and grey water at White Whale Lodge apparently run through insulated pipes into a septic tank. Fresh water for the entire winter season is held in a tank on site. Since supplies are so limited, showers for guests are not provided and showers for the three lodge staff are restricted.

Tourists can also see polar bears by helicopter. Hudson Bay Helicopters, a subsidiary of Great Slave Heli, operates scenic flights along the ice edge south-east of Churchill, including a brief landing at a bear denning area. The bears have, of course, left the dens! Some individual bears appear to be habituated to the helicopter and pay little attention except to look up at it, but others seem to panic and run in random directions without looking up. Again, these reactions are unlikely to affect bear populations unless repeated disturbance either effects the bears' energetic balance or increases their negative interactions with each other.

As noted above, NHA's flagship polar bear tour includes a stay in the White Whale Lodge, tundra buggy tours, a helicopter flight and local town tours. The practicalities of on-ground environmental management are hence handled by the individual local suppliers, namely hotels and charter bus companies in town; the tundra buggy and helicopter operators; and the self-contained White Whale Lodge. The principal attraction is of course the polar bears, but a range of other arctic wildlife species may also be seen, including wolf, arctic fox, red fox, arctic hare, snowy owl and ptarmigan. The tundra vegetation is snow-covered during polar bear season, but willows, tamarack (larch) and spruces along the treeline are visible.

Interpretation throughout the tour is provided by an NHA guide. On the tour which I audited myself, the guide had a university degree in wildlife biology and was clearly knowledgeable about the broader aspects of bear management and the Arctic environment, adding significantly to the value of the tour. In addition, the tour includes evening video presentations at the White Whale Lodge and evening lectures from local Churchill residents whilst staying in town. These lectures, however, do not address any of the controversial aspects of current bear management practices.

As noted above, polar bear tourism has contributed indirectly to changing bear management practices in Churchill and to reducing the number of bears killed each year. As NHA is the principal inbound operator, it has indirectly made a significant contribution to polar bear conservation in the area. In addition, since most of its clients are well-travelled, well-educated and experienced in wildlife tourism elsewhere, they may well have contributed indirectly to improved on-ground environmental management by local suppliers.

The level of interaction between polar bear tour operators and polar bear management authorities, however, seems to be rather low. Perhaps, for example, relevant provincial government authorities cannot agree whose responsibility it might be to pay for fencing the dump, and this could be an opportunity for some constructive lobbying, or even a funding contribution by the various tour operators. This, however, was beyond the practical scope of this audit. Tour guides seemed particularly careful not to criticise provincial government authorities or bear management practices, though local conservation groups are much more outspoken.

### **Soufli Forest Reserve, Greece**

The Soufli Reserve is an area of oak–pine forest near the communities of Dadia and Lefkima in north-eastern Greece, adjacent to the borders with Turkey and Bulgaria (Valaoras, 1999). The Reserve is of particular significance for European raptors, including the endangered black vulture, the griffon and Egyptian vultures and the white-tailed and imperial eagles. Of the 38 raptor species recorded in Europe, 21 nest in the Soufli Reserve and an additional ten species rely on it for winter habitat. The Reserve supports a considerable diversity of reptiles and amphibians, with over 40 species recorded, including salamanders, lizards, snakes and a number of endangered frogs and toads. The Reserve also supports populations of brown bear, wolf, boar, otter, fox and badger.

The ecological significance of the Soufli region for raptor populations first received wide recognition in the 1970s, and its significance for reptiles and amphibians in the 1980s (Valaoras, 1999). The studies led to the designation of two strictly protected reserves. Prior to creation of the reserves, the areas had suffered significant environmental damage through a number of economic development programmes funded by the Greek government and the World Bank (Valaoras, 1999). These programmes have focused on opening the forest to logging through construction of additional roads and replacement of natural vegetation with pine plantations.

The nearby communities of Dadia and Lefkima were placed in control of both newly created reserves and a surrounding buffer zone in which hunting and forest harvesting were prohibited. Despite concern over land-use restrictions which the reserves placed on community residents, the

communities upheld the designations and complied with new regulations. It was not until 1987, however, that the two communities were able to gain any immediate economic benefit from the reserves. At that date, European Community funds were provided to construct an observatory and feeding place for the raptors, both as a tourist attraction and to arrest the decline in raptor populations. A visitor centre and restaurant were built at the edge of the reserve area, and two wardens were hired to manage the reserve and monitor bird populations. In 1992, the WWF and a German insurance company provided funds to establish a reserve management, monitoring and ecotourism development plan, which led to completion of the visitor centre, compilation of interpretative materials, and establishment of hiking trails.

According to Skarstis (2002), the Dadia–Lefkimi–Soufli Project was started by WWF Greece in 1992, in conjunction with the Ministry of Environment, the Ministry of Agriculture and the Prefecture of Evros. The Dadia Forest area has now been open as an ecotourism destination for 8 years (Skarstis, 2002). Around 50,000 people visited the forest during 2000. Tourist infrastructure established to date includes three hiking paths in the forest, a bird and observation area, an information centre and an ecotourist hostel. The project has been promoted through specialist conferences, volunteer camps and media coverage. Operating costs are currently 80 million drachmas (235,000 Euro = US\$243,000) per annum. The hostel and information centre are operated by a local community-based enterprise, and ecotourism guides were also recruited from the local community. Ecotourism operations have been planned as part of the conservation management plan for the reserve. According to Skarstis (2002), however, independent operations by the community ecotourism enterprise may potentially put conservation objectives at risk, unless they are subject to control by an independent management agency.

These measures have apparently been successful both for conservation and for community ecotourism. Populations of both black and griffon vultures are growing. An independent company operated by the community of Dadia is now in charge of tourism management. Local residents have been trained and hired as guides and a range of tourist services are offered, including tours, souvenirs, accommodation and meals and volunteer programmes, all of which have improved community awareness of conservation and generated a strong incentive to protect the reserve and its fauna.

## **Prespa, Greece**

Prespa is a Ramsar site and National Forest in western Macedonia, Greece, which supports about 260 bird species, including the endangered Dalmatian pelican and the endangered white pelican. A local environmental group, the Society for the Protection of Prespa (SPP), was established in 1991 by WWF Greece and other environmental NGOs. The aim of SPP is to



protect the Ramsar site and the endangered pelicans, using ecotourism as a financial and social tool (Malakou, 2002). In 1999, SPP received a Ramsar Convention Award for this work (Ramsar Convention Bureau, 2000). On World Wetlands Day, 2 February 2002, Prespa was declared a Trans-boundary Park by the Prime Ministers of Greece, Albania and the former Yugoslav Republic of Macedonia (Ramsar Convention Bureau, 2000). Currently, the conservation and ecotourism project is funded externally, at a cost of 235,000 Euros (US\$243,000) annually.

Ecotourism management is hampered by the dispersed pattern of tourist attractions, including scenery and Byzantine monuments, as well as wildlife, such as the pelicans. Visitors and tourist development are hence outside the control of the Prespa Reserve itself. In particular, it is difficult for tourists to approach the bird colonies without disturbing them. The project has established a scientific basis for managing the ecosystem and human activities, constructed an information centre, developed printed interpretative materials, established guided tours, provided incentives for local residents to become involved in conservation activities and maintained the world's healthiest colonies of Dalmatian pelicans and white pelicans (Malakou, 2002).

According to Malakou (2002), there are three main lessons from the Prespa project. First, ecotourism is not a quick path to profit, but a tool to offer an alternative economic activity to people who live in protected areas. Secondly, ecotourism can only succeed if it is based on a well-established conservation framework, including legal protection, zoning system, management plans and a management authority. Thirdly, adequate external funding for a long-term establishment phase is critical, because it takes considerable time for local residents to become involved.

### **\*Backcountry Camping, Denali National Park, Alaska**

The US National Parks system is one of the world's largest networks of protected areas managed by a single agency, and a major recreational destination for both domestic and international visitors. On a global scale, the ways in which protected areas and other public lands are managed for conservation and recreation, including commercial tourism, are currently more significant environmentally, economically and socially than the private ecotourism enterprises that are the principal focus of this book. The management of visitors and natural resources in US National Parks has been documented and analysed extensively, and no attempt is made to summarize it here. There are particular management practices at some parks, however, which are immediately relevant in this compilation.

Many of the management tools and techniques used in public protected areas and other public lands are equally applicable for private ecotourism enterprises. Indeed, many of the small-scale environmental technologies



currently used in private ecotours and ecolodges, e.g. for human waste management, were first developed for public-sector agencies. The same applies for many interpretative techniques. It is not by chance that many private ecotour guides wear uniforms that copy those of park rangers. Certainly, there are also cases where private-sector practices have been copied by public agencies, e.g. in ecolodge design (Mehta *et al.*, 2002) or quota management systems. If only because of their larger size and longer history, however, it is predominantly the public national parks that have led the way. In many cases, therefore, current practices in individual protected areas represent best practice for the ecotourism sector as a whole, and therefore clearly merit inclusion in a compilation such as this.

For backcountry hiking and camping, Denali National Park in Alaska uses two particular visitor management measures that simultaneously reduce visitor impact and improve visitor safety, particularly in relation to the Park's grizzly bear population.

Backcountry hiking and overnight camping in Denali National Park are regulated by a permit system. The entire park is divided into a number of mutually exclusive camping zones, and a permit is issued for a particular zone, depending on availability. Some individual zones can accommodate several permitted groups at once, others only one. Within each zone, camping is permitted only in areas out of sight from the Park's one main road. Because much of the terrain is open and rolling, in some permit blocks the nearest camping is a day's hike from the road. Under this system, backcountry users are dispersed so that tourists on the road never see tents and backcountry hikers have little impact on wildlife, vegetation or each other. In addition, it is a straightforward matter to close a particular area temporarily for conservation management reasons, e.g. a den of wolf-cubs. In addition to dispersing backcountry use, this approach sets an overall maximum level of use. If all the permits for all the zones have already been issued for a particular day, then no further backcountry hikers are permitted until the next day.

Once backcountry hikers have identified an available permit block, to obtain a camping permit they must pass a test on bear safety and minimal-impact camping. This test is conducted through touch-screen computers in individual cubicles at the Visitor Centre at the main entrance to the Park. Members of each group seeking a backcountry permit take the test jointly rather than individually. The test consists of a series of questions that must all be answered correctly before a permit is issued. If a question is answered incorrectly, it is repeated at the end of the test until it is answered correctly. It is thus as much an educational tool as an assessment mechanism. In each question, the computer screen illustrates a landscape, an animal or a scenario and poses a written question, which the permit applicants must answer by touching the correct portion of the screen. Some of the questions are open-ended: e.g. 'Where in the landscape illustrated would be an appropriate place to camp?' Others are multiple-choice: e.g. 'If faced with the

scenario illustrated, which of the following would be your best course of action?' When all questions have been answered correctly, the touch-screen computer concerned signals the front-desk computer used to issue permits. This system was operating when I visited Denali National Park myself in the early 1990s. While the particular questions in the Denali test focused principally on bear safety, the approach could readily be adopted for testing knowledge of minimal-impact techniques and behaviour for backcountry travel and camping.

## **Karelia, Russia**

The Karelia Project aims to establish ecotourism in and around Vodlozero National Park in the Karelia region, to replace former income from forestry (Moraleva and Ledovskih, 2001; Vasiljevich, 2002). In addition to Vodlozero National Park itself, the project has 14 university and government partners, with a total budget of 2.5 million Euro. It has established principles for ecotourism in Vodlozero National Park, a park management plan an ecotourism development plan, and an ecotourism business plan. Visitor information centres have been constructed and composting toilets installed in the Ohtoma tourist camp. The project has included an extensive community education component, with over 2000 h of lectures and workshops delivered to local residents and visitors.

## **Russian Zapovedniks**

There are several different types of protected areas in Russian, including not only national parks but *zapovedniks*, reserves protected for conservation and scientific study. In 1999, these reserves received a total of over 140,000 visitors, including 5000 foreigners (Moraleva and Ledovskih, 2001). Foreign tourist groups visited 47 of the reserves, domestic groups visited 64 and a total of 76 reserves established walking trails aimed specifically at environmental interpretation. According to the ecotourism development fund Dersu Uzala, there have been successful examples of ecotourism development in sites such as Popov Island, in the Far East Marine Reserve, but there are many barriers to the growth of ecotourism more broadly. These include, for example: a negative international image of Russia as an ecotourism destination; high taxation on any tourism revenues gained by reserves, deterring investment; lack of visitor infrastructure and visitor plans; lack of information and mechanisms to establish recreation capacities and monitor visit impacts; and a shortage of appropriate interpretative materials (Chizhova, 2001).

## Antarctic Tourism

The total number of tourists to the Antarctic has increased rather steadily from less than 1000 per year in the early 1980s to over 10,000 in the late 1990s. Most of the increase has been in tourists reaching the Antarctic by sea, notably in large cruise boats. The number of airborne tourists has fluctuated considerably from year to year, but on average has remained around 150 throughout the 1980s and 1990s (Marsh, 2000).

The Antarctic Treaty, which was adopted in 1959, called on the contracting parties to conserve biological resources in the continent. By 1996, there were 55 areas designated as Specially Protected Areas or Sites of Special Scientific Interest, but these 55 sites covered only 840 km<sup>2</sup> in total. In the Antarctic marine environment, in contrast, only three areas had been designated as Seal Reserves, but these covered a total area of 215,000 km<sup>2</sup>.

There is an International Association of Antarctic Tour Operators (IAATO, 2002), which promulgates a code of environmental practice. Membership is not compulsory, however, and IAATO also effectively acts as a promotional body for Antarctic tour operators. For example, in 1999 its website specified that one of its objectives was 'to create a corps of ambassadors for the continued protection of Antarctica by offering the opportunity to experience the continent first hand' (Marsh, 2000). A study of visitor motivations and attitudes by Bauer (1997), however, found that tourists themselves do not see themselves as ambassadors, 'but that other groups, in particular tour operators, like to attach this label to them, perhaps to justify their own actions' (Bauer, 1997, cited in Marsh, 2000).

Tourism to the Antarctic falls broadly into five categories:

- High-altitude overflights in long-haul passenger aircraft, which do not land within the polar regions.
- Large cruise liners, which visit polar regions as part of a global itinerary, but which make relatively few landings because they carry many hundreds of passengers but relatively few small inflatables or other landing-craft.
- Specialist polar cruises in ice-breakers or other ice-strengthened ships, with small passenger numbers, numerous specialist interpretative guides and boats and facilities for all passengers to make frequent landings.
- Land-based activities with initial access by aircraft using blue-ice landing-strips.
- Small private expeditions, including sailing yachts, sea-kayaking, cross-country skiing and mountaineering, sometimes with a specific expedition or environmental aim, and funded by a combination of donations, film sales and member contributions, as well as commercial tourism.

Each of these types of tourism has different environmental impacts. For the cruise liners, for example, there may be few landings, but the number of people in each landing may be very large. In addition, large ocean-going vessels all generate underwater propeller noise and leave some residues from engine fuel and oil, bilge pump-outs and grey water discharge. Most also discharge macerated sewage, food scraps and catering residues. Some also throw garbage overboard, even though this contravenes the marine pollution convention, MARPOL. This garbage may include paper, plastic, cans, bottles and cigarette butts. Even where the boat's owners intend to comply with MARPOL and the Antarctic Treaty, deck-hands and other crew may not follow company policy in practice, particularly where entire crews are contracted for individual voyages from boat-crewing companies. Finally, cruise liners that routinely criss-cross the world's oceans may easily transport marine pests and pathogens either on the hull or in ballast and bilges. This issue, of course, is not restricted to tourist vessels.

Except for one company that provides support for climbers at Patriot Hills (Spletstoesser, 1999), land-based activities with blue-ice air landings are a relatively new form of Antarctic tourism. The types of activities, however, are broadly similar to those which have been conducted from the scientific bases run by various countries for many decades.

The most established form of tourism in the Antarctic and subantarctic is boat-based tours using ice-strengthened vessels. A number of companies now run such tours using chartered Russian boats, but the archetype of these tours is run by Explorer Shipping Inc., currently a subsidiary of the global tour company Abercrombie and Kent Ltd, using the purpose-built vessel *Explorer*.

The Port of Ushuaia, at the southern tip of South America, is the departure point for nearly all Antarctic cruises, because it is almost directly north of the Antarctic Peninsula, and travelling time to the southernmost continent is much shorter than from Australia, New Zealand or South Africa. Even for Australian-based Antarctic tours, such as those run by Aurora Expeditions, passengers fly to Ushuaia to meet the boat, rather than leaving directly from Hobart in Tasmania. It is only the research and supply vessels for the Australian Antarctic bases and occasional one-off trips, such as the Mawson's Hut Expedition, which head directly south from Australia.

A private company (Adventure Network International) also flies visitors from Punta Arenas, Chile, to a seasonal base camp at Patriot Hills, at 80° south in the southern Ellsworth Mountains, for mountaineering expeditions to Vinson Massif, the geographical south pole and similar areas. The camp is dismantled at the end of each summer, and waste, including human waste, is removed from Antarctica, so that there is no discernible environmental impact (Spletstoeser, 1999). A total of approximately 150 people per year travel to this camp (Spletstoeser, 1999).

In addition to routine environmental impacts, such as those summarized above, Antarctic tourism introduces risks of environmentally damaging accidents. In 1979, for example, an Air New Zealand plane operating a tourist overflight crashed near Mount Erebus on Ross Island. In 1989, an Argentine supply vessel ran aground near the US Palmer Station on Anvers Island on the western side of the Antarctic Peninsula. The vessel was carrying 80 tourists as well as base personnel and supplies, and it was for the benefit of the tourists that it had visited Palmer Station. The grounding caused a hull rupture and leakage of 180,000 gallons of diesel fuel, with widespread impacts on krill and intertidal organisms (Giese, 1998; Giese and Riddle, 1999).

