



Wildlife Tourism: Endangered or Sustainable Growth?

**First National Convention
on Wildlife Tourism
in Australia**

28TH - 30TH OCTOBER, 2001

Welcome

Dear Wildlife Tourism Delegate,

The CRC for Sustainable Tourism, Tourism Tasmania and the organising committee are delighted to welcome you to Australia's first national convention on wildlife tourism.

Tasmania provides an ideal setting for a convention on wildlife tourism. It is rich in natural beauty, and its natural areas are home to an abundance of Australia's and Tasmania's unique wildlife.

We wish to encourage you to participate fully to gain maximum benefit from the information and ideas being shared. Your contribution will be valuable in ensuring that the benefits of wildlife tourism are maximised for wildlife, tourists, operators and society as a whole.

We thank you for taking this opportunity to contribute to the sustainable development and management of wildlife tourism in Australia and hope that you find the convention both useful and enjoyable.

Conference Organising Committee

Stuart Lennox
Tourism Tasmania

Dr Karen Higginbottom
Griffith University

Daryl Moncrieff
Department of Conservation & Land Management, WA

Kelley Rann
Southern Cross University

Ian Pritchard
Cooperative Research Centre for Sustainable Tourism

Terry Carmichael
Rainforest Habitat, Port Douglas

Exhibitors

Australian Quarantine & Inspection Service
Forestry Tasmania
Office of Post-Compulsory Education and Training

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Acknowledgments



Sponsors

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SEAHORSE WORLD PtyLtd Beauty Point, Tasmania

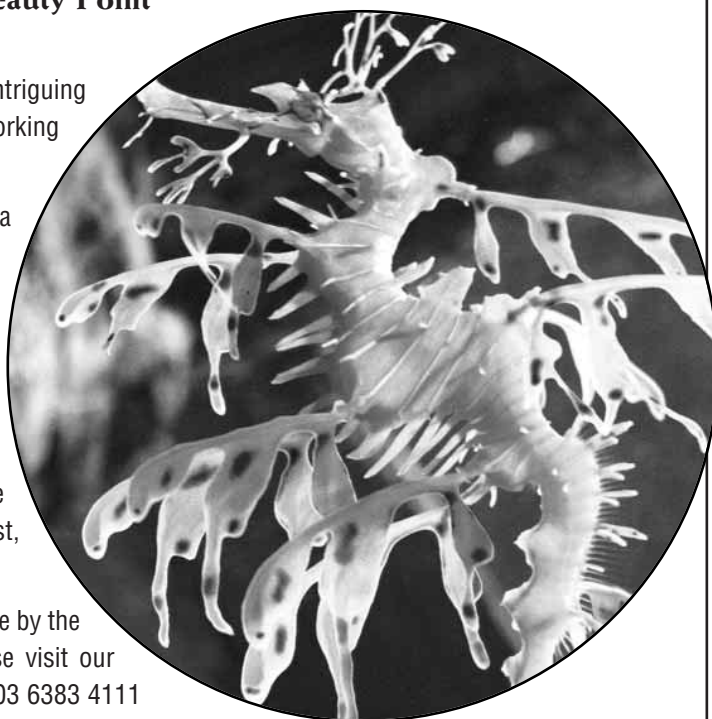
A world first in Tasmania is now open at Beauty Point just 30 minutes north of Launceston.

The complex provides a unique insight into the mystical, intriguing and lovable seahorses from birth to adulthood, in a working farm.

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Seahorse World also includes a Marine Environment Centre by the Australian Maritime College. For more information please visit our Website at www.seahorseworld.com.au or contact us on 03 6383 4111



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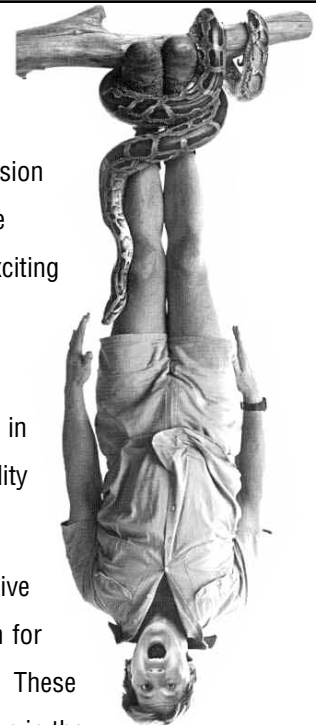
Monkey Mia, Shark Bay. W.A. 6537. Australia
Telephone: 99 481 481 Facsimile: 99 481 471
E-mail: monkeymiawildlife@bigpond.com
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Australia Zoo

provides a forum to pass on our passion for animals, education and conservation as a hands-on, nature-based experience. Our mission is to achieve excellence in animal welfare - the animal always comes first. We maintain the highest level of passion and enthusiasm for wildlife, providing visitors with a superb and exciting experience. Australia Zoo holds firm our commitment to achieve Conservation through Exciting Education.

Australia Zoo was first established on Queensland's Sunshine Coast in April 1970. And in partnership with Steve and Terri Irwin, TV's Crocodile Hunters, this unique zoological facility entices visitors from around the world.

Australia Zoo as a tourism award winning facility has gained recognition with an impressive 43% of visitors from overseas markets. Proprietors Steve and Terri Irwin are well known for their conservation work through the wildlife documentary series "The Crocodile Hunter". These projects enable Australia Zoo to have the most unique marketing opportunity of any attraction in the country. Australia Zoo is eagerly awaiting the release of the new behind the scenes documentary series "Australia Zoo". Filmed directly on location featuring everyday life within Australia Zoo, the huge impact that this series will have on the Southern Queensland region will translate into 100s of millions of tourist dollars.



'Adventure Tours Australia' (formerly 'Northern Territory Adventure Tours') was established in 1993 and is now the largest small group, soft-adventure tour operator in Australia. We specialize in offering active tours for the adventurous traveller and last financial year carried over 77,000 passengers throughout the Northern Territory, Western Australia and Tasmania. Our core operation is camping safaris catering for budget travellers but we also offer accommodated options) as well as deluxe 'Safari in Style' tours in the Northern Territory.

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Cooperative Research Centre for Sustainable Tourism



crctourism.com.au

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Bookshop: www.crctourism.com.au/bookshop

email: info@crctourism.com.au

PROFILE

The Cooperative Research Centre for Sustainable Tourism was established under the Australian Government's Cooperative Research Centres Program to underpin the development of a dynamic, internationally competitive, and sustainable tourism industry. CRC Tourism's mission is the development and management of intellectual property (IP) to deliver innovation to business, community and government enhancing the environmental, economic and social sustainability of tourism. CRC for Sustainable Tourism Pty Ltd is a not-for-profit company owned by its industry, government and university partners.

Destination Australian is CRC for Sustainable Tourism's integrated, multidisciplinary research program, focusing on four key areas:

- Tourism; conservation and environmental management
- Tourism; engineering, design & technology
- Tourism; policy, events and business management
- Tourism; IT and informatics

CRC for Sustainable Tourism diffuses its research outputs to industry through:

- Collaboration with industry and government partners
- Spin off companies
- Licensing its intellectual property
- Business tools, kits, manuals and expert systems
- Conferences, workshops, seminars
- Published reports, fact sheets and extension flyers
- Internet-based information services
- Training products, courses and programs
- International consulting services

CRC for Sustainable Tourism is developing Australia's long-term tourism research capacities, through a vigorous post-graduate research Education Program supported by scholarships for students studying in industry-designed projects.

Details of the activities of the Wildlife Tourism subprogram can be found at <http://www.crctourism.com.au/wildlife> or by clicking on the wildlife tourism link within the environment page under projects.

General Information

Venue

Wrest Point Convention Centre
410 Sandy Bay Road, Sandy Bay TAS 7005
Ph: (03) 6225 0112, Fax: (03) 6225 3744

A map of the Wrest Point complex may be found on the last page and the Convention Centre map is located with the program.

Exhibition

Displays are located in the Exhibition foyer of the Convention Centre.

Registration

The Registration Desk is located in the foyer of the Wrest Point Convention Centre and the staff of Convention Wise will be at the desk to assist you at the following times:

Sunday 28th October	4.00pm – 8.00pm
Monday 29th October	8.00am – 6.00pm
Tuesday 30th October	8.00am – 1.00pm

Photocopying and faxing facilities are available at the Registration Desk.

Messages

Messages will be displayed on the message board near the Registration Desk. If you wish to leave a message or be contacted during the meeting, the direct contact numbers for the Desk are:

Tel: +61 3 6221 1720 Fax: +61 3 6221 1722

Name Badges

All delegates will be provided with a name badge, which is the official pass and must be worn to obtain entry to all sessions and social functions. Please note that entrance to all areas, including the exhibition, will be strictly limited to badge holders only.

Speaker Preparation

Speakers are asked to report to the Registration Desk from where they will be directed to the Speakers' Room. Facilities are available in this area for speakers to check their slides and other audio visual aids. Those speakers using computer data projection (Powerpoint or similar) are asked to test their presentations in the appropriate venue at least half an hour before the start of the session.

Poster sessions

Poster boards will be located in the main foyer near the Registration Desk with identifiers for each presentation.

Presenters will be able to put their posters up from 4.00pm on Sunday afternoon and are asked to remove them straight after the sessions on Tuesday morning.

Refreshments

Morning and afternoon tea and lunch will be provided on Monday; morning tea only on Tuesday. All meals will be served in the exhibition foyer.

Special Needs

Every effort has been made to ensure people with special needs are catered for. Should you require any specific assistance, please inform the Secretariat at the Registration Desk.

Smoking Policy

For the comfort of all smoking will not be permitted during conference sessions. Smoking is generally permitted in the Hotel's public spaces. Some bedrooms in the hotel are non-smoking and these should be requested if required. Most Hobart restaurants permit smoking in designated areas.

Banking and Post Office

There are limited card withdrawal facilities in the foyer of Wrest Point near the Porters' Desk. Full banking services are available in the heart of the Sandy Bay shopping centre, a 5-minute taxi ride or a 15 minute walk from Wrest Point. Banks represented include the Commonwealth, ANZ, and Westpac. The Sandy Bay Post Office is situated on the corner of King Street and Sandy Bay Road.

Emergency Doctor

For AFTER HOURS help contact:
Hobart Private Emergency Hospital,
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or

Royal Hobart Hospital,
48 Liverpool Street, Hobart
(Public - 24 hour service & Emergency) Phone: 6222 8423

Dentists

Business Hours:

Dr Ian Gurner Phone: 6224 3647
Dr John Moffat Phone: 6223 5514

Dental emergencies after hours:

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Bus and Taxi Services

Metro buses are available every 10-15 minutes from Wrest Point to Sandy Bay and Hobart City. The Metro Busy Bee Timetable is available at the Registration Desk.

Taxi Combined (Cabcharge) **Ph: 6234 8444**
City Cabs **Ph: 6234 3633**
Maxi Taxi (for people with disabilities and special requirements) **Ph: 6234 8061**

Hotel Accounts

All delegates are reminded to pay the balance of their hotel account prior to departure from their hotel.

Mobile Phones and Pagers

Please ensure that your mobile phone or pager is OFF (preferably) or in "silent mode" during all sessions and social functions.

Social Events

Sunday 28th October

Welcome Reception

The Welcome Reception will be held in the main Convention Centre Foyer from 6.00pm until 7.30pm. All delegates and guests are invited to attend to renew old friendships and make new acquaintances. Drinks and finger food will be served. Additional tickets for guests may be purchased from the Registration Desk for \$30.00 each.

Monday 29th October

Convention Dinner

The dinner will commence with a bus trip departing from the convention venue at 5.45pm. The bus will take you to Tasmania's prestigious Mount Field National Park where you can enjoy a warm mug of country style soup before viewing the famous Russell Falls. Following a hearty country meal and some delicious home-made desserts, there will be opportunities for you to view wildlife, including glow worms. The Park rangers will be available to help you identify the numerous types of wildlife that will most likely join us on the grass at the interpretation centre. Various Tasmanian operators will take you on guided tours within the Park. This is a great opportunity to view some of Tasmania's unique fauna and flora. Dress casually and warmly.

Extra tickets for guests are available at the Registration Desk for \$65.00 each but MUST be purchased before 10.00am on Monday.

Restaurants

Japanese

Mikaku	85 Salamanca Place	6224 0882
Orizuru Sushi Bar	Victoria Dock	6231 1999

Nouveau Cuisine

Blue Skies	Murray St Pier	6224 3747
Rockerfellers	11 Morrison Street	6234 3490
Sisco's	Murray St Pier	6223 2059

Steakhouse

Ball and Chain Grill	87 Salamanca Place	6223 2655
Hog's Breath Café	2 Macquarie Street	6236 9955

Mexican

Taco's	41 Hampden Rd Battery Pt	6223 5297
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Italian

Da Angelo's	47 Hampden Rd Battery Pt	6221 7011
Riviera Ristorante	15 Hunter Street	6234 3230

Seafood

Kelley's	5 Knopwood Retreat	6224 7225
Mures Upper/Lower Deck	Victoria Dock	6231 1999
Drunken Admiral	17 Hunter Street	6234 1903

Contemporary

Mummaluka's	89 Salamanca Place	6224 2929
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More-than-Pub Meals

Customs House Hotel	1 Murray Street	6234 6645
Brooke Street Bar & Café	19 Morrison Street	6234 6254
Prince of Wales Hotel	55 Hampden Road	6223 6355
Theatre Royal Hotel	31 Campbell Street	6234 6925

Secretariat

Convention Wise
Mures Building, Victoria Dock
Hobart TAS 7001
Australia

Tel: +61 3 6234 1424
Fax: +61 3 6231 5388
Email: mail@conventionwise.com.au

SUNDAY 28 OCTOBER 2001

TIME	SPEAKER/EVENT
	Field trips - half and full day
4.00pm	Registration desk opens
6.00 - 7.30pm	Welcome Reception

MONDAY 29 OCTOBER 2001

TIME	SPEAKER/EVENT
8.00am	Registration desk opens

PLENARY SESSION

8.30 - 8.40	Official Opening Jim Bacon, Premier of Tasmania Prof Terry De Lacy, CEO of Cooperative Research Centre (CRC) for Sustainable Tourism
8.40 - 9.20	Prof Paul Eagles , Chair of the Global Task Force on Tourism and Parks for the World Commission on Protected Areas of the World Conservation Unit (IUCN) “Meeting the Sustainability Challenge: Planning and Management of Wildlife Tourism”
9.20 - 9.35	Dr Karen Higginbottom , Griffith University. Research on wildlife tourism in the CRC for Sustainable Tourism; Convention Objectives and Outline
9.35 - 10.05	MORNING TEA

10.10 - 11.40 CONCURRENT SESSION A

	PLENARY	TASMAN A	TASMAN B	TASMAN C
	Industry Planning and Development	Managing Environmental Impacts of Wildlife Tourism	Integrating Wildlife Tourism and Conservation	Products and Markets
10.10 - 10.25	Karen Higginbottom - Towards a sustainable future for Australian wildlife tourism	Narelle King, Ralf Buckley -Impacts of tourism on wildlife: a review	Claire Ellis - A global view of the participatory environmental research tourism sector	Peter Dann & Ray Leivers - A long-term study of the costs and benefits of tourism to Penguins on Phillip Island
10.25 - 10.40	George Wilson - Landholders opportunities in wildlife tourism	Chelsea Northrope, Karen Higginbottom - Managing the negative impacts of free-ranging wildlife tourism on wildlife: a review	Sue Broad - Wildlife conservation volunteering - anything but a holiday	Androo Kelly - Innovative approaches to Zoo Tourism
10.40 - 10.55	Lorne Kriwoken, Claire Ellis, Stuart Lennox - The Tasmanian wildlife tourism inventory	Kate Rodger, Susan Moore, Daryl Moncrieff - The role of science in wildlife tourism	Joanne Davies - Naturewise: using tourism as a conservation catalyst	Terri Irwin - Best practice presentation and interpretation in zoos and wildlife parks
10.55 - 11.10	Diane Pearson, Pascal Tremblay - Using GIS for sustainable management of the Top End's wildlife tourism icons	Michael Sorice - Minimising negative impacts from human interactions with the West Indian manatee	Mick McIntyre - The growth and socio economic value of the Whale watching industry worldwide	Mark Manteit - A sustainable vision for Currumbin Sanctuary
11.10 - 11.25	Greg Kirby, Jeremy Robertson - Issues in wildlife tourism in South Australia	Zoe Tanner, Lorne Kriwoken - Mitigating Tasmanian wildlife roadkill	James Higham, Anne Carr - Ecotourism and the conservation of endangered wildlife species: Best practice New Zealand case studies	Rob Allan - Re-positioning David Fleay Wildlife Park in the wildlife tourism market
11.25 - 11.40		Emma Gyuris - Habituation in a tropical seabird: A way for the ecologically sustainable use of island resources ?	Deborah Tabart - How Save the Koala tours can save koalas	

PLENARY SESSION

11.45 - 12.25	Nick Mooney, Wildlife Management Officer, Nature Conservation Branch, Department of Primary Industry, Water and Environment “Devil Restaurants and Seal'd 'n Safe Diving: Responsible Innovation in Wildlife Viewing”
12.25 - 1.25	LUNCH - Launch of CRC Wildlife Tourism Reports
1.25 - 2.05	Prof Sam Ham, University of Idaho, USA, and Associate Prof Betty Weiler, Monash University “100,000 Beating Bird Hearts: Tourism, Wildlife and Interpretation”

MONDAY 29 OCTOBER 2001

TIME SPEAKER/EVENT

2.10 - 3.40 CONCURRENT SESSION B

	PLENARY	TASMAN A	TASMAN B	
	Industry Planning and Development	Managing Environmental Impacts of Wildlife Tourism	Integrating Wildlife Tourism and Conservation	
2.10 - 2.25	Noel Scott - A developing niche: Evolution of a wildlife tourism product-market	Ian McPhail, Jim Thompson - Dingoes on Fraser Island - tourism dream or management nightmare	Tonia Cochran - Conservation in wildlife tourism operations	
2.25 - 2.40	Tony Stokes & Kirstin Dobbs - Marine mammal tourism on the Great Barrier Reef	Leah Burns - When wildlife tourism goes wrong: Stakeholder issues on Fraser Island	Clevo Wilson, Clem Tisdell - Conservation and economic benefits of wildlife-based tourism: Sea turtles and whales	
2.40 - 2.55	Pascal Tremblay - Crocodile tourism in the Top End of the Northern Territory: Summary of the findings	Ross Goldingay, David Newell - Determinants of habitat disturbance by protected area users	Sally Bryant - Tasmania's spectacular animals - where tourism can equal conservation	
2.55 - 3.10	Peter Howard, Darryl Jones - Grey-headed Flying-foxes in the Melbourne Botanic Gardens: A missed opportunity?	David Merritt, Claire Baker - Managing tourism impacts on Australia's glow-worms	Gayle Mayes, Harold Richins - A few observations from Flipper and his friends about dolphin-human interactions	
3.10 - 3.25	Graham Hall - Hunting in Tasmania: A long history and a bright future	Mark Holdsworth - A review of benefits and impacts of tourism on the orange-bellied parrot at Melaleuca, Tasmania	Andrew Tribe - Zoos and wildlife conservation	
3.25 - 3.40		Brad Norman - Whale shark tourism = whale shark conservation	Phil Cameron, Johannes Bauer, et al. - Integrating zoo tourism and native species rehabilitation in Western Plains Zoo	

3.40 - 4.05 AFTERNOON TEA - Sponsored by Australia Zoo

4.05 - 5.40 CONCURRENT SESSION C

	PLENARY	TASMAN A	TASMAN B	TASMAN C
	Industry Planning and Development	Managing Environmental Impacts of Wildlife Tourism	Integrating Wildlife Tourism and Conservation	Products and Markets
4.05 - 4.20	Ronda Green, Karen Higginbottom - A classification of wildlife for tourism	Melissa Giese - Reducing disturbance to Antarctic wildlife during tourist visits	Sally Wilson - Wildlife tourism as a tool for improving animal welfare	Carolyn Fausnaugh - Increasing yield by increasing customer choice
4.25 - 4.40	Kelley Rann, Ros Derrett - A training needs assessment of wildlife tourism operators in tropical New South Wales	Mark Bennett, Lorne Kriwoken - Managing wildlife tourism on Australia's sub-Antarctic Macquarie Island	Tim Nevard - The Mareeba Wetlands: A model for the funding of wildlife management through tourism	Anne Kerr - The nature of the nature traveller
4.40 - 4.55	Alicia Boyle, Allan Arnott, Helen Spiers - Perceptions of training and learning amongst wildlife tourism operators/guides	Stephanie Pfennigwerth - Disease in Antarctic wildlife: An assessment of risk	Trevor Sofield, Fung Mei Sarah Li - Cultural factors affecting wildlife tourism in China	Anne Galletly, Gianna Moscardo - Understanding wildlife tourists: Issues, gaps and opportunities
4.55 - 5.10	Daryl Moncrieff, Michelle Davies, Dave Waayers - A survey of wildlife tour operators in WA	Narelle Clegg - Protecting Wildlife Tourism - A shared responsibility with AQIS	Johannes Bauer, Madeleine Boyd, et al. - Wildlife conservation in Wuyishan Biosphere Reserve, China	Rebecca Saltzer, Gianna Moscardo - Classifying Wildlife Tourists: A market segmentation approach
5.10 - 5.25	Skye Page - Key issues for wildlife spotlighting	Colin Ingram - An assessment of the possible impacts of recreation and tourism access on the Australian Sealion at Carnac Island Nature Reserve	Terry De Lacy, Johannes Bauer et al. - Linking environmental accreditation with Giant Panda tourism and conservation	
5.25 - 5.40			Ganga Ram Singh, Johannes Bauer, et al. - Bird tourism and wetland conservation in Koshi Tappu, Nepal: A race against time?	

