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RESEARCH REPORT 1993



INTERNATIONAL CENTRE FOR  
ECOTOURISM RESEARCH

# **International Centre for Ecotourism Research**

## **Research Report 1993**

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The International Centre for Ecotourism Research was formally constituted by the Council of Griffith University in 1993, as an Allied Centre for the University. It was established to provide a focus for ongoing research on tourism and environment at the University and internationally. Professor Ralf Buckley was appointed as ICER's Foundation Director, and the Centre was formally opened by the Honourable Michael Lee, Commonwealth Minister for Tourism, on 8 August. The Centre's formation attracted substantial interest and coverage from TV, radio and print media at the opening and subsequently.

ICER is headquartered at the Faculty of Engineering and Applied Science at Griffith University's campus on the Gold Coast. The Gold Coast is one of the principal tourist destinations in Australia and indeed the entire Asia-Pacific region. ICER is an independent research organisation, and whilst its constitution allows it to undertake contract research and consultancies, its initial research has been supported entirely through government tertiary grant funds.

To ensure that ICER's research is timely and relevant to the tourism industry and its regulators, the Centre has an international Advisory Board including Cabinet Ministers, senior representatives of industry, government and multilateral non-government organisations, and the heads of other tourism research institutions. The founding Members of the Board and their affiliations at the date of constitution of the Centre are listed on the previous page.

Although research on tourism and environment has been in progress for several decades, there has been confusion over the precise meaning of ecotourism. ICER's first task, therefore, was to establish a clear framework for research in this field. This is now in press in *Annals of Tourism Research*. Comments on early drafts by members of the Advisory Board, and by non-government organisations involved in ecotourism, are gratefully acknowledged.



Versions of this framework were presented at the 3rd World Congress on Adventure Travel and Ecotourism in Manaus, Brazil, and as a keynote paper in the Ecotourism stream of LAWASIA '93 in Colombo, Sri Lanka. Preprint copies have also been made available on request to Australian Commonwealth, State and local government agencies currently preparing ecotourism strategies, and to research colleagues internationally.

On the basis of this framework, ICER has commenced a research programme spanning the principal links between tourism and environment. A summary of these projects is given in the remainder of this Report. Comments on this programme, and suggestions for new or cooperative research projects are invited.

ICER wishes to acknowledge, with many thanks, the many contributions of knowledge, time and resources by outside organisations and individuals. Particular thanks are due to Members of the Advisory Board and to:

Department of Tourism, Australia  
Department of Employment, Education and Training  
Australian Research Council  
Australian Water Technology, New South Wales  
Queensland National Parks and Wildlife Service  
Sullivan, Nicolaides & Partners  
The Gold Coast City Council  
Fleays Fauna Centre  
Dr Nick Ashboldt, AWT  
Dr David Edwards, SNP  
Dr Primrose Hutton, AWT  
Mr Angus Jackson, GCCC  
Ms Esna Kassulke  
Dr Graham Mayrhofer, Adelaide University  
Prof John Pigram, University of New England  
Dr Duncan Veal, Macquarie University

## Ecotourism: Characteristics and Issues

Many different definitions of ecotourism have been put forward, but there are common themes or characteristics which can provide a framework in which to define research needs (Buckley in press and refs. cited therein). One possible expression of this framework is summarised in Figure 1 and Table 1 (modified from Buckley in press). This approach attempts to integrate the various aspects of ecotourism incorporated in definitions and practical use of the term by NGO's, governments and industry (Buckley 1993a; in press). Broadly, it views ecotourism as a subsector of the tourism industry, incorporating environmental considerations in all aspects of tourism business; including markets, products, management, money and people. Definitions propounded by environmental groups, for example (e.g. Ceballos-Lascurain in press; Epler Wood in press), indicate that tourism should only be classified as ecotourism if it has nature-based products and markets, environmentally-sustainable operations and management, conservation-supporting profits and purchasing practices, and incorporates environmental education programmes for staff and clients alike (Buckley 1993a, in press). Irrespective of definitions, all these aspects are also relevant to the entire travel and tourism sector, and not only the ecotourism subsector *per se*. Indeed, a precise and unambiguous definition of ecotourism is perhaps only required if it is to be the subject of legal or administrative documents, such as instruments of planning or development control, or grant guidelines for funding agencies.