### **\*Explorer Shipping, Antarctica**

Originally built by Lindblad Expeditions in 1969 for special-purpose expedition tourism, the *Explorer* now operates three consecutive seasons each year, in the Arctic, Amazon and Antarctic, respectively. The first Antarctic tour each year starts from the Falkland Islands and visits South Georgia and other subantarctic islands before proceeding to the Antarctic Peninsula. Subsequent cruises shuttle more directly between the Port of Ushuaia at the southern tip of South America and the Antarctic Peninsula.

Built in 1969, the 72 m *Explorer* was the first purpose-built expeditionary passenger ship, and ran its first Antarctic cruise in 1970. It carries up to 98 passengers in 53 cabins, and ten Zodiac landing-craft, which can transport up to 15 people each. Explorer Shipping is currently owned by Abercrombie and Kent. The company provides the US Environmental Protection Agency (EPA) with an annual environmental impact assessment (Explorer Shipping, 2002) and supports a variety of ecological research projects.

Cruises by Explorer Shipping to Antarctica and the subantarctic islands are almost entirely nature-based, and incorporate a very detailed and extensive education, interpretation and guiding programme. This covers everything from plate tectonics, polar meteorology and glaciology to the detailed life histories and field identification of individual plant and animal species and the history of human exploration and exploitation in the region. Much of each voyage is necessarily spent at sea, but landings are made on a number of islands as well as the Antarctic Peninsula itself. Most of these landings are for wildlife watching, focusing on marine mammals and nesting seabirds, but the history of whaling at Grytviken in South Georgia, of Shackleton's astonishing voyage, of the Antarctic research bases and even of the Falklands war are also covered.

For most clients, highlights of the product include: colonies of various seals, including elephant seals; large colonies of various penguin species, including breeding king penguins; and an enormous variety of seabirds seen at close range, including breeding colonies of several species of albatross. Icebergs and Antarctic landscapes are also an important scenic attraction. Interpretation is delivered through a series of illustrated lectures by relevant experts while the vessel is at sea and by knowledgeable guides during landings. Landings are made in small inflatable boats, with one guide to every six or eight clients.

While at sea, the vessel appears to follow the requirements of MARPOL. For example, we observed garbage being bagged and stored in a hold under the aft deck. Similarly, passengers were briefed not to throw cigarette butts or any other litter overboard. By far the most significant potential impacts on the natural environment, however, are during landings, and particularly during interactions with breeding birds and animals. Passengers were advised repeatedly of minimal allowable approach distances to various species, and these restrictions were generally observed by passengers and diplomatically enforced by staff. Passengers were also advised of the types of impacts that can occur, for example the very rapid attacks by skuas and other predators on seabird eggs and chicks if the parent birds are disturbed or distracted for even a very short period. Similarly, passengers were told how to recognize symptoms of stress in penguins and how seal pups may be crushed if tourists disturb the territorial balance between dominant males.

There were several instances, however, where nesting seabirds, although not leaving the nest, did show signs of stress even at the approved approach distances, particularly when a number of tourists approached with cameras at the same time. This suggests that these approach distances, which are set in guidelines applying for all Antarctic tour operators in this category, may need revision, and, to be sure of minimal impact meanwhile, the *Explorer* may wish to set a somewhat greater margin for its own passengers. In terms of total impact on the populations of the species concerned, it seems likely that the early-season landings by relatively small numbers of well-behaved passengers from the *Explorer* have little impact as compared

with the much larger numbers of tourists landing from cruise liners later in the season. Since the *Explorer* lands at a number of sites that are not accessible to the liners, however, minimal-impact behaviour by its guides and guests is particularly critical.

There is no direct contribution from Explorer Shipping or its passengers to conservation of the Antarctic and subantarctic environment. However, it is not clear how such a contribution might be made. There is no broad-scale land or ocean management agency in the Antarctic. Various countries lay claim to various sectors, and the Antarctic Treaty specifies agreed responsibilities, including environmental responsibilities, for its signatories. For vessels, including cruise liners, registered in non-signatory nations, however, regulatory control is extremely weak, and might well have to be exercised through the tour company that uses a particular boat, rather than the owners of the boat itself. There is an industry association, IAATO, which promulgates an environmental code, but membership is not mandatory, and the only current means of policing compliance with the codes would be observations by other tour operators (Kraember, 2001).

Passengers on the *Explorer* learn about these issues from their guides and lecturers, and also about the conservation significance of the Antarctic. As with similar ecotourists elsewhere, they may form a group of alumni who can be called upon for political lobbying if critical conservation issues arise in future, though such support certainly cannot be guaranteed (Bauer, 1997, cited in Marsh, 2000). In addition, the existence and growth of tourism in the Antarctic generally has been used by environmental groups as one of the arguments against mining in Antarctica, and Explorer Shipping hence contributes indirectly to political protection of the Antarctic environment.

## Arctic Tourism

The first organized commercial tour to Svalbard, also known as Spitsbergen, took place in 1871 (Marsh, 2000), and the archipelago apparently remained as an adventure tourism destination for wealthy travellers throughout the late 19th century and indeed subsequently. Similarly, adventurous tourists began to visit the far north of Canada in the early 1900s, with assistance from the Hudson's Bay Company. Indeed, by 1937, an Arctic voyage by a Hudson's Bay Company supply ship listed 22 of 150 passengers as 'official tourists'. Also in the 1930s, the tour company Thomas Cook and Sons began to advertise pleasure cruises to Arctic destinations, such as Spitsbergen and Iceland (Marsh, 2000). Tourist cruises to Alaska began in 1957, with around 250,000 visitors in 1994. By the early 1990s, it was estimated that northern Scandinavia received half a million tourists per year, Svalbard 35,000 and Greenland 6000; far northern Canada about 225,000; Arctic Alaska about 25,000; and Arctic Russia an unknown number, but perhaps similar to Arctic Alaska (Marsh, 2000).



As of 1985, it was estimated that there were 175 protected areas north of 60°, ranging in size from small bird sanctuaries of a few hundred hectares, to Greenland National Park, with an area over 700,000 km<sup>2</sup> (Marsh, 2000).

Almost all Arctic tourism is in summer, and visitor numbers depend heavily on ease of access. Thus Glacier Bay National Park in southern Alaska, for example, received over 400,000 visitors in 1998, of whom 340,000 were on cruise ships. At the same time the gates of the Arctic National Park received only 4000 visitors.

Major tourist attractions in Arctic areas, in addition to scenery and icebergs, include wildlife viewing and sport fishing. Impacts include damage to tundra soils and vegetation by vehicles and even pedestrians; depletion of fish stocks through sport fishing in low-productivity waters; disturbance to wildlife species, such as bears and bald eagles; water pollution from sewage; and social impacts on Arctic communities (Notzke, 1999). All of these, however, appear to pale into insignificance in comparison with impacts from other human activities in the Arctic. These include the massive fur trade during early European colonization; the recent and current impacts of oil exploration and production, both on and off shore; and the indirect effects of widespread access to Western technologies, such as guns and snowmobiles, by traditional communities in the area.

The World Wide Fund for Nature (1998) proposed a set of Ten Principles for Arctic Tourism. These include minimizing waste and pollution, supporting biodiversity conservation, and respecting local communities. To what degree these are adhered to in practice by different tour operators remains unknown.

### **\*Aurora Expeditions, Svalbard**

Aurora Expeditions runs expedition cruises to the Arctic and Antarctic and the Kimberley coast of Australia (Aurora Expeditions, 2002). The Arctic and Antarctic cruises use ice-strengthened Russian vessels, refitted from research to commercial passenger configurations and operated by Russian crews. The company headquarters is in Sydney, and tour guides are principally Australian and American. During the 2002 northern-hemisphere summer, Aurora offered Arctic voyages in the Svalbard area north of Norway and along the eastern coastline of Greenland. One of these voyages was a circumnavigation of Spitzbergen, the principal island of the Svalbard Archipelago. Similar itineraries are offered by a number of other cruise operators. As the Gulf Stream brings warmer water north of the Arctic Circle in this area, the ocean is navigable for ice-strengthened vessels much further north than in the Canadian Arctic. Except for trips to the North Pole by ice-breaker or helicopter, therefore, boat cruises around Spitzbergen are probably the most northerly commercial tours in the world.

The circumnavigation of Spitzbergen by Aurora Expeditions in 2002 was an 8-day voyage, departing from and returning to Longyearbyen, the principal settlement in Svalbard. The boat used is a 72 m class-A, ice-strengthened vessel, the *Polar Pioneer*, with around 30 crew and staff and cabins for 54 passengers. She is powered by twin diesel turbines driving a single variable-pitch propeller, and is equipped with bow, stern and side thrusters for manoeuvring in ice.

The vessel's waste-management practices were difficult to ascertain reliably. Since the ship operates in Antarctic Treaty waters, where no discharge is permitted, it must presumably be fitted with holds and tanks to store all wastes for several days at least. A sign posted on the bridge in Russian and English lists rules for ocean dumping of different categories of waste at different distances offshore. In practice, I saw non-biodegradable wastes bagged and stored on the aft-deck, and then packed into larger sacks suitable for lifting onshore with the ship's derrick. Uneaten food and cooking scraps were dumped in a large garbage bin on the aft-deck, and this was apparently emptied overboard every day. Since the Arctic Ocean is a high-productivity marine environment, this is probably not inappropriate.

According to plan and section diagrams of the ship displayed on the bridge and elsewhere, the ship has an on-board sewage-treatment plant. The standard of treatment, however, was not clear. According to the Second Engineer, the plant produces a supernatant liquid that is discharged, and a sludge that is retained on board. According to the Captain, however, the plant is simply a macerator. Given the language difficulties involved in translations on such a topic, however, I am not confident as to which, if either, of these was more accurate.

As with other expeditionary cruise boats, passengers are taken ashore once or twice each day in inflatable rubber boats, Zodiacs, powered by outboard engines. Potential impact from the Zodiacs includes noise disturbance and two-stroke fuel and oil residues. Both of these are unavoidable, as with outboard-powered recreational boats worldwide. They can be reduced by the choice of engine, good maintenance procedures and cautious driving when close to wildlife (Rainbow *et al.*, 2000). In general, the Aurora staff did indeed drive with care and discretion around seabird colonies and marine mammals.

Potentially of greatest ecological significance for the entire voyage, however, is the management of passengers on shore. Arctic plant communities, such as tundra and bog, are easily damaged by hiking boots, and Arctic wildlife, such as walrus, seabirds and Arctic fox, are easily disturbed, particularly since some of these species are still hunted on Svalbard. The overriding factor, however, is the safety of guests and guides in areas frequented by polar bears. During summer, when the pack ice recedes well north of Spitzbergen and seals are mostly in the water rather than on the ice, bears remaining on the island become hungry and prepared to take food of any kind. Public notices in Svalbard itself and in incoming flights warn

visitors to take the danger of polar bear attacks seriously, and visitors and residents alike are warned not to leave the settled area without a firearm of adequate calibre. The Zodiac parties going ashore from the *Polar Pioneer* are accompanied by several armed guides and crew, who check the terrain and guard the perimeter unobtrusively. Except in very open flat terrain with good visibility, therefore, the passengers are kept together in relatively tight groups where they can be managed quite closely by the guides.

In approaching walrus, Arctic fox, reindeer and seabird colonies on shore, the guides kept the passengers in line, far enough away for the animals not to panic or flee. The walrus and, perhaps surprisingly, the Arctic fox seemed remarkably unperturbed. Reindeer stayed well away and remained alert, presumably since they are often hunted. Seabirds remained on site, though, since they are continually taking off and landing, it is difficult to determine whether there is a degree of disturbance that may increase the frequency or success of attacks by predatory bird species.

In general, therefore, Aurora Expeditions certainly offers a nature-based product with a high standard of environmental management and a strong environmental education component. As with other Arctic and Antarctic tour operators, it provides a degree of oversight, if not actual monitoring, by conservation-conscious visitors in areas with rather little regulatory presence. The company also contributes to ecological research in both Arctic and Antarctic, providing transport for scientists to remote field sites that would otherwise be very expensive to reach.

## **\*Couran Cove Resort, Australia**

Couran Cove Resort is a medium-scale island resort–residential development, which was initially marketed as ecotourism. It occupies a 151 ha property on the sheltered western side of South Stradbroke Island, in the Gold Coast tourist area of Queensland, Australia. The site had been subjected to a number of failed development attempts over many decades, including the construction of an artificial embayment, which almost certainly would not have been permitted at the time that Couran Cove took over the site in the late 1990s. The Resort opened at the end of 1997, and includes 92 marina-style apartments with boat-mooring facilities, 50 over-water apartments, 25 villas and 300 bush cabins, able to accommodate 2000 guests in total (Southern Cross University, 1997; Couran Cove, 2002).

The resort does incorporate a number of environmental design features and technologies, particularly in the bush cabins. It is powered by a gas-fired generator augmented by solar power, and waste heat from the generator is used to preheat hot-water supplies. Water is provided from a bore field, and a range of water conservation measures have been adopted, since water is in limited supply. For example, this includes the reuse of treated sewage effluent for irrigation, the use of rainwater for flush toilets and the use of water-saving appliances where available. Guests are transported around the site in electric buggies rather than vehicles with internal combustion engines. In some of the apartments, guests are able to monitor their energy consumption, and incentives are provided for low per capita power usage.

Couran Cove Resort lies on the landward side of a barrier island, facing into a shallow waterway, which is heavily used for recreational boating, fishing and swimming. The mainland side of this waterway is fringed by

residential accommodation, but the latter is connected to mainland municipal utilities, including sewerage. The lagoon area is only partially enclosed and is subject to tidal currents, but is not well flushed and has become increasingly polluted. Sewage management for a residential community of 2000 people at Couran Cove is hence a critical aspect of environmental management, since the resort is not connected to the municipal sewage system. The resort has installed its own tertiary treatment system, with treated effluent disinfected by ultraviolet radiation and used for irrigation through underground drippers. The terrain is too low and level to allow for gravity collection, and the resort therefore uses a pneumatic sewage collection technology (Airvac, 2001). Vacuum sewerage technology has a number of practical advantages for dispersed resorts and lodges, including a small on-ground footprint, reduced risk of leakage and low maintenance. It is only cost-effective, however, for communal establishments of at least 50 dwellings or more (Airvac, 2001).

Whether or not these measures qualify the resort as an ecotourism destination is arguable. On the one hand, the site was already degraded and partially developed, and the resort has indeed used a number of best-practice approaches to minimize environmental impacts. The company structure, however, allows individual ownership of the residential apartments, effectively a way for people to buy a beach house or marina apartment at a far lower price than in nearby mainland areas. While much larger than most ecolodges, Couran Cove is effectively part of the Gold Coast, Queensland's largest tourist town. Effectively, it is simply a well-managed medium-scale beach-front resort-residential development. Indeed, it is currently marketed simply as a family destination. Whether this reflects a change in market demand since it was opened or whether the ecotourism image was used simply to gain development approval and has now outlived its usefulness will probably never be known.

The resort is owned by a well-known former athlete, Mr Ron Clarke, who has contributed to a number of philanthropic causes. In particular he established the Council for the Encouragement of Philanthropy in Australia (CEPA). CEPA has recently donated Aus\$350,000 (US\$175,000) to establish a permanent headquarters for the Australian Rainforest Conservation Society, one of the country's most effective environmental non-governmental organizations. While this is not a direct contribution to conservation by Couran Cove Resort, it is closely associated.

### **\*Kingfisher Bay Resort, Australia**

Kingfisher Bay Resort and Village is a medium-scale resort-residential development on Fraser Island of the central coast off Queensland, Australia. Fraser Island, reputedly the world's highest sand island, is famous for its tall forest, perched dune lakes, crystal streams and chequered history. Subjected

for many years to extensive logging and in some areas also to sand-mining, it was finally declared a protected area and ultimately listed as World Heritage. This occurred largely because of the sustained efforts of a single individual, John Sinclair of the Fraser Island Defenders Organization. The island is managed by the Queensland Parks and Wildlife Service, but under an unusual piece of legislation, the Recreation Areas Management Act, rather than the normal national parks legislation that governs most of Queensland's other national parks. Most of Fraser Island is currently within the park, except for historical enclaves of private land along the eastern beaches.

Kingfisher Bay Resort and Village is built on a 65-ha block with its own landing jetty, on the protected western side of the island. The land was previously undeveloped and indistinguishable from the surrounding national park. Not surprisingly, therefore, relatively stringent environmental conditions were imposed before development approval was granted. Environmental features of the resort, therefore, though used heavily in subsequent marketing campaigns, were not a voluntary initiative by the development company, but were imposed as a consequence of its location. Whatever the reasons, however, the Kingfisher Bay development did indeed adopt a number of environmental design features and employed an enthusiastic environmental manager, who established interpretation programmes as well as operational environmental management systems. Certainly, in environmental terms, Kingfisher Bay seems to be greatly superior to private tourism developments on the eastern side of the island, which were not subject to the same environmental controls and have not adopted comparable environmental management practices.

Despite good practice in environmental design and management, Kingfisher Bay is effectively a small and well-landscaped suburb within a national park, and its impacts are by no means negligible. It incorporates large and well-designed central facilities, with restaurants, pool, conference facilities, etc.; a number of two-storey apartments operated as a 152-room hotel; 100 self-contained residential villas; and eight low-key lodges designed for low-budget travellers, such as backpackers and school groups (Charters, 1995; Southern Cross University, 1997; Charters and Law, 2000; Kingfisher Bay Resort and Village, 2002). It also includes a shopping village, a staff village and a four-wheel-drive (4WD) rental operation. Landscaping is with native plants, most raised in an on-site nursery, though seedlings and saplings were imported from the mainland during the early phases. Sewage is treated in a self-contained integrated digestion system, with the liquid effluent pumped into the sea to avoid nutrient enrichment of the oligotrophic sandy soils. A worm farm is used to break down solid residues.