5.45pm Buses depart for the Convention Dinner at Mt Field National Park

TUESDAY 30 OCTOBER 2001

TIME	SPEAKER/EVENT
8.00am	Registration desk opens
	PLENARY SESSION
8.30 - 9.00	Jeremy Mallinson, Emeritus Director, Durrell Wildlife Conservation Trust "A Sustainable Future for Zoos and their Role in Wildlife Conservation"
9.00 - 10.30	CONCURRENT WORKSHOPS <ul style="list-style-type: none"> • Industry Planning and Development • Integrating Wildlife Tourism and Conservation • Managing Environmental Impacts of Wildlife Tourism • Products and Markets
10.30 - 11.00	MORNING TEA
	PLENARY SESSION
11.00 - 12.00	Brief report from workshop facilitators Presentation and endorsement of proposed recommendations Conference close
1.30 - 3.30	OPTIONAL WORKSHOP "Developing a wildlife tourism website" University of Tasmania Geography and Environmental Studies Building Geology Lecture Theatre, Room 211 (Turn left inside the main entrance to the building)

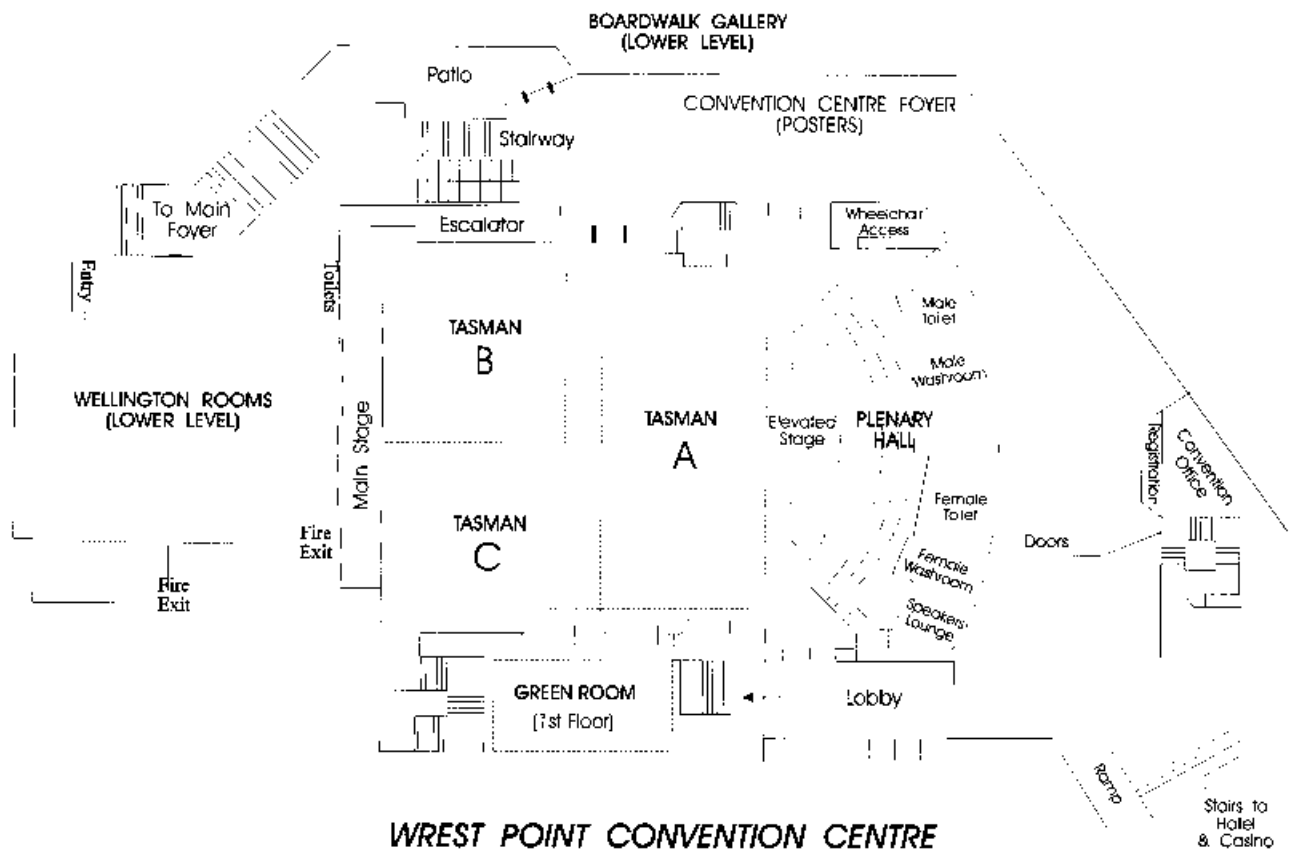
POSTER SESSION :

Tamara Van Polanen Petel - Are humans in Antarctica having an effect of Weddell seals (*Leptonychotes weddellii*)?

Nick Holmes - Developing guidelines for sustainable Human-Penguin interactions in the Sub-Antarctic: Experimental Methodology.

Clare Baker - Our natural glowing treasure: Australia's Glow-worms (*Diptera: Keroplatidae: Arachnocampa Spp.*)

Michelle Davies - A case study of the Black Flanked Rock Wallaby (*Petrogale Lateralis*)



Abstracts on the following pages are arranged in program order. The identifier at the top of each paper (for example: B12) indicates session (B), stream (1) and presentation order (2).

MEETING THE SUSTAINABILITY CHALLENGE: PLANNING AND MANAGEMENT OF WILDLIFE TOURISM

Paul Eagles

Wildlife are an important component of nature-based tourism and of park tourism. Appreciative tourism involving observation, photography and interaction with wild animals is large scale, prominent and growing. Consumptive tourism involving purposeful harming of the animals, such as with fishing and hunting, is large scale, but declining.

Most of the literature on wildlife tourism deals with the possible negative impacts on wildlife of human activities. A small literature deals with the negative impacts on people by wildlife. There is too little emphasis placed upon the positive impacts of tourism on wildlife. There is very little literature on wildlife exploiting tourists for their own benefit.

This paper explores the range of wildlife and human management issues involved in the planning and management of wildlife tourism. Emphasis will be placed upon good practice examples.

BIOGRAPHICAL NOTES:

Dr Paul Eagles is a Professor at the University of Waterloo in Canada. He is a biologist and a planner, specialising in environmental planning. Over the span of 30 years Dr Eagles has worked on a wide variety of projects, with an especially strong emphasis on the planning and management of parks and protected areas. For the last decade he has undertaken substantial international work in nature-based tourism, with experience in over 25 countries. Since 1996, he has been the Chair of the Task Force on Tourism and Protected Areas for the World Commission on Protected Areas for the World Conservation Union based in Switzerland.

Website: www.ahs.uwaterloo.ca/~eagles/

RESEARCH ON WILDLIFE TOURISM IN THE CRC FOR SUSTAINABLE TOURISM; CONVENTION OBJECTIVES AND OUTLINE

Karen Higginbottom

The CRC for Sustainable Tourism has been undertaking a strategic coordinated program of research on wildlife tourism for the last three years. The overall aims of the program are to:

- Identify opportunities for wildlife tourism and facilitate appropriate product development.
- Facilitate enhancement of the sustainability of wildlife tourism.
- Develop an explanatory/ predictive model for wildlife tourism experiences.

These are being addressed through various research projects around Australia, with a range of government and industry partners, and bringing together researchers from a range of different disciplines and universities.

Two key outcomes of this research program to date have been a series of reports – to be officially launched at this conference – and (jointly with Tourism Tasmania) organising Australia's first conference on wildlife tourism.

The overall aim of the Sustainable Wildlife Tourism Convention is to provide directions for Australian wildlife tourism that will help charter a course to maximise benefits for wildlife, tourists, operators and society as a whole. Specifically it aims to:

- Build networks, alliances and communication channels between and among researchers, management bodies and operators involved in wildlife tourism.
- Promote broad participation in development of a sustainable wildlife tourism industry.
- Inform stakeholders of recent research findings on wildlife tourism and their implications.
- Increase stakeholder understanding of sustainability as it relates to wildlife tourism – in particular the idea that it includes economic, environmental and social aspects.
- Increase recognition of the role of operators in wildlife conservation.
- Identify opportunities to increase the diversity and distribution of wildlife tourism products.

Building on recommendations from research conducted by the CRC, it is envisaged that the conference will produce recommendations for the future development of wildlife tourism that will play a key role in guiding future directions of the industry.

BIOGRAPHICAL NOTES:

Dr Karen Higginbottom coordinates the wildlife tourism research program of the CRC for Sustainable Tourism. She is also a lecturer at Griffith University, where she teaches in wildlife management, vertebrate biology and nature-based tourism. Her research interests are in wildlife ecology and management, especially regarding their integration with 'human dimensions'. Her current research focuses on wildlife management issues relating to wildlife tourism.

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Griffith University, PMB 50, Gold Coast Mail Centre, QLD 9726
Phone: (07) 5552 8059, Fax: (07) 5552 8067
Email: k.higginbottom@mailbox.gu.edu.au

TOWARDS A SUSTAINABLE FUTURE FOR AUSTRALIAN WILDLIFE TOURISM

Karen Higginbottom

This paper draws together findings of research conducted by the CRC for Sustainable Tourism on wildlife tourism, and uses this to make recommendations to facilitate sustainable growth of this sector in Australia. Information is drawn mainly from literature research, compilation of a database of Australian wildlife tourism operators, consultation with key stakeholders, and limited primary research.

Wildlife tourism in Australia consists of a wide range of different types of activities, and involves a very wide range of species. There are more than 1200 enterprises that include wildlife as a planned component of the experience they offer to tourists. Australia has a number of strong competitive advantages in relation to wildlife tourism, but there are also a number of major constraints: both must be considered in planning for the future of this sector.

Key recommendations for future directions of wildlife in Australia are to:

- Encourage innovation and adoption of world's best practice in product development, supported by adequate research
- Raise standards of product quality
- Improve effectiveness of marketing
- Build industry capacity to deliver high quality wildlife tourism experiences and be financially successful
- Improve and expand application of techniques for minimising negative effects of wildlife tourism on wildlife
- Improve and expand application of techniques for maximising positive effects of wildlife tourism on wildlife
- Make regulation more operator-friendly while still achieving goals for high industry and environmental standards
- Improve effectiveness of accreditation programs
- Increase levels of government support for sustainable development of wildlife tourism
- Increase the role of Indigenous people and issues in wildlife tourism
- Build communication channels between wildlife tourism stakeholders
- Initiate coordination and strategic development of wildlife tourism
- Provide and facilitate funding for research to address key priorities, particularly understanding of demand-side issues.

BIOGRAPHICAL NOTES:

Dr Karen Higginbottom coordinates the wildlife tourism research program of the CRC for Sustainable Tourism, which comprises more than 20 projects in various parts of Australia. She is also a lecturer at Griffith University, where she teaches in wildlife management, vertebrate biology and nature-based tourism. Her research has involved wildlife ecology and behaviour and environmental and wildlife management, especially regarding its integration with 'human dimensions'. Her current research focuses on wildlife management issues relating to wildlife tourism. She has extensive experience as a wildlife tourist in many countries and recently spent three years living in Africa.

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LANDHOLDERS OPPORTUNITIES IN WILDLIFE TOURISM

George Wilson

Wildlife is clearly a valuable asset to Australia's tourism industry, featuring prominently in promotion. Yet on rural properties where most of wildlife occurs, many species including kangaroos, emus or parrots are at best tolerated or at worst perceived as a pest of conventional agriculture.

Many agricultural practices are doing immense damage. The costs of restoring the natural environment and maintaining productivity have recently been estimated at \$60 billion. Governments are looking for innovations that will encourage more sustainable production systems. For example the Murray Darling Basin Commission has a strategic initiative to match land uses to land capability and to integrate nature conservation with production systems.

The opportunities for landholders to change their attitudes to wildlife and become part of wildlife tourism are profound. In my experience both domestic and overseas travellers are very keen to visit homesteads, spot wildlife on private property and have land management and conservation issues interpreted for them. Wildlife tourism can give landholders the incentive for biodiversity conservation and landscape rehabilitation.

Income from wildlife tourism in a number of overseas countries is greater than conventional livestock production. In southern Africa private nature reserves exceed the national park network four times. In Europe and North America wild species including deer and waterfowl have value and thrive on private lands. A trial is needed of these opportunities in Australia. It would measure the size of potential returns from wildlife tourism, bushtucker enterprises, and sale of live plants and animals for conservation and ecosystem services.

The key is to give landholders both greater responsibility for wildlife and the opportunity to benefit financially from conservation activities. Wildlife enterprises can enable diversification, create employment in rural communities, and reverse natural resource management problems. Land holders can help reverse the trend for Australia's national parks and reserves to become biodiversity islands.

BIOGRAPHICAL NOTES:

Australian Wildlife Tours, Canberra

Dr George Wilson from Australian Wildlife Conservation Services consults on wild animal management, nature conservation, ecotourism, emerging rural industries and support for Aboriginal communities. Prior to establishing AWCS he worked for three years work with economic policy company - ACIL Consulting Pty Ltd. Before that he managed research projects in the Bureau of Resource Sciences where he held Branch Head responsibilities for seven years. His primary qualifications are in veterinary science and his post-graduate degrees and many of his publications are on wildlife management and conservation. He has a twin engined commercial pilots licence and conducts nature based flightseeing ecotours to the outback. In addition to wildlife, expeditions feature homesteads and cultural heritage through out Australia. His tour company is Australian Wildlife Tours.

THE TASMANIAN WILDLIFE TOURISM INVENTORY

Lorne K. Kriwoken¹ Claire Ellis² and Stuart Lennox³

The island of Tasmania has a great range of habitats that support diverse and unique wildlife populations. Wildlife tourism offers the State significant potential in terms of enhancing the visitor experience, economic benefit, employment and wildlife conservation. Tasmania has a substantial natural resource base upon which to develop wildlife tourism as a key tourism product. This paper begins by examining the diverse and unique Tasmanian wildlife including many species found no where else, such as the Green Rosella, Tasmanian Devil, Quoll and the Eastern Barred Bandicoot. The methodology adopted to identify and map core wildlife tourism viewing opportunities across Tasmania is presented. The advantages of applying a Geographical Information System to 106 operators, 118 different wildlife tours and over 200 wildlife species, is critically examined. The relevance of these core wildlife tourism viewing opportunities are discussed with respect to: nocturnal experiences; marine viewing; bird watching; and ground mammals. The paper suggests how to enhance wildlife viewing sites for tourism and how to improve the accuracy and quality of information received by tourists. Specific reference is made to marketing wildlife tourism to both the international and domestic markets. The paper discusses how the inventory is integral to and part of a broader Wildlife Tourism Strategy supported by Tourism Tasmania, Parks and Wildlife, the University of Tasmania and Forestry Tasmania. The paper concludes with a summary of potential future uses of the wildlife inventory. Suggestions are made on how the inventory could be used to assist industry and government with critical information to establish Tasmania as a world-class wildlife destination and facilitate the sustainable development and management of wildlife tourism.

BIOGRAPHICAL NOTES:

1. Dr Lorne K. Kriwoken is a Lecturer at the Centre for Environmental Studies, School of Geography & Environmental Studies, University of Tasmania. His research interests include wildlife tourism, protected areas and environmental impact assessment. Dr Kriwoken is the Project Coordinator for a two year CRC Sustainable Tourism project on developing a Tasmanian wildlife inventory.

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2. Claire Ellis is a PhD candidate at the Centre for Environmental Studies, School of Geography & Environmental Studies, University of Tasmania. Claire's doctoral research focuses on participatory environmental research tourism. Her research interests include nature based and ecotourism especially in Indonesia and the South Pacific.

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USING GIS FOR SUSTAINABLE MANAGEMENT OF THE TOP END'S WILDLIFE TOURISM ICONS.

Diane Pearson¹ and Pascal Tremblay²

Geographic Information Systems (GIS) have the potential to be an important tool for the tourism industry. In particular, they are of great value for understanding the distribution and abundance of wildlife that add value to important tourist destinations. This paper shows how this technology can be of benefit to the tourism industry in the Top End by assisting in the sustainable management of its main wildlife tourist icons. In order to ensure that important wildlife species for tourism in the Top End are not being unduly affected by human activity, which would endanger their sustainability, GIS and remote sensing technology can be used to map the distribution of these species and to examine land use change that has occurred in recent years. By mapping the expected distribution of the main tourist icons, important locations for these species can be identified and, by examining the changing pattern of land use that is associated with human activity, sites can be identified where important habitat for these species has been put under threat. The main wildlife icons for the Top End were determined from visitor surveys. The species identified were crocodiles, kangaroos/wallabies, buffalo, waterbirds and barramundi. To illustrate the usefulness of GIS, a study site that covers the Darwin to Kakadu corridor was chosen to map the distribution of these species and to examine changes or losses of habitat that may be a threat to the persistence of these species in the region. The Darwin to Kakadu corridor is an area of high tourist activity as well as being a region that has been put under considerable pressure from development in recent years.

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ISSUES IN WILDLIFE TOURISM IN SOUTH AUSTRALIA

Greg Kirby¹ & Jeremy Robertson²

Wildlife tourism is a new and rapidly developing sector of the tourism industry in South Australia and further expansion is supported by the South Australian Tourism Commission. However, a number of serious issues relating to management, marketing and quality have already developed and we will discuss the following key issues:

- the severe conflict between population biologists and tourism managers caused by the koala population on Kangaroo Island.
- access to suitable land sites for whale watching.
- conflict between fishers and marine mammals.
- the protection of penguin populations from human impacts.
- the growth of private enterprise conservation bodies such as Earth Sanctuaries and their approach to wildlife tourism.
- the effective marketing of bird watching.
- the education of guides and managers.

We suggest that many of the problems arise from a lack of understanding about population dynamics, the economic value of wildlife tourism and the need for sustainability. Furthermore the staff of traditional tourism agencies are usually inadequately trained to understand the needs of wildlife tourists and the need for sustainable practices.

BIOGRAPHICAL NOTES:

1. Greg Kirby trained in NZ and Australia as a zoologist and subsequently has worked with parasitic fungi and native plants (especially Sturt Peas). Started teaching in the new ecotourism degree at Flinders University six years ago.

2. Jeremy Robertson trained in zoology in Scotland and Australia, then worked in Sweden on frogs and birds. Set up a nature based tourism business in Scotland for several years before coming to Flinders as a lecturer in ecotourism and has continued research on birds (mainly Pelicans) and ecotourism.

