Tourism and PROTECTED AREA MANAGEMENT
SUSTAINING RESOURCES
Tourism and Protected Area Management

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Tourism and Protected Area Management

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Sustainable Tourism Cooperative Research Centre (STCRC) is established under the Australian Government’s Cooperative Research Centres Program. STCRC is Australia’s largest dedicated tourism research organisation, with over $187 million invested in tourism research programs, commercialisation and education since 1997. The aim of STCRC research is to underpin the development of a dynamic, internationally competitive and sustainable tourism industry. STCRC is a not-for-profit company owned by its industry, government and university partners.

STCRC falls under the Commonwealth CRC program, which aims to turn Australia’s research and innovations into successful new products, services and technologies, making our industries more efficient, productive and competitive.

The program emphasises the importance of collaboration between business and researchers to maximise the benefits of research through an enhanced process of utilisation, commercialisation and technology transfer.

STCRC’s objectives are to enhance:
- the contribution of long-term scientific and technological research and innovation to Australia’s sustainable economic and social development
- the transfer of research outputs into outcomes of economic, environmental or social benefit to Australia
- the value of graduate researchers to Australia
- collaboration among researchers, between researchers and industry or other users; and
- efficiency in the use of intellectual and other research outcomes.
Tourism and Protected Area Management Research Snapshot

This document profiles key Sustainable Tourism Cooperative Research Centre (STCRC) research in the field of tourism and protected area management.

The Research
Twenty-five research reports are profiled in this snapshot, grouped under the following themes. To access the full technical reports relating to this research please refer to www.crctourism.com.au/bookshop.

VISITORS
INTERPRETATION AND COMMUNICATION
ECONOMIC EVALUATION
PARTNERSHIPS
PLANNING AND MANAGEMENT

“The future presents a number of significant challenges to the successful management of our parks and protected areas. A key element of our response as a sector must be to build our knowledge base, and to share that knowledge across national and international boundaries. Research is the cornerstone of the knowledge building process.”

David Clarke, Chief Executive Officer, Parks Forum
Aim of the Research

The aim of this summary is to provide a 'snapshot' of research that informs the parks – tourism relationship and its management. It reports on research in the field of tourism and protected area management published by the STCRC from 2005 to October 2008. The research review is structured around five sequential themes:

- **Visitors**: understanding visitor aspirations, needs and behaviours. Visitor use is a key driver of public support for conservation while at the same time a key source of on site impact and management intervention.

While visitor use is the key driver of the human dimensions of park management, the visitor – park interface is significantly influenced by three sets of management processes. These are:

- **Interpretation and Communication**: these areas aim to explain park values and goals, enhance visitor experiences and support for protected areas, and shape visitor behaviour.

- **Economic Evaluation**: this traces the values of parks and protected areas in monetary (and non-monetary) terms, explaining their value as tourist and visitor attractions, and values within the wider tourism system.

- **Partnerships**: this refers to the various mechanisms by which park management agencies can link to commercial opportunities and operations, and the wider communities of which they are a part.

Research on visitors and the three management processes outlined above share the common goal of informing:

- **Planning and Management**: integrates the above themes to ensure that the broad goals of biodiversity protection, conservation advocacy and park use are integrated for the long term sustainability of both the natural resource and the tourism sector.

Interest Groups

The research has relevance to a broad range of industry and government stakeholders and those seeking a greater understanding of the concepts and fundamentals of tourism and protected area management. It is a useful reference document and resource for those working in protected area management.

The following audiences will find this research especially beneficial:

- protected area managers
- tourism operators who are wishing to improve their park based business, or seek new business opportunities
- communities adjacent to national parks
- environmental, state and national park government agencies
- academic and education institutions and students.