The resort employs ten full-time interpretative guides, conducts local environmental management programmes and provides limited sponsorship for research. The resort has also constructed a wooden walkway and a

lookout tower in lowland swamp forest, which is open to the public as well as to resort guests. There have been conflicts with the Queensland Parks and Wildlife Service over the use of large 4WD vehicles to run tours through the park for lodge guests, with concerns expressed that these cause significantly more erosion than the 4WD station-wagons used by people who visit the park in their own vehicles. Kingfisher Bay has advanced accreditation from the Australian Nature and Ecotourism Accreditation Program and has won a number of environmental tourism awards, but it certainly does not fit everyone's perception of an ecolodge.

On the one hand, as a relatively large-scale resort-residential development in an area of high conservation value, it must surely be acknowledged that Kingfisher Bay has indeed taken a number of steps to reduce its environmental impacts. On the other hand, it clearly does produce impacts on the park as well as within its own land, and it is not clear that it has made a significant contribution to conservation. In comparison with other commercial tourism developments on Fraser Island, it is a considerable improvement. How it would compare with a campsite of equivalent size or with a number of smaller lodges is not clear. And, finally, the large-scale residential development in the later phases, which greatly expand the ecological footprint with little or no gain in potential educational benefits, appears difficult to justify within an ecotourism framework. It also emphasizes that, from a tourism market perspective, the principal attraction is not necessarily an eco-experience, but a place on the beach.

### **Green Island Resort, Australia**

Green Island is the closest coral cay to the major tourist town of Cairns, gateway to the Great Barrier Reef and Wet Tropics of Queensland World Heritage Area. Easily accessible by a day boat trip from the city, Green Island has been a heavily visited tourist destination for many decades, suffering considerable environmental impacts in consequence. Historically, it also incorporated a small and relatively low-key resort, essentially providing overnight accommodation and local activities for tourists who did not wish to return to port the same day.

Heavily used and somewhat run-down in the later stages of its life, the old resort caused some concerns to the management agency for the Great Barrier Reef Marine Park. In particular, sewage-treatment facilities were rather basic, and the surrounding reef was suffering impacts from effluent discharges, as well as direct trampling by tourists walking on the reef flat. On a number of occasions, there were apparently direct overflows of untreated sewage from the septic-tank system. Concerns were also expressed over a range of other environmental management issues, such as noise from on-site generators. Since the Green Island ferry had been operating since 1924 and the accommodation facilities since 1963, these



issues and impacts are by no means surprising, but by the 1990s they had become insupportable.

Following extended negotiation between various state government bodies and a major tourism development corporation, Daikyo of Japan, the old resort was demolished and the current Green Island Resort, with accommodation for up to 90 guests, was opened in mid-1994 after 2 years of construction and redevelopment (Green Island Resort, 2002).

As an essential condition of the redevelopment approval, the resort developers had to incorporate a number of environmental design features and technologies and to comply with a code of environmental practice drawn up by federal and state environmental authorities. All contractors and subcontractors also had to comply with this code.

The principal environmental features of the redevelopment may be summarized as follows. As with many of the larger sand cays on the Great Barrier Reef, Green Island supports a relatively dense woodland, maintained by a freshwater lens within the sand and underlying coral. One of the first requirements was that the redeveloped buildings should all be hidden within the tree canopy. In addition, buildings and facilities are largely connected by wooden walkways, to reduce damage to plant roots and erosion of the thin sandy soil. A new powerhouse with four generators was constructed, muffled to minimize noise emissions, with a cooling system linked to the resort's hot-water supply for maximum efficiency. Exotic plants were removed and replaced with native landscaping.

Most important, however, was the installation of a sophisticated and expensive tertiary treatment plant for both sewage and grey water, with treated effluent released into the ocean through an outfall pipe, where nitrogen levels must comply with standards set by the local municipal council. Apart from sewage and grey water, all other wastes must be transported back to Cairns for disposal via municipal systems.

Green Island Resort is not marketed as an ecolodge and, at the time of construction, its parent company was a multi-billion-dollar conglomerate. In addition, unlike many ecolodge developments, Green Island has a long history of heavy use, some notable environmental impacts in the past and a built component that is quite large relative to the scale of the island habitat. With a maximum capacity of 90 guests, however, the facility is substantially smaller than many resorts which do market themselves under an ecotourism banner. In addition, a relatively high proportion of redevelopment capital was required for installation of best-practice environmental technologies. In particular, the sewage-treatment system reputedly cost several million dollars.

Perhaps the main reason why it is not commonly perceived as an ecolodge is simply that Green Island is also visited by large numbers of day visitors, whereas most ecolodges are in more remote locations visited by no one but their own guests.

### **\*Island Tourism, Maldives**

The Republic of Maldives is a group of atolls in the Indian Ocean south-west of India, stretching over a total area of 900,000 km<sup>2</sup> but with a total land area of 298 km<sup>2</sup>. There are 26 atolls containing 1190 individual islands. All of the islands are coral cays, with an average area of 16 ha and maximum elevation of 1.5 m above sea level. Two hundred of the islands are inhabited, with a total population of 260,000, of whom one-quarter live in Male, the capital island. The principal economic activities are tourism and fisheries. The Maldives are known internationally for their beaches and reefs, and tourism provides 60% of foreign-exchange earnings, 20% of gross national product and 10% of employment. While fisheries are the principal source of support for most people and provide most employment, tourism contributes the bulk of foreign-exchange and government earnings.

In an attempt to reap the economic benefits of tourism without its cultural or environmental impacts, the government of the Maldives established a deliberate strategy of enclave resorts, with tourism development restricted to specified and previously uninhabited islands, one resort per island. Official policy is that: no other development is permitted on the islands concerned; native Maldivians are not permitted on the resort islands unless they work for the resorts; and tourists can only travel to inhabited islands with a guide, and must then return to their resorts each night (Firag, 2001). These arrangements effectively exclude low-budget travellers seeking cultural exchange, and insulate most village residents from tourism.

The Maldives have been cited as a model for other small island developing states, SIDS: a country with few resources except a beautiful natural environment, which has successfully promoted high-value enclave beach tourism as a means of funding community development, without creating impacts on either its natural environment or its traditional societies and cultures. It is also a major global destination for dive tourism and, more recently, for commercial surf tourism.

There are 87 tourist resorts in nine atolls with a total of about 16,000 beds. The resorts differ in size, but most have between 100 and 500 tourist rooms. In general, they follow similar designs, incorporating: a line of beach-front rooms encircling much of the island concerned; over-water rooms built on pylons from the reef and accessed by raised walkways; a limited number of lower-priced garden rooms in the island interior; central reception, dining and associated facilities; and a boat harbour, landing jetty and dive school on the lagoon side of the island. A small number also have local airstrips or floatplane landing areas. The islands are low sand and coral cays, typically less than 1 metre above high-tide level, but the tidal range is small and the islands are protected by fringing reefs. A variety of breakwaters and beach protection works have been constructed in some areas. About 40% of arrivals are from Germany and Italy, and the average length of stay is

7–10 days. Four of the atolls also have airports. Government revenue from tourism rose steadily from about 60,000 Maldivian rufiya (US\$5000) in 1987 to 650,000 Maldivian rufiya (US\$57,000) in 1999 (Firag, 2001).

Ownership of uninhabited islands has apparently been claimed by the central government of the Maldives, which leases them to private entrepreneurs who own and operate the resorts. Concerns have apparently been expressed by residents of neighbouring inhabited islands over loss of traditional access to uninhabited islands, which were used as a source of materials, such as timber, and a base for artisanal fisheries (Robinson, 2001).

In late 1992, the Maldives Ministry of Fisheries and Agriculture carried out a survey of Maldivian shark fisheries, which found that divers were spending over US\$2 million per annum to watch sharks and that reef sharks generate 100 times more revenue as dive-tourism attractions than through export fisheries (Riza, 2000). In addition, the survey found substantial damage to dive sites through coral mining, boat anchors and other fisheries. As a result, 15 dive sites were protected as marine parks in 1995, and a further ten sites in 1999. These ten were selected from 208 proposals. Little information was available on biological diversity at the various sites proposed, and they were selected more on economic than on ecological criteria. In particular, the sites selected were within a designated tourism zone, close to resort islands and outside areas currently or potentially used for fishing (Riza, 2000). Were it not for dive tourism, however, they might not have been protected at all.

Following environmental and cultural impacts during the early phase of tourism development, regulations for resort construction and operation were imposed in the early 1980s, as follows. The maximum built-up area is restricted to 20% of the total land area of the island. Buildings may be only one or two storeys in elevation, with the latter only where they can be concealed by vegetation. All tourist rooms must face the beach, with at least 5 m of beach front for each tourist and no more than 68% of total beach length allocated to guest rooms. Over-water bungalows are permissible but only if equivalent open space is left on the land. Buildings must be at least 5 metres back from the shoreline.

Official policy is that no large or rare trees may be felled, and each tree that is cut down must be replaced. Engineering construction is restricted and is subject to environmental impact assessment. Coral and sand mining is prohibited except in designated locations. Spear-fishing, poison and dynamite fishing are prohibited, as are shell collection, turtle fishing and the collection of juvenile and gravid lobsters. Net and trap fishing are restricted. Resorts are subject to regulations requiring recycling programmes and appropriate waste-management technologies. All resorts must have incinerators, bottle-crushers and compactors. Solid waste must be burnt, metal cans compacted and bottles crushed before disposal. Sewage disposal through soakage pits is discouraged but not banned. Desalination plants

are required in order to provide adequate freshwater supplies. Despite these precautions, however, it appears that significant environmental deterioration has occurred, principally through disposal of sewage effluents. Use of reef coral for construction in some of the resorts has caused beach erosion, as well as damage to reefs (Weaver, 1998; Sweeting *et al.*, 1999).

The island resorts do apparently generate considerable revenue, which has helped to fund health care and reticulated water supplies. Most of this money, however, is apparently spent in the island where the capital city is located, and islanders in more remote areas apparently receive little or no compensation for loss of access to the resort islands and their surrounding marine resources.

In a recent World Tourist Organization study of tourism impacts in the Maldives (Robinson, 2001), communities identified several concerns over the management of tourism on the islands. Resorts had been developed on uninhabited islands without consulting villages from nearby inhabited islands, who had traditionally also used the uninhabited atolls. Most villages were generally in favour of tourism, since it provided funds which they used for their children's education. However, staff working at resorts complained about poor living conditions and isolation from their families, and their families complained about lack of parental guidance and discipline when parents were working at the resorts. Finally, despite the deliberate enclave-style attempt to insulate traditional communities from Westernized tourism, villagers felt that prosperity associated with tourism was leading to the disappearance of traditional arts, crafts, customs and architecture (Robinson, 2001).

I visited two of the 87 resort islands in mid-2002. One of these is a key component of the surf-tourism industry, with exclusive access to one of the better-known breaks and close proximity to two more. There is one other resort island that caters specifically for surf tourists. Several international surf-tour companies also operate live-aboard boat-based surf tours and charters. Some of these visit the same breaks as those used by the resorts, while others visit the more remote outer atolls in the far southern part of the country. Broadly, the boat-based tours appeal more to younger and perhaps more competitive surfers travelling alone or with other surfers, whereas the surf lodges appeal more to older surfers travelling with non-surfing partners or dependents. In particular, one of the key surf lodges limits the total number of surfers on the island at any one time, so that all its clients have a good opportunity to surf its exclusive-access local break. This is a significant consideration for clients who live in areas that have either very crowded surf or no surf at all. The other surf resort also has an exclusive break, but does not limit the proportion of surfers among its guests.

All of the resort islands currently incorporate commercial diving operations, typically run by a separate company from the resort itself. These diving operations differ greatly in the level of services provided. Internationally,

both dive schools and individual divers are certified by commercial accreditation agencies, such as the Professional Association of Diving Instructors (PADI). Individual dive schools receive quality ratings using a star system, with a maximum score of five stars. Dive schools with a PADI five-star rating, for example, have facilities and instructors accredited to certify individual divers at an advanced level, and including the use of specialist equipment, such as nitrox, an oxygen-enhanced breathing mixture. With shallow lagoon waters adjacent to each of the resort islands, dive schools in the Maldives are also well placed to offer introductory dive training and base-level certification, and this appears to form a major component of the overall dive-tourism market. Although diving and, more recently, surfing are the advertising icons for tourism in the Maldives, at many of the resorts the principal clientele appear to be city-dwellers escaping the northern-hemisphere winter and seeking only the sun, the beach and the warm water.

Official policy and published descriptions of tourism development in the Maldives, outlined earlier, indicate that development planning controls are applied across the board to minimize environmental and cultural impacts. These provisions do not, however, always appear to be followed in practice, as summarized below. Note that these do not apply to the national capital on the island of Male, which is covered by a dense agglomeration of high-rise buildings.

Officially, tourists are allowed only on resort islands or occasional 1-day visits to other uninhabited islands; and Maldivian nationals may live only on so-called local islands, commuting daily by boat to a nearby resort island if they are employed there. In practice, however, this is clearly not the case. At both the islands I visited, part of the island was walled off from visitors, and these areas were used for staff accommodation, as well as for services such as generators, sewage treatment, supply jetties, desalination plants, workshops, etc. While some staff apparently live in unoccupied guest rooms, others live in considerably more ramshackle dwellings inside the walled-off areas. One major reason for this is that people do not necessarily find themselves offered employment at a resort immediately adjacent to their home island. In many cases, individuals may move first from an outer atoll to the capital, and subsequently from the capital to a resort island. It is, of course, not necessarily a problem that local staff live on resort islands; but it might be better if it were acknowledged openly, so that staff quarters and facilities could be planned as an integral part of resort design.

A second major provision is that resort buildings may only be one storey high, or two storeys where they are concealed by vegetation. The islands support a low woodland dominated by widespread tropical Indo-Pacific island trees and shrubs, such as *Suriana maritima*, *Scaevola taccada*, *Tournefortia argentea*, *Thespesia populnea*, *Morinda citrifolia*, *Clerodendrum inerme* and others. In practice, while this restriction may be followed to the letter in the sense that buildings are only one or two storeys

high, the proliferation of over-water bungalows on the reefs outside the islands themselves mean that the resorts are highly conspicuous.

Official policy also requires, or at least strongly encourages, resorts to incorporate integrated sewage-treatment facilities to avoid surrounding reefs suffering eutrophication from the release of high-nutrient effluent streams. In practice, it is not clear whether such systems are the norm or not, but it certainly seems that they have not been adopted universally. In at least one island, sewage is supposedly stored in holding tanks and then removed from the island, but it is not clear whether this is a sealed tank or a soakage pit, or whether residues are taken to Male, to a neighbouring local island or dumped at sea. Similar considerations apply for other organic wastes, such as catering scraps. Fruit, vegetable and other remains are often encountered floating on the water surface, though these may be discarded from charter boats rather than resorts.

Non-biodegradable rubbish is apparently collected and removed from the resort islands, but in one case at least, it appears that it is simply taken to landfill on a neighbouring local island. This could be of significant concern if the local islands take drinking-water from a freshwater lens, since such lenses are easily polluted from landfills. If garbage is to be buried in landfill, it would be preferable to bury it on the resort islands, where fresh water is obtained by desalination.

Overall, though it seems that the reality of environmental and cultural management does not quite match the rhetoric, the Maldives have indeed succeeded in generating a relatively rich economy by constructing a near-perfect tourist trap and marketing it as the archetypal tropical island idyll. The distribution of this wealth, however, is far from equitable, with a strong entrepreneurial culture prevailing. The central government maintains strong control over land tenure and apparently exacts rather substantial lease fees from resort owners, but it has also provided access to education, healthcare and internal telecommunications for Maldivian nationals. Local residents in the atoll of North Male itself say that these services are available to everyone, but it has been reported elsewhere that the benefits are strongly concentrated around Male and that residents in more remote atolls have gained little (Robinson, 2001). Certainly, the distribution of individual wealth is highly skewed, with some individual residents owning several resorts and yachts, whereas the average annual salary for resort staff up to lower-level management is reported at US\$1200 per annum.

On both the resorts and local islands I was able to visit, the terrestrial environment has been modified heavily through engineering structures, such as sea walls, through the construction of buildings and through the introduction of non-native plants used in garden landscaping. The marine environment is currently recovering from the effects of massive and widespread coral mortality caused by ocean warming during an El Niño event a few years ago.



### **\*Canadian Mountain Holidays**

Canadian Mountain Holidays (CMH) is the world's largest heliski operator, with lodges and concession areas throughout the southern section of the Canadian Rockies. The lodges offer 1-week packages, which include bus transfers from Calgary to the nearest staging point, helicopter shuttles to the lodges, full board and a nominal 30,500 m vertical elevation skied (CMH Heliskiing, 2002). Shorter packages are also offered from a hotel base in the town of Revelstoke. The company's headquarters are in Banff. CMH also offers summer helihiking at a limited number of its operating areas.

As its Galena Lodge, CMH uses a Bell 212 helicopter, which carries 11 skiers plus the guide and pilot, and a smaller Bell 206 to shuttle vehicle to bring guests, staff and lunches from the lodge to the operating area and back during the day.

While the lodges and their immediate surrounds are on freehold land, the ski areas are concessions leased from the provincial government forestry agency. They include both clear-cut and densely wooded areas, as well as alpine areas above the timberline. The terms of the leases allow CMH to carry out glading in some of the wooded areas, according to plans agreed with the forestry agency. Glading is restricted to smaller trees of low timber value and effectively doubles as thinning for forestry operations. Within the heliski concession areas, the shape of logging coupes is modified to improve their value for skiing. CMH pays a *per capita* fee to the forestry agency for each of its clients.

It is not clear whether the presence of heliskiing influences forestry operations in any way that affects the conservation value of the areas concerned, e.g. through reserved areas, longer cutting cycles, connected wildlife corridors, etc. Since logging takes place in summer and heliskiing in winter, it appears that there is rather little direct interaction between the two uses of the same land areas. Historically at least, however, there has been an important link in that helicopter logging has provided summer contracts for the helicopters, so that they are available in the area for winter heliskiing. Even though there is now cross-ownership between the helicopter and heliski companies, summer charter work for the helicopters is still a critical economic and operational consideration, since, despite its growth in recent years, summer helihiking does not involve nearly such an intensive use of helicopters as winter heliskiing operations.