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TOURISM AND WILDLIFE

Narelle King and Ralf Buckley¹

Tourism involves a variety of different activities, all of which can have impacts on wildlife. Some activities, such as hunting, fishing and souvenir collection, involve the deliberate harvesting of wildlife. These activities kill target species, affecting their population size and age structure. They may also lead to changes in behaviour and resource utilisation. They can also impact on non-target species, with similar effects. Some activities, such as whale-watching, use wildlife in a non-consumptive way. These activities can have similar impacts as deliberate harvesting of wildlife, because many wildlife consider humans to be potential predators, and hence respond to wildlife viewing tourism in much the same way. Other tourism activities, such as skiing or boating, do not use wildlife, but are carried out in the same area or use the same resources as wildlife. These activities can also lead to changes in behaviour, resource utilisation, population size and age structure, by disturbing wildlife or wildlife habitat. They can also lead to the introduction of exotic species and diseases into new areas. The development of tourism infrastructure can also disturb wildlife and wildlife habitat, with similar effects.

BIOGRAPHICAL NOTES:

1. Ralf Buckley is Chair in Ecotourism and Director of the International Centre for Ecotourism Research at Griffith University, and Director, Nature and Adventure Tourism for the Cooperative Research Centre for Sustainable Tourism. He runs the Green Guides projects on best-practice environmental management in tourism and the People in Parks projects on monitoring, management and economics of tourism and recreation in public lands, and was convenor of the Australian Academy of Science 2001 Fenner Conference on Nature Tourism and Environment. He has written over 200 articles in science, management and tourism journals, 7 books, and over 100 consultant reports; and has carried out research and consultant projects in over 40 countries worldwide.

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MANAGING THE NEGATIVE IMPACTS OF WILDLIFE TOURISM ON WILDLIFE: A REVIEW

Chelsea Northrope¹ and Karen Higginbottom

Management processes that minimise negative effects on wildlife are critical to sustainable wildlife tourism. Management should occur within a comprehensive framework that includes setting clear management objectives, implementing appropriate management actions, conducting monitoring, and using the latter to adjust management actions. It should also include effective mechanisms for stakeholder involvement

Management actions designed to mitigate negative effects of wildlife tourism on wildlife can focus on either wildlife or visitors. In most cases, it will be appropriate to focus on management of visitors or operators, in terms of their numbers, spatial or temporal distribution, behaviour, expectations and/or attitudes. Methods that can be used include use of physical structures to “harden” the environment/wildlife, regulation (by governments or industry), use of economic instruments, education and more rarely, active management of wildlife. All these methods are used in Australia and elsewhere in relation to wildlife tourism, but available research does not allow clear conclusions to be drawn about their relative merits. There are however widespread views that greater investment in educational approaches and in industry self-regulation is desirable. The most effective mix of management measures in any particular situation will depend on a number of factors such as management objectives, magnitude of likely effects, and availability of suitable expertise.

There are a number of well-established principles of environmental monitoring which should be considered in the design of monitoring programs, but there appears to be little systematic application of these in Australian wildlife tourism. If the use of monitoring is to be more widespread and effective, user-friendly monitoring techniques and guidelines should be developed and information about their use disseminated. Creative ways to overcome obstacles to implementation of monitoring also need to be found in the face of resource constraints.

In practice, resource constraints will mean that management efforts must be prioritised, based on research and local expertise. Further research is needed to assist in prediction of likely impacts, and to assess the likely effectiveness of different management approaches. Some species and situations may need to be precluded from wildlife tourism.

BIOGRAPHICAL NOTES:

1. Chelsea Northrope is currently a Research Officer with the Wildlife Tourism Subprogram for the CRC for Sustainable Tourism, in which she has been involved for the past 18 months. She holds a BSc in Ecotourism from Griffith University and was awarded the Bachelor's Medal for highest overall GPA in her faculty. Prior to study, Chelsea was employed by Lakes and Wilderness Tourism in Victoria for 2 years where she was involved in the management of various tourism information centres. Her research interests centre around environmental interpretation and impact management of wildlife tourism and ecotourism.

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THE ROLE OF SCIENCE IN WILDLIFE TOURISM: TOWARDS BEST PRACTICE

Kate Rodger¹, Susan A Moore and Daryl Moncrieff

Australia has a long history of wildlife research and conservation biology. However, the contributions of these forms of science to the development, management and interpretation of wildlife tourism are poorly known. Wildlife tourism is burgeoning in Australia and other parts of the world due to an increasing awareness of the intrinsic value of wildlife (rather than consumptive value), increased marketing effort and a recognition by the industry of its economic potential. This paper describes recent research exploring the existing and potential contributions of science to the Western Australian wildlife tourism industry.

The roles of science in the current management of two components of the wildlife tourism industry were explored - managed attractions (e.g. threatened species in extensive-fenced natural areas) and specialised tours viewing animals in relatively undisturbed surroundings. As well, potential roles for science were investigated within these industries as well as with scientists involved in wildlife research and management. Data collection techniques included interviews, participant observation and a literature review. The expected outcomes from this study are best practice guidelines for using science and scientific research in wildlife tourism.

BIOGRAPHICAL NOTES:

1. Kate Rodger, who comes from a background in travel and tourism, is a research student completing her honors with Sue Moore and Daryl Moncrieff in the School of Environmental Science at Murdoch University, Perth, Western Australia. Her current research project, funded by the WA Department of Conservation and Land Management, focuses on the contribution of science to the sustainable management of wildlife tourism. This work has investigated two forms of non-consumptive wildlife tourism, managed attractions and specialised tours. Her PhD, funded by the CRC Sustainable Tourism and Murdoch University which she will start next year, will investigate ways of improving the application of science (including monitoring) to managing the impacts of wildlife tourism.

MINIMISING NEGATIVE IMPACTS FROM HUMAN INTERACTIONS WITH THE WEST INDIAN MANATEE (*TRICHECHUS MANATUS*) IN CRYSTAL RIVER, FLORIDA, U.S.A: MANAGING A VALUE CONFLICT

Michael Sorice

Each winter, over 300 endangered West Indian manatees (*Trichechus manatus*) migrate to Crystal River, FL to thermoregulate in its naturally warm springs. This phenomenon draws approximately 100,000 tourists who take advantage of the easy access and clear water to observe and interact with manatees. The manatee encounter experience is unique, allowing tourists the opportunity to interact with a large, docile marine mammal. Participants often touch, pet, and even “play” with manatees during encounters. However, the potential for harassment concerns some stakeholders within the manatee protection community. In an effort to understand the management of manatee encounters in light of these concerns, this study examined the context in which decisions regarding the acceptability of manatee encounters are made.

Field research included participant observation, formal interviews, and document analysis involving four stakeholder groups: the business community, manatee encounter participants, research/management agencies, and an advocacy group. Stakeholder perspectives on manatee encounters varied based on the perceived potential costs of harassment, scientific information on negative impacts, and the perceived benefits of permitting encounters (e.g., increased conservation support). These perspectives corresponded with each group’s interpretation of the Endangered Species Act policy prohibiting harassment. Groups with stricter interpretations tended to perceive any physical contact as harassing, whereas other groups interpreted harassment as direct harm to the animal.

The management of manatee encounters is a “wicked problem.” The problematisation of encounters is not the result of scientific information on negative impacts; rather, it is an issue of divergent values. Consequently, there is no technical or “right” solution. To minimise negative impacts and achieve a sustainable relationship with the resource, the business community must willingly invest in manatee protection, and management decisions on manatee encounters must incorporate stakeholder input. Planning processes, such as the Limits of Acceptable Change, provide proactive consensus-based frameworks that can be applied to the management of human-wildlife interactions.

BIOGRAPHICAL NOTES:

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MITIGATING TASMANIAN WILDLIFE ROADKILL

Zoë Tanner¹ and Lorne K. Kriwoken

Wildlife roadkill is a critical issue in Tasmania and it has repercussions for the wildlife and tourism industry throughout Australia. Wildlife on the roads can be dangerous and animal carcasses are unsightly and do not support the nature based tourism experience Tasmania is promoting. Significant numbers of animals are killed on the road each year, adding substantial pressure to a range of wildlife populations. This paper will detail the research presently underway in Tasmania to mitigate wildlife roadkill. The paper begins with an overview of the broad range of roadkill mitigation measures that have been trialed in Australia. A discussion of the definition and relevance of Tasmanian roadkill 'blackspots' is then introduced. Experimental designs to be trialed in Tasmania are examined with specific reference to: signage, sonic devices, reflectors, escape ramps, lighting, culvert modification, vegetation management and aerial walkways. The paper discusses why the target animals include macropods, wombats, dasyurids, bandicoots, ringtail possums and platypus. Preliminary results are reported that will benefit both the wildlife and the tourism industry. Implications for this wildlife roadkill mitigation research will be assessed in a broader Australian context.

BIOGRAPHICAL NOTES:

1. Zoe Tanner is a Research Assistant at the Centre for Environmental Studies, School of Geography & Environmental Studies, University of Tasmania. She recently completed a BSc (Honours) in zoology and her research interests include wildlife conservation and wildlife tourism.

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Habituation in a tropical seabird: A way for the ecologically sustainable use of island resources?

Emma Gyuris

Islands of the Great Barrier Reef (GBR) provide a unique opportunity for visitors to view a large variety of tropical seabirds. The impacts of human visitors to GBR nesting colonies has become a significant management concern, yet disturbance research on tropical seabirds is notably absent. I report on work that addresses this lack by quantifying some of the ecological consequences of visitor intrusion into nesting aggregations of *Sterna anaethetus*, a ground nesting tropical tern, commonly occurring on islands of the Great Barrier Reef Marine Park. I used three treatments ranging from minimal to frequent intrusions into nesting aggregations as predictor variables. I measured chick weight-at-age and, using video surveillance technology, parental behaviour as dependent variables. The findings confirm and extend the results of earlier experiments (reported elsewhere) and those of other workers in concluding that benign, frequent intrusions into nesting aggregations of seabirds may have less significant ecological impacts than intermittent intrusions. Well managed, frequent visitor presence that facilitates the development of tolerance or habituation in the birds would allow for the ecologically sustainable non-consumptive use of island resources.

BIOGRAPHICAL NOTES:

Emma Gyuris BSc, MSc (Monash) PhD (JCU)

Research activities and interests include the impact of recreational visitors on seabirds; population genetics of seabirds and sea turtles; the ecology of sea turtles, especially that of eggs and hatchlings; the contribution of seabirds and sea turtles to visitor satisfaction at islands of the Great Barrier Reef Marine Park.

Currently held positions: Lecturer, TESAG, JCU; Chief investigator, CRC Reef (Seabird management in the GBRWHA); Secretary, Australian Coral Reef Society.

A GLOBAL VIEW OF THE PARTICIPATORY ENVIRONMENTAL RESEARCH TOURISM (PERT) SUB-SECTOR.

Claire Ellis

This paper examines the international participatory environmental research tourism (PERT) sub-sector. The term refers to trips where participants support environmental research both financially and also by actively participating in the process. Within Australia, Earthwatch and Landscape Expeditions are two of the better-known styles and this paper discusses the wide range of creative and innovative trips that often also fall within the wildlife tourism sector.

There have been numerous calls for greater analysis of methods the tourism industry can utilise to provide conservation benefits in nature-based tourism and more specifically in wildlife tourism. Until recently the newly emerged PERT sub-sector has received little attention despite its apparent potential with academic literature generally concentrating on case studies or single enterprises. The PERT sub-sector is small, and unlikely to rival many more established forms of tourism in size in the near future. Despite this, it is worth examining. It has potential for rapid growth and has the ability to contribute to positive conservation outcomes. Its value can also be wider, both as a marketing tool for individual companies and across the broader tourism industry.

Involving participants in environmental research is a crucial aspect of this sector and also a defining factor. It adds a significant level of complexity to trips from both an operational aspect and an academic viewpoint, as it must balance scientific requirements with tourism. Because of this, partnerships or collaborative approaches are common.

BIOGRAPHICAL NOTES:

Claire Ellis is a PhD candidate at the Centre for Environmental Studies, School of Geography and Environmental Studies, University of Tasmania. She has lived in Asia working for environmental groups such as the World Wide Fund for Nature and in the wildlife tourism field for over ten years, concentrating on eastern Indonesia. More recently she has been living in the USA. While overseas she has written two books as well as published numerous magazine articles. Her overseas work and experiences led her to select her current PhD research topic examining the potential of this new sector.

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WILDLIFE CONSERVATION VOLUNTEERING - ANYTHING BUT A HOLIDAY

Sue Broad

Conservation holidays, which are experiencing increasing growth in opportunities and participation, can be an intense form of tourist-wildlife interaction, where tourists act as volunteers, providing labour and funding for wildlife conservation projects. These financial and 'in kind' contributions can have a positive effect on wildlife and their habitats, however, despite the growth of this market, and the coverage afforded it by the popular press, conservation holidays have received little academic attention. This paper presents the results of a case study employing participant observations and in-depth interviews to investigate volunteering at the Gibbon Rehabilitation Project in Thailand.

The study explores the meaning that volunteer participants attach to their volunteering experience, and seeks to examine the relationship between volunteers, their volunteering experiences and the outcomes that eventuate, including whether and how the participants' attitudes and behaviour with respect to wildlife conservation are affected.

Despite the long working hours and the fairly basic conditions, volunteers overwhelmingly expressed enjoyment of their experiences. Positive aspects of their experiences related to both their social and work activities, with many speaking of the satisfaction of doing meaningful work with like-minded people.

The majority of participants demonstrated a high level of prior commitment to wildlife conservation, with volunteering at a wildlife conservation project a continuation of a special interest. As a result, it is not surprising that one of the most frequently identified consequences of volunteering were personal growth, and, despite perceptions of management problems and a lack of success at the project, a strengthened commitment to future involvement in wildlife conservation. For several participants, volunteering was a life-changing experience, as they reconsidered their careers and decided to work with wildlife, having previously been employed in an unrelated field.

BIOGRAPHICAL NOTES:

Sue Broad holds a Bachelor of Business and Honours in Social Science from the University of Newcastle. Her Ph.D. research took her to Thailand for 8 months, where she volunteered at a wildlife conservation project. Her research interests are wildlife tourism, tourism and conservation, nature-based tourism, and interpretation. The paper being presented is based on her Ph.D. research.

NATUREWISE: USING TOURISM AS A CONSERVATION CATALYST

Joanne Davies

This paper explores how Australia's largest conservation volunteering organisation uses tourism as one mechanism to help protect our environment. Conservation Volunteers Australia through its range of programs currently achieves 40,000 annual volunteer days, which is equivalent to \$5 million dollars worth of conservation work. The 1,500 international volunteers who annually participate in a conservation holiday experience are one of the major contributors to this output. Whether it be building a 20km fence to help save Bilbies from extinction, assisting researchers to track and monitor endangered Yellow Footed Rock Wallabies or removing litter during a coastal clean up project, these volunteers help to make a considerable contribution to the enhancement of our natural environment. To expand on the current success of these tourism activities Conservation Volunteers Australia is now developing a series of ecotour programs. The ecotours will provide a unique touring experience, which attracts a greater diversity of people to be involved in meaningful conservation experiences while enhancing the organisations financial capacity to support further conservation activities. The project also provides new opportunities for cooperative ventures with partner organisations such as protected area managers, researchers, conservation organisations and private landholders, to achieve wider community participation in hands on conservation work.

BIOGRAPHICAL NOTES:

Joanne has specialised in the Ecotourism industry for over 7 years. Her expertise ranges from hands on operations to business development and marketing. Joanne is currently responsible for the development and operation of a new Australian based Ecotour business for Conservation Volunteers Australia. She has also been an active Committee Member of the Ecotourism Association of Australia for the past 4 years and is currently involved in the working party for International Year of Ecotourism 2002.

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THE GROWTH AND SOCIO ECONOMIC VALUE OF THE WHALE WATCHING INDUSTRY WORLDWIDE

Mick McIntyre

The International Fund for Animal Welfare (IFAW) is committed to identifying and promoting solutions to conservation challenges that benefit both animals and people. Some of our most significant and successful work over the past decade has been on whale watching. This paper presents a review of whale watching worldwide and IFAW's role in supporting its development.

Whale watching has grown from humble beginnings in the 1950s to become an almost universal human passion. As a commercial endeavor whale watching - with important educational, environmental, scientific, and other socioeconomic benefits - is now at least a US\$1 billion industry attracting more than 9 million participants a year in 87 countries and territories. In Australia in 1998 over 730,000 people paid over US\$11 million to go commercial whale watching.

In many places, whale watching provides valuable, sometimes crucial income to a community, with the creation of new jobs and businesses. It helps foster an appreciation of the importance of marine conservation, and provides a ready platform for researchers wanting to study cetaceans or the marine environment. Whale watching offers communities a sense of identity and considerable pride. In a number of places, it does all of the above, literally transforming a community.

Through our international workshops and gatherings of experts, codes of conduct and research reports, and on-the-ground work in many countries, IFAW is now widely recognized as a driving force behind the growth and development of whale watching worldwide.

BIOGRAPHICAL NOTES:

Mick McIntyre is director of the Asia Pacific region at the International Fund for Animal Welfare (IFAW). Mick founded Whales Alive in 1992, an environmental organisation dedicated to the protection and celebration of whales. Mick recently joined IFAW and brings with him programmes that he was running with Whales Alive including the sustainable development of whale watching nature tourism in the Kingdom of Tonga. He has served on the Australian Government delegation at the International Whaling Commission meetings as an environmental advisor every year since 1996. Mick works closely with other international NGOs to assist with the design and implementation of environmental programs. Film production plays a key part in Mick's life and with his partner formed Second Nature Films to produce films dedicated to raising awareness of environmental issues. Their most recent film is a documentary on whale watching around the world and the effect the industry is having on local communities.

ECOTOURISM AND THE CONSERVATION OF ENDANGERED WILDLIFE SPECIES: BEST PRACTICE NEW ZEALAND CASE STUDIES.

J. E.S. Higham¹ and A.Carr²

This paper examines the potential for ecotourism operations to contribute in meaningful ways to the conservation of protected and endangered avian and marine mammal species in New Zealand. The paper reports on a two year (1999-2001) Government-funded research project that has involved the collection of qualitative and quantitative data from twelve ecotourism operations throughout New Zealand. The authors review four case study operations that offer contrasts in terms of the nature of the respective operations and the techniques that are applied to both wildlife and visitor management. All four study operations provide varied but valuable insights into the potential for ecotourism operations to meet the requirements of a sustainable commercial operation, while contributing in valuable ways to the plight of endangered species.

BIOGRAPHICAL NOTES:

1. Dr. Higham's research interests focus on various subjects including ecotourism and nature based tourism. He is currently principle researcher on a government funded research project that examines the environmental values held by visitors to ecotourism operations in New Zealand. This research has included numerous visits to the twelve ecotourism operations that provide the research case studies. The current paper draws on qualitative data including observations, and interviews with visitors and operators at selected operations.

2. Anna Carr is co-researcher on the aforementioned research project

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HOW SAVE THE KOALA TOURS CAN SAVE KOALAS

Deborah Tabart

Save the Koala Tours is owned by the not for profit Australian Koala Foundation (AKF), and every dollar raised through its efforts is diverted into the work of the AKF. The Tours began by planting trees in wildlife parks and zoos as supplementary food for captive koalas, thereby reducing the need to collect Eucalyptus leaves from the wild. In recent years Save the Koala Tours has begun planting in the wild, which has directly helped koalas under immense urban pressures. In total, approximately 20,000 trees have been planted through the Tours.

This paper explores the conservation benefits of Save the Koala Tours to koalas and the environment, as well as the problems and challenges, especially from a conservation standpoint. It then identifies logical solutions for some of those problematic areas.

BIOGRAPHICAL NOTES:

Deborah Tabart is the Executive Director of the Australian Koala Foundation, a position she has held for almost 14 years. She is an elder stateswoman of the international conservation community and is affectionately known as “The Koala Woman”.

Since 1988 when she joined the Australian Koala Foundation, Deborah has transformed the fledgling organisation into a high profile, internationally recognised organisation which has committed over \$5 million for koala conservation and raised global awareness of the koala’s plight. Deborah Tabart is the primary architect and visionary behind the Koala Habitat Atlas - an initiative to map koala habitat using GIS and satellite technology (and recipient of a Computerworld Smithsonian Medal for Innovative Use of Technology) and the National Koala Act, a revolutionary piece of legislation currently being drafted to protect koala habitat and provide incentives for landholders.

In 1998, Deborah became the Founder and a Director of Enviromap the World, a company dedicated to mapping the world for the good of all. She is dedicated to the conservation of biodiversity around the world, and helping people to make a better world.