Using the Research

The research is a particularly useful tool for the following:

- understanding changing trends and visitor activity and preference
- understanding the role of various communication approaches and techniques in shaping and enhancing visitor satisfaction
- understanding the role and future potential of commercial partnerships in achieving park management goals and satisfying visitor experiences
- understanding the interface between visitor use and protected area management and the value of protected areas within state and territory economies.
Tourism and Protected Area Management Overview

Protected areas are an important resource for conserving biodiversity and at present approximately one tenth of the world’s land surface is a protected area in some form. Australia has established the National Reserve System (NRS) which is a nationwide network of parks and reserves which conserves examples of Australia’s natural landscapes and native plants and animals. In early 2008, the NRS included over 9000 parks and reserves covering almost 900,000 square kilometres, or more than 11% of Australia’s land area. The term ‘protected area’ encompasses a large range of environments such as national parks, world heritage areas, marine parks and nature reserves and was defined in 2004 by the International Union for Conservation of Nature (IUCN) as:

“An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.”

IUCN, 1994

This definition was revised and released in 2008 where a protected area was defined as:

“A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values.”

IUCN, 2008

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1-6 IUCN. (1994). Guidelines for Protected Area Management Categories. IUCN, Gland, Switzerland and Cambridge, UK
1-2 Department of Foreign Affairs and Trade (2008). About Australia: Australia’s protected areas. Department of Foreign Affairs and Trade, Australia.
3 IUCN (2008). Guidelines for Applying Protected Area Management Categories. IUCN, Gland, Switzerland and Cambridge, UK
As identified by the IUCN protected areas have various management styles which include:

- Strict protection: a) strict nature reserve and b) wilderness area
- Ecosystem conservation and protection (i.e., national park)
- Conservation of natural features (i.e., natural monument)
- Conservation through active management (i.e., habitat/species management area)
- Landscape/seascape conservation and recreation (i.e., protected landscape/seascape)
- Sustainable use of natural resources (i.e., managed resource protected area)

Protected areas form the basis of the majority of conservation strategies, both nationally and internationally, in order to maintain natural ecosystems in an attempt to prevent threatened plant and animal species from becoming extinct. However, many animal and wild plant species lack sufficient populations within protected areas with many located outside of protected areas. Therefore, new protected areas need to be established in the future which will capture these threatened species.

Tourism within protected areas is one of a number of human values associated with protected areas. Tourism is the vehicle by which park managers come into greatest direct contact with society, and it provides a rich opportunity for explaining park values, ensuring their ongoing existence and directly contributing to human welfare through the reflective and active recreation opportunities they provide.

“Protected areas need tourism, and tourism needs protected areas. Though the relationship is complex and sometimes adversarial, tourism is always a critical component to consider in the establishment and management of protected areas.”

IUCN, 2002

The publication looks at this relationship through a variety of lenses with the goal of improving the scientific basis for the management of the parks—tourism interface, by providing a vehicle for research outputs to be transferred into management outcomes.

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Visitors
Visitors

Overview

Understanding visitor aspirations, needs and behaviours is the starting point for exploring the park – tourism interface. Parks and protected areas are significant visitor attractions and visitor use is a key driver of public support for conservation, while at the same time visitors contribute to on-site impact and management intervention. Nature-based tourism is critical to Australia’s tourism industry. Tourism Research Australia (Nature Tourism Fact Sheet, 2007) classifies 3.5 million (68%) of all international visitors to Australia as ‘nature-based’—with visiting a national /state park as recording the highest participation rates (68% of activity choices among this group). Thus parks and protected areas are visited at least once by close to half of all international visitors. Some iconic sites such as Kakadu and Uluru-Kata Tjuta National Parks and the Great Barrier Reef Marine Park are key national destinations which in turn significantly shape tourist flows and the travel and economic benefits that flow from visitation. When international data are coupled with significant, often repeat domestic visitation, the overall picture that emerges indicates that there are over 84 million visits to protected areas each year. Protected areas in Australia and overseas are therefore exposed to increasing visitor numbers, and changing visitor activities and use, leading to escalating concerns regarding the impacts that visitors may have on the natural resources of these areas. Protected area managers, business operations and visitors need information to ensure such areas can meet the dual obligations of ensuring the conservation and protection of natural and cultural heritage while providing high-quality recreation experiences.

“Visiting our parks is a highly prized experience. Providing for public visitation, while protecting the natural and cultural values people come to experience, is an enduring challenge for park managers in Australian and around the world. Research into community demand and preferences for recreation and research that examines the effectiveness of visitation management provides an evidence-basis for planning and management decisions in this complex area.”