A range of environmental management practices are used to minimize impacts at the lodges, within the constraints of guests' expectations and health regulations. For example, until recently, the lodge at Galena ran a small on-site pig farm to recycle food scraps and catering residues, but during 2001/02 this has been closed because of concerns over foot-and-mouth disease.

Most of the backcountry lodges, as well as the CMH headquarters in Banff, use a range of measures to minimize energy, water and materials



consumption and waste production. Such measures include energy-saving appliances in the kitchen and laundry, energy-saving light bulbs, water-saving shower-heads and guest programmes to reduce laundry. Biodegradable soaps, shampoos and other cleaning products are used in most lodges. Glass, aluminium, used tyres and paper are recycled at head office and some lodges.

Measures to minimize soil and water contamination include bunding on fuel storages, drip trays under fuel-transfer areas, recycling of waste oils and lubricants, grease and sludge traps in kitchen and grey water drains, and the use of biodegradable detergents, cleaning agents, soaps and shampoos. Some of the lodges use basic septic systems to treat sewage, some have small-scale secondary treatments, and a few use tertiary treatment or self-contained integrated digestion systems.

As with most heliski operations, CMH is careful not to leave any litter in operational areas, notably at lunch sites.

Some of CMH's operations are above the timberline, but some are well within forested areas. The animal species and populations present in these areas and the precise impacts of rotor noise and associated disturbance do not appear to have been studied.

Heliskiing is expensive, and the top priority for most heliskiers and snowboarders is to maximize the vertical metres skied during the week. They are not there to learn about the natural environment, except in terms of wind and weather, skiing terrain, snow conditions and avalanche hazards. They are interested, for example, to see wolverine tracks while waiting for a helicopter pick-up, but not if looking at tracks would delay the next ski run. Similarly, while they would probably notice an obvious environmental impact such as a fuel or sewage spill or litter left at a lunch site, from a lodge management perspective they are concerned with quality of service and hospitality, not the details of day-to-day operational environmental management.

For summer helihikers, however, the mountain environment and the opportunity to learn about it at leisure are the key attractions. For summer operations, therefore, environmental education by the CMH guides is a critical component of the tourism product. While some summer guests may view the mountains simply as a scenic attraction and treat the helicopter ride as a joy-flight, others have a long history of hiking in the mountains and have turned to the helicopter as a means of access to remote areas which they, or perhaps their young children or other friends and family members, can no longer reach on foot.

Clients in this category are likely to be well informed about environmental management issues associated with both helitours and backcountry lodges, and to scrutinize CMH's operations in order to assure themselves that as CMH clients, they are behaving responsibly towards the mountain environments, wildlife and other human users. In addition, the immediate environs of backcountry lodges are much more accessible to guests during

summer than during winter, and the details of environmental management practices, such as track erosion or sewage-treatment systems, are much more visible. Accordingly, CMH runs an annual training workshop for helihiking guides, covering CMH's environmental management practices as well as interpretation of alpine and montane environments in the Canadian Rockies, and more general environmental and land-use management issues.

CMH makes a number of contributions to environmental research within its operating region. This includes funding a Snow and Avalanche Chair at the University of British Columbia, a Snow and Avalanche Research Program at the University of Calgary and a number of graduate projects (GORP, 2002). CMH pays a heliski lease fee to the provincial government forestry and land management agency, but the fees are not earmarked for any specific purpose, such as conservation works or research. The degree to which forestry management practices may be modified because of heliski operations and the significance of any such changes for the conservation value of the land concerned have apparently not been examined, except for the glading and coupe-shape modifications outlined earlier. During operations, CMH guides record any wildlife sightings, and these records are reported to the land management agency.

### **\*Himachal Helicopter Skiing, India**

Heliskiing and snowboarding in the Himalayas are a recent innovation. The terrain is eminently suitable, but because of the latitude and relatively low precipitation, skiable snow is generally only available in alpine areas at 4000 to 5000 m elevation, which is close to the practical operational limits for most skiers, as well as most helicopters. In addition, relatively few areas have the necessary access and infrastructure to support a safe and commercially viable heliski business. To date, in consequence, there is only one commercial heliski operator in the Himalayas, namely Himachal Helicopter Skiing (HHS, 2002).

HHS was established in Himachal Pradesh in India because of concerns over political instability in Nepal, which have indeed proved well-founded. It operates from a hotel in the hill town of Manali and a lodge in the nearby village of Patlikul. Well-known in India for its hot springs, temples and orchards, Manali is a well-established summer holiday destination for Indian domestic tourists, and is reputed to be particularly popular among honeymoon couples. During winter, however, there are very few domestic visitors and most of the tourist shops are closed. During the heliski season, heliskiers provide the bulk of the clientele for Manali's major hotel, the Manali Holiday Inn.

The main road to Manali continues over a high mountain pass to Kashmir and the border with Pakistan, and there is a substantial Indian army garrison on the outskirts of Manali, responsible for opening the road during

spring thaw every year and running convoys to the border posts. In addition to any direct economic impact through local purchases, the garrison is important to the Manali economy, since it maintains the access road at a much higher standard than would otherwise be anticipated, at no expense to the town. Holiday accommodation in Manali is therefore much more easily accessible for domestic tourists than would otherwise be the case.

Himachal Helicopter Skiing operates out of the Manali Holiday Inn only during the heliski season. Until 2002, Himachal used two helicopters, a Bell 407, which carries five passengers plus the guide and pilot, and an Aerospatiale Lama, which carries three passengers plus the guide and pilot. Three pilots and three mechanics are on site at any time during the operating season. In 2003, the Lama is to be replaced.

The helicopters are supplied by the helicopter charter operators Deccan and Helibernina, with Swiss pilots and mechanics. The helipads are on small terraces directly outside the guest accommodation at Manali and Patlikul. The helicopters are also used to ferry guests from the airport at Chandigarh at the beginning and end of a week's skiing, avoiding the need for a long and arduous bus journey.

Because of its small scale, isolation and remote location, heliskiing with HHS is relatively expensive, more so than in Canada or New Zealand. To maintain its clientele despite relatively high prices, HHS relies on the Himalayan terrain and climate, which produce an extremely light, dry powder snow. Blue skies and spectacular terrain are additional natural attractions.

Since Himachal Helicopter Skiing uses existing hotels rather than running its own backcountry lodges, it has relatively little control over environmental management practices associated with tourist accommodation. As with most heliski operations, HHS is careful not to leave any litter in operational areas, notably at lunch sites. Except when immediately above the base hotel at the beginning and end of the day, almost all the helicopter operations are in high montane areas above the timberline, where the impacts of rotor noise are less likely to be significant. The actual species present, their population sizes and their reaction to helicopter overflights, however, do not appear to have been examined.

The most significant social and environmental aspects of the HHS operations are through indirect contributions. Employment of hotel staff and suppliers in the off season has already been mentioned. In addition, each client is required to pay a heliski tax of US\$350 to the Himachal Pradesh state government, though this money is not necessarily earmarked for expenditure in the Manali–Patlikul area. HHS has sponsored a major clean-up of village litter in the area around the base hotel at Manali, and has assisted in the provision of a safe drinking-water supply. Most importantly, HHS has commenced negotiations with villages in high montane areas at the margins of their operational area in relation to conservation of endangered wildlife species. If these prove successful, HHS will have made a significant contribution to conservation of the natural environment.

## Overseas Adventure Travel, USA

To judge from its website (Overseas Adventure Travel (OAT), 2002) and an independent report (Honey, 1999), OAT does not claim to be an ecotour operator and cannot be described as one. It is included as a case study for two reasons. First, it is cited by Honey (1999) to illustrate the difficulties of applying small-scale ecotourism principles to a large-scale tour operation. Second, the tour operation was apparently taken over in the late 1980s by the Grand Circle Corporation, and the Grand Circle Foundation has provided over US\$7 million to community development and environmental and heritage conservation projects since 1992, mostly through small grants in the range of US\$5000 to US\$50,000 (OAT, 2002). It is not clear from the OAT website, however, whether OAT is a supporter of the Grand Circle Foundation. OAT itself currently appears to be a very broad worldwide tour operator and packager, and its website says nothing about environmental management.

According to the description by Honey (1999), OAT is one of the largest outbound nature tour operators in the USA. It started operations in 1975, running overland safaris in East Africa using large Bedford trucks and with no particular concern over environmental or social impacts. When Grand Circle Corporation took over the company, however, it apparently approached a much smaller ecotourism company in East Africa to redesign the African tours according to ecotourism principles. According to Honey (1999), the redesigned East African tour packages have been highly favoured by OAT's clients, and the company has been able to make significant financial contributions to a number of community and conservation projects. It has not, however, made use of small locally owned accommodation services and facilities, and Honey (1999) suggests that it is in fact generally difficult for large tour companies to provide the same benefits for local communities as small tour operators.

## Sport Hunting

Sport and trophy hunting is often described as an ethical paradox for ecotourism (Honey, 1999). On purely ethical grounds, the issue is far from straightforward. There are individual people who oppose killing any animal and eat only plants, even though almost all agriculture, subsistence or industrial, involves killing animals. There are people who will not eat meat but will still kill mosquitoes. There are people who eat only milk and blood and do not kill their cattle, but will readily kill predatory animals attacking their cows.

In some societies that have historically relied on subsistence hunting and fishing for food, killing or catching an animal for sport or trophy has traditionally been considered inconceivably disrespectful to the animals

concerned. Even in these societies, however, ethical dilemmas arise when traditional principles are applied in modern circumstances. One common example is the advent of modern weapons, such as high-powered rifles, in place of bows and arrows, boomerangs and spears, or hooks and harpoons. Equally, if such a subsistence society turns to large-scale industrial fishing to supply cash markets outside the community, is that still simply killing to eat or is it at least as disrespectful as recreational catch-and-release fishing?

From a tourism perspective, these ethical issues are significant because many ecotourists are selective consumers, in the sense that their personal purchasing decisions are influenced by their personal values and world-views. From an animal-welfare perspective, the critical issue is not death but cruelty, as, for example, when animals are kept captive in unhealthy and unhygienic conditions as a tourist display. From a conservation perspective, the critical issue is the effect on the survival of the species concerned. If sport hunting provides funding or a political incentive that improves the long-term likelihood of the species surviving, as compared with its chances without sport hunting, then the net effect of sport hunting is positive.

Note that this in itself is a relatively complex question. For example, if a species is valuable for trophy hunting, landowners may set aside hunting reserves that conserve its habitat. Similarly, revenues from trophy hunting can be used to reduce the number of animals killed by local residents, e.g. by providing patrols against poachers, providing employment for people who would otherwise kill bush meat or paying compensation to farmers whose crops are damaged or livestock killed by wildlife. Unlike natural predators, on the other hand, trophy hunters selectively target large, mature and healthy males and, unless these are lone bulls with no further genetic or behavioural influence on the population, hunting may therefore exert an abnormal selective pressure on the population genetics of the species concerned. For a threatened species surviving only in small populations, this effect may be significant for the species survival.

In tourism terms there are several further factors that become significant when sport hunting and wildlife watching, or hunting and photo safaris, they are potentially competing land uses in the same area. In the short term, hunting safaris typically pay a great deal more than photo safaris. Which pays more in the long term depends on the precise price differentials, frequency of tours and the effects of hunting on the populations of the species concerned, especially the number of potential trophy animals.

Secondly, animals subjected to hunting generally become shy and secretive and are not easily observed at close range by tourists. For game viewing and photo safaris, animals generally need to be habituated to the presence of people or vehicles. This typically takes years or decades, especially if the offspring of semi-habituated parents grow up in the presence of humans and hence become even more habituated. And, of course, if an area where animals are habituated to tourists is then opened to hunting, the animals will be very easily approached and may rapidly be

decimated in a way that can scarcely be described as sporting. An example of this is described below.

Finally, quite apart from the effects of hunting on the animals themselves, many ecotourists have philosophical objections to hunting, so it is difficult in practice to run sport-hunting and wildlife-viewing tours in the same area. Indeed, where a single company offers both hunting tours and photo tours, they are commonly operated under two different names with two different websites, since the markets are so distinct.

Sport and trophy hunting is clearly nature-based, albeit consumptive rather than contemplative. It can include a significant environmental education component, albeit used principally in attracting or stalking a quarry. While a hunter armed with a rifle need not approach their prey as closely as one armed only with a camera, the prey will generally be a lot more wary and harder to approach. Potentially at least, hunting tourism can contribute to wildlife conservation. Indeed, this was one of the major reasons behind the original establishment of the World Wildlife Fund, which subsequently became the World Wide Fund for Nature. There are also cases, however, where hunting tourism has been highly detrimental to species conservation. A few of these are summarized below, but there are probably very many more that remain unrecorded. Of course, this applies equally to all forms of tourism: cases with an overall net benefit for conservation are relatively rare.

The criterion where it seems most difficult for hunting and fishing to qualify as ecotourism is the criterion of minimal-impact management. Given a choice between watching and photographing an animal or stalking and shooting it, the latter can hardly be described as minimal-impact. Similar considerations apply for fishing. From an analytical perspective, it seems that consumptive wildlife tourism needs to be considered in a category of its own. This fits well with the realities of tourism and recreation markets, where hunting and fishing tours are packaged and promoted separately, and recreational hunters and fishers read specialist magazines and buy specialized equipment, quite distinct from those catering for the nature, eco- and adventure tourism sector.

Of course, the considerations above apply to native fish and wildlife. Where the trophy targets are feral animals that need to be controlled, and which were not released for hunting originally, then sport hunting may have a net positive environmental impact if the reduction in environmental degradation caused by removing feral animals is greater than the increase in environmental degradation caused by the hunters themselves. Examples might include hunting elk or wapiti in New Zealand or hunting feral pigs in tropical and outback Australia. The targets in the latter are generally boar rather than sow, and this is certainly how it is marketed. Wild boar are by no means defenceless, and boar hunting reputedly requires both skill and nerve. Personally, the only time I ever faced a wild boar at close combat range I was armed only with a pickaxe, and it is not an experience I would willingly repeat.



Even though wildlife tours based on hunting and fishing for native species should not, perhaps, be classified as ecotourism, they may well form a critical component of a tourism-based conservation strategy in particular regions. In southern Africa, Carlisle (2003) has argued cogently that the use of tourism as a tool in conservation of the so-called 'big five' and other large wildlife species would be ineffective without hunting safaris.

In Tanzania, there are around 500 hunting tourists per year, as compared with around 300,000 photographic tourists. Hunting safari operators claim that their clients leave less garbage, cause less damage to roads, harass fewer wild animals and deter poachers in remote and poorly patrolled reserves (Honey, 1999). On average, one hunter apparently brings in as much revenue as 100 photographic tourists. A typical 3-week hunting safari costs between US\$25,000 and US\$50,000. Between 1988 and 1993, the gross income from hunting safaris in Tanzania increased from US\$4.6 million to US\$13.9 million (Honey, 1999).

As noted above, there have been a number of incidents where poorly regulated hunting tours have had a severe negative effect on wildlife conservation. For example, Mowat (1963) reported a tour operator in Alaska who taxied a light plane repeatedly around a herd of caribou on a frozen lake, while his clients shot the entire herd so as to pick the best horns for trophies.

Two major incidents were reported from East Africa in the early 1990s and received widespread press coverage in 1993, under the heading 'Loliondogate'. According to Honey (1999), exclusive 10-year hunting rights for two particularly wildlife-rich permit blocks in the Loliondo area were issued to Brigadier Mohammed Abdulrahim, deputy defence minister of the United Arab Emirates. These licences were apparently issued at the direct instruction of the President of Tanzania, against strenuous objections from the country's Wildlife Division. The Brigadier and an entourage of 60 people arrived periodically and stayed for up to a month each time, in camps apparently operated by Abercrombie and Kent (Honey, 1999). Reports from Tanzanian government officials, local Maasai residents and other tour operators in the area indicate that the Brigadier's party shot wildlife indiscriminately and in large numbers, using a variety of weapons, including machine-guns, and including both endangered species such as cheetah and wild dog, and species protected from hunting, such as lion, leopard and gerenuk (Honey, 1999).

The second instance provides a dramatic illustration of differences between photo and hunting tourism. In 1994, the government of Tanzania issued hunting permits for a block of land immediately adjacent to the border with Amboseli National Park in Kenya. Previously, the area adjacent to the park had not been used for hunting, and wildlife had crossed the border freely between the park in Kenya and the adjacent area of Tanzania. Wildlife are the principal tourist attraction in Amboseli National Park, and the local Maasai receive US\$60,000 a year from ecotour operators to the park as compensation for not attacking wildlife even when they leave the



park. When the hunting concession was issued in 1994, five of the Amboseli bull elephants wandered across the border, where they were shot by two German Tanzanian hunters. Not surprisingly, the incident received considerable negative publicity internationally, including an article in *National Geographic*, and was described as ‘about as sporting as shooting your neighbour’s poodle’ (Honey, 1999).

Instances such as these provide a graphic demonstration of the conservation risks associated with sport hunting. It is difficult to imagine a photo safari or game-viewing operation causing a similar level of destruction, particularly in such a short time. Despite this, however, it appears that sport and trophy hunting can still be a very powerful tool in wildlife conservation, at least under the current political and economic circumstances in some countries. To draw a rather obvious parallel, the difference between hunting tourism and photo tourism is in some ways analogous to the difference between a hunting rifle and a camera. In the hands of someone who uses it routinely and is constantly aware of safe handling, the rifle is a reliable tool that is far more powerful than the camera. In the hands of anyone else, whether incompetent, negligent or malicious, it is a dangerous weapon, also far more powerful than the camera. But if you are facing armed poachers, the rifle is likely to be more effective. All these considerations apply equally to hunting tourism; and, indeed, it appears that at least in east and southern Africa and at least under current circumstances, hunting tourism is providing an important source of revenue for wildlife conservation.