Documentaries & Publications

Deborah Tabart and her work with the Australian Koala Foundation for the conservation of the koala has been the subject of a number of wildlife documentaries and current affairs stories. She was recently (2001) described as the love child of Mother Teresa and General Patton in a documentary on NPR (National Public Radio) in the US, one of the most influential current affairs programs in that nation. She featured as a ‘champion’ of the koala’s cause in the Canadian series, “Champions of the Wild” and Film Australia’s “Koalas - the Bare Facts”. She has featured in both television and magazine stories by National Geographic, Sixty Minutes, Jack Hanna’s Animal Adventures, NBC Dateline & ABC’s Prime Time in the US, the internationally renowned “Wildlife Conservation”, Geo Australasia and Geo Germany. She is the subject of numerous other articles in magazines and journals & features regularly on television & radio.

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A LONG-TERM STUDY OF THE COSTS AND BENEFITS OF TOURISM TO PENGUINS ON PHILLIP ISLAND

Peter Dann¹ and Ray Leivers

Tourists have been watching Little Penguins *Eudyptula minor* come ashore at Summerland Beach on Phillip Island in southern Victoria since 1928. This nightly event, known as the “Penguin Parade”, currently attracts 522,000 visitors each year. Sixty percent of visitors come from overseas and it is the most important component of international tourism in the region.

Approximately 10% of the 26,000 breeding penguins on Phillip Island are involved with tourism at the Parade. Average numbers of penguins have fluctuated over the past two decades and potential causes, including tourism, have been examined extensively. Long-term studies have shown that demographic parameters for penguins are the same for penguins breeding at the Parade as for those breeding away from the tourism area, indicating that factors other than tourism are responsible for the fluctuations.

There have been obvious cultural and financial benefits to the Victorian community. The penguins at the Parade are one of the most recognised symbols of Victoria and prominent in the Victorian identity. It has been estimated that the Penguin Parade generates just over \$100 million per annum for the Victorian economy and, directly and indirectly, creates employment for 1000 people.

Between 12-15% of the income of the Penguin Parade is committed to research and conservation projects. The generation of revenue by the penguins at the Parade has been a persuasive factor in ensuring their proper management, and exceptional attention has been given to solving the difficulties facing this particular penguin population.

This is an example where there have been obvious benefits to both wildlife and people from large-scale tourism with no identified detriment to the wildlife over a 30 year period. However it emphasises the necessity for effective monitoring of the long-term effects of visitors on wildlife.

BIOGRAPHICAL NOTES:

1. Peter Dann is employed by the Phillip Island Nature Park in Victoria to manage a research group carrying out investigations on the Island's fauna, particularly Little Penguins and Australian Fur-seals.

Peter has worked on penguins throughout the southern hemisphere over the past 20 years and was a recipient of an ANZAC fellowship to study little penguins in New Zealand in 1991-92 and was a research associate of the Percy FitzPatrick Institute for African Ornithology at the University of Cape Town, South Africa in 1996.

He has published extensively on seabirds and shorebirds in Australasia, including a book entitled “The Penguins: ecology and management” in 1995 co-edited with Ian Norman and Pauline Reilly. He has been Chairman of the Australasian Seabird Group (special interest group of Birds Australia) since 1993.

Phillip Island Nature Park

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INNOVATIVE APPROACHES TO ZOO TOURISM

Androo Kelly

Six hundred million people per year (10% of the worlds population) visit a zoo. The human fascination for all animals, especially mammals, is unquestionable.

The last decade has seen a radical shift in philosophy, ethics and practice within the zoological world, going from collectors and exhibitors of wild animals for the curious onlooker to a vital and integral role in the display of eco-systems featuring animals.

A significant change has been seen in the area of interpretation which includes the overall education of visitors through all types of interpretative mediums from high-tech multimedia, signage, immersion, interaction and state of the art mega-dollar displays, through to personalised guiding and “keeper talks”. Zoos are recognised and utilised by the education system as a vital resource for teaching students environmental education and biodiversity in an entertaining and interactive environment.

Coinciding with this development within the zoological industry is a market driven push to develop more “in situ” wildlife experiences. Presently many wildlife tourism operators offering “in situ” product view themselves as “opposite” the zoo industry process, reinforced by their clients attitude to “zoos” (animals confined by captivity).

Zoos, on the other hand, have been increasingly involved in conservation, research and education, increasingly resourcing “in situ” processes, and, within the Australian region, potentially moving towards developing and marketing off-site wildlife tourism product. Some North American zoos have been working this way for some time, organising, marketing and conducting tours to the Antarctic, Africa and Australia, including Tasmania, for example.

This paper details a Tasmanian product that is offering a combined approach of the captive component dovetailed with in situ viewing, providing a “whole” wildlife tourism package, with recommendations of more integrated/ “networked” approaches to wildlife tourism to assist growth and sustainability.

As with wildlife in isolation, the isolated operator is more likely to be “endangered”.

BIOGRAPHICAL NOTES:

Androo has maintained a passion from early childhood years thru to the present for Tasmanian Wilderness, in particular the native fauna. A back-ground in physical education, health & recreation saw him using the wildlife and wilderness medium in delivery of programs and projects throughout the late 70's and 80's.

In 1986 Androo started work at the Trowunna Wildlife Park as the Wildlife manager and since Sept. 1993 has been proprietor.

Trowunna has endeavoured to capture the essence of environmental wildlife interpretative display by encompassing the holistic well-being of animals and the inter-connectedness into the natural environment. One of the primary focus areas of this park is the rehabilitation of orphaned and injured native wildlife as well as educative awareness channelled thru a ‘hands on’ experience with qualified Animal keepers.

Androo and his staff are committed to the philosophy of recreational education in wildlife conservation and resources. He is presently involved in establishing the Tasmanian Devil Research Centre at Trowunna as well as research and breeding programs with the Spotted Tail Quoll. He has also been involved with natural history documentaries, both nationally and internationally, as well as a variety of television shows. Androo is committed to sustainable nature-based tourism opportunities and is accredited in heritage and wildlife interpretative guiding and eco-tourism.

OLD HUSBANDS' TALES

Terri Irwin

For many people, the amazing facts about the creatures we share our planet with just aren't enough, and vivid imaginations inspire incredible myths and legends about our wildlife.

The Tasmanian Devil is an amazing predator in his own right. This growling, snarling hunter of the night has been given supernatural powers and a rather scary reputation through folklore and worldwide attention.

How about Australia's snakes? We often hear accounts of snakes chasing after everything from humans to horses, yet even our most venomous snakes eat food items smaller than a possum.

...And what about possums? Are they really so terribly determined to move in with us and keep us awake all night or did we inadvertently invite them?

Zoos of today have an even greater responsibility to demonstrate the importance of our ever-diminishing wild environment. No longer can zoos act simply as a showcase for the weird and wonderful. Now we must inspire every visitor to do his or her part for conservation.

We can't always guarantee that a tourist can explore our regional wilderness and encounter a local icon. A trip to Queensland doesn't mean you can count on seeing crocodiles, Brown Snakes, or even a koala, but the zoo can make that promise. If zoos are to survive the 21st century, we need to show off our unique wildlife in state of the art exhibits. We, as zoos, need to exercise our imaginations not just our pocketbooks. Let's have more keepers interacting with the animals and more animals interacting with people.

Gone are the days of improving the same little box to house an animal in. Get the animal out of the box and let the visitor see, smell and touch our fabulous wildlife. It's the best way to inspire, educate and dispel those old husbands' tales!

BIOGRAPHICAL NOTES:

Terri Irwin operated Cougar Country in Eugene, Oregon USA between 1986 and 1992. This was a wildlife rehabilitation facility for predatory mammals. Between 1989 and 1992 Terri worked at the Eugene/Springfield emergency veterinary hospital as a veterinary technician. In 1992 Terri moved to Australia and is currently the director of Australia zoo.

Terri and her husband, Steve Irwin, have filmed 50 wildlife documentaries entitled "Crocodile Hunter", and 52 episodes of "Croc Files", a wildlife show aimed at educating children about our native and exotic wildlife. Terri has devoted her life to the preservation and conservation of our precious wildlife.

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A SUSTAINABLE VISION FOR CURRUMBIN SANCTUARY

Mark Manteit

Currumbin Wildlife Sanctuary has recently undergone a massive restructure and cultural change. It competes head on with many other attractions and theme parks on the Gold Coast and has needed to change its focus to survive. It is now very firmly focussed on producing recognisable and achievable outcomes including profitability. The purpose of this paper is to share with industry people how this has been achieved towards maintaining its sustainable future. The major areas of focus include practical examples encompassing: -

- Profitability
- “Driving our gate” and “bums on seats”
- Being competitive
- Entertainment - “the good, the bad and the ugly”
- Being Commercial - how to increase sales in food and beverage, retail and front door
- What to “subcontract” and what not
- Empowering our people (but not too much)
- How our Wildlife fits in
- The Plan

My paper will provide practical, clear and concise ideas and examples to participants to increase their profitability and sustainability.

BIOGRAPHICAL NOTES:

Mark has a strong business and animal background, having been involved in many different industries in his career. He has been the CEO of Currumbin Wildlife Sanctuary for the last 15 months, and before that he was GM of a public bio tech company developing fast-growing Australian native hardwood trees; GM of Australia’s largest shipyard repair and dry-dock business, GM of a sign writing company, and substantial experience as CEO of a public company in the Chicken industry. Many years ago, he was also a partner of Ernst and Young, Chartered Accountants, one of the world’s largest accounting firms.

He is well qualified to discuss Sustainability in Wildlife Tourism. His paper today is titled “The Hard Yards about Sustainability in Wildlife Tourism from a Business Perspective”.

THINKING OUTSIDE THE FENCE: RE-POSITIONING DAVID FLEAY WILDLIFE PARK IN THE WILDLIFE TOURISM MARKET.

Rob Allan

The sub-title of this paper reflects the choice that many zoos and wildlife parks have to make in response to persistent criticism that they offer little more than collection of interesting and rare animals in rows of exhibits, in much the same way a philatelist exhibits rows of interesting and rare stamps. Critics argue that zoos exist to exploit animals for commercial gain and they dismiss, as pretentious marketing hype, claims that zoo conservation education and breeding programs make an important contribution to species' survival. There is no doubt that that these perceptions negatively affect consumer sentiment and constrain the size of the captive wildlife segment of the wildlife tourism market.

Using David Fleay Wildlife Park as a case study, this paper proposes a strategy to re-position a wildlife park outside the conventional wisdom of "wildlife attraction" destination marketing. The idea is to move away from animal exhibits as the core product (passive) to an information based product (active) designed to capture a bigger share of the wildlife tourism market.

The term 'merchandising' is used in its true meaning of product planning and sales promotion using marketing, display and advertising techniques. The author advocates the merchandising concept as the best management tool available to help deliver a new vision and stronger market position for David Fleay Wildlife Park.

In 2005 'Windows to Wildlife' opens in the Gold Coast comprising a Queensland National Parks Welcome Centre providing advice on wildlife tours, special interest tours, guides, intra-state itinerary planning, accommodation, great walks and volunteer programs; an Indigenous Wildlife Interpretation Centre; The David Fleay Living Museum; Nocturnal 'Spotlight' Tours; Mangrove and Estuarine Ecology Tours; the QPWS Threatened Species Research Centre; a Wildlife Care & Rehabilitation Centre and a Cyber Rangers Command Centre. The 'Windows to Wildlife' management performance system will be based on the latest TBL (triple bottom line) accounting package.

BIOGRAPHICAL NOTES:

Rob Allan is a Business Analyst within the Parks and Wildlife Management Division of Queensland Parks and Wildlife Service (QPWS). His role is to identify revenue generating opportunities for QPWS and to develop sustainable business partnerships with nature-based tour operators in Queensland's protected areas. Rob is a member of the CRC's Wildlife Tourism Steering Committee and from 1998 - 2000 he was General Manager of David Fleay Wildlife Park, located at Burleigh Heads on the Gold Coast. Prior to this, he spent twenty years in retail marketing and operations in Australia, the UK and South Africa.

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DEVIL RESTAURANTS AND SEAL'D 'N SAFE DIVING: RESPONSIBLE INNOVATION IN WILDLIFE VIEWING

Nick Mooney

Certain wildlife can be key species for tourists to see. Showing them to advantage can be very difficult and expensive in captivity and in any case there is a growing demand to see animals in the wild. This is due both to increasing sophistication of tourists and a lack of innovation in captive displays. Tasmanian Devils are naturally nocturnal, and diurnal captive displays rarely show them at their best. However, seeing them in the wild can be exceptionally difficult to the point of not being practical for tourists, unless there is some manipulation of the devils. The most obvious method is using food. Devil Restaurants are an extension of baiting for filming, something done many times. Three sites for the restaurants are being trialed, one in a National Park and two on private land. Methods of visitor accommodation, devil presentation and interpretation are being refined and protocols aimed at minimising disruption to the local devils developed. So far the experiences have been wildly successful.

Tasmania is a mecca for Australian Fur Seals and a small but consolidating industry has grown around seal viewing from both boats and diving. Diving, however brings a small but real risk from shark attack. Beyond the obvious human tragedy, such incidents are a serious problem for the industry. A shark-proof diving tube has been developed and trialed. It is designed for anyone who can use a snorkel and is intended for use off tourist boats.

BIOGRAPHICAL NOTES:

Nick Mooney is a wildlife management officer in the Tasmanian Parks and Wildlife Service and has been a professional wildlife manager for 25 years. He has made important contributions to the study and resolution of 'conflicts' between fisheries and seabirds and has recently been developing innovative and harmless ways for people and wildlife to safely interact. Nick's involvement in public education evolved into guide training and development of wildlife tourism. A basic premise has been finding new ways to value-add to wildlife, making their conservation more acceptable to the community. He regularly acts as a specialist guide to stay in touch with reality in the industry.

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100,000 BEATING BIRD HEARTS: TOURISM, WILDLIFE AND INTERPRETATION

Sam Ham¹ and Betty Weiler²

Interpretation is a necessary centerpiece of wildlife tourism because of its potential to influence tourists' beliefs and actions toward wildlife, and because of its importance in shaping both the nature and quality of tourist experiences. Tourists interact with wildlife, both captive and free-roaming, in a variety of ways - from physical touching at "petting zoos" to close-up or long-distance observation in the field, to vicarious encounters with animals through stories, photographs and videos. Yet in each interaction there is a psychological outcome that is recorded in tourists' minds in the form of "experience," and which is represented in memory as beliefs, attitudes and behavioural intentions related to wildlife. Through these intellectual and emotional pathways, tourists may become satisfied customers and may well develop a commitment to protecting wildlife.

Multiple stakeholders may benefit from effective wildlife interpretation. Visitors are motivated by the enjoyment that wildlife encounters provide. Tourism operators and other entrepreneurs are at least partly motivated by the revenue the encounters provide. Protected area managers get involved largely because of the short- and long-term impacts on wildlife conservation that such encounters may engender. Interpretation, when it is intelligently designed and powerfully delivered, represents a mechanism for addressing the needs of all of these stakeholders.

Tourists themselves expect interpretive services as part of the experience they seek and as part of the product they have purchased. Whether they are delivered in the form of self-guided media (such as web sites, field guides, exhibits, brochures and audiovisual programs) or face-to-face services (such as guided tours and overland excursions, talks, and demonstrations), interpretive programs contribute to the intellectual and emotional dimensions of a tourist's encounter with wildlife, and in so doing, they strongly influence the nature of the experience formed in the visitor's mind.

Face-to-face interpretation by a skilled tour guide can be particularly powerful in influencing what visitors think and feel about the wildlife they encounter. In fact, because of its personal nature, guided interpretation may be singularly important in wildlife tourism. Drawing on research on interpretive tour guiding and a new theory of guiding quality, this presentation illustrates the powerful influence that guided wildlife interpretation may have on tourist experiences and on the development of a wildlife conservation ethic. A comparative case study of two cruise-based tours (one in Alaska and one in the Galapagos Islands of Ecuador) is used to highlight the elements of "quality" in guided wildlife tourism. Attributes that nature-based tourists associate with quality interpretive guiding in Alaska and Galapagos may help to provide a foundation or blueprint for achieving excellence in guided wildlife interpretation. Among these attributes are the guide's passion, entertainment skills, inferred knowledge, and her/his ability to provide relevant information in the form of "new insights" about wildlife. Implications the case study findings for practice, research and theory are discussed.

BIOGRAPHICAL NOTES:

1. Dr Sam Ham is Director of the Centre for International Training and Outreach (CITO) and Professor of nature-based tourism and protected area management in the University of Idaho's College of Natural Resources. His research has focused on interpretation, ecotourism guide training and non-formal environmental education in Australia, the US and many developing countries. To date, he has conducted training and research in 30 countries, authored more than 170 publications, received many national and international awards for teaching and training and was appointed to the Commission of Education and Communication by the World Conservation Union (IUCN) in 1992.

2. Dr Betty Weiler is Associate Professor of Tourism and Deputy Head, Department of Management, Monash University, Australia where she teaches tourism management, ecotourism, tour guiding, tourism planning, international tourism and research methods. Her research over the past twenty years has focused on ecotourism, tour guiding, interpretation, accreditation and best practice. She has published over 100 journal articles and book chapters and managed or co-managed over a dozen major research projects and seven international and national consultancy projects relating to ecotourism and tour guiding.

A DEVELOPING NICHE: EVOLUTION OF A WILDLIFE TOURISM PRODUCT- MARKET

Noel Scott

This paper examines the development of Wildlife Tourism (WT) based on a synthesis of concepts from the systems theory, marketing and tourism literatures. Many of the existing models used to understand and forecast tourism demand ignore the dynamic nature of systems generally and tourism systems in particular. This paper applies a systems theory framework to the development of new forms of tourism. The product-market, a concept from the marketing literature, is used to provide a boundary for an examination of the wildlife tourism system.

Within the WT system so defined, a number of concepts and theories provide a 'toolkit' with which to examine the future 'trajectory' of the WT lifecycle. The interlinked theories of innovation, adoption and diffusion provide a means of examining likely future changes in the WT customers. The general characteristics of customer 'innovators,' the first to experience a new product-market, are contrasted with that of market segments.

The paper provides some recommendations on the communication process required to maximise the development of the WT sector.

BIOGRAPHICAL NOTES:

Noel Scott has spent five years at Tourism Queensland as Research and Strategic Services Manager. He has represented the State of Queensland on National Tourism Research Committees and is a past State Chairman of the Market Research Society of Australia. He is the inaugural "Martin Oppermann Memorial Scholarship" holder and is currently studying for a PhD in Tourism. The topic is "Trends in Tourism." He currently holds a Masters of Business Administration and a Masters in Marketing.

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MARINE MAMMAL TOURISM ON THE GREAT BARRIER REEF

Tony Stokes and Kirstin Dobbs

The Great Barrier Reef is a prime tourism destination in Australia and wildlife tourism in one form or other is a prime reason that many tourists visit the Reef. Surveys by CRC Reef show that a high proportion of visitors to the region's coral reefs and islands see wildlife (coral, fish and other marine animals) and derive a very high level of satisfaction from those experiences. This presentation focuses on the development of opportunities for Reef visitors to see and interact with the Reef's largest animals, its mammals.

Three marine mammals are the focus of wildlife-based tours within the Great Barrier Reef Marine Park (GBRMP): humpback and dwarf minke whales, and dugongs. Currently 19 permits, comprising 31 vessels and two aircraft, cater for whale-watching in the GBRMP. Permitted levels of whale-watching are capped at 8 permits in the Cairns area, and at 11 permits in the Whitsundays. Other tours include: a specialised form of whale-watching involving swimming-with-Dwarf Minke whales; one dolphin-watching tour in the Central Section of the GBRMP; and one dugong-watching tour in the Hinchinbrook Region. Because of reported declines in the number of dugongs on the Great Barrier Reef, dugong watching is being trialed and monitored closely before further permits are granted.

The essential thing about tourism use of the Great Barrier Reef is that it remains ecologically sustainable and world class. To achieve this park managers work closely with tourism operators and other stakeholders to both present the product and to ensure that it retains the 'pristine' aspect of its attraction. Wildlife tourism in the GBRMP is managed through a combination of best practice guidelines, codes of conduct, regulations, zoning, wildlife protection areas and permits (see Tourism Operator's Handbook for the Great Barrier Reef 2000). Most marine wildlife tourism operators on the Reef are highly aware of the need for care to avoid impacting the very resource that underpins their business. They are aware of restrictions governing their operations and generally 'do the right thing'. A primary requirement for managers of the marine park is to ensure that these tourism activities remain ecologically sustainable whilst continuing to listen to, carefully consider, and where possible, implement the views of the tourism industry. A primary requirement for tourism operators is for good staff training, good understanding and good adherence to the 'rules' operating in the marine park to ensure that wildlife tourism remains ecologically sustainable.