**Table 1. Characteristics, Issues and Information Needs in Ecotourism\***

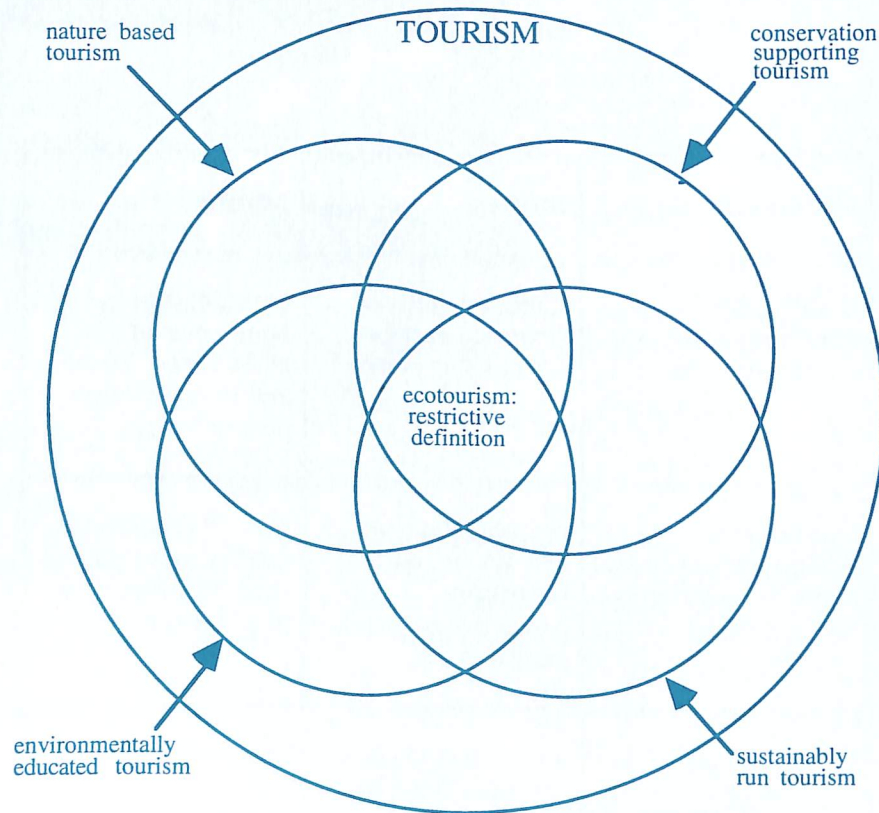
	<b>markets</b>	<b>products</b>
<b>characteristics</b>	green claims in advertising; environmental concerns of clients	components of natural environment as attraction to destination
<b>issues</b>	market sizes, price elasticities, substantiation of advertising claims	impacts of tourism on conservation values
<b>information needs</b>	who wants to know what, who claims what and who buys it?	what exact impacts do known numbers of visitors carrying out specified activities have in different ecosystems?

\* modified and summarised from Buckley (in press).

<b>management</b>	<b>money</b>	<b>people</b>
minimising operational impacts on environment	direct or indirect financial support for conservation	attitudes and behaviour of staff and clients; training and interpretation programmes
planning and design, resource and energy conservation and recycling	tax policies, fees and levies, park funding, purchasing practices etc.	client expectations, quality assurance in staff training, types of programme
how well can impacts be predicted, monitored, mitigated and managed, and at what cost?	how much does tourism contribute to conservation at individual, corporate, national and global scales?	how well do different training techniques and programmes work?



Figure 1. Aspects and Definitions of Ecotourism\*



\* Modified from Buckley (in press). By restrictive definitions, ecotourism = intersection of 4 smaller circles; i.e., all 4 main characteristics are necessary for tourism to be ecotourism. By broader definitions, ecotourism = union of 4 smaller circles; i.e., any of 4 main characteristics is sufficient for tourism to be ecotourism. Irrespective of definition, all 4 aspects are relevant in ecotourism research.