### **Robin Hurt Hunting Safaris, Tanzania**

The Tanzanian government wildlife policy supports tourist hunting, which it describes as ‘an economically viable and sustainable use of wildlife that is consistent with the policy of high quality, yet low density tourism that can contribute significantly to the national economy’ (Tanzanian Ministry of Nature Resources and Tourism, 1998). According to Clarke (2001), there are currently 38 commercial hunting safari outfitters in Tanzania. Robin Hurt Safaris (RHS) is one of the largest of these, with ten full-time professional hunters. Each year, RHS runs between 40 and 60 commercial hunting safaris. Most of these are for one or two clients, with a total of 50–60 clients per year. Safaris can run for 7, 15, 16 or 21 days, each with a different quota set by the Tanzania Wildlife Division. Clients must pay government game fees, ranging from US\$15 per guinea-fowl, to US\$340 for a bushbuck, US\$2000 for a lion and US\$4000 for an elephant. These fees are divided between the Tanzania Wildlife Protection Fund, established under the Tanzania Wildlife Conservation Act in 1978, and general government revenue (Clarke, 2001).

In conjunction with a private donor, Mr Joseph Cullman 3rd, Robin Hurt Safaris (Tz) Ltd operates the Cullman and Hurt Community Wildlife Project (CHCWP), which provides substantial support for anti-poaching activities

and community development projects in and around operational areas for the safari company. The CHCWP receives funds from two principal sources. The first is from all clients of Robin Hurt Safaris (Tz) Ltd, who are charged Community Conservation Fees, calculated as an additional levy on top of mandatory government game fees and equal to 20% of those fees. The second source is through direct donations from a small number of individuals, through personal contacts with Mr Robin Hurt himself.

The CHCWP, which has been operating since 1989, aims to involve local communities in wildlife conservation through two principal mechanisms. By funding community development works, the CHCWP aims to demonstrate the economic and social welfare significance of protecting wildlife and wildlife habitat through the returns from commercial tourist hunting.

Secondly, by establishing anti-poaching patrols, paying former poachers and other villagers to take part in anti-poaching activities and paying rewards for successful anti-poaching operations, the CHCWP provides an immediate incentive for local communities to reduce poaching both by their own members and by others. The rewards paid are approximately as follows: up to US\$1.00 for each cable snare handed in for destruction; US\$6.00 for the discovery and destruction of a poachers' camp; US\$40 for each muzzle-loading gun handed over to the Tanzania Wildlife Department; US\$75 for each rifle or shotgun handed over; US\$25 for each arrest and successful conviction of a poacher; and US\$300 for each arrest and successful conviction of an elephant or rhino poacher (Robin Hurt Safaris (Tz) Ltd, 2001).

The CHCWP has been operating for over 10 years in one of the RHS hunting areas and 6 years in the other areas. From 1990 to 1994, an average of 3000 snares per year were recovered and destroyed; from 1995 to 1996, 1800 per year; and from 1997 to 1998, 1200 per year (Robin Hurt Safaris (Tz) Ltd, 2001). Direct individual donations have provided a total of 11 4WD vehicles: seven for Tanzanian Government Wildlife and Conservation Authorities, three for CHCWP anti-poaching patrols, and one for the CHCWP Director. Donations have also purchased a tractor, a mobile medical unit for a local hospital and funding for a leopard population survey. From 1991 to 2001, a total of US\$648,578 has been provided for village projects. Funds from the year 2000 total US\$61,395, distributed among 23 villages in 2001 (Robin Hurt Safaris (Tz) Ltd, 2001). In 2001, a total of US\$63,423 was collected, for distribution in 2002. According to Clarke (2001), total expenditure on village benefits for the 10-year period 1991–2000 averaged US\$58,718 per annum, used for a total of 119 projects. Of these 119 projects, 47 were for school facilities, 36 for drinking-water and 16 for health facilities.

According to Robin Hurt Safaris (Tz) Ltd (2001), overall expenditure from CHCWP in 2001 totalled US\$272,067. Of this, US\$61,395 was used for village development projects; US\$117,772 from donations was used for

the mobile medical unit, the leopard survey and associated projects; and the remainder, US\$92,900, was used for anti-poaching patrols.

There are three anti-poaching patrols, each consisting of a CHCWP field officer; four anti-poaching staff from local villages, paid by CHCWP; a vehicle driver, also paid by CHCWP; and a Tanzania Wildlife Division Game Assistant seconded by the local district Game Office, who has powers of arrest. Rewards are structured to encourage arrests and convictions and destruction of poaching equipment, and to minimize the risk of abuse of the reward system.

The evaluation by Clarke (2001) notes that the Tanzania Wildlife Division has far too few resources to carry out effective anti-poaching patrols and has been glad of the support provided by the CHCWP. It notes also that poaching in some areas is due not to long-term local residents, but to Hutu refugees from Burundi, living in large encampments near two of the hunting blocks allocated to RHS. These refugees apparently hunt mostly with muzzle loaders. In other hunting blocks, however, poaching is indeed due mostly to locals, using snares or bows and poison arrows.

According to the evaluation of the CHCWP by Clarke (2001), the Project has high recognition and enthusiastic support among local villages, and it would appear that the community development component of the project has been demonstrably successful. The anti-poaching field officers appear to be competent and effective (Clarke, 2001). A total of 418 patrol days were carried out by the three anti-poaching teams during 2001 (Robin Hurt Safaris (Tz) Ltd, 2001), with a total of 83 poaching incidents reported. According to Clarke (2001), the geographical distribution of patrol effort and poaching incidents has not been mapped, so it is not entirely clear whether the anti-poaching patrols are effective broadly or only in limited areas. In addition, there are apparently no quantitative records for trends in the populations of specific wildlife species, but only anecdotal accounts. Finally, as noted by Clarke (2001), the entire operation essentially depends on the personal skills and commitment of a single individual: the money may have come from his clients and friends, but, without Robin Hurt himself, it seems unlikely that the CHCWP would survive.

These caveats, however, are very minor in comparison with difficulties that have been identified with other community-based natural resource management programmes, including some of those listed in this book. On the basis of information summarized above, it would certainly appear that, whether or not sport hunting is considered as ecotourism, RHS has indeed been successful in involving local communities in wildlife conservation and has made significant financial contributions to anti-poaching efforts.

Even though the information summarized above derives from the company itself and from an evaluation which the company presumably commissioned internally, the statistics are sufficiently detailed and the results sufficiently tangible to be taken at face value. Of course, enlisting the support of local communities in conserving huntable game species and

operating anti-poaching patrols is of immediate commercial value to a company whose primary business is sport hunting. Similar considerations, however, also apply to any form of nature-based tourism, consumptive or non-consumptive. The motivations, perhaps, are less significant than the outcomes; and the latter speak for themselves.

### **\*Whalewatch Kaikoura, New Zealand**

Whalewatch Kaikoura has been widely acclaimed within tourism circles as an economically successful wildlife tourism product owned and operated by a local indigenous community. The company has received strong support from the New Zealand Tourism Board, and the town of Kaikoura has apparently applied for environmental certification as a Green Globe destination. Reports from some local residents in Kaikoura and my own field audits suggest that the company's economic success has not been achieved without social and environmental impacts, and whether the company meets the minimal-impact criterion for ecotourism is questionable.

Kaikoura is a small fishing town surrounded by farmland, on the north-east coast of New Zealand's South Island. Its rocky coastline supports a colony of New Zealand fur seal, *Arctocephalus forsteri*, which are highly habituated to human presence, easy to approach and have been known for several decades as an attraction for domestic tourists. A number of whale species have also been recorded close to the coast of Kaikoura. Most notably, it is one of the few places in the world with reliable sightings of sperm whales, which feed in an area of deep ocean not far from the coastline. In the early 1980s, a number of local boat owners began operating low-key tours to watch whales and sometimes to swim with dolphins. In 1987, a local Maori group established a wholly owned whale-watching operation, Whalewatch Kaikoura. In 1988, this company bought out the town's other whale-watching operators to become a monopoly. According to its website (Whalewatch Kaikoura, 2002), it is now the only whale-watching company in New Zealand.

A number of claims have been made about Whalewatch Kaikoura, some of which may well be correct, others apparently not. According to Asia-Pacific Economic Cooperation (APEC, 1997), prior to the establishment of Whalewatch Kaikoura, the town's Maori population suffered high unemployment, lack of education and drug problems. The implication is that the whale-watching operation has overcome or at least reduced these problems, and this may well be correct.

Concerns have been expressed by boat owners of European descent that Whalewatch Kaikoura may have had preferential access to finance, operating permits or both. We have not found any independent published source of information on these issues. Indeed, even if these concerns are correct, it is commonplace in many countries for indigenous interests to

receive preferential treatment as a matter of policy. Also, according to APEC (1997), start-up capital for the company, which owns a large boat, was provided from private savings, fund-raising efforts by the community and an NZ\$100,000 bank loan.

In the decade from 1987 to 1996, the number of recorded visitors to Kaikoura grew from 3400 to over 200,000, supporting the establishment of 30 new tourist accommodation businesses and 45 new tourism service businesses. Claims that this growth is due solely to the operation of Whalewatch Kaikoura (Whalewatch Kaikoura, 2002), however, are surely exaggerated. It would perhaps be more accurate to say that Kaikoura has become a routine destination on the New Zealand backpacker circuit. This is a market that has a strong internal positive-feedback mechanism, essentially a fashion component, and can hence expand or contract very rapidly. It certainly seems correct, however, that whale-watching is what Kaikoura is principally known for and, as noted above, Whalewatch Kaikoura apparently has a monopoly on large-scale tours.

During the same 10-year period, commercial land values apparently doubled and residential land values increased by 50%. Note that, over a decade, however, the latter at least is probably no more than would be anticipated from inflation alone, and perhaps less. Kaikoura is a small town with ample surrounding agricultural land potentially available for further development. The principal commercial area, however, is in a single street along the ocean front, and is indeed somewhat restricted.

According to APEC (1997) and Whalewatch Kaikoura (2002), the tours are used to conduct research into marine mammal behaviour and into the impact of the tours on the whales, though it is not clear who carries out this research and with what outcome. Similarly, the number of boats at whale sightings is controlled, but whether by the company or a government regulatory authority is not clear. According to Whalewatch Kaikoura (2002), the boats are powered by inboard diesel jet engines and the hulls are designed to minimize underwater noise.

It is also claimed that the marine animals are not disturbed. This last, however, does not seem to be entirely accurate (Gordon *et al.*, 1992). In addition to the boats, a local helicopter company (Scenic Flights, 2002) operates flights that hover over surfacing sperm whales at a relatively low altitude. The whales do remain on the surface for 10 minutes or so at a time while under helicopter surveillance, but since this is the minimum time required for them to replenish their oxygen supplies after a deep dive, this behaviour does not necessarily indicate that the whales are not disturbed. Indeed, anecdotal evidence suggests that, when helicopters are present, the whales do not remain on surface longer than the minimum time required by physiological necessity, and dive more steeply and more rapidly than is otherwise the case.

Overall, Whalewatch Kaikoura is certainly a nature-based operation, has apparently taken some measures to reduce impacts, does include an

interpretation programme, and may be contributing to research. It does also seem to have contributed significantly to the prosperity of the Maori people in the local community. It does not appear, however, that the company contributes directly to whale conservation in New Zealand waters, since this is a question of New Zealand government policy that was determined well before the company came into existence. In addition, it seems that the company's operations may have local social impacts associated with its monopoly on whale-watching tours and also environmental impacts on the whales themselves. Whether the latter are significant is not known.

### **Trail of the Great Bear, USA and Canada**

The Trail of the Great Bear (TGB) International Scenic Corridor is essentially a tourism marketing scheme that links grizzly-bear habitat and a wide range of tourist attractions along a scenic corridor from Yellowstone National Park in Montana, USA, to Jasper National Park in Alberta, Canada. It was established in 1985 by a non-profit association, the Trail of the Great Bear Society, and a private company, the TGB Ventures Company (TGB, 2002).

According to TGB (2002), the aims of the Trail are to: divert tourists from more to less heavily visited sites; educate visitors about cultural and environmental issues in the region; and create an economically successful and environmentally, socially and culturally sustainable tourism industry.

The TGB corridor incorporates eight national parks, including the Waterton–Glacier cross-border International Peace Park. Three of these parks, namely Waterton–Glacier, Jasper and Banff National Parks, are also World Heritage Areas. The Trail also incorporates a wide range of state parks, national forests, heritage sites and reserves, many with their own interpretative centres and guided tours. In addition to spectacular scenery, various points along the Trail provide the opportunity to see wildlife, such as bison, black bear, mountain goats, bighorn sheep and bald eagles, as well as grizzly bears. A wide range of mountain plants, some rare and endemic, can also be encountered.

The Trail is by no means entirely a nature trail, however. In addition to nature and wildlife tourism opportunities, promotional materials emphasize a wide range of adventure recreation activities, such as fishing, rafting, boating, skiing, cycling, trekking, sailing, canoeing and mountain climbing. It also advertises cultural and heritage experiences, such as old railways, mines, heritage centres, museums, cattle ranches, trail rides and rodeos. And, in its most blatant appeal to mass tourism, the Trail's website also promotes health retreats, golf-courses, restaurants and shopping centres.

Perhaps because it is so all-encompassing, the area within the TGB International Scenic Corridor apparently generates around US\$50 million in visitor spending each year (APEC, 1997; TGB, 2002). A small proportion of this total revenue is derived specifically from souvenirs based on the TGB

theme, and these funds are apparently used to support a grizzly-bear habitat study and a variety of grizzly-bear educational and interpretative materials. It is not entirely clear whether the principal aim of the project is to use the grizzly bear as an icon to promote tourism in the region or to use tourism to raise awareness about grizzly-bear conservation issues. If the latter, it would appear to be an innovative approach to reaching large-scale tourism within an entire region, notably including families on vacation and other domestic tourists.



## **SIGNIFICANCE AND CONTEXT**

### **Ecotourism and Sustainability**

The core concept of sustainable development is to reduce human impacts so that global ecosystems can continue to sustain human life and societies indefinitely. This requires unprecedented changes to human population, lifestyle and behaviour. The key practical issue is how to bring about such changes deliberately with minimal disruptions, so as to avoid the far greater disruptions if human consumption and contamination of natural resources continue unchecked.

Environmental science and management are central to sustainable development. Land-use patterns and planning, pollution control, corporate environmental management, biodiversity conservation and protected-area systems are all essential aspects. Tourism may be either a threat or a tool in improving global sustainability. It produces both social and environmental impacts, but it can also bring income to impoverished communities, improve global awareness of social and environmental problems and contribute both politically and financially to the establishment and survival of protected-area systems.

Ecotourism is a potential tool to improve sustainability by modifying human social behaviour in regard to environmental conservation. Tourism is also a large-scale activity in major components of global human society, with its own detrimental impacts on the natural environment; and ecotourism may be able to provide models to reduce these impacts.

## Scale and Leverage

Is big ecotourism possible and, if not, is small ecotourism important? By far the majority of human social, economic and political activity is driven by very large organizations, such as national governments, multilateral agencies, transnational corporations and international financial institutions, both public and private. Whether intentionally or inadvertently, actions by these large organizations influence the behaviour of every person worldwide, except the very few who live entirely self-contained subsistence lifestyles unreached by global communications and unconnected to global markets.

The impacts of individual people on the natural environment are influenced by a wide range of individual and local factors, but all of these may be overridden by larger-scale changes due to the actions of large organizations. Only in rare and relatively short-lived circumstances can an assemblage of numerous small individual organizations exert the same influence as a single large organization engaged in the same activities. Even if small ecotourism ventures can proliferate successfully worldwide, therefore, it seems unlikely that they can exert a major influence on global affairs and the sustainability of human societies unless they can either expand to large organizations themselves or otherwise exert a significant influence on large organizations, whether in tourism or other sectors.

No matter how successful an individual small ecotourism venture may be in local economic, social and environmental terms and no matter how many small ecotourism enterprises are established, their global significance is likely to be limited unless they change the direction of large organizations, public or private.

There are various potential mechanisms for this to happen. The most significant and immediate, at a global scale, is to reduce the risk of extinction of endangered plant or animal species by providing protected habitat. This can occur if the tourism industry: establishes private conservation reserves funded by tourism revenues; provides financial and political support for public conservation reserves; or triggers reallocation of public land from primary extractive industry to conservation and recreation.

It is often argued that ecotourism can also contribute to conservation of endangered species and ecosystems more indirectly by providing educational opportunities for clients. There are far too many people in the world for all of them to take ecotourism trips to see endangered species, however, and large sectors of the world's population are unable to afford any but the most local travel. This mechanism can only be effective, therefore, if ecotour clients have particularly powerful political and financial influence and are prepared to use it to change the behaviour of governments and large corporations. This is the rationale behind 'high-donor' ecotours run by large international environment groups – except that, in most cases, the clients are already concerned about conservation issues before they take

the tours. Whether a tour can lead wealthy and influential individuals to see nature as a resource to be conserved for public good rather than consumed for private profit is entirely unproved and remains highly problematic.

## **Economic, Social and Environmental Contexts**

Ecotourism is a specialized form of tourism, so it has a context in the global tourism industry. It also has broader commercial and social contexts. The case studies outlined here need to be considered within all of these contexts if any reliable conclusions are to be drawn.

Ecotourism is variously defined by different interests. Under all of these, however, it clearly lies within a broad product sector, which has been described either as nature, eco- and adventure tourism (NEAT) (Buckley, 2000a); as adventure, culture and ecotourism (ACE) (Fennell, 1999); or, most recently, as geotourism (Stueve *et al.*, 2002). Each of these is an abstraction, an attempt to identify a general type or grouping that is useful in describing the variety of individual tourism products. NEAT recognizes that ecotourism is part of an outdoor nature-based tourism sector and that many individual outdoor tourism products combine excitement-based activities, adventure tourism, with more contemplative activities, nature tourism. ACE recognizes that many such tourism products also incorporate cultural attractions and that the same individual tourists often travel in search of culture as well as nature and adventure. Geotourism recognizes that travellers of this type are attracted by features, either natural or cultural or both, which are specific to particular geographical areas, as opposed to travellers in search of an experience that is equally available in many different parts of the world.