BIOGRAPHICAL DETAILS

Tony Stokes and Kirstin Dobbs manage the Species Conservation Program of the Great Barrier Reef Marine Park Authority. They are responsible for developing policy and programs for marine species within the Marine Park particularly in relation to marine mammals, turtles and seabirds. Tony's previous experience includes responsibility for developing a park management plan in the Whitsunday Region of the Marine Park and for national parks and reserves in Australia's Indian Ocean and Coral Sea Territories. Kirstin has a research background in marine turtles and has worked on many species policy and permitting issues on the Great Barrier Reef.

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CROCODILE TOURISM IN THE TOP END OF THE NORTHERN TERRITORY: SUMMARY OF THE FINDINGS

Pascal Tremblay

This paper presents some of the key findings of a CRC on Sustainable Tourism project about “crocodile tourism” in the Top End of the Northern Territory. In the first part, the paper presents key results regarding impacts of tourism on crocodile population behaviour and sustainability as well as summary results from studies on motivations to visit tourism attractions based on or linked with crocodiles. In the second part, principles for the sustainable management and marketing of “crocodile tourism” are derived. This leads to arguing the need for a fresh categorisation of wildlife (crocodiles) -related tourism activity-uses and attractions, which take into account wildlife resource conservation and tourism. It also develops the view that the sustainable management of crocodiles/wetlands-based tourism (and other non-tourism uses) would be better served by a portfolio approach in which consumption-side synergies between markets and production-side scope economies between activities are considered. This leads to attributing the sustainability of both wildlife and tourism attractions to the preservation of diverse but compatible selections of skills and knowledge rather than to the selection of a single activity or optimal resource utilisation strategies.

BIOGRAPHICAL NOTES:

Dr Tremblay is senior lecturer in Economics and in Tourism Management at the Northern Territory University. His interests include tourism industrial organization, the theory of the firm, evolutionary economics, marketing and sustainable wildlife tourism.

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MAKING YOUR ARMPIT YOUR CHARM-PIT:

Grey-headed Flying-foxes in the Melbourne Botanical Gardens, MISSED OPPORTUNITY?

Peter Howard¹ and Darryl Jones

Historically the management of flying-foxes (*Pteropus* spp) involved killing large number of individuals or dispersing colonies from their roost sites. This approach has persisted as a management tool used to meet the expectations of communities affected by the presence of colonies. However there is both direct and indirect evidence suggesting all species of flying-foxes found in Australia are in decline. This case study investigates the management of the colony of Grey-headed Flying-foxes resident in the Melbourne Botanical Gardens, a destination already attracting an estimated 1.5 million visitors a year.

Documents obtained from the MBG under the Freedom of Information Act recorded that for 81% of a sample of visitors, flying-foxes were a positive attraction; 95% said they would visit the site again and as few as six percent communicated a dislike of the species (authors' name withheld). Gardens management effectively used the media to promote the culling of the colony as the only reasonable means of "saving" the Gardens. In-depth interviews and participant observations were used to examine stakeholder and community values and perceptions towards their presence in MBG.

We conclude that: community acceptance of the cull was in considerable part due to an undervaluation of primarily the species' ecological function but also their economic potential. With bat-themed destinations operating elsewhere in Australia and throughout the world, and a demonstrable public interest in this colony, the management of the MBG colony represents an apparent missed opportunity to both develop an ecologically sustainable attraction and to enhance the status of a now vulnerable species.

It is proposed in this case that sustainability of the colony in the gardens involves managing the impacts of flying-foxes on their site vegetation rather than the more traditional approach of managing visitor impact on wildlife

BIOGRAPHICAL NOTES:

1. Peter Howard holds qualifications in psychology (B.A., UNE), professional writing (Grad Dip, Canb Uni) and veterinary studies (Post Grad Dip, UQ) and is presently enrolled as a PhD candidate at Griffith University. The subject of the thesis is the influence of human values on the management of wildlife, in particular, flying foxes in urban areas, dingoes on Fraser Island and wildlife feeding.

HUNTING IN TASMANIA: A LONG HISTORY AND A BRIGHT FUTURE

Graham Hall

Hunting of wildlife species in Tasmania has a history, which reaches back over many years. The Aboriginal communities hunted wallabies, possums and various birds for food, clothing and totemic reasons. Since European settlement, deer and various exotic gamebirds have been introduced for hunting. Today, the hunting of native and exotic wildlife species is as strong as ever.

Fallow deer are the only deer species established in Tasmania, and the current population estimate is 15,000-20,000 animals. Approximately 3,000 hunters legally harvest about 1,500 animals annually during the hunting seasons with additional females harvested under crop protection permits. Recreational deer hunting is estimated to generate \$4-5 million annually and attracts hunters from throughout the world to Tasmania.

Some international authorities now claim that Tasmania has the best-managed wild deer herds in the world, outside of the USA.

Since 1993 strategies for overseeing hunted wildlife have demonstrated that, when properly managed, these species can provide tangible benefits to government agencies, private landowners, hunters, the broader community, and even other wildlife species.

This presentation outlines how the hunting of wildlife is managed in Tasmania for economic, social and conservation outcomes. The methods used in Tasmania are generating national and international interest and have the demonstrated capacity to add to the wildlife tourism experience.

BIOGRAPHICAL NOTES:

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DINGOES ON FRASER ISLAND - TOURISM DREAM OR MANAGEMENT NIGHTMARE

Ian McPhail¹ and Jim Thompson

Fraser Island is a unique tourist destination catering to over 3,000,000 visitors annually. The Island, which is 123km long (165,280ha) is 98% National Park with a nature-based tourist trade. All of Fraser Island is World Heritage listed. A significant attraction on the Island are the dingoes which are regarded as one of the purest strains in Australia. The dingo population on the Island is estimated to be between 150 and 200 animals. Their conservation is of National significance. Concerns have long been expressed about the potential for dangerous interactions between dingoes and humans, however management was always difficult. As visitation to the island has increased, aspects of the environment have changed and dingoes have altered their normal habits. Management practices have focused on removing unnatural food sources, such as open rubbish dumps, and educating the public. On 30 April 2001 dingoes mauled to death a 9 year old boy. Firm management decisions were no longer optional - they were demanded. However the fundamental question remained: Do we manage the animals or the people? Public opinion was polarised. Resourcing and history indicated the pragmatic approach was to control the dingo. The conservation ethic and animal rights suggested otherwise. This paper describes the issues and politics of managing dingoes and tourists on Fraser Island and outlines the management approach taken.

BIOGRAPHICAL NOTES:

1. Dr McPhail has held the position of Executive Director, Queensland Parks and Wildlife Service since April 1999 after 4½ years as Chair of the Great Barrier Reef Marine Park Authority. He has extensive experience in senior roles in state and federal government agencies. Ian is adjunct Professor, Resource Science Faculty, Southern Cross University and adjunct Professor, School of Geographical Science, University of Queensland. Ian holds a Bachelor of Arts, Bachelor of Letters (Litt B) and PhD.

WHEN WILDLIFE TOURISM GOES WRONG: STAKEHOLDER ISSUES ON FRASER ISLAND.

Georgette Leah Burns

Think Fraser Island, think Dingoes. Images on brochures, web pages and postcards lead to an expectation by tourists and visitors that interaction with Dingoes (*canis familiaris*) will be part of their Fraser Island experience. Yet, as the number of tourists to the island increase, so do the reports of Dingo attacks. The first recorded death from such an attack occurred in April this year, and was immediately followed by a government-ordered cull of these wild animals. This paper explores some of the many, and complex, issues surrounding both this decision and the management strategies implemented afterwards. Based on interviews with a variety of stakeholders; including Queensland Parks and Wildlife Service rangers, resort managers and staff, as well as resort guests and campers, many conflicting perspectives on human-wildlife interaction as a component of tourism are identified. The conclusion is drawn that while a Dingo Management Plan is essential, if such attacks are a consequence of humans feeding wildlife and resultant wildlife habituation, then a People Management Plan is also necessary for this example of wildlife tourism to be both successful and sustainable.

BIBLIOGRAPHIC NOTES:

Georgette Leah Burns is a lecturer in the Australian School of Environmental Studies at Griffith University in Brisbane. She holds a Master of Science, in Anthropology, from the University of Western Australia, and is a PhD candidate at Murdoch University. She has published in the area of indigenous people and tourism in the Pacific region, and her more recent research focuses on the relationships between host communities and tourism in Australia.

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DETERMINANTS OF HABITAT DISTURBANCE BY PROTECTED AREA USERS

R. Goldingay¹ and D. Newell²

Wildlife tourism may involve a diverse range of activities, including hiking and camping, which enable wildlife and their habitats to be encountered. Such activities occur predominantly within protected areas where management is often focussed on the needs of recreational users. Few studies have considered the impacts of these activities on biodiversity. The aim of this study is to assess the factors that may influence disturbance by recreational users to the habitat of the endangered broad-headed snake. Rock outcrops provide vital shelter sites for this snake and may be damaged by hikers. We surveyed 50 rock outcrops within Royal National Park, near Sydney, for evidence of disturbance. Preliminary analyses suggest that distance from an access point had a strong influence on the probability of rock outcrop disturbance. Other site factors such as site-visibility and difficulty of access were less important.

We also conducted two habitat experiments in order to examine the frequency of habitat disturbance and the influence of distance from access points. The first experiment in which 10 rocks were placed on a rock platform has run over three years. This revealed that habitat disturbance occurred at least twice as frequently at sites near access points compared to far sites. Disturbance at the near sites was also more severe in impact than at far sites. Our second experiment involved placing 50 rocks on a rock platform and was intended to simulate habitat restoration for the endangered snake. This confirmed the results of the first experiment. This study highlights the adverse impacts that can arise when access is provided to natural areas. We have observed similar disturbance in eight other reserves in NSW. Habitat disturbance caused by protected area users must be given greater attention. Management of this problem should include identifying broad areas where recreational users are prohibited.

BIOGRAPHICAL NOTES:

1. Ross Goldingay completed a BSc (hons) in zoology at the University of NSW in 1982. He completed a part-time PhD at the University of Wollongong in 1989 on the ecology of a gliding possum. He then held a 2-year postdoctoral fellowship at the University of California, Riverside, where he studied the ecology of an endangered rodent. On his return to Australia he commenced work as a freelance wildlife consultant and combined this with on-going research on the ecology of arboreal marsupials and with several short-term lecturing positions. He commenced his current lecturing position at Southern Cross University in 1996.

2. David Newell is a post-graduate student at Southern Cross University. He completed a BAppSc (hons) at Southern Cross University in 1998. His honours research was on the ecology of the endangered broad-headed snake. His PhD research is on the ecology of several endangered rainforest frogs and includes an investigation of the influence of protected area users on the conservation of these frogs.

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KEEPING THE NIGHT LIGHTS BURNING: MANAGING TOURISM IMPACTS ON AUSTRALIA'S GLOW-WORMS

David J. Merritt¹ and Claire H. Baker

Bioluminescent glow-worms have recently become a major tourist drawcard in Australia. As a first step to providing input into management guidelines for glow-worm tourism we have documented existing tourism operations in Australia to determine the environment in which tourism occurs, the category of tourists involved, and the number of visits occurring. In general, glow-worms are found in highly sensitive or threatened habitats such as remnant rainforests and caves, many of which are in Australia's World Heritage-listed areas or in National Parks. Visitor numbers can be high. One Queensland site - Natural Bridge in Springbrook National Park-receives approximately 300,000 visits per year. In Tasmanian karst areas, sensitive wilderness cave sites receive relatively low numbers of guided visits while show caves such as Marakoopa Cave at Mole Creek that feature glow-worms are hardened against tourist environmental impacts. Management guidelines are needed for the colonies that are subject to high tourist numbers. Impacts can be direct, for example through touching the insects or by introducing the spores of a pathogenic fungus, or indirect, for example by trampling the habitat of the glow-worms' prey. We have used traps to determine that the diet of glow-worms primarily consists of small flying Diptera. Consequently prey habitat conservation measures have been implemented at Natural Bridge. Laboratory - based recordings have shown that bioluminescence is strongest immediately after dusk and decreases through the night. If we find that the peak bioluminescence output and the peak feeding time coincide then tourism visits could be regulated accordingly. It is well known that glow-worms respond to disturbance by tourists' lights by dousing their own light output. Laboratory experiments have shown that the use of filters on tourists' torches can reduce this impact.

BIOGRAPHICAL NOTES:

1. David Merritt obtained his PhD in Entomology from the University of Queensland in 1989. He is currently a Senior Lecturer in the School of Life Sciences at the University of Queensland in Brisbane. He teaches undergraduate subjects including genetics, developmental biology and insect biology. He carries out research on insect development, insect physiology and the genetics and developmental biology of *Drosophila*. His research on glow-worms initially arose from an interest in their ability to bioluminesce and has broadened out into aspects of their species identity, biogeography, and ecology, especially in regard to management of populations that are subject to tourism pressure.

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OBSERVING AN ENDANGERED SPECIES: A REVIEW OF BENEFITS AND IMPACTS OF TOURISM ON THE ORANGE-BELLIED PARROT AT MELALEUCA, TASMANIA

Mark Holdsworth

The Orange-bellied Parrot (*Neophema chrysogaster*) has a wild population of 250-300 individuals and is listed under Commonwealth and State legislation as 'endangered'. It is one of only two obligate migratory species (the other being the Swift Parrot) both of which breed only in Tasmania. The Orange-bellied Parrot breeds in eucalypt forests within the Tasmanian Southwest Wilderness World Heritage Area (WHA) and the centre of this range is at Melaleuca south of Bathurst Harbour. It is estimated that at least 75% of the entire wild population of the species breeds within 5km of Melaleuca and since 1991 has been an important study site. Throughout the summer months, teams of volunteers undertake structured observations of parrots visiting feed tables to determine the breeding population trend on an annual basis. Melaleuca is also an important visitor service area with bushwalkers and day tourists making use of the airstrip to access the WHA. Visitors are encouraged to view the Orange-bellied Parrot and other birds from a purpose built bird hide adjacent to the airstrip. A visit to the bird hide has become a central part of commercial day and overnight escorted tours. The bird hide is also becoming an important attraction for amateur and professional ornithologists to observe this threatened species which is otherwise very difficult to locate, particularly in its winter range (Victoria and South Australia). This interest has added to the ecotourism value of the area and serves to promote Recovery Plan actions designed to save this species from extinction. However, the increased use of the area may have an adverse impact on the breeding population. Increasing visitor numbers, nest site security, aircraft operation and human behaviour are all factors which could have a negative impact on the species. This review analyses the many activities which may influence the long-term security of the species and discusses options for managing impacts.

BIOGRAPHICAL NOTES:

Mark Holdsworth is Project Manager for the Orange-bellied Parrot Recovery Program (Nature Conservation Branch, DPIWE). He has worked on the program for over ten years and has been instrumental in initiating the long term survey work and artificial nest box program. Mark has expertise in all facets of bird survey and research work and has undertaken numerous national and international consultancies on threatened species recovery programs.

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WHALE SHARK ECOTOURISM = WHALE SHARK CONSERVATION

Brad Norman

Whale sharks are the largest fish in the ocean - reaching lengths of up to 18m. This highly migratory species was, throughout modern history, rarely sighted with only approximately 350 confirmed sightings worldwide until the mid-1980s. However, it was soon discovered that Ningaloo Marine Park (NMP) on Western Australia's northwest coast is arguably the best place in the world to see and swim with whale sharks. At this location, a predictable aggregation occurs between March and June each year.

The burgeoning ecotourism industry has an annual investment in excess of \$5 million. In 1993, to ensure the sustainability of this industry and those impacts on whale sharks are minimised, the WA Department of Conservation and Land Management (CALM), and industry representatives contributed to the development of management guidelines for this industry.

Research was initiated in 1994 to ensure CALM was 'on the right track' with the current management regime. Results to date have identified suggested amendments to the guidelines, which will serve to further minimise negative effects associated with ecotourism operations. Support and encouragement for this project was received from various sectors, with the Australian Marine Conservation Society (AMCS) and ECOCEAN continuing this study. A 'public awareness' campaign was also initiated (via the distribution of 15 000 4-page colour brochures nationally), aimed at educating the general community of the conservation concerns facing this species.

In 2001, the 'International Year of the Volunteer', ECOCEAN initiated a program (the Whale Shark Project) that enabled ecotourists and industry personnel to provide invaluable assistance in the collection of various data on the general biology and habits of this species. Wildlife tourism in this instance is providing ecotourists with the opportunity to assist with the global conservation of this vulnerable species. The Whale Shark Project will be expanded in 2002 - the 'International Year of Ecotourism'.

BIOGRAPHICAL NOTES:

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CONSERVATION IN WILDLIFE TOURISM OPERATIONS

Tonia Cochran

As Wildlife Tourism increases in popularity, there is increasing concern with regard to sustainability issues and the long-term management and protection of wildlife. Conservation management should necessarily become an integral part of the strategy and planning for this field of tourism. Furthermore, wildlife and the environment in which they live are inextricably bound and should be considered as a whole, rather than as discreet entities. The wildlife tourism operator treads a very fine line between promoting an ecotourism destination and key wildlife species for the expansion of their business enterprise, and deleteriously affecting wildlife through mismanagement and short-term, unsustainable gain. It is very important that operators demonstrate a genuine care and responsibility for the long-term protection of wildlife and convey this to the traveller to inspire them to respect the environment and the wildlife they have come to see.

Ways in which operators can contribute to conservation include:

- Avoiding the overuse of destinations when designing itineraries and conducting tours
- Incorporating an educational conservation theme in the tour
- High ethical values with respect to wildlife watching eg. avoiding sites during the breeding season if it causes disturbance or impacts on the breeding success of that species
- A low impact philosophy
- Monetary or equivalent return to conservation projects that benefit wildlife
- Participation in projects that benefit rare and threatened wildlife species

BIOGRAPHICAL NOTES:

Tonia Cochran has a wide-ranging academic and teaching background that includes a doctorate in Zoology from Melbourne University. She has worked as a specialist Tasmanian guide since 1996 for various inbound operators and operates her own ecotourism company Inala-Bruny Island. She is also an environmental consultant, working primarily on threatened species, and for the Australian Antarctic Division. Tonia combines conservation practices with sustainable agriculture on her property “Inala”, where priority is given to protecting wildlife habitat. She is committed to promoting an ecologically-sustainable and educational tourism industry, and is a member of the Steering Committee for Wildlife Tourism in Australia.

CONSERVATION AND ECONOMIC BENEFITS OF WILDLIFE-BASED TOURISM: SEA TURTLES AND WHALES AS CASE STUDIES

Clevo Wilson¹ and Clem Tisdell²

Tourism development can have positive and/or negative impacts on wildlife. However, if tourism is developed in accordance with the basic tenets of wildlife tourism/ecotourism, such an activity can be sustainable and can also aid in the conservation of species. This paper demonstrates the conservation benefits of wildlife-based tourism on the basis of two case studies conducted in Queensland, Australia, namely one for whale watching at Hervey Bay and the other for sea turtle viewing at Mon Repos. The paper outlines the various economic conservation benefits arising from wildlife-based tourism in these cases. Some of the benefits are direct, such as tangible economic benefits (greater employment, increased incomes), others are less tangible such as increased visitors' willingness to pay in principle for the conservation of species. The environmental educational aspects of wildlife-based tourism often create positive attitudes towards wildlife conservation. Furthermore, wildlife-based tourism can foster political support for the conservation of these species utilised for such tourism via a variety of mechanisms. These mechanisms are identified. Regression analyses will be used to identify the various relationships between wildlife-based tourism and conservation using data obtained from the two field studies. However, despite the conservation benefits of wildlife tourism, such tourism can adversely affect wildlife if such activities are not well managed and monitored. Examples relevant to whale watching and sea turtle viewing will be cited.