## ICER's 1993 Research Programme

### *Need for Research, and ICER's Role*

Everyone involved in ecotourism has to make decisions at intervals. This includes tour and resort operators, agents, clients, regulators and reserve managers. Many of these decisions rely on accurate and relevant information. Some of this information is provided from within the ecotourism sector itself; some is not. For example, environmentally-concerned travellers can generally obtain information from travel agents on the natural attractions of alternative destinations; but rarely on the environmental management programmes of alternative travel or accommodation providers. Reserve managers can quite easily discover what visitors want to do in their reserves; but it is much harder to quantify their environmental impacts. In addition, most of the information provided from within the industry is at a micro-scale, namely that of individual sites or corporations.

It is the job of research organisations such as ICER, therefore, to identify and compile information which will be of general value in ecotourism, preferably before it is needed. In many ways, ICER is an Asia-Pacific counterpart of WTTERC, the World Travel and Tourism Environment Research Centre in Oxford, UK. Whilst WTTERC was formally established under the aegis of the World Travel and Tourism Council, however, ICER is formally an independent research centre within a public university. In addition, ICER is concerned specifically with ecotourism, rather than the entire travel and tourism industry; though as noted recently by Geoffrey Lipman of the World Travel and Tourism Council, there is increasing overlap between ecotourism as a specialised subsector, and environmental management in the tourism industry overall (Lipman 1993).



The kinds of research questions which ICER is currently attempting to answer are summarised below. Comments on the relevance of these questions, and suggestions for additional research topics, are always welcome. For brevity, projects in progress are listed by staff and title "in prep.," together with completed publications. Some of these projects will take a few months to complete, others will take 4 years.

#### *Advertising*

Advertising in travel and tourism incorporates a range of environmental claims: from the scenic splendour of the surroundings to the excellence of environmental education programmes. Our research examines who makes what claims, and with what justification. Current projects include:

- a general analysis of the use of environmental images and text in advertisements in major Australian newspapers and magazines from 1990 to 1992 (Buckley and Vogt, ms)
- types and substantiation of environmental claims in industry advertising materials, such as: airline in-flight magazines and travel agents' brochures; (Buckley and Clough, in prep. a; Buckley and Araujo, in prep. a, b).

#### *Science*

One critical information need, both for the tourism industry and for the management of conservation reserves, is quantitative scientific measurement of the environmental impacts produced by known numbers of people engaged in defined activities with specified equipment in particular ecosystems. This information is needed for management programmes based on ecological carrying capacity or on recreational opportunity spectra and limits of acceptable change, the ROS/LAC framework (e.g. Cook in press). These projects consume the bulk of ICER's time and funds at present, and we expect to extend them to include other environmental parameters in future. Current projects include:

- a review of relevant scientific literature worldwide, updating Buckley and Pannell (1989) and Buckley (1991a); there are about three hundred relevant publications in the scientific literature and a similar number in limited-circulation publications (Buckley *et al*, in review).
- field measurements of recreational impacts on in-stream water quality in the subtropical rainforest conservation reserves of south-east Queensland, Australia; attempting to identify chemical, biological and microbiological parameters which can provide early-warning indicators of human impacts at the lowest possible detection threshold (Warnken W and Buckley, ms; Warnken W and Buckley, in prep.; Warnken J and Buckley, in prep. a; Buckley and Clough in prep. b; Buckley *et al* in prep.)
- the role of tourists, and other dispersal mechanisms such as native animals and waterborne cysts, in dispersing pathogenic protozoa such as *Giardia* in Australia and other countries (Buckley *et al*, ms; Vogt and Buckley, ms).