In a tourism industry context, therefore, individual ecotourism operations are tourism products that compete for customers with other products in the NEAT, ACE or geotourism sector. Without paying clients, an ecotourism venture is not viable as tourism. Globally, these subsectors are growing, so the overall market prospects for ecotourism continue to improve. The differential growth in these markets seems to be due not only to increasing urbanization, but to a shift from individual private outdoor recreation to commercialized adventure tourism (Buckley, 1998, 2000a).

Many commercial ecotourism and other NEAT operations have close links and similarities to outdoor recreation by private individuals and non-profit organizations. Commercial ecotourism operators thus have a social context within public outdoor recreation. This is of considerable significance for issues such as: the availability and price of equipment; access to and cost of insurance; and management of visitors on public lands and waters, such as national parks, forests, rangelands, rivers and oceans.

Similarly, many commercial ecotours have a significant environmental education component, and hence have a broader context within

environmental education more generally. Globally, by far the major part of environmental education is in schools and universities. Even for visitors to public lands, environmental education is largely from publicly funded visitor centres, interpretative programmes, signage and rangers. Ecotourism, however, may potentially be significant either: (i) in teaching specific minimal-impact practices to otherwise unskilled visitors; (ii) in teaching such visitors to appreciate the significance of protected areas; or (iii) in imparting a degree of environmental awareness and concern to older clients who may not have received such education at school, but who may be influential either financially or politically.

Most definitions of ecotourism also incorporate minimal-impact environmental management, so ecotourism has a context within sustainable development more broadly. For example, successful ecotourism enterprises may act as models for improved environmental management in other tourism sectors, such as urban accommodation or transport. Similarly, broad improvements in energy-efficient building design or household appliances or in water-saving or waste-treatment technologies may be applicable in ecotourism.

Finally, one particularly significant component of ecotourism is a contribution, direct or indirect, to conservation of natural environments and their biodiversity. Ecotourism hence has a context within other human social measures intended to conserve plants and animals, air and water quality, and other components of the natural environment. By far the most powerful and far-reaching social instruments for conservation of the natural environment are international conventions, national and local laws and national and subnational environmental agencies set up to implement them. Relevant laws and frameworks include those covering: the establishment and management of protected areas; allocation and use of other public lands; development planning and land use on private lands; pollution control; biodiversity protection, and so on. Also relevant are laws and regulations which are not aimed primarily at environmental protection but which none the less may have an enormous influence on the natural environment. For example, these include: taxation, inheritance and investment laws; customs and quarantine laws; international trade and finance agreements; and forestry, farming, fishing, boating and building regulations, among others.

Where ecotourism can contribute to conservation, it does so in this broader context. For example, park regulations or building codes may set a base level for best practice in ecotour operator practice or ecolodge design. In more developed nations where regulations are relatively well established and enforced, the impacts of tourism in parks can be reduced more effectively through controls on access, equipment, activities, group size, etc., than by relying on the environmental goodwill of tour operators or to market demand for ecotourism. Indeed, even if most operators and their clients follow minimal-impact practices, it takes only a small proportion of less

concerned users to create a high level of impact overall. Similarly, changes in building codes, regulations for energy-efficient appliances or reductions in public subsidies for the cost of water, energy and waste disposal are likely to have far more widespread effects than relying on ecolodge design.

In Europe, North America or Australia, for example, these public-sector measures outweigh the effects of private-sector ecotourism developments. In developing nations, in comparison, environmental regulations are either lacking or ineffective because funds for enforcement are not available. Under these circumstances, ecotourism can make a particularly valuable contribution to conservation, either by providing funds for protected-area agencies or by providing economic and employment incentives for local communities and other landholders to conserve land, plants and wildlife as tourist attractions.

Even in developed nations, private-sector initiatives can still make a significant contribution in some instances. The prime example is the establishment of private conservation reserves funded at least partly through tourism. In some private farmland, tourism has catalysed a change in land use from high-intensity, high-impact, industrial farming to low-impact farming coupled with farm tourism. Industry initiatives may also be valuable for improving environmental performance for some dispersed tourism activities, where compliance with environmental regulations is low because surveillance is costly. Examples from the recreational boating industry, however (Byrnes and Warnken, 2001), indicate that such so-called self-regulation is rather ineffective. Similar conclusions have been drawn for other industry sectors (Gunningham and Grabowsky, 1999).

In developed nations where the protected-area estate is well established, ecotourism can make a highly significant contribution to conservation if it can successfully modify land use in public lands outside parks. In particular, if tourism can reduce unsustainable logging in public forests, unsustainable overgrazing in public rangelands or unsustainable overfishing in public lakes and oceans, then it can contribute to conservation. Such change may occur through political means if the tourism industry lobbies government bodies, or economic mechanisms if public land managers turn their hand to profitable tourism ventures or enter contractual agreements with private tourism entrepreneurs.

## **BOUNDARIES AND EXPECTATIONS**

### **Nature-based Product**

#### **Issues**

While there has been continuing debate over the significance of various criteria in distinguishing ecotourism from other forms of tourism (Weaver,

2000), one feature that appears to be common to all definitions is that ecotourism is necessarily a form of nature-based tourism. This appears straightforward, but, on closer examination, it is not entirely so. In particular, there would seem to be three potentially contentious issues in defining the exact scope of the term 'nature-based'. These are: (i) the degree of modification of the natural environment; (ii) the closeness of the link between the tourism activity and the natural environment; and (iii) the distinction between natural and cultural environment.

### **Modification to natural environments**

The first of these questions is, just how modified can nature be before it ceases to count as nature? Even the most remote wilderness areas have suffered some human impacts; even the most sterile inner-city apartment contains microorganisms as well as men and women. A golf-course is mostly grass, but a mixture of non-native species, fertilized and spiked and rolled and mowed so that it never sets seed, and treated with pesticides to the point where ducks that feed there may die. This is hardly nature, and any tour that includes golfing can hardly be described as nature-based. A large city park, however, even if surrounded by residential development and criss-crossed by paved tracks leading to restaurants and souvenir shops, may still contain relatively unmodified native vegetation between the tracks, and a representative if somewhat depauperate set of wildlife. Is a guided walk through such a park a nature-based tour?

Similarly, some national parks, though remote from residential area or industrial development, have visitor infrastructure and facilities so large-scale and intensive that they are, to all intents and purposes, a small town. Is a visitor to such a park, who stays in the heavily developed visitor facilities, a nature-based tourist? Or, if visitor facilities have developed to the point of so-called Disneyfication, does a visit to the park cease to be a nature-based experience?

As another example, should a visit to a zoo be considered nature-based tourism? Does it make any difference if it is an urban zoo, with animals in individual enclosures, or a rural one, where the animals are free to roam a large open area? Does it make any difference whether the animals are native or not for the country where the zoo is located? Does it make any difference if the visitors can enter an enclosure with the animals, as in some walk-in aviaries or fauna parks? What about a walk-in fauna enclosure which is itself inside a national park, but where the animals are confined in a relatively small space and at an unusually high density? What if tourists travel to a particular area specifically to search for a particular animal species in the wild, but the only individuals they see are captured and chained up by local entrepreneurs?

### **Links between tourism and nature**

The second question is, how closely must a particular tourism activity be linked to the natural environment for it to be considered based on nature? Does it require that nature itself, in the form of native plants or animals in their natural habitat, or relatively unmodified natural scenery, be the primary attraction for the tourist? Or is it enough that the tourist activity relies on some feature of the nature environment, such as steep hills, snow or sand dunes, or wind, waves or white water? Or does it still count if the tourist activity happens to take place in a natural setting, even though it is an activity that could equally well occur elsewhere, such as cooking and eating?

This issue is particularly relevant for many forms of outdoor recreation and adventure tourism, which rely on the physical features of the natural environment but are largely indifferent to its biological features. While a broad distinction may be drawn between contemplative and excitement-based activities, many tours incorporate both. Indeed, these two categories may apply to two different clients on the same tour, e.g. if one is at the limits of his/her technical ability for the activity concerned, while another is well within his/her technical capabilities and is paying more attention to scenery, plants and wildlife. For example, when we take our ecotourism students abseiling for the first time, even though they have spent several years studying environmental sciences, very few of them notice the orchids in flower near the rock face as they are descending!

Distinctions may also be drawn between activities with or without motorized equipment; between those with or without fixed infrastructure; and between those where motorized transport is used only to gain access to an area for a non-motorized activity and those where operation of a motorized vehicle is a primary component of the activity itself. For each of these, however, such large differences in scale can occur that the distinction is not always useful in practice. For example, a parking area and trail-head sign are fixed infrastructure, but so is a ski resort and associated residential development and service industries. And, in a heliski operation, is the helicopter just transporting skiers and snowboarders repeatedly to the top of various mountains so that they can ski or board down powered by gravity alone, or are the helicopter lifts part of the activity itself, which must therefore be treated as mechanized? And, if the latter, is a downhill mountain bike tour, with bikes and clients driven to the starting point in a four-wheel-drive vehicle or minibus, any different in principle?

From the perspective of tourist products, packaging and marketing, there is so much overlap between nature tourism and adventure tourism that for many purposes they can be considered as a single component of the tourism industry, which incorporates ecotourism to form a relatively integrated NEAT sector. From a land and park management perspective, the distinction between nature tourism and adventure tourism is equally difficult to draw, except perhaps case by case for individual tourism products. From



a regulatory or management perspective, therefore, it is generally less ambiguous to refer directly to the type of equipment or facilities involved.

### **Natural and cultural environments**

The third issue of definition is whether tourism based on culture or social environments should be considered in the same way, in examining the ecotourism sector, as tourism based on nature or natural environments. Historical definitions of ecotourism, from the first recorded use of the terms by Parks Canada in the 1960s (Fennell, 1998) to the oft-cited phrases coined by Ceballos-Lascurain in the 1980s and subsequently dissected or paraphrased in various publications and policies (Australia, Office for National Tourism, 1994; Buckley, 1994; Weaver, 2001), all refer explicitly to a nature-based product as a primary criterion for ecotourism.

In practice, however, many tourism products incorporate a mixture of cultural and natural attractions, leading Fennell (1998) to use the term ACE. Similarly, many of the published discussions of community ecotourism refer as much to cultural as to natural attractions.

Again, distinctions may be drawn in some parts of the world between indigenous or first-nations cultures and immigrant or European cultures. In most countries, however, the cultural mix is far more complex, for example throughout large areas of China, India, Brazil, Kenya and, indeed, most of Asia, Africa and South America. The degree to which various communities and cultures are involved in tourism, either intentionally or inadvertently, is often a contentious issue. This applies particularly to the degree to which they present themselves or are treated by tour operators as a tourist attraction, and the degree to which this modifies the authenticity of the culture concerned. These are important issues, but are not addressed here. For the purposes of this book it is enough to note that many of the tourism products that are described as ecotourism, either in their own promotional material or in academic publications or similar independent reports, are in fact as much culture-based as nature-based. Accordingly, a sample of such products are included in this collection of case studies.

It may also be worth noting that, for many traditional indigenous societies, the distinction between culture and nature is extremely blurred and may indeed be perceived purely as a Western construct. In many cultures, humans have no special status among other species, and human culture is not intrinsically distinct from the social frameworks of other species. Indeed, such views accord far more closely with Western scientific understanding of the planet, than do the more anthropocentric perspectives of Western politics, law or religions.

From a tourism perspective, if a Western guide teaches Western tourists the names and life histories of local plants and animals, the experience will be treated as nature-based rather than culture-based. If, instead, members of

the local indigenous people introduce the same Western tourists to their traditional names and understanding of the same plants and animals, is it still a nature-based tour or has it become a culture-based tour? And does it make any difference if the guide, in addition to describing the practical uses of the species concerned to provide food or drink, medicine or poison, tool or textile, also describes how, in their tradition, the ancestors of the plants and animals concerned were involved in the creation of the landscape or, indeed, each other?

## **Environmental Management**

How substantial an effort is required for tourism operations of various types before they are considered to meet this criterion for ecotourism? Case studies where steps have been taken to reduce environmental impacts are relatively commonplace, but the measures taken are often relatively minor. And, not surprisingly, different measures to reduce environmental impacts are available to different types of tourism products and operation, with a broad division between transport, accommodation, fixed-site facilities and infrastructure and specialist activities.

In particular, many of the measures taken by tour operators to reduce environmental impacts were in fact imposed by public-sector land management or regulatory agencies as a condition for development approval or an operating licence, even if they are subsequently featured in corporate promotional material as a commitment to the environment. Do such cases qualify as ecotourism? In other words, is it comparison with the rest of the industry that counts, or comparison with legally mandated minimum standards? And, since the latter differ between countries and subsidiary states, does this mean that this criterion for ecotourism should vary correspondingly?

Simple measures to save water and energy are now quite commonplace in tourist accommodation, because they also save money. Measures that involve significant forethought and capital investment during design and construction, however, are considerably less common. In addition, there is an enormous difference between options available in more benign climates, where a wooden cabin with no use of energy for heating or cooling can easily provide adequate comfort for its inhabitants, and those in more extreme polar, montane, tropical or desert climates, where temperature regulation without high energy consumption is much more difficult and expensive.

Options available also depend heavily on access or otherwise to municipal facilities, such as reticulated power, water and sewerage and a centralized recycling facility. If such municipal utilities are available nearby and the link can be made with little impact on conservation values along the connection corridor, then a marginal increase in demand for large-scale

power plants, water supply systems or sewage-treatment works may well be the lower-impact option available.

Many ecotours, however, operate in relatively remote areas, where accommodation must be completely self-contained or where a corridor connecting to centralized facilities would have major environmental impacts. In such cases there are various options for on-site sewage treatment, ranging from septic tanks to fully self-contained integrated digestion units; various options for water supply, generally local dams or bores; and various options for energy supply, ranging from diesel generators to solar, wind and micro-hydro plants. Even where the only realistic option is a diesel generator, as in many cases, various measures are available to reduce environmental impacts and risks through sound-deadening enclosures and muffler systems, bunding around fuel-storage tanks, etc.

The environmental impacts of large-scale fixed-site tourist facilities depend on the type, scale and location of the facilities concerned, and differ widely in consequence. At the broadest scale, transport and communications infrastructure, such as airports and railway lines, is generally not specific to tourism. Many tourism developments in rural and relatively natural areas, however, incorporate medium-scale engineering, construction and landscaping components, such as lookouts and cableways, jetties and marinas, spas and shops, golf-courses and residential developments.

The degree to which such developments may be considered sustainable depends on their particular circumstances and characteristics and is commonly debatable. Very rarely, however, will they comply with broadly recognized criteria for ecotourism, though there are one or two which, perhaps surprisingly, have received ecotourism accreditation or even awards. This, however, may reflect political as much as physical circumstances. A tourist cableway that helps convert an area of forest from logging to tourism as primary land use, for example, is very different from a tourist cableway that cuts through the middle of an existing national park (Buckley, 2000b).

Even though large-scale tourist facilities and infrastructure are rarely considered as ecotourism in their own right, however, many ecotourism operations make use of such facilities as part of their logistic arrangements. As one example, many diving tours rely on large commercial marinas for boat maintenance, refuelling, pumping out bilges and toilet holding tanks, and even for passenger boarding. Environmental management of all these facilities by the marina hence affects the overall environmental management of the ecotour. Similar considerations may apply to some degree to, for example, a back-country ski camping tour that starts and ends at a ski resort. In that case, however, the resort may provide merely a convenient roadhead meeting point, whereas for large-scale boat tours, such as many of those on Australia's Great Barrier Reef, dockside facilities are an essential component of the practical operations.

For most ecotours, particularly those which involve extended outdoor activities in remote areas, transport to and from the starting-point is

effectively just a marginal addition to global air and road transport and one where neither the tour operator nor the individual tourists have many realistic options for reducing environmental impacts except when the tour clients are either in their own personal vehicles or in vehicles owned by the operator. During those phases, options to reduce environmental impacts include: choice of vehicle, fuel type, maintenance, noise- and emission-control measures, cleaning and quarantine against transporting weeds and pathogens, and so on.

For most NEAT activities, however, the most critical environmental management issue is to minimize impacts in operating areas of high conservation value, including national parks and other conservation reserves and wilderness areas.

Unlike many sectors of the mainstream tourism industry, many leading specialist outdoor tour operators have been developing and using minimal-impact practices for many decades and working closely with recreation ecologists to determine best practice. Indeed, in some cases, these operators have established environmental management practices that have later been adopted in park regulations. Of course, this is by no means universal and, as the NEAT sector has grown, many new or existing mainstream tourism operators have set up copycat tours with little concern for environmental issues. Such undercutting of environmental standards seems to be one of the principal reasons why long-established tour operators in many protected areas have lobbied for accreditation systems. This is not the only reason for such lobbying, however, and attempts to establish preferential access rights may be equally important (Buckley, 2001a).

Minimal-impact practices established in the outdoor recreation sector have been codified in the form of various environmental guidelines, often of interest to individual park visitors as well as eco- and adventure tour operators. By far the best-known and most widely used of these are the Leave-No-Trace® guides, developed initially by the National Outdoor Leadership School in the USA and subsequently disseminated through LNT Inc., a corporation formed specifically for that purpose.

A number of similar codes, adapted to local activities and environments, have been produced in other countries, such as Australia and South Africa. In Australia, for example, these include minimal-impact codes for individual visitors in the Australian Alps, compiled by the Australian Alps National Parks; codes incorporated in client briefing notes by individual companies; and guidelines designed specifically for tour operators, such as the *Green Guides* series (Buckley, 2002b). Where there are different codes and guidelines for the same activity in similar environments, their specific environmental management provisions tends to be highly comparable (Buckley, 2002b).