BIOGRAPHICAL NOTES:

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TASMANIA'S SPECTACULAR ANIMALS – WHERE TOURISM CAN EQUAL CONSERVATION

Sally Bryant

New Zealand has been a leader in promoting a wide range of nature-based tourism activities. The New Zealand Department of Conservation (DoC) has shrewdly combined tourism with island restoration and threatened species recovery programs. Activities such as: whale watching and swimming with seals and dolphins at Kaikoura, Yellow-eyed Penguin viewing at Dunedin, captive breeding and release of Black Stilt at Twizel, Royal Albatross viewing at Tairoa Heads, access to the Gannet colonies at Cape Kidnappers, Kokako breeding at Mapara and release of Takahe at Burwood Bush; are but a few tourist activities which provide access to species which would otherwise never be seen by the general public.

Conservation caretakers employed by DoC have been established on many offshore islands to oversee restoration programs for plants and animals. For example, islands like Tiritiri Matangi, Kapiti Island and Maud Island, Little Barrier Island and the Chatham Islands, are used as sites to relocate a wide range of threatened bird species. The conservation caretakers manage the recovery programs, which are funded by tourists paying to see the threatened species.

Tasmania's native fauna has long been the bread and butter work of the Nature Conservation Branch, DPIWE. Through innovation and forward planning there are growing opportunities to combine sustainable nature-based tourism with conservation management. Already initiatives such as the devil restaurant at Narawntapu National Park, orange-bellied parrot viewing at Melaluca, seabird trips from Eaglehawk Neck, penguin viewing at many coastal locations, seal watching at Reid Rocks and Tenth Island are but a few activities which have stemmed from research work undertaken by NCB wildlife staff.

This presentation is an overview of the existing ecotourism projects involving Tasmania's native fauna and the potentialities which exist to create new exciting partnerships which could include the area of conservation and restoration management.

BIOGRAPHICAL NOTES:

Dr Sally Bryant has worked in the Nature Conservation Branch for 12 years on specialist fauna projects mainly birds. She was the Senior Zoologist in the Threatened Species Unit for many years and travelled internationally reviewing threatened species programs. She now manages the Fauna Conservation Unit responsible for managing all Tasmania's native animal species.

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A FEW OBSERVATIONS FROM FLIPPER AND HIS FRIENDS ABOUT DOLPHIN-HUMAN INTERACTIONS

Gayle Mayes and Harold Richins¹

Research can assist in creating more effective interpretation programs and management practices for a sustainable marine-tourism industry. Interaction and close physical encounters with wildlife are controversial. The feeding of marine animals in the wild is perhaps even more contentious. Increasing pressure from a rapidly expanding market form business enterprises that bring tourists to observe, swim with and at times even feed wild dolphins, has occurred at numerous sites throughout the World and is now occurring in Australia. This paper aims to begin address two key issues of Dolphin-Human interactions sites: (1) Can effective interpretation and management programs at these sites be instrumental in assisting with conservation of a popular wildlife resource while maintaining the site as a tourism resource? and (2) what characteristics provide for an effective Dolphin-human interpretation and management program?

The results of an exploratory study, which evaluated two separate Dolphin-human involvement sites, found that most people have not previously participated in marine conservation activities. After experiencing these positive Dolphin-human interactions, these encounters have resulted in a stronger understanding and orientation toward wildlife conservation and management. They also believe that they can now make a difference and are more motivated to become involved particularly in marine conservation.

This exploratory study suggests that characteristics for providing an effective Dolphin-human interaction include: well developed, interesting, educational and conservation oriented interpretation programs and centres with readily available educational resources, appropriately trained staff in areas of wildlife and nature conservation, understanding biological and behavioural aspects of the wildlife in order to provide interesting and factual interpretation presentations, wildlife and conservation management values and practices in place to assure regulations and effective systems are adhered to, and involvement mechanisms are developed so that participants may become involved in the conservation improvement processes.

Unless it can be shown that Dolphins within their natural marine environment may gain measurable benefits through the delivery of effective interpretation and conservation management programs, this increasingly popular type of marine tourism business enterprise may be not be ecologically sustainable.

BIOGRAPHICAL NOTES:

¹ Dr. Harold Richins is Associate Professor and Head of Tourism at University of the Sunshine Coast. He has both small and large business experience in diverse management positions in the USA and with previously owning and managing a marine based tourism enterprise. His broad community experience has included such activities as Foundation President of Council of Australian University and Tourism Educators (CAUTHE), Foundation President of Eco-Network Port Stephens, and Executive Committee member and Newsletter editor of the Ecotourism Association of Australia. Dr. Richins has published widely on tourism decision making, community tourism development, special interest and sustainable tourism, and education needs in tourism.

ZOOS AND WILDLIFE CONSERVATION

Andrew Tribe

Despite their popularity, their traditions and their place in our recreational history, in recent years zoos have undergone considerable change in both their structure and function. Whilst remaining attractive places of entertainment, they have seen their survival as being dependent upon their changing direction and becoming a relevant part of today's society. As such, zoos today emphasise their contribution to wildlife conservation.

This paper reviews the role of zoos in wildlife conservation, and discusses the effectiveness of their present policies and actions. In particular it assesses the current nature and extent of the conservation activities of Australian zoos, and compares them with their United Kingdom counterparts.

It is apparent that the major contribution of zoos to conservation comes through their ex situ actions, including education programmes, and their captive breeding, management and display of wildlife. However, in addition, zoos in both countries have become more involved with in situ conservation work. In Australia, this is predominantly through local species recovery programmes for endangered species in cooperation with state government authorities and local communities. In the United Kingdom, on the other hand, zoos play a greater role in developing countries, as partners in local conservation programmes and initiatives.

However, such activities are expensive, and a major obstacle for zoos has always been to strike a balance between commercial success and the development of professional conservation credibility; often these objectives have been viewed as being mutually exclusive.

The opportunities for zoos lie in transforming themselves from traditional, static, animal displays, to interactive, entertaining conservation centres which bridge the gap between their captive collections and free-range wildlife.

BIOGRAPHICAL NOTES:

Andrew Tribe has been Senior Lecturer in Wildlife Health, Management and Behaviour in the School of Animal Studies at the University of Queensland for the past five years.

From 1992 to 1996 he was Director of the University's Veterinary Science Farm and prior to this was the Senior Veterinarian at the Royal Melbourne Zoological Gardens.

Mr. Tribe has worked with wildlife for the past 20 years, particularly in the areas of management, captive breeding, rehabilitation and translocation. He is currently conducting a research project to investigate the role of Australian zoos in wildlife conservation, and to evaluate the effectiveness of their present policies and actions. This project is being co-funded by the Cooperative Research Centre for Sustainable Tourism and the Hermon Slade Foundation.

Mr. Tribe is also a member of the CRC's National Integrated Project for Wildlife Tourism. This is a major research program to identify and realise opportunities for wildlife tourism in Australia, and enhance its economic, environmental, social and cultural sustainability.

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INTEGRATING ZOO TOURISM AND NATIVE SPECIES REHABILITATION IN WESTERN PLAINS ZOO

Phil Cameron, Johannes Bauer, David Blyde and Al Gibbs

This paper describes a collaborative program between Western Plains Zoo, Charles Sturt University, NSW National Parks and Wildlife Service, the CRC for Sustainable Tourism and a number of landholders. The aim is to rehabilitate native species through a Captive Breeding Translocation Release Scheme (CBTRP), which is supported by a strategic training and research program. This project will also be developed to provide a special native wildlife experience for zoo visitors which, costed commercially, will ensure long-term viability of the project.

Captive breeding of endangered species has become a priority for many Zoos, and Western Plains Zoo is no exception. Known to the public mostly through its captive breeding program of the endangered African Black Rhino, WPZ has a less well known, diverse and ambitious program, to breed endangered Australian animal species and to play a major role in their release in the wild. In order to achieve this, WPZ has established a costly, predator proof enclosure of over 150 ha within its Zoo compound. This program has become an integral part for a training/research program between Charles Sturt University and Western Plains Zoo (Captive Vertebrate Mgmt, Grad. Certif. Grad. Dipl and MSc. Course Master). Several nationally endangered species including the Bridled Nailtail Wallaby (*Onychogalea fraenata*), the Brush-tailed Bettong (*Bettongia pencillata*) and the Southern Hairy-Nosed Wombat (*Lhasiorhinus latifrons*) have been successfully released in this enclosure, and are starting to breed up their numbers. During several CSU student programs in wildlife management, permanent transects have been developed where population estimates, biomass and habitat utilisation patterns are carried out. Different study programs are currently being developed which aim to determine the best visitor experience while ensuring minimum impact on the wildlife.

BIOGRAPHICAL NOTES:

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A TOURISM CLASSIFICATION OF AUSTRALIA'S WILDLIFE, WITH CONSERVATION GUIDELINES

Ronda J. Green¹ and Karen Higginbottom

Many animal species in Australia are suitable for wildlife tourism, and there is much scope for enhancing the quality of tourism experiences. There is also potential for negative impact on wildlife and their habitats, but well-designed sustainable tourism may be preferable to some competing land-uses. An extensive spreadsheet has been developed by the authors to provide information to both tourism operators and conservation managers, in a first-of-its kind compilation for such purpose. Information is presented on 190 categories of wildlife, both vertebrate and invertebrate. The spreadsheet provides information on several categories of features (such as physical appearance, behaviour and distinctiveness) that may make various species or groups particularly interesting or appealing to tourists, and offers some general information on their distributions and habitats. It also addresses constraints on their use for tourism, such as vulnerability, difficulty of access, shyness of animals, potential dangers, and negative reactions of tourists. We recommend that tour operators utilise the spreadsheet when planning a new tour or expanding an existing one, and when attempting to make their tours 'greener'. We also recommend that conservation managers use the spreadsheet both when planning interpretation programs and when compiling environmental advice for operators. The spreadsheet will be regularly updated, and input from all interested persons is invited.

BIOGRAPHICAL NOTES:

1. Ronda Green, BSc (Hons) PhD, is a research ecologist specializing mainly in seed dispersal by frugivorous animals and the effects of human-induced habitat modification on wildlife. She has also been involved for many years in nature-based tourism, having been proprietor of a holiday farm with nature interpretation as a major activity, seasonal ranger in charge of interpretive activities in a national park, and for the past four years has been proprietor and guide for a part-time ecotourism venture specializing in three-day wildlife tours to the Border Ranges.

A TRAINING NEEDS ASSESSMENT OF WILDLIFE TOURISM OPERATORS IN THE NORTHERN RIVERS REGION OF NEW SOUTH WALES

Kelley Rann¹ and Ros Derrett²

Small to medium sized enterprises are heavily represented in wildlife tourism in Australia. However, many of the owners or operators of these enterprises do not possess the managerial and operational skills required to run a successful business. Identifying the current skills of operators and the skills required to run a successful business, then making a comparison between the two is the key to developing a successful training program for wildlife tourism operators in Australia.

This pilot study is being conducted to make an initial assessment of the training needs of operators of small to medium sized wildlife tourism enterprises located in the Northern Rivers region of New South Wales. The study summarises the main reasons why small businesses fail and uses a questionnaire to identify which of these are most commonly found in current businesses.

The findings highlight the gaps between the skills and practices required, and those currently being used, by the wildlife tourism operators participating in the pilot study. The findings focus on the managerial and operational aspects of a successful wildlife tourism business.

Any training program must assist operators of wildlife tourism businesses to overcome the common mistakes made by many before them. Training programs must develop the current knowledge and skills of operators and reduce the gap between the level required and that currently held. Training must focus on both the operational and managerial aspects of a successful business.

BIOGRAPHICAL NOTES:

1. Kelley Rann, CA, MintHotMgt, is a Chartered Accountant. She has twelve years experience in finance, management and hospitality. Kelley is currently working part-time at Southern Cross University and is also involved in various consultancies on small business development. Kelley's research interests include sustainable tourism development, small business development, event management and yield management. She has been involved in the organisation of the Sustainable Wildlife Tourism Convention and has a special interest in staff training in tourism and hospitality organisations.

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2. Ros Derrett, OAM (M.App.Sc), is on the academic staff at the School of Tourism and Hospitality Management at Southern Cross University in Lismore. She lectures in event planning and management, tourism planning and the environment, marketing and special interest tourism at undergraduate and post graduate level. Her research activity reflects her interest in consultation, cultural tourism, community economic development, nature-based tourism and festivals and events. She is Project Manager for the Centre for Regional Tourism Research at SCU.

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PERCEPTIONS OF TRAINING AND LEARNING AMONGST WILDLIFE TOURISM OPERATORS/GUIDES... A WORK IN PROGRESS

Alicia Boyle¹, Allan Arnott² and Helen Spiers³

Tour operators/guides make a significant and important contribution to the overall visitor experience at wildlife-rich destinations and at individual attractions. Previous research indicates that the quality of existing wildlife experiences may not meet expectations for standards of interpretation or service. Government employment and training strategies suggest there is insufficient flexibility in terms of external training for existing tourism industry participants to meet the operational and employment nature of the industry and that there is a lack of focus on training by small business. These are real concerns given the increasing importance and acceptance of tour guide certification and tourism operator accreditation.

Although much investigation has been undertaken as to the needs of the tourism industry for training, very little has been done in relation to preferred ways of learning, attitudes to learning, and willingness and opportunity to access training within various sectors of the tourism industry. The project will identify ways in which wildlife tourism operators/guides have learnt to do their job, ascertain the attitudes and perceptions of operators/guides regarding the future directions of the tourism industry and the impact on the need for training, and investigate the applicability of both formal and informal learning processes to tour operators/guides.

Key themes that we will be aiming to address with this paper include:

- Pathways of personal learning development for guides
- How tour guides perceive the requirements of their job have changed over time and the required learning associated with these changes
- Preferred sources of information and reasons for these preferences
- How they have learnt and methods they use to communicate and interpret information
- The informal and formal networks that exist for guides and how and what they contribute to learning
- Awareness of and level of regard for existing training courses
- If there is a need for training, the preferred design and delivery strategies

BIOGRAPHICAL NOTES:

Alicia Melinda Boyle, Master of Professional Education and Training (Open and Distance Education) (Deakin University) (current), Bachelor of Agricultural Science (University of Melbourne), Bachelor of Business (Selected Units) (Warrnambool Institute of Advanced Education), Master of Agricultural Science (incomplete) (University of Melbourne), Certificate IV in Workplace Training (South West Institute of TAFE), Certificate in Workplace Leadership (South West Institute of TAFE), Advanced Certificate in Management (South West Institute of TAFE).

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A SURVEY OF WILDLIFE TOUR OPERATORS IN WA.

Daryl Moncrieff¹, Michelle Davies² and David Waayers³

In 2000, the Department of Conservation and Land Management conducted a survey of wildlife tourism operators with the aim of gaining a better understanding of the needs of operators, and using these findings to help develop a more sustainable wildlife tourism industry. The survey had three major components: 'Wildlife as Part of Your Tour', 'Visitor Characteristics and Operation', and 'Management and Marketing'. Surveys were mailed to 344 commercial operators who included wildlife as a part of their tour. A total of 98 survey forms were returned.

Free-ranging terrestrial wildlife were ranked equal first with attractive scenery and guided activities as the most important features of most operators' tours. In relation to wildlife tourism specifically, most operators considered seeing animals in their natural state as most important. The most frequently targeted species by operators were birds (78.6%), whales (68.4%), kangaroos (68.4%), and dolphins (66.3%). The main impediments to adding other species to their tours were reliability of sightings (67.3%), the distance required to travel to wildlife populations (55.1%) and the unrealistic expectations of visitors (55.1%).

Precautionary measures taken to prevent disturbance to wildlife included maintaining a minimum distance (89.8%) and not feeding animals (84.7%). Most operators were involved in the industry as a lifestyle choice (66.3%), but considered that more assistance could be provided with marketing (74.5%) and information on wildlife (72.4%).

The results of the survey are discussed, in particular the management implications for the development of a sustainable wildlife tourism industry in WA.

BIOGRAPHICAL NOTES:

1. Daryl Moncrieff is the Planning Coordinator for the Department of Conservation and Land Management in Western Australia, and has responsibility for co-ordinating the preparation of terrestrial reserve management plans in that state. In doing so, careful consideration must be given to the potential for sustainable tourism based on Western Australia's unique wildlife, particularly small free-ranging marsupials.
2. Michelle Davies has a particular interest in rock-wallaby tourism, having developed a methodology for identifying potential translocation sites using tourism and conservation criteria. This has led to the translocation of animals to the one of the highest-ranked sites, Avon Valley National Park, an area formerly occupied.
3. David Waayers is a PhD candidate at Murdoch University, studying the impacts of tourism on turtles on the Ningaloo Reef. His study focuses on the development of a sustainable management framework for turtle tourism in Western Australia.

KEY ISSUES FOR WILDLIFE SPOTLIGHTING TOURS

Skye Page

For non-consumptive wildlife tourism, the key challenge for sustainability is in maintaining visitor satisfaction levels whilst keeping impacts on wildlife and the environment to a minimum. Spotlighting is a form of wildlife observation incorporating the use of a light to locate and illuminate animals at night. Spotlighting for Australian wildlife is a popular wildlife tourism activity since most of Australia's forest mammals are nocturnal. The impacts of wildlife observation on many species of animals are reasonably well documented including reduced reproductive and foraging success, displacement and even death through harassment. For wildlife spotlighting activities, however, the impacts or potential for wildlife impacts are relatively unknown. Similarly, knowledge of the factors that relate specifically to the satisfaction of visitors on spotlighting tours is limited. The satisfaction of tour participants is the culmination of a number of factors, including external factors such as the tour components and internal factors such as the experience, preferences and attitudes of visitors. An understanding the factors relating to visitor satisfaction, and the wildlife impacts of spotlighting tours is necessary for sustainable spotlighting operations in the future. As part of this study a descriptive component is being undertaken to provide the background information required to develop this research. This involves interviews with operators and participants, and participant observation of tours. Some results of this component are presented here.

BIOGRAPHICAL NOTES:

After completing a Bachelor of Science majoring in Biology, and Ecology and Conservation Biology at the University of Southern Queensland, Toowoomba, Skye went on to complete her honours with the thesis title of "Habitat Preferences of Small Ground-Dwelling Mammals in the Darling Downs" in 1999. She started her Ph.D at Griffith University, Gold Coast Campus in April 2000 with a thesis title of 'Wildlife Spotlighting Tours: Minimising impacts on arboreal mammals and maximising visitor satisfaction'. This project is partially funded by the CRC for Sustainable Tourism and partially by the School of Environmental & Applied Sciences (Griffith University).

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REDUCING DISTURBANCE TO ANTARCTIC WILDLIFE DURING TOURIST VISITS

Melissa Giese¹, Lorne Kriwoken

The number of commercial tourists travelling to Antarctica is increasing rapidly. Most of these people will, at some stage, interact closely with Antarctic wildlife, travelling to seabird and seal colonies by helicopter, over-snow vehicle or motorised boat, before making close approaches on foot to view and photograph individual animals. This pattern of accelerated growth in visitor numbers, and the popularity of wildlife viewing, creates the need for well-supported management guidelines so that disturbance to Antarctic wildlife is minimised and commercial tourism in Antarctica is thereby made more sustainable.

I report on research to investigate the responses of Antarctic wildlife to human activities associated with commercial tourism. The research employs manipulative experiments in which animals are exposed to controlled disturbance stimuli while their immediate behavioural and physiological responses are measured. In addition, wildlife breeding success is monitored as a means of comprehending possible longer-term impacts associated with human/wildlife interactions.

To date, the Australian Antarctic Division (AAD) have completed experiments to determine minimal approach distances for people visiting breeding Adélie penguins (*Pygoscelis adeliae*) and operational guidelines for helicopters over-flying creche-age Emperor penguins (*Aptenodytes forsteri*). The AAD have also completed experiments to measure the responses of Adélie penguins and surface-nesting petrels to over-flights by helicopters (results in prep). Here, I describe our research program, in particular the methods used, and results being generated. I will also introduce current research being conducted on the effects of human activity on Weddell seals (*Leptonychotes weddelli*), and research to commence during the 2001-2002 season on the effects of visitation on surface-nesting petrels and sub-Antarctic seabirds.