## *Management*

A broad range of environmental management tools, many already in common use in other industry sectors, are currently being applied in the tourism sector. We are examining: the types of environmental management structures used in tourism and travel corporations such as airlines, hotels, resorts, and tour operators; the use and outcomes of environmental audits in the industry; the prevalence and success of energy and resource conservation and recycling programmes, and so on. We can also provide expertise in these areas on a consulting basis. Similar work has been and is being conducted by WTTTC; by a number of major airlines and hotel chains; through mechanisms such as the International Hotels Environment Initiative (IHEI); and by the Australian Tourism Commission (Figgiss 1993). ICER research includes the following:

- past work on environmental planning and impact assessment policy and procedures (eg Buckley 1990, 1991b,c, 1992)
- past work on the accuracy of environmental impact predictions, relevant but not specific to tourism (e.g. Buckley 1991d, e)
- a national survey of the accuracy of environmental impact predictions and effectiveness of EIA procedures in tourism development in Australia (Warnken J and Buckley, in prep. a, b, c)
- resource conservation and recycling programmes in tourist accommodation in south east Queensland (Buckley and Araujo, in prep. c)

## *Engineering*

Tourism developments in remote, wilderness or rural areas have a particular need for low-impact access routes, energy and water supplies, and waste disposal. ICER is involved in two current projects:

- forthcoming conference on environmental engineering, technology and services for the tourism industry, to be held by the Environmental Management Industries Association of Australia in April 1994
- design and pilot model of new self-activating vertical-axis variable-pitch wind turbine for electricity generation (Kirke in prep.)

## *Economics*

Most of the tourism industry is heavily dependent on the natural environment as a primary resource; yet overall, a very small proportion of tourism income is reinvested in conserving these natural assets, even in countries which rely heavily on nature-based tourism as a mainstay of the national economy, such as Costa Rica (Baez in press) or indeed Australia. The ecotourism subsector is somewhat of an exception, with a number of small private corporations and not-for-profit organisations using tourism as a means to provide significant support for particular conservation projects. From a research perspective, the issues are how much money is involved; where it comes from and where it goes; and how this depends on factors such as corporate management structures, shareholder priorities, and environmental and tax laws, including environmental economic instruments in relevant countries.



ICER has relatively little research under way in this field at present, but this is due to lack of staff time rather than lack of interest. We have:

- past work on economic instruments, relevant to but not specific to tourism (eg Buckley 1991c)
- recent work on international trade, investment and environment; also relevant but not specific to tourism (Buckley 1993b; Buckley and Wild in press)
- ongoing compilation of relevant economic data on an *ad hoc* basis, covering: direct and indirect financial contributions to conservation by particular ecotourism operators; effects of tourism-related transborder currency flows on conservation; and costs and benefits of environmental management programmes in tourism corporations.

### *Education*

Interpretation and education programmes are consistently emphasised as an important component of ecotourism. But who is actually running what kinds of education programmes; and what effects are these programmes having on the environmental impacts of their operations; and what changes do people make to their overall lifestyles as a result of ecotourist experiences, including education programmes? Our current research includes:

- comparing the environmental impacts of wilderness travel and camping by an organisation which trains all of its staff and clients in minimal-impact techniques, against control groups without such training

- comparing environmental impacts at river rafters', canoeists' and kayakers' campsites, in relation to equipment and training provided by tour operators or trip leaders
- measuring changes in environmental attitudes and behaviour by adults and children who have undertaken educational programmes in fauna reserves (Buckley and Farnsworth, in prep.; Buckley and Shilvock, in prep.)
- assessing adequacy of environmental training programmes in four companies, as part of a quality assurance programme (Weeks and Buckley, in prep.)

### *Law*

In addition to generating interest and concern, disseminating information and sometimes providing funding, ecotourism can make a major contribution to conservation if it encourages the establishment of effective legal policy frameworks for environmental impact assessment, pollution control and biodiversity conservation in developing and developed nations alike. Questions of legal liability may also be of particular significance to adventure travel and ecotourism operators (Khan in press). ICER currently has only one project in this area:

- quantifying potential liabilities and obtaining third-party insurance for new adventure sports: international comparisons (Martin and Buckley, in prep.)