In addition, in well-established activities requiring specialist guiding skills, such as scuba-diving or white-water rafting, environmental management practices and technologies have effectively become internationalized

through the migration of individual guides between countries and continents and, in some cases, also through international guide certification systems, such as that established by the Professional Association of Diving Instructors (PADI). The same applies to a degree for game-viewing, wildlife-watching and similar nature tours, but with greater regional differences reflecting the different ecosystems and animal species in each. Perhaps the best-known certification system for game-viewing guides is that established by the Field Guides Association of South Africa (FGASA, 2002).

Note that each of the individual guide certification programmes mentioned above were established principally for safety reasons, but like any professional organization, they also provide a channel for information exchange on other aspects of guiding, including environmental management practices and technologies. Just as an individual guide might draw a tour company's attention to the availability of new dive computers or draw another guide's attention to inadequate safety procedures, they may equally mention the availability of new stainless-steel portable toilet units or inadequate environmental management procedures.

### **Example: minimal-impact wildlife watching**

Watching wildlife is a major attraction for ecotourists worldwide, and various techniques have been adopted to improve the view without endangering either the tourists or the wildlife. These vary greatly in sophistication and in the degree of impact on the animal species and populations concerned. In a number of developing nations, for example, it is not uncommon for visitors to be shown individual animals caged or tethered specifically for the tourist trade. Such treatment clearly does not qualify as ecotourism.

The situation is less clear where animals are kept as well-treated household pets, especially if the individual concerned has been raised as a pet from infancy; or if they are living in a local dwelling as commensals, e.g. rat-catching pythons; or if they are part of a free-ranging population, attracted to a viewing site by food, water and other human factors.

Cases where wildlife are routinely fed as a tourist attraction, for example, include Komodo dragons on Komodo Island in Indonesia; dolphins on Tangalooma Island in Australia; parrots at O'Reilly's Guesthouse in Australia; and many others. Sometimes tourists themselves feed the animals concerned; sometimes tour guides feed them in front of the tourists, as in the jumping-crocodile boat tours in Australia's Northern Territory; and sometimes tour operators feed the animals surreptitiously, so that tourists do not appreciate that their behaviour is being manipulated.

In daily tour-boat cruises on the Gordon River in Tasmania, Australia, for example, one of the highlights is a landing where guests can walk around an interpretative wooden walkway in a riverside forest reserve at the tour boat's turn-round point. Tourists routinely see a number of small forest

wallabies at this site, hopping unconcernedly through the undergrowth and nibbling on small pieces of greenery. What the tourists do not see is that a member of the tour company staff leaves the boat first, before the gate to the main gangplank is opened, and scatters food for the wallabies; and, since this happens every day, the wallabies congregate at the site about 10 minutes before the boat arrives, rather than being dispersed and hidden in the forest as would normally be the case. Indeed, it was purely fortuitous that I myself was able to observe this effect, since I was camped overnight on the wooden walkway at the end of a kayak trip down the Franklin River.

In addition to sites where animals are fed, there are a small number of relatively well-known instances where individual animals, principally dolphins, routinely follow particular boats or swim in to particular beaches. A famous example of the latter is at Monkey Mia in Western Australia, where for many years a pod of free-living dolphins has been swimming into the shallows among wading tourists.

In the instances outlined above, the behaviour of the animals is modified to some degree, which may or may not be detrimental, by the presence of tourists. For most wildlife ecotours, however, a more common approach is to habituate the animals gradually to the presence of humans, so that tourists can watch the animals engaged in their usual activities and the animals largely ignore the tourists. Well-known examples include many public and private game reserves in eastern and southern Africa, where a wide range of large and potentially dangerous wildlife species will now allow tourists to approach quite closely, in some cases on foot and in other cases in open-topped safari vehicles, as long as the humans remain quiet and still, do not appear either frightened or threatening and maintain a safe minimum distance. Each of these requirements differs in detail with the species, population or individual animals concerned, and expert naturalist tour guides are generally needed to instruct and control guests in appropriate behaviours, and interpret the behaviour of the animals to ensure that they are neither disturbed nor dangerous. Examples include the mountain gorillas of Uganda and Rwanda, and the so-called 'big five' and other species in the savannah landscapes of Kenya, Tanzania, Zambia, Zimbabwe, Botswana, Namibia and South Africa.

There are also many cases where tourists approach wildlife quite closely and the animals concerned do not flee or attack, but do suffer either behavioural or physiological disturbance. For example, they may stop feeding and watch the intruders, with elevated heart rate and adrenaline levels. Repeated disturbance of this type can interfere seriously with the breeding and survival of the populations concerned (Liddle, 1997; Lilieholm and Romney, 2000; Buckley, 2001b).

In particular, animals with young offspring may hold their ground even when suffering considerable stress from approaching humans. Nesting boobies in the Galapagos Islands, nesting albatross in subantarctic islands and nesting penguins in the Antarctic provide well-documented examples,



but there are also many instances involving mammals. For example, I have seen a safari vehicle inadvertently approach very close to a hidden lioness, which was clearly ready to attack or run except that her 5-day-old cubs, still with their eyes shut, were suckling at the time.

It is not only the care of offspring which may prevent an animal from escaping tourist disturbance. Off the town of Kaikoura in New Zealand, for example, a number of tour operators take visitors by boat or helicopter to see sperm whales as they surface from feeding dives in very deep water relatively close to shore. After each dive, the whales must rest at the surface for at least 10 to 15 min to replenish their oxygen supplies, and during these breathing periods they are unlikely to dive unless in immediately physical danger. Both boats and helicopters take advantage of this by approaching them quite closely while they are at the surface. Whether the sperm whales suffer stress from such disturbance remains unknown, but studies from elsewhere and anecdotal evidence at Kaikoura suggest that they submerge sooner when they are approached closely.

Rather than restraining, attracting or habituating wildlife or taking advantage of natural constraints on their ability to run away, perhaps the lowest-impact way for tourists to watch wildlife is to do so without the animals being aware of the tourists' presence. While in some cases this can be achieved by careful stalking, generally with an expert naturalist guide, more commonly it involves hides, remote cameras or similar devices. For example, hides are routinely used worldwide to watch birds, particularly feeding birds on lakeshores. Hides are also used to watch wildlife in forest areas, e.g. historically to watch tigers in India, and a wide range of other uncommon species, such as platypus in Australia. They range in sophistication from simple wooden or hessian walls or three-sided enclosures with viewing holes, to elaborately concealed earth-covered structures accessed through underground tunnels.

Remote cameras are a much more recent innovation, but are becoming increasingly widespread with the ready availability of small, high-quality, digital video and the opportunity to transmit video images over the internet, so they can be used for advertising as well as on-site interpretation. A number of dive tour operators on Australia's Great Barrier Reef, for example, have a skilled naturalist diver with an underwater video camera transmitting directly to a screen in a nearby visitors' centre, e.g. on a pontoon structure, with a two-way audio link for tourists to speak to the diver and hence indirectly control the camera. Several of the private game reserves in southern Africa have mobile vehicles equipped with high-quality video cameras, which drive to the more spectacular animal sightings of the day and transmit video images directly through the company's website – though generally not back to the lodge itself, since the whole point of the tour product is that the guests are themselves out on game-viewing drives in similar safari vehicles.

There are also one or two examples where cameras have been installed to allow tourists to observe animal behaviour inside caves or burrows,



which are either dark or inaccessible and where any attempt to view the wildlife in person would cause major disturbance. One example is the Naracoorte bat caves in South Australia.

## Environmental Education

An environmental interpretation programme is an almost ubiquitous component of tourism products advertised as ecotourism. For most commercial tours, this component is provided by a tour guide, whose knowledge and communication skills hence become critical to the role of ecotourism in environmental education. From a tour operator's business management perspective, the company provides a leader or guide for every group in any case, and it generally costs no more to use a guide who also provides relatively basic information on natural history and minimal-impact behaviour. And, since a good guide is one of the main factors in keeping clients happy and bringing them back for more, providing environmental interpretation for clients who have signed up for a nature-based tour makes sound commercial sense.

Different tour clients want different levels of detail in environmental interpretation programmes. A group that has paid a premium price for a specialist birdwatching or wild-flower tour, for example, will expect a guide who can readily identify the species they see, search effectively for species they want to see and describe their habits, habitats, life histories and interactions. A non-specialist group that is more interested in the adventure aspects of a tour, in contrast, may well be receptive to broad environmental information and occasional more detailed anecdotes, but probably not to a barrage of scientific detail. In addition, in any given group, there are likely to be some individual clients who are just along for the ride, even on a specialist ecotour, and some with a high level of technical knowledge and interest, even on a very general tour. A guide must therefore be able to provide the different levels of interpretation to suit those different clients.

A relatively small proportion of ecotour companies hire guides with specialist tertiary training in relevant areas of environmental science. Often these are specialist companies that were started by environmental scientists who have turned their hand to ecotourism.

For ecotourism operations run by protected-area agencies and other land managers, environmental information and interpretation may be provided either by rangers and other parks staff, by volunteer guides or through interpretative signs. Programmes led by rangers are often particularly well received by visitors, but are also often one of the first activities to be abandoned when protected-area management agencies face funding shortfalls. While some agencies charge a fee for ranger-guided programmes, these rarely cover the full cost of operating the programmes. In addition, in some areas, commercial tour operators object to park agencies running their

own interpretative programmes, since they perceive this as competition for their businesses. Given that the tours enjoy access to and use of publicly funded parks, visitor facilities and interpretative materials, such as signs and leaflets, such complaints are somewhat laughable, but appear to be politically effective none the less.

Considerable research has been carried out recently on the effectiveness of different types of interpretative signage in communicating information to visitors, whether it be information about safety or information about the environment. Broadly, it appears that simple text, simple language and cartoon illustrations work well (Moscardo, 1998). In addition to signs and guides, some ecotourism products have developed innovative means of providing environmental education and interpretation. For example, as described earlier, a number of wildlife-watching tours now use digital video cameras to let tourists see animals without disturbing them, in inaccessible areas, at night using infrared or underwater using a camera operated by a diver.

## **Contributions to Conservation**

Opinions differ as to whether tourism operations must necessarily include a contribution to conservation to be considered as ecotourism. More than any other, however, it is this factor that justifies the particular attention paid to the ecotourism sector. Unless they can generate significant benefits for conservation, as well as for staff and their shareholders and suppliers, ecotourism is effectively just a specialist tourism sector that merits no particular privileges or consideration outside the commercial market-place. But what kind of contribution can ecotourism make, how can it be measured and how significant need it be?

There are a number of potential mechanisms by which tourism could contribute to conservation (Buckley, 1998, 2000a). By far the most significant of these is reallocation and, in some cases, rehabilitation of land and water from higher-impact uses, such as agriculture, forestry and fisheries, to lower-impact tourism and conservation. This may occur either by direct private purchase or community ownership of the land concerned; by leasing public or community land; through tourism development by public land-management agencies or private landholders outside protected areas; or by successful tourism-industry lobbying for government to change land tenure from primary industries to conservation and recreation. Examples of all of these are outlined in this book.

A second major mechanism is through direct contributions, either in cash or in kind, to conservation organizations, conservation agencies and other conservation efforts. Much of the North American not-for-profit market, for example, involves tours set up specifically with this aim in mind. Elsewhere, ecotour operators and their clients sometimes make quite

significant donations to environmental non-governmental organizations (NGOs), community development funds, developing-country parks agencies and environmental research projects: e.g. through cash contributions, construction of schools and clinics, provision of parks vehicles and equipment, or sponsoring transport and accommodation. Again, examples of all of the above are given in this book.

A third major potential mechanism, often referred to but still unproved, is that ecotourism experiences could potentially change post-tour behaviour by individual clients, perhaps leading them to take a greater interest in conservation issues, to change their own individual lifestyles and purchasing patterns or even to change their political convictions and voting preferences. As noted above, there are indeed examples where ecotourism clients have made significant post-tour donations to community development and conservation efforts. There seems to be no general evidence, however, that taking part in a commercial ecotour necessarily has any lasting effect on individual behaviour. Rather, it seems that it is people who are already concerned about conservation issues that purchase ecotourism products.

A fourth potential mechanism is that ecotourism operations could provide a so-called technology test bed (Buckley, 1998) where new and initially more expensive environmentally friendly technologies could find an initial commercial market, with wider adoption subsequently. There do indeed seem to be one or two examples where this has happened, but it does not seem to be a widespread phenomenon.

Case studies outlined in this book indicate that all of these mechanisms can indeed operate. With one or two notable exceptions, however, such contributions are relatively small-scale, sometimes as low as tenths of 1% of annual turnover. If we are assessing whether or not a particular ecotourism enterprise makes a contribution to conservation, then the size or scale of that contribution, relative to the scale of the enterprise, is also a significant consideration.

## CONCLUSIONS

### **Ecotourism Can Contribute to Conservation and Communities**

Ecotourism can work: i.e. there are successful ecotourism ventures which do fulfil all the basic criteria of a nature-based product, minimal-impact management, an informative and influential environmental interpretation programme and a significant contribution to conservation of the natural environment. Tour operations and products that fulfil all these conditions, however, are relatively rare.

Ecotourism can make a net positive contribution to global conservation. There are private enterprises in various parts of the world that have

established private conservation reserves funded through tourism and where, as far as can be judged, the conservation benefits greatly outweigh the tourism impacts. Such significant benefits are most common in areas and countries where, in the absence of tourism, the reserved land would otherwise be used for agriculture or other primary industries. There are also private and community enterprises which, without establishing privately held reserves, have successfully used tourism to improve the conservation prospects of endangered animal or occasionally plant species, either by reducing hunting, poaching, trapping and collecting or by changing land-management practices so as to expand or improve habitat available for the species concerned.

### **In Developed Nations, Ecotourism in Parks is Politically Charged**

Tourism and recreation are increasingly important factors in the establishment, management and funding of public protected areas in many parts of the world, but the processes and mechanisms can be highly complex and produce very variable outcomes, differing between individual parks, between different land tenures and between countries.

In most developed nations, by far the majority of visitors to protected areas are there for individual private recreation. Their activities are managed and any fees collected directly by the protected-area agency. In these countries, while commercial tour operations are licensed separately, they commonly undertake very similar activities to private recreational groups, pay very similar fees, are subject to very similar restrictions and typically make up only a small proportion of the total number of visitors.

In these countries, establishing legislation for parks often provides that they are intended for public recreation as well as for conservation. Recreation has hence contributed politically to the establishment of conservation reserves and, in some cases, recreation fees also offset the additional management costs associated with increasing visitor numbers. Equally, however, managing visitors and their impacts represents one of the major costs for protected-area agencies, in environmental as well as economic terms. How these two factors weigh up against each other is effectively impossible to quantify in practice, since this would require a quantitative understanding of factors influencing political decisions past, present and future, which is not realistically possible.

It can probably be concluded with reasonable reliability that small-scale commercial tours in these areas, as long as they behave in similar ways to private recreation and do not constitute more than a small proportion of the total, effectively act only as a proportional contribution to overall recreational use. There are, however, a growing number of protected areas where significant conflicts have arisen between commercial tourism entrepreneurs,

private recreation groups and protected-area management agencies. For example, tourism entrepreneurs have sometimes been granted or are currently seeking permission for large-scale infrastructure development within protected areas, for exclusive or preferential rights, for differentially low fees or otherwise to be treated differently from individuals engaged in private recreation.

The net effects of each such arrangement depend on the returns which the protected-area agency may receive in compensation, and the degree to which they can pass these on to private recreational visitors and their own conservation work. Notionally, it should be possible to establish partnerships that take advantage of the entrepreneurial and business management skills of private tour operators to generate financial revenues, which could then be used to offset shortfalls in public funding either within individual parks or other public lands or across entire protected-area or public-land systems. In a few cases, this may actually happen. In many other cases, however, whether for historical reasons or because of present-day political manoeuvring, private entrepreneurs have been able to gain exclusive or preferential rights in public protected areas, that have enabled them to reap considerable commercial profits at the expense of the general public and the natural environment. This is the so-called Trojan Horse mechanism, under which high-volume, high-impact tourism development can enter protected areas under the guise of low-volume, low-impact ecotourism.

### **A Strong Conservation Framework is Needed in Developing Nations**

Many of the considerations outlined above for developed nations also apply for parks in developing nations. In the latter, however, there are also many so-called paper parks, areas that are protected only in name and not in practice and which are relatively inaccessible to independent travellers. In such cases, organized commercial tourism may make a significant contribution to practical conservation for the areas concerned, but only if an established conservation framework is already in place before commercial tourism begins to grow. In other words, the park must be there at least on paper, before tourism growth goes too far. A number of the case studies examined in this book indicate that the unregulated growth of tourism in protected areas and rural communities in developing nations can cause substantial environmental and social impacts, with no guarantee of improved quality of life for local residents.

Other case studies examined here, however, indicate that, if such an effective conservation framework is in place, commercial tourism can indeed contribute significantly both to the conservation of endangered species and natural environments and to the wealth and well-being of relatively impoverished rural communities. Such instances, however, seem to be on a

relatively small scale to date. Most have taken a considerable number of years to become established and bring identifiable benefits. Commonly, it seems that they need a determined, patient and often visionary champion to keep them operating until they can establish a self-sustaining organizational structure.

Even then, if such ecotourism endeavours prove commercially successful, they may often be vulnerable to price-cutting copycat competitors unless they have previously established some form of monopoly mechanism, such as an exclusive access agreement with landholders in the area concerned. Such agreements, however, are by no means a panacea, since there are also examples in both developed and developing nations where landholders have granted long-term exclusive or preferential access rights to commercial tourism enterprises, which have proved highly disadvantageous for the landholders at a later date.

### **International Oversight Helps Maintain Standards**

The likelihood that a nature-based tour in a developing nation will contribute to conservation, minimize impacts and otherwise qualify as an ecotour seems to be strongly linked to ownership of the tour operation. Broadly speaking, this may be considered in three main categories: foreign or international ownership; local community ownership; and ownership by entrepreneurs who are nationals of the developing nation concerned. The distinction is not clear-cut, since most international tours will subcontract domestic companies to provide services in country, and even if guides and on-site accommodation are ultimately provided by a community-based organization, bookings and domestic transport are most likely to be organized by agents and large domestic tour operators in an international gateway city.