References:

Couglan, G. 1998. Trends and Discontinuities in Antarctic... In Antarctic 2010: A Notebook. Proceedings of the Antarctic Futures Workshop. G. Tetly, editor. 10-12

BIOGRAPHICAL NOTES:

¹ Melissa began investigating the responses of Antarctic wildlife to human visitation in 1991 as a postgraduate student. She has since held various research positions with the Human Impacts Research Program of the Australian Antarctic Division, within which she has been conducting research on the effects of visitation and helicopter activity on Antarctic seabirds. At present, she is continuing this research under a contract funded jointly by the Australian Antarctic Division and the CRC for Sustainable Tourism.

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MANAGING WILDLIFE TOURISM ON AUSTRALIA'S SUB-ANTARCTIC MACQUARIE ISLAND

Mark A. Bennett¹ and Lorne K. Kriwoken²

Macquarie Island's unique and hostile sub-Antarctic environment is home to an abundance of spectacular wildlife such as the elephant seal and the endemic royal penguin. This Tasmanian sub-Antarctic island is becoming increasingly attractive to tourists seeking a nature based experience. The way in which tourists are managed has implications for resource management and conservation objectives. This paper begins with a summary of the international significance of Macquarie Island, including its listing as a World Heritage Area and a UNESCO Biosphere Reserve along with the legal and administrative framework for managing tourism. The existing level of wildlife tourism on Macquarie Island is examined by assessing the number of tourists visiting the island, the reasons tourists visit and type of product tourism operators provide. The types of biophysical and social impacts associated with wildlife tourism are discussed and the ability of the environment to cope with an increase in tourist numbers assessed. The existing application of entry fees and quota restrictions is presented. The paper concludes by discussing the potential for a sustainable increase in tourist numbers on Macquarie Island and requirements for long term monitoring to assess those impacts.

BIOGRAPHICAL NOTES:

1. Mark Bennett is a PhD candidate at the Centre for Environmental Studies, School of Geography & Environmental Studies, University of Tasmania. Mark's doctoral research topic is environmental planning for Antarctic tourism. His research interests include the management of natural areas, in particular World Heritage Areas and the impacts caused by recreational users.

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DISEASE IN ANTARCTIC WILDLIFE: AN ASSESSMENT OF RISK

Stephanie Pfennigwerth

The wildlife of the Antarctic Peninsula is one of the great wonders of the natural world. Increased access and the lure of ‘the last frontier’ have resulted in tourist numbers doubling in just seven years. But Antarctica’s remoteness means its wildlife is especially vulnerable to human impacts. As the pace and rate of inter- and intracontinental travel increases, so too does the risk of disease introduction into Antarctic wildlife.

The inability to make accurate and precise predictions of the impacts of wildlife tourism hinders the formulation of informed management decisions. However, by identifying the pathogens posing the greatest danger, in which species, under what circumstances, in which locations, and when, the likelihood of disease outbreak can be evaluated and more effective, pre-emptive measures initiated. The procedure that lies between the accumulation of information and the implementation of management strategies is risk assessment.

In this risk assessment - possibly the first used to calculate human impacts in Antarctica—principles of epidemiology are applied to the behavioural ecology of Peninsula wildlife. It is discovered that due to the nature of emerging pathogens, and the method, conditions and circumstances in which the pathogens may be spread, penguins are particularly vulnerable to the impacts of introduced diseases. Tourism operations on the Peninsula are then studied in order to identify those activities most likely to increase the risk of disease to penguins. The paucity of quarantine facilities, use of unsanitary clothing, repetitive disturbance during the birds’ stressful breeding period, and other such hazards indicate the inadequacy of current environmental protection provisions, and the need for enhanced compliance mechanisms; enhanced public awareness; and established staff education and training standards. It is hoped that this study will help to improve protection for Antarctica’s unique animal inhabitants.

BIOGRAPHICAL NOTES:

Stephanie Pfennigwerth’s passion for wildlife has taken her from Alaska to Antarctica. It was during her travels around the Galápagos Islands, Ecuador, that she became interested in epizootiology, and concerned about the impacts of disease on wildlife populations. Recognising that introduced disease is the most important cause of species extinction after habitat loss, she undertook a study of the phenomenon as an Honours student at the Institute of Antarctic and Southern Ocean Studies (IASOS) at the University of Tasmania. Her research has been used to inform the Antarctic Treaty System’s Committee for Environmental Protection, and the International Association of Antarctica Tour Operators.

Postgraduate Researcher

Institute of Antarctic and Southern Ocean Studies (IASOS), University of Tasmania

PROTECTING WILDLIFE TOURISM - A SHARED RESPONSIBILITY WITH AQIS

Narelle Clegg

The Australian Quarantine and Inspection Service (AQIS) is part of the commonwealth department of Agriculture, Fisheries and Forestry. The primary role of AQIS is to prevent the introduction of exotic pests and diseases of plants and animals including pests and diseases that could affect native wildlife and, in turn, threaten wildlife tourism industries. Only a co-operative approach between AQIS, industry and the community will control the movement of pests and diseases into Australia.

The effect of exotic animal diseases such as Foot and Mouth Disease, rabies, or tuberculosis, on Australian wildlife is likely to be serious. Eradication programs for these could involve restrictions on access to national parks, state forests and other areas. A recent outbreak of foot and mouth disease in the United Kingdom will result in losses of an estimated 5 billion pounds this year in the tourism industry alone.

Exotic pests and diseases directly threaten all forms of wildlife, invertebrates, marine and freshwater fish, birds, reptiles, marsupials and mammals, and threaten the environment by altering ecology.

The exotic plant fungus Guava Rust occurs in South America, Florida and the Caribbean, where it infects plants including Eucalyptus. It causes leaf loss and then often death of the tree. If guava rust made its way into Australia it could cause horrific direct and indirect environmental damage, including loss of habitat and food, reduction of ground cover, reduction of leaf litter, soil degradation. Insect pests such as Red Fire Ant and Screw Worm Fly also pose threats to Australian wildlife.

Many of these pests and diseases can be unintentionally carried by people in the food items and artefacts they bring into the country. Educating the community, especially travellers, about the risks these items pose is vital to maintaining our unique environment and wildlife. Wildlife tourism has the potential to take people carrying these pests and diseases directly into environments that favour their establishment. A high level of awareness and an education role within the wildlife tourism industry will help protect the very things that support that industry – Australia's unique plants, animals and environment.

BIOGRAPHICAL NOTES:

Narelle Clegg is the manager of the Live Animal Import and Quarantine Station programs for AQIS, and has been for the past two years. These programs coordinate the import of live animals and their genetic material, and operate the four quarantine stations for dogs, cats, horses, cattle and other ruminants, pigeons, hatching eggs and zoo animals. She is the former manager of the Biologicals Unit, the program within AQIS that implements import policy for a broad range of animal and plant based products. During 2000, the Live Animal Import program organised for the importation of 270 horses for the Olympic games and successfully managed the quarantine of these horses at the Sydney International Equestrian Centre.

Before her career in AQIS, Narelle worked for 10 years as a veterinarian in private practice, in Newcastle, London and Canberra. She is a member of the Epidemiology chapter of the Australian College of Veterinary Scientists and is currently studying for a Masters of Management at ANU.

AN ASSESSMENT OF THE POSSIBLE IMPACTS OF RECREATION AND TOURISM ACCESS ON THE AUSTRALIAN SEA-LION AT CARNAC ISLAND NATURE RESERVE.

Colin Ingram

This paper relates to the licensing of commercial tours to Carnac Island, near Perth in 1995. This licensing followed a persistent demand for commercial access to Carnac Island to conduct tours focussed on the viewing of Australian sea-lions, *Neophoca cinerea*. This species is listed under the Wildlife Conservation Act 1950 as a species in need of special protection. Licences were first approved on the basis of gathering information on the potential impacts of commercial tours to Carnac Island, to assist in the preparation of a management plan for the island.

Carnac Island is the most important haul out site for male Australian sea-lions in the Perth metropolitan area. The sea-lion population is distributed sparsely between Houtman Abrolhos Islands in Western Australia to Page Island in South Australia and is estimated at only 2300 - 5000 animals. Viewing and interacting with sea-lions has become a popular commercial activity and attracts local, international and interstate visitors.

A study was conducted to assess the possible impacts of tourism and other public visitation on sea-lion populations and to consider any management actions that may be required to manage the activity in a sustainable manner. The study compared sea-lion numbers recorded for the island against the number of public and commercial visitors to the island. It found that there was no evidence to suggest that sea-lions were adversely affected by tourism visitation, but that several management actions would improve environmental sustainability. These include: reducing the number of licensed operators from fourteen to eight, limiting size of animal interaction groups, fast-tracking the island's management plan, requiring operators to achieve NEAP accreditation within 12 months, investigating a managed vessel mooring area and enhancing public education.

BIOGRAPHICAL NOTES:

WILDLIFE TOURISM AS A TOOL FOR IMPROVING ANIMAL WELFARE

Sally Wilson

This paper focuses on wildlife tourism development from the viewpoint of an animal welfare organisation. It provides case studies of the development of wildlife tourism from around the world.

The International Fund for Animal Welfare (IFAW) is one of the largest animal welfare groups in the world. Its aims are to improve the welfare of wild and domestic animals by reducing commercial exploitation of animals, protecting wildlife habitats and assisting animals in distress.

Tourism involves partnerships. A tourism destination, to function effectively, involves the co-operation of many stakeholders. Support from over two million supporters worldwide makes it possible for IFAW to engage communities, government leaders and like-minded organisations. IFAW seeks to achieve lasting solutions to animal welfare and conservation challenges, and to find solutions that benefit both animals and people.

IFAW has long recognised the concept of animals in their natural habitat as a first rate tourism resource. By working together with the tourism industry, IFAW has been able to achieve its aim of improving the welfare of animals and at the same time increase the economic, social and environmental wealth of the community. This win-win solution has been used by IFAW in a number of locations around the world, including Sealwatch Tours in Canada. Sealwatch offers tourists a unique opportunity to view newly born harp seals in a pristine environment on ice floes. IFAW has also been involved in working with the Kenyan Maasai community to set aside protected conservation areas for wildlife and associated tourism. It has been heavily involved in the development of the whale watching industry around the world and also in the establishment of a self-sustaining gorilla research and tourist site in a community owned forest in Cameroon.

Here in Australia IFAW began researching the concept of Australian wildlife as a tourism potential and in 1999 established the Kangaroos in Tourism Project. The CRC for Sustainable Tourism was engaged to undertake four research projects to examine the tourism potential of kangaroos by understanding demand and supply factors for the kangaroo viewing experience as well as existing deficiencies. IFAW is now interested in working to develop best practice tourism projects that will help achieve its long term vision to give Australian wildlife in their natural habitat the status and recognition within the tourism industry as an intrinsic part of the Australian experience for tourists.

BIOGRAPHICAL NOTES:

Sally Wilson is the Campaign Manager for the International Fund for Animal Welfare (IFAW) and has been working in the field of animal welfare on a professional basis for the past 14 years. Achievements include spearheading the first Australian trial of Swareflex wildlife warning reflectors aimed at deterring wildlife from the road and the passing of NSW legislation in 1994 to protect waterbirds which followed a seven year campaign. Sally has had extensive experience working in Asia which includes being instrumental in the passage of the Philippine Animal Welfare Act in 1997; attending emergency various emergency relief operations and involvement with IFAW's bear farming campaign in China. Sally was also the key organiser for the first Asian animal welfare conference held last May in Manila.

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ABSTRACT - THE MAREEBA WETLANDS; A MODEL FOR THE FUNDING OF WILDLIFE MANAGEMENT THROUGH TOURISM.

Tim Nevard

The Mareeba Tropical Savanna and Wetland Reserve, encompassing twelve purpose-built, biodiverse wetlands and over 2,000 hectares of tropical open woodland, lies some 60 km west of the regional tourism node of Cairns in Queensland, Australia. The wetlands and the balance of the open woodland habitat are managed for conservation and sustainable tourism by a community-based not for profit organisation; the Mareeba Wetland Foundation Ltd. The success of the project demonstrates that early involvement of the tourism industry in the planning and implementation of projects on public land can allow seamless integration of commercial and conservation interests.

A direct result of the design of the Reserve for wildlife tourism is an enduring high standard of habitat and visitor management. It has become a regionally important site for conservation; hosting one of the most important roosts for Brolgas (*Grus rubicundus*) and Sarus Cranes (*Grus antigone*) in North Queensland, and the only known breeding habitat within a protected area for Buff-breasted Button Quail (*Turnix olivii*), one of Australia's rarest birds. It has also established important breeding populations of the Cotton Pygmy Goose (*Nettapus coromandelianus*) and an anomalous Goanna (*Varanus sp.*). A further nationally important initiative is the reintroduction program for Gouldian Finches (*Erythrura gouldiae*), using captive-bred stock of known provenance. The Foundation has sought out and developed cooperative partnerships with tourism businesses. This approach has seen visitor numbers exceed targets, and the establishment of the Reserve as a major interpretive gateway to Australia's Gulf Savannah and Cape York regions. As a member of the Savannah Guides organisation, the role of the Foundation in winning the 2000 British Airways 'Tourism for Tomorrow' awards has been a vindication of its industry cooperation strategies.

BIOGRAPHICAL NOTES:

Tim Nevard, BSc (Hons) Lond, MSc Lond, MLI, MRAPI, is the Honorary Curator of the Mareeba Wetland Foundation, a not for profit community organisation, based in Far North Queensland, Australia. He is a professional environmentalist and consultant in development and biodiversity matters and has worked in over 20 countries in this capacity. He was co-founder of Europe's largest independent environmental consultants, a company quoted on the London Stock Exchange.

As the originator of the Mareeba Wetlands, Tim has seen it grow from the drawing board in 1994 to a Reserve of over 2,000 hectares and one of Far North Queensland's fastest growing tourism destinations. It is now one of the largest Brolga and Sarus Crane roosts in North Queensland, and the only known breeding site for one of Australia's rarest birds; the Buff-breasted Button Quail. As part of the Savannah Guides organisation, the Reserve was recognised in the 2000 British Airways global 'Tourism for Tomorrow' awards.

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CULTURAL FACTORS AFFECTING WILDLIFE TOURISM IN CHINA

Trevor H.B. Sofield¹ , Li, Fung Mei Sarah²

Wildlife tourism in China is based on centuries-old Chinese values and views about the natural environment and the role of humans interacting with nature. Traditionally wildlife has been viewed as a resource to be exploited for human use, and while classical literature and art eulogise many animals they are invariably anthropomorphised. An underlying difficulties in wildlife policy development is that there is no direct equivalent of the word “wilderness” in Chinese and the term “ecologically sustainable development” has been translated into Chinese only in the past decade. Wilderness area management often lacks an understanding of how to apply the principles of conservation and sustainability and very few natural sites in China are free of the deeply embedded Taoist tenet that wilderness is imperfect and humans have a responsibility to improve it. The Chinese value system juxtaposes the western paradigms of environmental conservation, wilderness and sustainability, upon which wildlife tourism is based, with essentially anthropocentric values, and there is thus a discourse of difference grounded in a strong contrast with the diametrically opposed eco-centric western approach. The forging of appropriate wildlife tourism strategies for China needs to reconcile the differing, culturally-determined values foregrounded in the very different anthropocentric and ecocentric world views.

This paper explores these issues through the case of the Chinese Government’s efforts to re-establish the Pere David’s deer (*Elaphurus davidianus*) in the Tin-ur-zhou (Swan Lake) Sanctuary on the Yangtze River in Hubei Province, and its plans for “ecotourism” to view the animal. Originally endemic to China, the last specimen in China died in the Beijing Zoo in 1921. However captive populations survived in overseas zoos, and in 1985 as part of the agreement returning Hong Kong from British sovereignty to China, some 28 deer from Woburn Abbey were gifted to Beijing and re-introduced into an area of original wetlands habitat along the Yangtze River. By 2000 there were two different herds in two riverbank sanctuaries totalling more than 800 animals. While the conservation effort has been a significant success, the Chinese plans for wildlife tourism based on visitor access to its herds are anthropocentric and show little understanding of the application of the principles underlying a western definition of ecotourism.

BIOGRAPHICAL NOTES:

1. Trevor Sofield is Foundation Professor, Tourism Programme, University of Tasmania.

2. Sarah Li, is studying for her PhD in Tourism at Murdoch University, WA.

They have been undertaking joint research in China for the past eight years, and have published a number of articles and reports on ecotourism, tourism policy, cultural determinants of tourism development in China and related issues. Under the auspices of the CRC for Sustainable Tourism they were instrumental in negotiating a “twin parks” agreement between the World Heritage sites of Cradle Mountain National Park in Tasmania and Jiuzhaigou Biosphere Nature Reserve in Sechuan, China in February 2001. They are currently engaged in developing a new Tourism Master Plan and Ecotourism Strategy for the Province of Hubei in central China following the construction of the Three Gorges Dam across the Yangtze River and the creation of a reservoir more than 560 kilometres in length.

WILDLIFE CONSERVATION IN WUYISHAN BIOSPHERE RESERVE SEEING VERSUS EATING; A CHINESE CONUNDRUM

Johannes Bauer, Madeleine Boyd, Zhuge Ren, Chengyang Zheng Wu Haohan and Terry De Lacy

This study is part of the Sino-Australian Biosphere research program of the CRC for Sustainable Tourism and was carried out in Wuyishan Biosphere Reserve between 1997 and 1999. In this study we have identified the level of indigenous knowledge on wildlife in WBR through semi-structured interviews. These interviews suggested a dramatic erosion of indigenous interest and knowledge of wildlife, with males of advanced years being best informed, and school children and women being generally very poorly informed and showing little interest. Renewed commercial interest in wildlife due to a depression of the bamboo market and growing tourist numbers from nearby Wuyishan with a taste for exotic food may pose a potential threat to even the most cryptic of animals. It is concluded that one of the important education components within the villages, which mostly support the Biosphere reserve, must be the revival of this interest and knowledge of wildlife, along with pride and a sense of ownership. This revival will also have to be linked with the development of a nature-based tourism industry, in particular wildlife viewing tourism, which relies on local guides and scouts.

Forests along the central and southern coastal zones of China are some of the most diverse and threatened ecosystems in the world, with the major threats being extensive forest simplification, widespread planting of exotics, clones and non-indigenous tree species, as well as ongoing, little controlled harvest of small animals for food and medicinal purposes. This problem is also affecting areas of China's now extensive system of protected areas. Tourism development, while aiding habitat conservation and reducing dependence on natural resources in China, also means the development of wildlife cuisine. While in Wuyishan Biosphere itself conservation seems to be quite successful for large animals, the nearby major tourism destination of Wuyishan has created a demand for wildlife food which is met from Wuyishan Biosphere Reserve nearby. This Reserve is renowned in China for Bamboo and Black Tea production. These two industries remain the major income source for 6 000 people living in 42 villages within the 650 sq km of the reserve

At present, 6 000 people living in 42 villages mostly within the 'transition' zone rely on bamboo plantations as the economic mainstay of the reserve, and nature-based tourism is projected to expand. Information regarding the behaviour, abundance, distribution of the fauna and variability in these parameters over time is minimal. Since its declaration as a Nature Reserve in 1979, hunting of wild fauna has been prohibited in Wuyishan Biosphere Reserve. Reserve officers conduct regular surveys to detect signs of hunting, however there is no comprehensive documentation of species usage levels, and changes in these over time.

BIOGRAPHICAL NOTES:

TOURISM PROVIDING VALUE FOR PANDA CONSERVATION IN QINLING MOUNTAINS , CHINA

Terry de Lacy; Johannes Bauer; Zhuge Ren; Marion Battig **CRC for Sustainable Tourism**

With the selection of the Giant Panda in the 1950s as an international symbol indicating the precarious state of many threatened species of wildlife, China was challenged to face up to its international obligations in the conservation of its globally important natural heritage. Fifty years later China has protected 8.64% of its total area in almost 1200 Nature Reserves, and finances many costly captive breeding programs of endangered species including at least five large captive breeding populations containing close to 100 Giant Panda.

Most efforts in the past however, have failed to halt the decline of the Giant Panda. There is a need to assign more land to the conservation of the Panda. China's population of 1.3 billion people drives immense demand for development and economic growth. As a result it is difficult to assign sufficiently large tracks of suitable land for the conservation of the wild Panda

Strategies that link development for the poor rural communities in mountain regions with conservation outcomes for the Panda are important in developing a new conservation model for Giant Panda. Well-managed wildlife (Panda) tourism provides an opportunity to merge development and conservation.