## *Other Topics*

There are several relevant areas of research in which ICER is deliberately not involved, generally because other organisations are already conducting the research required. In particular, we are not carrying out any research on visitor attitudes or satisfaction, or on social or cultural impacts, or on community participation processes. In Australia, such research is ably conducted by others such as Professor Philip Pearce at James Cook University and Professor John Pigram at the University of New England. Nor do we compile economic or demographic statistics, since this is carried out by the Bureau of Tourism Research in Canberra. As far as possible, our research projects are intended to be international in scope and application, even where our specific case studies are local for logistic reasons.

## *Conclusions*

Environmental issues in tourism are relatively little studied, even though tourism is one of the world's largest industry sectors. Environmental information is especially important to the tourism industry, because the environment is a major tourism resource. Investment in environmental research is therefore likely to pay off particularly well for the tourism sector. There is enormous scope and demand for such research. It is important both for the industry and for research organisations, however, that environmental research in tourism be critical, relevant, reliable and thorough, even if this takes longer and costs a little more.

## **Projects in Progress**

- Buckley, R.C. and Araujo, G. (in prep c). Resource and energy conservation and recycling in Gold Coast tourist accommodation.
- Buckley, R.C. and Araujo, G. (in prep. a). Environmental information requested and provided by Gold Coast travel agents.
- Buckley, R.C. and Araujo, G. (in prep. b). Green advertising in airline flight magazines.
- Buckley, R.C. and Clough, E. (in prep. a). 1993 World Ecotourism Congress: who's selling what to whom?
- Buckley, R.C. and Clough, E. (in prep. b). Coliform bacteria in streambed sediments in a rainforest reserve.
- Buckley, R.C. and Farnsworth, D. (in prep.). Effectiveness of environmental education programmes at an ecotourist destination: Currumbin Sanctuary.
- Buckley, R.C. and Shilvock, K. (in prep.) Effectiveness of environmental education programmes at an ecotourist destination: Fleays Fauna Reserve.
- Buckley, R.C., Warnken, J. and Warnken, W. (in prep.) Nutrient fluctuations in a rainforest stream: tourism impacts or natural processes?
- Kirke, B. (in prep.) Vertical-axis wind turbines for off-grid power.
- Martin, D. and Buckley, R.C. (in prep.). Liability insurance for new adventure sports.
- Warnken, J. and Buckley, R.C. (in prep. a). Accuracy of environmental impact predictions for tourism development in Australia.



- Buckley, R.C., Warnken, J., Warnken, W., and Wild, C. ms.  
Environmental impacts of recreational activities *Ann. Rev. Ecol. Syst.* (in review). **[and refs cited therein]**
- Buckley, R.C. and Wild, C. (eds) (in press) *International Trade, Investment and Environment in Australia. Proc. Aust. Acad. Sci. 1993 Fenner Conference*, Canberra.
- Ceballos-Lascurain, H. (in press). IUCN's role in ecotourism around the world as a tool for conservation. *Proc. 1993 World Congress on Adventure Travel and Ecotourism*. Adventure Travel Society, Englewood Colo.
- Cook, T.A. (in press). Working for the wilderness: sustaining national reserves in an international tourism market. *Proc. 1993 World Congress on Adventure Travel and Ecotourism*. Adventure Travel Society, Englewood Colo.
- Epler Wood, M. (in press). Monitoring ecotourism: are guidelines enough? *Proc. 1993 World Congress on Adventure Travel and Ecotourism*. Adventure Travel Society, Englewood Colo.
- Figgiss, P. (in press). The development of ecotourism in Australia. *Proc. 1993 World Congress on Adventure Travel and Ecotourism*. Adventure Travel Society, Englewood Colo.
- Khan, R. (in press). Operating tours to foreign locales - a discussion of the liability issues commonly overlooked. *Proc. 1993 World Congress on Adventure Travel and Ecotourism*. Adventure Travel Society, Englewood Colo.
- Lipman, G. (in press). Can we work together? *Proc. 1993 World Congress on Adventure Travel and Ecotourism*. Adventure Travel Society, Englewood Colo.
- Vogt, S. and Wild, C. (ms). Age distribution of pathologically-confirmed symptomatic giardiasis in a regional Australian population.