A tour sold under the brand of a well-known international operator, however, is likely to be accompanied by at least one guide working directly for the brand company, and commonly from the same country as the majority of the tour group, or at least fluent in their language. The group may also be accompanied at times by staff of domestic tour companies or by local guides for particular activities, but the international guide remains with the group to supervise logistics and provide coherent interpretation at a broad level.

In a domestically branded tour, in contrast, even if marketed internationally, the principal guides are likely to be citizens of the country concerned, though not necessarily from the areas being visited. As a broad generalization, a number of authors seem to have observed that domestic guides do not always have the same level of knowledge or concern over environmental issues as their international counterparts, partly because of differences in training and partly because of differences in the cultural

milieu and social priorities in the countries concerned. Of course, this is not always the case and, in particular, local guides from community-based tourism products are likely to have a high level of knowledge of and interest in current social issues in the community concerned. This does not, however, necessarily extend to environmental issues.

## **Ecotourism Signatures Differ Between Regions**

The way that ecotourism enterprises operate and their goals and achievements commonly differ between different regions of the world. They are also affected by many other factors, including who owns the land or water where they operate and who owns the enterprise itself. Broadly, four categories of land tenure may usefully be differentiated: public land allocated for protection, e.g. national parks; public land allocated for production or multiple use, e.g. forests and rangeland; community-owned land; and privately owned land. Each of these may include watercourses and water bodies on the land concerned. The ocean forms a fifth category. These are broad categories only, but are useful for classifying case studies in ecotourism. Similarly, ecotourism enterprises may be owned publicly, privately or communally or by non-profit associations, including NGOs.

Some combinations of land tenure and enterprise ownership are much more prevalent than others, and the patterns differ between countries and regions. Indeed, the relative proportions of each combination could be used to define a type of 'ecotourism signature' for individual areas. Table 9.1 summarizes current patterns, at the broadest level, in developed and developing nations.

Different ecotourism signatures can also be identified for different continents. The set of case studies presented here is neither complete nor a statistically random sample, so these signatures are not statistically demonstrable patterns or groupings. They are simply an indication of the types of ecotourism that seem to have flourished, often for historical reasons, in different geographical regions. In North America there is a long tradition of outfitters and lodges; and more recently there are many outbound ecotour operators that take American and Canadian clients to well-known nature destinations elsewhere in the world. The USA, in particular, also has a large not-for-profit sector and large conservation organizations that have bought property and embraced tourism. In eastern Europe and Russia, there seem to be a number of large, integrated, development-aid projects that incorporate an ecotourism component. In sub-Saharan Africa, the classic models are game-viewing safaris and private conservation reserves and game lodges. In Central and South America, there are both privately and communally owned ventures. In the Arctic and Antarctic, not surprisingly, the typical ecotour is an expedition cruise with Zodiac landings. And, in Australia, there are numerous products listed under a domestic ecocertification scheme, though



**Table 9.1.** Ecotourism land tenure and enterprise ownership.

Land tenure		Enterprise ownership							
		Public		NFP/NGO		Community		Private	
Public, protection	Type	Visitor management in national parks and other protected areas		NFP, NGO and school trips in public parks		Community ventures in national parks, principally in developing nations		Commercial tour operations, outfitters and concessionaires in parks	
	Scale	●	○	○	—	—	*	*†	*
Public, production	Type	Visitor management in public forests, etc. – e.g. US Forest Service wilderness areas		NFP, NGO and school trips in public forests, rangelands, etc.		E.g. First-Nations tourism in Arctic Canada, Alaska; community tourism in Central and South America		E.g. ski resorts in USFS lands, safari concessions in sub-Saharan Africa	
	Scale	○	○	—	—	*	*	*	*
Community	Type	Visitors in parks leased from traditional owners, e.g. in Australia		NGO-sponsored tours and joint enterprises on communal lands		Community enterprises on communal lands: e.g. in Central and South America		Commercial outfitters on communal land, e.g. Arctic	
	Scale	—	—	—	*	—	○	*	—
Private	Type	Parks occasionally lease private land for public facilities		Some NGOs own land privately and operate ecotours		Rare		Most ecolodges and some ecotours are on private land	
	Scale	—	—	—	—			●	●
Ocean	Type	Recreational boating on territorial waters and high seas		Educational 'tall ships' voyages, NFP marine tours		Rare		Commercial boat tours and charters	
	Scale	●	○	—	—			●	—

Type: broad descriptions of typical activities in this category, shown for more common combinations only. Scale (developed nations on left, developing on right): ●, large and well-established; ○, large but smaller than ●, often varies considerably between individual nations; \*, growing; †, controversial; —, rare. NFP, not-for-profit; USFS, US Forestry Service.

few of these contribute to conservation on the scale of the best African and South American examples.

## Big Ecotourism is Possible but Currently Rare

Can ecotourism enterprises expand their economic scale without losing the features that established them as ecotourism? In principle, certainly: there is

nothing scale-dependent about a nature-based product, minimal-impact management, environmental education or contributions to conservation. In practice, however, big ecotourism seems rare. Is this just because ecotourism is young and has not yet grown, or are there other factors? To address this question we can look at large-scale case studies and ask, first, are they still ecotourism and, secondly, how did they grow? There seem to be two successful models for the commercial growth of ecotourism enterprises and in practice each commonly seems to involve some dilution of ecotourism principles.

In one model, the business relies on a single tourist activity which has both expensive: infrastructure for equipment requirements, so that *per capita* expenditure is high; and a mass attraction, so the volume of tourists is also high. Some of the reef and beach resorts in places such as Australia and the Maldives are marketed as ecotourism destinations, and some have indeed taken steps to reduce environmental impacts, e.g. by improving sewage-treatment systems. But commonly, these measures are either required by pollution-control legislation in the country concerned; or are imposed as a condition of development approval; or are needed to avoid fouling the immediate surroundings of the resort, e.g. through algal growth on coral reefs. Besides, should not all hotels have sewage-treatment facilities, energy and water-conservation measures and recycling programmes? Unless these enterprises can show a contribution to conservation proportional to their size, they can hardly claim to be considered as ecotourism.

Expedition cruise boats are also expensive, and boat tours in the Arctic and Antarctic or Amazon necessarily attract a relatively up-market clientele. For cruises such as those run by Explorer Shipping or Aurora Expeditions, the primary attractions are scenery and wildlife; measures are taken to minimize impacts; the environmental education programme is expert and intensive; and the tours may possibly help to generate political support for conservation, though this remains unproved. Overall, these companies do indeed seem to provide examples of large-scale ecotourism. Note that this does not apply to the very large luxury cruise vessels, where the principal attractions are port stops and social interactions with other passengers, and landings in Arctic or Antarctic environments are likely to produce far larger environmental impacts than for the smaller expedition cruise ships.

Also requiring expensive vessels, but operating on shorter trips with higher volume, are the high-speed catamaran cruises to fixed pontoons on the Great Barrier Reef, operated by companies such as Quicksilver and Great Adventures. Again, the reef environment provides the principal attraction; systems are in place to manage environmental impacts on board ship and at the pontoons; information about the reef is provided through videos and printed material; and the operators collect the reef-research levy which is paid by all visitors to the Great Barrier Reef Marine Park. This levy is, of course, a government requirement rather than an industry initiative, and attempts to increase it always meet with strong opposition from tour

operators, even though it is paid by all visitors alike. Again, the total levies raised make up only a very small proportion of the direct management costs for the Great Barrier Reef Marine Park, and certainly do not include a rent component for the use of public natural resources. These issues, however, are common to use of public protected areas by commercial tour operators worldwide. Additionally, the high-speed catamarans and the reef pontoons do, of course, produce impacts.

For the type of product offered, companies such as Quicksilver do indeed show high standards in environmental management and education. But does an energy-intensive high-speed 300-passenger catamaran constitute ecotourism, no matter how good its environmental management and education? This is not a straightforward issue. A fixed pontoon on the outer Great Barrier Reef has impacts, but they are much more localized and controlled than if 300 people a day all visited different reefs or all visited the same reef but without a fixed structure. A 300-person high-speed catamaran has impacts, but they are less than the impacts of a larger number of smaller boats travelling at equal speed. *Per capita* impacts might be smaller if everyone travelled on slower boats, but then they could not reach the outer Great Barrier Reef in a day. They could go to inner platform reefs, or they could travel on overnight live-aboard boats, but then many of them would not go at all.

The issue is hence not simply about the operations of an individual tour, but about the number of visitors and types of activities in a particular area. In this case, the area concerned is World Heritage. One of its management aims is hence to provide access opportunities for public viewing, in a way that does not discriminate between citizens of different nations. The management agency is entirely entitled to restrict access, numbers or activities so as to preserve World Heritage conservation values, as long as it does not favour its own citizens in so doing. It is not necessarily required to permit commercial tourism, as long as individual members of the public have access. Nor is it necessarily required to provide infrastructure for access to remote sections of the site; and indeed, many World Heritage areas are largely inaccessible. But the Great Barrier Reef covers a very large area, so, in relative terms, tours to one single reef have very little impact. In addition, the Great Barrier Reef Marine Park suffers far greater impacts from commercial fishing, including prawn trawling; and from contaminated runoff from towns, logging and agriculture on shore, including huge plumes from major rivers, carrying soil, nutrients and pesticides far offshore. Compared with these, commercial tourist boats have little impact. Recreation can indeed have highly significant ecological impacts, e.g. through disturbance of seabird and turtle colonies on the reef islands, but the high-speed day tours to pontoons on the outer reef do not visit these islands. So, when judged against the criteria for ecotourism, the only difference between the high-speed high-volume catamaran tours and a small boat taking a few people snorkelling seems to be one of scale, not principle. If the

small boat is treated as ecotourism, then the large tours deserve the same title.

Such issues become even more difficult to judge in the case of adventure-tourism activities such as helicopter tours and hunting safaris. Helicopters are expensive and the larger helitour operators, such as Canadian Mountain Holidays (CMH), generate very substantial turnover. Heliski operators such as CMH and Himachal are fundamentally adventure tour operators, and their clients would see themselves as skiers or snow-boarders, not ecotourists. On the other hand, skiing and snow-boarding depend on features of the natural terrain, and both these companies do take steps to reduce environmental impacts, particularly at their lodges. CMH, and other helicopter tour operators, offer summer helihiking tours with natural-history guides, which use helicopters only for access to the hiking site. Similarly, companies such as Ultimate Descents in New Zealand use helicopters to reach the headwaters of rivers for white-water rafting trips. A natural-history hike contains the same environmental education component, whether the site is reached on foot or by helicopter, and backcountry access by helicopter probably has less impact than building a road. On the other hand, even with the best environmental management, helicopters are extremely fuel-intensive and noisy. Especially in summer, concerns have been expressed that they may cause significant disruption to wildlife (Hartwig, cited by Piore, 2002). Indeed, helicopters have indeed been shown to cause stress and disturbance to a wide range of wildlife, from whales to wild sheep and wading birds.

From the viewpoint of a helitour operator with a valid operating permit, its environmental goals may be to minimize impacts by modifying equipment, timing, flight paths, etc. From the viewpoint of a land manager or conservation agency, a more fundamental question is whether helicopters should be permitted to operate at all in particular areas. Indeed, in many areas local communities have raised strong objections to helicopter noise.

In some areas, e.g. Purnululu National Park in north-western Australia, the park management authority has deliberately encouraged helicopter overflights in preference to ground access, believing that the total impacts would be less. Particularly where wildlife may become habituated, a helicopter overhead may cause less disturbance to wildlife populations than hunters on the ground or even snowmobiles and off-road vehicles. But certainly any kind of motorized backcountry use, helicopters in particular, has a far greater noise impact than access on foot. In general, therefore, it seems that even the most carefully managed helitour is unlikely to be considered as an ecotour, but more probably as a well-run adventure tour.

Issues relating to sport-hunting safaris were considered earlier. On the one hand, in areas of sub-Saharan Africa it appears that sport hunting can make a significant contribution to a tourism mix that helps to conserve wildlife. On the other hand, when hunting permits are poorly managed, wildlife populations may suffer rapid and severe depredations. Even in the

best-managed areas, killing an animal clearly has more impact on that individual animal than simply watching it or taking photographs. But, if killing part of a local population for sport generates enough money to protect the remainder population from death by poaching or habitat destruction, sport hunting can arguably make a positive contribution to conservation. Paradoxical though it may sound, therefore, it is not completely illogical to consider whether hunting safaris should not be treated as ecotourism.

The second model for large-scale ecotourism is that followed by companies such as World Expeditions, which are essentially franchises or retail marketing arms for a wide range of different individual tours, most of them run by different local companies that own their own equipment and hire their own guides. This approach allows the company to handle a large total number of clients while maintaining small groups on each individual tour, and to offer a wide variety of products without over-investing in equipment inventories or tying itself to a large permanent payroll. This approach is part of the traditional structure of the travel industry, with out-bound tour packagers offering a range of international products to tourists from a particular country of origin, and in-bound packagers offering a range of products in a particular destination country. Most such companies, however, offer a wide range of tour products, of which only a few may qualify as ecotours. Companies such as World Expeditions are distinguished by focusing almost entirely on ecotours, though with a broad and varied portfolio. Some of these tours may be expensive, others much less so, but the company generates large-scale revenue through volume and variety, not through a single up-market product. In addition, at least as long as its franchised products qualify individually as ecotourism, there is no reason why the company as a whole should not receive the same label.

Of these two main models for increasing the economic scale of ecotourism without sacrificing its fundamental principles, therefore, this franchise or portfolio approach perhaps has the greatest potential. It is not surprising, therefore, that various online travel companies have now been established to market ostensibly sustainable or responsible tourism products. Some of these are even linked to ecocertification schemes: i.e. they market products as well as certifying them, even though this may compromise the independence of the certification process. This approach, however, is unlikely to have the same degree of quality control as a company such as World Expeditions, which markets all its individual tours under its own company name and takes responsibility for operational concerns as well as sales.

In conclusion, therefore, it seems that it is indeed possible for individual ecotourism companies to expand in economic scale, even if it has not yet happened often to date.

There are, of course, two further ways in which the economic significance of the ecotourism sector could increase. The first would be an increase in the number of ecotour operators, either by the establishment of

new enterprises or by the conversion of existing tour operations to ecotourism principles. The latter, however, must involve a great deal more than minimal attention to some basic environmental management issues, as addressed in some current tourism ecocertification schemes.

The other potential mechanism would be for ecotour operators, and indeed tour operators more generally, to increase the size of the contributions they make to conservation. Some very large tour operators worldwide, including major ski resorts, do make contributions to conservation, but these typically make up a minuscule proportion of overall revenue, e.g. around 0.25%. Smaller companies may make larger proportional contributions, but there are very few large companies making a large contribution. The best examples are operators such as Conservation Corporation Africa (CCA), which have devoted very significant funds to purchasing large areas of land and rehabilitating and restocking them for conservation, using tourism revenues to fund these programmes. Only if models such as these are adopted much more widely can the ecotourism sector as a whole make any realistic claim to provide net benefits for the natural environment. Companies such as CCA may well be the only private commercial enterprises, in any industry sector, which can currently demonstrate a positive triple bottom line. Perhaps it is not coincidental that their mode of operation, though fully competitive in the commercial market-place, is in many ways convergent with the operations of large corporatized non-government conservation organizations (Buckley, 2002c).

## **The Future Of Ecotourism**

Predicting the future of ecotourism is as fraught with uncertainty as any other exercise in forecasting or fortune-telling. To judge from the case studies presented here, it seems that ecotourism is here to stay, but that it is currently still at a very early and fragile stage in its development. Both individual ecotourism enterprises and the overall concepts and principles of ecotourism are continually beset by larger-scale interests seeking to divert or co-opt them for other purposes. This is not simply a question of business competition, where successful ecotourism ventures may be undercut or bought out. Even more significantly, the term ecotourism is still widely applied to activities that certainly do not merit the name, as a means of obtaining preferential treatment either from markets or, more often, from regulators and land managers. In addition, while the best examples of ecotourism are indeed making a real and significant contribution to conservation of the natural environment and the development of impoverished communities, these instances are still extremely rare and most of them are very small in quantitative terms. Unless and until they can either grow greatly in economic terms without losing their basic principles, or exert political leverage far outweighing their size, they can do rather little to reduce the

pace of environmental degradation across the planet. Realistically, however, there seem to be very few human social institutions that may have both the power and the speed necessary to change human behaviour towards sustainability. Under the right circumstances, ecotourism can indeed be one such tool, with demonstrable success. If for this reason alone, it seems worthwhile to encourage successful ecotourism ventures and endeavour to replicate them more widely.

If there is one central lesson from this book, however, it is that untrammelled tourism development cannot be relied upon to protect the natural environment. Unless a strong conservation framework is in place before tourism growth commences, ecotourism development initially will soon be swamped by large-scale tourism facilities with little concern for the environment and ultimately by Disneyfication and/or amenity migration and property development. For tourism to make useful contributions to conservation, its enormous revenue-generating power must be channelled and focused through a conservation framework. Such frameworks may be established either by law, as in the case of public lands, or by private convictions, as in the case of private reserves, such as those established by Earth Sanctuaries Limited and CCA. As the ecotourism sector continues to grow, the continuing vigilance of organizations such as the United Nations Environment Programme and the United Nations Educational, Scientific and Cultural Organization, the Sustainable Tourism Division of the World Tourism Organization and international conservation organizations, such as Conservation International and the World Wide Fund for Nature, will become increasingly important.

And finally, as the debates of the International Year of Ecotourism and the World Summit on Sustainable Development move into their implementation phase, perhaps it is time to reconceptualize ecotourism in post-2002 jargon: ecotourism is geotourism with a positive triple bottom line.



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