We report on a collaboration project between the Shaanxi Forest Department and the CRC for Sustainable Tourism to drive best practice panda tourism in the Qinling Mountains. Around 240 Giant Panda, almost half of those remaining in the wild, are found in China's Qinling Mountain range. It is hoped that this scheme will generate sufficient revenue so that Giant Panda conservation can be continued in the wild. The challenge is therefore to set up a program, which has no impact on the Pandas and their environment, finances costly monitoring programs, generates income for local communities and makes a profit for the investors. Sustainable tourism developments can provide the funding to conserve the unique biodiversity of the region, in particular the giant panda and can play a major role in the development of local economies and alleviate poverty.

BIOGRAPHICAL NOTES:

Terry is Chief Executive, Co-operative Research Centre for Sustainable Tourism. The CRC is a partnership between industry, universities and governments, to 'deliver innovation to enhance the environmental, economic and social sustainability of tourism'. It is part of the Australian government's Co-operative Research Centre's Program which competitively establishes and seed-funds high quality, long term, collaborative research centres with a strong focus on commercial outcomes. The CRC has 14 university and more than 20 industry and government partners throughout Australia and research programs in travel and tourism: environment, engineering, technology and business. It delivers post-graduate education, executive training and industry extension and facilitates commercialization of its IP via several spin-off companies. Previously Dr De Lacy was foundation dean of the Faculty of Land and Food Systems at the University of Queensland and holds a continuing chair in environmental policy at that university. He is the author of four recent books on environmental policy and sustainability topics. Professor De Lacy has extensive research experience in Asia, in particular China.

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BIRD TOURISM AND WETLAND CONSERVATION IN KOSHI TAPPU, NEPAL: A RACE AGAINST TIME?

**Ganga Ram Singh¹, Johannes Bauer¹, Neil Lipscombe², K. Cosgriff¹,
Ian Taylor² and T. Maskey³**

This study assesses the development of waterbird watching tourism in Koshi Tappu Wildlife Reserve within the context of reserve management and human-induced river system changes. Koshi Tappu Wildlife Reserve to the east of Nepal was declared Nepal's only Ramsar site in 1982, due to its exceptional abundance and diversity of bird species during winter and spring migration. The assessment was based on a five-month, intensive and standardised bird survey, tourist and industry questionnaires, focus discussion groups with stakeholder groups, and extensive community consultation. Activity studies during tourist outings were carried out to measure tourist activity patterns and to identify any impacts on waterbirds. Further context was provided by the senior author's long-term association with the community. The study, recording a total of 49 000 birds of 270 species in seven main habitats over five months, identified January and February as migration peaks for waterfowl and the riverine system as the main repository of diversity and abundance.

A comparison of survey data with a similar survey in 1970, suggested a dramatic decline in waterbird abundance. The assessment of the industry showed a significant increase in tourist numbers, mostly from the UK, however the industry too small to have any local economic significance. At present there is negligible impact of this industry on the environment, nor is this impact likely to increase. Conversely the assessment showed a river system which is stressed far beyond its resilience, and in a serious state of environmental decline. The Sun Koshi river system which traverses this reserve, has been modified extensively to reduce flood events in down-stream India (the reserve was created as a water containment basin for flooding). This hydro-development however, has gradually eroded the reserve's integrity and destroyed most forest systems within the reserve, leading to the gradual loss of terrestrial wildlife and now presumably affecting bird populations.

This gradual loss of diversity and ecosystem integrity happens in contrast to the development of a small scale and sensitive bird watching tourism industry (driven by some of Nepal's foremost conservationists) which aims to attract a specialist group of birdwatchers. The future of this industry, which would have the capacity to provide alternatives to current, very destructive land use practices, is compromised severely through these changes. Apart from identifying the present state of KTWR and the tourism industry, the study has provided crucial baseline information for the future monitoring of the reserve.

BIOGRAPHICAL NOTES:

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INCREASING YIELD BY INCREASING CUSTOMER CHOICE

Carolyn Fausnaugh

Wildlife tourism is sustainable only if tourism operators earn an income which sustains their enthusiasm for working in the industry. This paper develops a model of factors affecting the tourism operators' capacity to earn. It also presents options under the model by which operators may increase the revenue into their businesses by offering new services to visitors, by increasing length of visitors' stay, by increasing number of purchases visitors make, but not increasing the price of existing services.

BIOGRAPHICAL NOTES:

Dr. Fausnaugh is Senior Lecturer in Entrepreneurship and Venture Development at the Graduate School of Management of Griffith University at Gold Coast. Her areas of research interest include development of enterprises and development of products. Prior to becoming an academic, Carolyn was a practicing CPA in the USA where she consulted with clients on growing their businesses.

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THE NATURE OF THE NATURE TRAVELLER

Anne Kerr

In Tasmania, roughly one third of all visitors to Tasmania participated in wildlife viewing in 1999 and nearly half of all holiday visitors. Studies of the demographics of nature travellers suggest that nature travellers are more likely to be older, to participate in a range of activities, to spend more, and are also more likely to be highly educated and travel in couples.

Studies undertaken in Canada have identified that nature travellers seek solitude, tranquillity and beauty and that they seek to learn more about nature through a greater degree of interaction.

This motivational information in relation to nature travels presents only an initial glimpse through the motivational doorway of the nature traveller. How and why do travellers seek these attributes in their travel experience? This paper argues that a true understanding of the nature of the nature traveller is yet to be fully explored.

Travel motivation literature has documented the tendency for travellers to seek experiences of emotional ecstasy, which is described variously as “flow” experiences, peak experiences, “edgework” or some sort of sacred or spiritual re-configuration of their world. Given these findings, it is not surprising that the largely quantitative studies that have to date been conducted in relation to the travel motivation of wild life viewers have failed to come to terms with the complexity of travel experience and motivation.

This paper explores some qualitative methods in relation to documenting the richness of experience of wild life travellers. In-depth interviewing techniques such as laddering, narrative studies and observations are some of the alternative to quantitative methods.

These methods may provide a deeper understanding of the motives of the wildlife tourist, which will in turn provide a rich resource of the emotional meanings of nature travel for use in strategic marketing. This paper explores a framework for understanding the role of emotional experience in consumer behaviour and explores methodologies for better understanding the motivation of wildlife tourists.

BIOGRAPHICAL NOTES:

Anne Kerr is currently undertaking a PhD in Tourism at La Trobe University in Melbourne. She has an honours degree in psychology and works as a business development consultant in the travel industry.

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UNDERSTANDING WILDLIFE TOURISTS: ISSUES, GAPS AND OPPORTUNITIES

Anne Galletly & Gianna Moscardo

Visitors are an integral element of any tourism product or service and ultimately a sustainable tourism activity is one which provides a quality experience for visitors and which encourages those visitors to be concerned about the conservation of the places they visit. In recognition of this importance the Cooperative Research Centre (CRC) for Sustainable Tourism commissioned a report on wildlife tourists as part of their status assessment of Australian wildlife based tourism. The overall objective of the status assessment exercise and this report was to begin building a knowledge base for the improved management of wildlife based tourism. This exercise consisted of three parts; a series of interviews with key informants from tourism organisations and management agencies, a review of existing research, and analyses of data made available through the CRC's for Reef and Rainforest research. This paper reports on the key findings and recommendations of the report and outlines the issues identified in the interviews. It also reviews the state of knowledge about visitor satisfaction with wildlife based tourism experiences and the nature of demand for these tourism products. Finally, it sets out some recommendations for improving our understanding of wildlife tourists and the quality and sustainability of wildlife based tourism in Australia.

BIOGRAPHICAL NOTES:

Anne Galletly and Gianna Moscardo work as part of a team of researchers based at James Cook University focussed on understanding nature based tourism. Specifically the group conducts research into visitors expectations, motivations, decisions and satisfaction with tourism and recreation experiences offered in Australian natural environments, particularly in the Great Barrier Reef and Wet Tropics rainforests. Anne Galletly has an honours degree in tourism and management and Gianna Moscardo has a doctorate in psychology.

CLASSIFYING WILDLIFE TOURISTS: A MARKET SEGMENTATION APPROACH

Rebecca Saltzer & Gianna Moscardo

Much of what we know about demand for wildlife based activities is based on research conducted with bird watchers and whale watchers and much of that research has been focussed on more specialised groups. Several researchers have suggested caution in using this information in the development and management of wildlife based tourism because specialists may be very different from the larger more generalist populations. There is clearly a need to better understand the range and characteristics of different wildlife tourist markets. This paper reports on data collected from international and Australian tourists at multiple destinations around Australia including the Great Barrier Reef in Queensland and Kangaroo Island in South Australia. This research project takes a classic market segmentation approach using participation in different types of wildlife based activities and desired features of a wildlife based experience to identify and describe different market groups. The paper also reviews the implications of the results for wildlife tourism operators in terms of opportunities to adjust existing products and develop new wildlife based tourism opportunities. Issues related to the management of tourist-wildlife encounters are also discussed.

BIOGRAPHICAL NOTES:

Rebecca Saltzer and Gianna Moscardo work as part of a team of researchers based at James Cook University focussed on understanding nature based tourism. Rebecca Saltzer has an honours degree in tourism and her honours project focussed on understanding visitor satisfaction with wildlife encounters in the Wet Tropics rainforests of North Queensland. Gianna Moscardo has a doctorate in psychology and a particular interest in understanding tourism markets and visitor evaluations of interpretation.

A SUSTAINABLE FUTURE FOR ZOOS AND THEIR ROLE IN WILDLIFE CONSERVATION

Jeremy Mallinson

The ever-accelerating loss of habitat and subsequent increased rate of extinctions calls for a more proactive and coordinated response from the global conservation community if the present level of biological diversity is to be maintained. In recent years zoos, as social institutions, have responded by changing cultures and attitudes and have shifted institutional emphasis to a real commitment to conservation programmes worldwide. However, the success of conservation planning, of effective execution/implementation and of prioritisation, will ultimately depend on increased degrees of cooperation and the adoption of a multidisciplinary approach to problem solving. As the rate of animal extinctions accelerates, with over 11,000 described species classified as threatened, the need for cooperation among local, national and international conservation organisations, and between the conservation community and other organisations involved with aid, development, tourism and funding, becomes essential.

The linking of in-situ and ex-situ conservation activities represents a major opportunity in the effort to conserve global biodiversity. Therefore, the need for captive populations of threatened species to be founded and managed according to sound scientific principles, and the priority for zoos to develop species management programmes on a national, regional and international basis, is of paramount importance. However, in recent years, with the immense increase in leisure time, personal mobility, and a much wider choice of attractions for a day out, many zoos have experienced fallen attendance. This in turn, has affected their financial ability to improve the visitor experience and their capacity to contribute to conservation. With visitor/tourist revenue being essential to a zoo's financial viability, the extent to which zoos market themselves as 'visitor attractions' or 'conservation organisations' in the future still needs to be resolved.

This paper presents an international perspective and records the strategy that the author would like to see adopted by the global zoo community. Zoos, aquaria and their regional associations should subscribe to the principle, and implement in practise, the tenet that their prime role in modern society is as 'conservation centres', such that it becomes explicit that they strongly support the conservation of biodiversity. The text stresses the importance of a multidisciplinary approach, and provides examples of how the promotion of 'flagship species' has aided the conservation of some of the world's biodiversity hotspots, including by the establishment of 'Ecoparks'. It also highlights how zoos have the ability to significantly contribute to conservation and how this relates to revenue from tourism and other sources. It further suggests how regional associations of zoos, such as the Australasian Regional Association of Zoological Parks and Aquaria (ARAZPA), can promote a broader partnership participation in wildlife conservation and protection of the natural environment, for the benefit of threatened species and all those who share this planet with them.

BIOGRAPHICAL NOTES:

Dr Jeremy Mallinson was appointed Zoological Director in 1972, Director of the Jersey Wildlife Preservation Trust in 1995 and is now Director Emeritus of the Durrell Wildlife Conservation Trust. During his 42 year career in zoos and conservation he has studied and collected animals in Africa, Asia and South America, published over 200 papers and articles, is the author of seven books and has presented papers at conferences in 19 different countries. In 1997 he was appointed an 'Officer of the Order of the British Empire' (OBE) for his service to animal conservation worldwide and received the honorary degree of Doctor of Science (DSc) from the University of Kent at Canterbury in 2000.

OUR NATURAL GLOWING TREASURE: AUSTRALIA'S GLOW-WORMS (DIPTERA: KEROPLATIDAE: ARACHNOCAMPA SPP.)

Claire Baker and David Merritt

Glow-worms are the larval (maggot) stage of a small fly. The adults are mosquito-like in appearance, but do not feed during their short life span. The larvae construct delicate webs of silk and mucus, with which they capture small insects drawn to their bioluminescence. Tourists are also drawn to the unique bioluminescence. Australian glow-worm ecotourism is increasing with hundreds of thousands of international and domestic tourists visiting glow-worm populations located in Queensland, New South Wales, Victoria and Tasmania. This study aims to identify the Australian glow-worm fauna and document each species' distribution range. Currently three species have been described from Australian, but preliminary data indicates there are up to double this number. This information will then be used to put management guidelines in place to conserve populations under potential threat from an isolated habitat range or tourist impacts. A new species from a Victorian alpine cave is currently being listed as threatened due to its restricted habitat range of one cave. This procedure is followed by an action management plan, which we will work in collaboration with Parks Victoria personnel to implement. The fragility of the insect itself as well as the habitat in which it lives means careful regulation of the cave will need to be enforced.

BIOGRAPHICAL NOTES:

Claire is a PhD student working at the University of Queensland under the supervision of Dr David Merritt. Her interest in glow-worms began during a physiology class in which they were looking at the bioluminescent organ of the local species, *Arachnocampa flava*. She began an honours project "A biological basis for management of glow-worm populations of ecotourism significance" in which she documented their lifecycle and looked at various aspects of tourism impacting on the glow-worm population at Natural Bridge, Springbrook National Park, SE Queensland. Upon completion, the project was expanded considerably to include the entire Australian glow-worm fauna. She is taxonomically describing the Australian glow-worm fauna and documenting their distribution ranges. Molecular analysis is underway to ascertain how genetically different the populations are.

DEVELOPING GUIDELINES FOR SUSTAINABLE HUMAN-PENGUIN INTERACTIONS IN THE SUB-ANTARCTIC: EXPERIMENTAL METHODOLOGY.

Holmes, N.D.¹, Giese, M.² & Kriwoken, L.K.¹

As the number of people visiting sub-Antarctic and Antarctic environments increase, so do incidences of human-wildlife interaction. Commercial tourism represents the vast majority of visitors, with a major purpose of such visits being the unique opportunities to encounter Antarctic wildlife. Seabirds in the Antarctic and sub-Antarctic represent some of the more susceptible species for human-wildlife interaction. The open nature of nesting, combined with the restriction of breeding sites to primarily ice-free areas along coastline, make Antarctic and sub-Antarctic seabirds highly accessible for commercial tourism.

This presentation is part of a larger research project investigating the effects of human activity on seabirds in Antarctic and sub-Antarctic environments. The outcomes of this project will aid in the development of guidelines for sustainable human-seabird interactions, with applications for commercial tourism and Antarctic Treaty Nations alike. This will be achieved by empirically measuring the physiological and behavioural responses of seabirds to approaches by pedestrians (both singles and groups) and to the activity of zodiac boats and helicopters, in addition to monitoring population dynamics. Here, we present the experimental methodology for 2001 / 2002 field season on Macquarie Island, including:

- Measuring the reproductive performance, behaviour and heart rate of Royal Penguins (*eudyptes schlegeli*) exposed to pedestrian visitation.
- Measuring the effects of zodiac operation on King Penguins (*apterodytes patagonicus*).

BIOGRAPHICAL NOTES:

Nick completed a BAppSc (Ecotourism) and BAppSc (Parks, Recreation & Heritage) (Hons) at Charles Sturt University, Albury, NSW, including an exchange at Lakehead University, Ontario, Canada. Honours project an investigation of the diet, breeding dynamics and effects of tourism activity on Little Penguins (*eudyptula minor*) on Montague Island, NSW. Awards include:

- Dolphin Research Institute Summer Research Scholarship,
- School of Environmental & Information Sciences Honours Scholarship
- University of Tasmania / Australian Antarctic Division Postgraduate Research Scholarship
- CRC Sustainable Tourism postgraduate Supplementary Scholarship

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ARE HUMANS IN ANTARCTICA HAVING AN EFFECT ON WEDDELL SEALS (*LEPTONYCHOTES WEDDELLII*)?

Tamara van Polanen Petel¹, Melissa Giese², Michael Bryden¹

The number of people travelling to Antarctica and interacting with wildlife is continually increasing. Research has indicated that visitation can have a negative effect on some Antarctic. Weddell seals (*leptonychotes weddellii*) are frequently exposed to approaches by pedestrians and vehicles but as yet we have little empirical information as to the impact this activity may be having on the seals. As part of a multi-year research program, we are investigating the effects of pedestrians, over-snow vehicles and helicopters on Weddell seals. Response is being quantified on the basis of the behaviour and heart rate of individual animals and on haul-out patterns of entire colonies. The research also investigates whether the sound generated by human activities, has the potential to interfere with vocal communication among Weddell seals in their aquatic and terrestrial environments. The research is management-orientated and aims to make quality information available for the development of a comprehensive and scientifically based set of guidelines for managing interactions between people and Weddell seals. Here, we present preliminary results of the behavioural response of Weddell seals to pedestrian approaches, and preliminary data on the noise produced under the ice by over-snow vehicles operating at different speeds and at various distances from a recording point.

BIOGRAPHICAL NOTES:

Tamara completed her Bachelor of Science with honours in the Department of Biological Science at Monash University in June 2000. The title of her honours thesis was: "The Value of Urban Bushland Remnants as Bird Habitat". In February 2001 she started her Ph.D. candidature in the Faculty of Veterinary Science at The University of Sydney. Her Ph.D. topic is: "Measuring the Effects of Human Activity on Weddell seals (*leptonychotes weddellii*), in Antarctica". The first of three field seasons was completed during the 2000-2001 summer in the Vestfold Hills, East Antarctica

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MACROPOD CONSERVATION AND WILDLIFE TOURISM: A CASE STUDY OF THE BLACK-FLANKED ROCK-WALLABY

Michelle Davies

European settlement in Western Australia has greatly altered the landscape through land clearing, introduction of exotic wildlife and changed fire regimes. As a consequence, many native animals have experienced a reduction in range and population numbers. The Black-flanked Rock-wallaby (*Petrogale lateralis lateralis*) was once widespread throughout Western Australia but, due to a combination of factors its range has declined significantly and its present distribution is limited to a few widely scattered isolated populations. The Black-flanked Rock-wallaby is gazetted as vulnerable under Western Australian legislation and requires active management to ensure its survival. Translocating species to areas of suitable habitat, when coupled with predator control, is an effective method of expanding species' distribution as well as increasing population numbers. Wildlife tourism is another subsidiary method of conservation that can have benefits for both stakeholders and wildlife. Wildlife tourism in Australia has not been developed or marketed to its full potential and, compared to research conducted overseas, there are still many gaps in our knowledge.

Both translocations and the development of wildlife tourism were investigated in this case study of the Black-flanked Rock-wallaby. The aim of this study was to aid the Department of Conservation and Land Management (CALM) in identifying translocation sites suitable for rock-wallaby tourism. Selected sites needed to fulfil both habitat requirements for Black-flanked Rock-wallabies and possess sufficient recreation and tourism potential. No assessment combining both habitat suitability and wildlife tourism potential has been previously conducted in Australia.

In relation to the development of tourism based on Black-flanked Rock-wallabies, Nangeen Hill, a site of present rock-wallaby colonisation was found to be most suitable. In terms of translocating rock-wallabies to suitable habitat and the subsequent development of wildlife tourism, Avon Valley National park and Billyacatting Nature reserve were found to be most suitable. These two sites were found to satisfy both habitat and tourism requirements.

A survey of wildlife tour operators was also conducted by CALM and the results were analysed in this study. The aim of the survey was to assess interest in rock-wallaby tourism and to aid in formulating management recommendations. Management recommendations were also suggested for translocation management, stakeholder management and site management.

BIOGRAPHICAL NOTES:

Michelle Davies has a particular interest in rock-wallaby tourism, having developed a methodology for identifying potential translocation sites using tourism and conservation criteria. This has led to the translocation of animals to the one of the highest-ranked sites, Avon Valley National Park, an area formerly occupied.

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