Sally Barnes, Head – NSW National Parks and Wildlife, and Deputy Director General – NSW DECC

Research Integration

Earlier work undertaken by STCRC researchers confirms international research which indicates that park visitors are generally well educated with higher status occupations compared with the general population. This raises the yet to be explored question of the barriers and constraints to non-park visitors to Australia’s natural (and cultural) heritage sites. Many of the visits recorded in research are first time visitors—which indicates the need for expansion of research techniques so as to include repeat visitors. Repeat visitors are often highly committed to individual sites generated on a base of local visitation. Over time the research has moved from studies of individual sites and their management challenges to a broader view (e.g. summer mountain tourism) and systematic management requirements. New science and tools, such as the generation and potential for a Tourist Pressure Index (TPI) (Hadwen and Arthington) which can give ‘early warning’ and ‘management action’ thresholds across a site and offer potential for a more systematic and forward thinking view of park visitation and impacts. The research also highlights where management interventions such as site access and access to drinking water may configure park use patterns.

An underlying secondary theme across the studies highlights the role of park agency communication in shaping the visitor and wider community response. While resident around the Ningaloo Marine Park in Western Australia identify with the need for sanctuary zone modifications, friction was more focused on the process of engagement and communication with park agencies. At the more practical level, visitors were seen to be unprepared for local weather conditions in alpine parks and in the safe disposal of human waste.

The research indicates that:

- Parks and protected areas are core destinations for Australian tourism.
- Park visitors, while generally highly educated, have identifiable needs for information to improve the safety and enjoyment of their visits and activities.
- There is a move to more systematic research in visitor monitoring, indicators and predictive models which can assist in the park visitor management interface.
Tourism and PROTECTED AREA MANAGEMENT

VISITORS


Tony Griffin and David Archer

Objectives of Study

A principal focus of the study was visitor satisfaction relating to the general experience and to specific features of the national parks. The study objective was to measure how important certain facets of national parks are to the overall quality of experience, and also determine the current levels of satisfaction with those facets. In so doing the intention was to develop a method for prioritising management actions.

Methodology

The subject national parks were determined in consultation with National Parks and Wildlife Service (NPWS) to include: Boonoo Boonoo, Bald Rock, Gibraltar Range, Washpool, Yuraygir, Border Ranges and Nightcap national parks. The visitor survey involved a two-stage administration process, comprised of the following components:

• an on-site interviewer completed questionnaire
• a self complete mail-back questionnaire.

In total, there were 1615 responses to the on-site questionnaire and 618 responses to the mail-back component. The visitor survey was conducted in the set of parks on four separate occasions between October 1999 and July 2000, with each of the four survey periods scheduled to coincide with the New South Wales and Queensland school holidays in each season, with the spring and autumn periods also coinciding with long weekends.

Key Findings

The key findings from the survey were broken down into six key areas:

Visitor profile

Respondents to the survey were overall broadly similar in terms of gender, age, employment status, education, occupation and income in each of the subject parks. The findings confirm numerous other studies findings that show that park visitors are generally well educated with higher status occupations compared to the general population. Furthermore, this set of parks attracts visitors from a large catchment area, although the major source remains from the relatively nearby regions of North-Eastern New South Wales and South-East Queensland.

Sources of park information

The most commonly used sources were informal such as prior knowledge or experience, and friends/relatives/other people (word of mouth), while the most frequently used formal source was NPWS brochures or guides.

Park visitation patterns

Half of those surveyed were visiting the specific national park for the first time, although there were significant differences between parks in terms of the levels of repeat visitation. Overall, the numbers of visitors were fairly evenly divided between those who stayed in the park at least one night and those who did not, with significant differences across the parks and for visitors from different places of origin. The subject parks attract a diversity of group types from individuals to large family groups and the two most common reasons for the visit were: ‘to enjoy being in a natural environment’ and ‘to undertake recreational activities’. The most popular activity undertaken by visitors to the subject national parks was simply relaxing and getting away from it all.

Linkages to regional tourism

There were significant differences between the subject parks in relation to the type of trip taken, with Yuraygir emerging very much as a self-contained holiday destination in its own right. In contrast, Bald Rock and Boonoo Boonoo recorded the highest proportions of holidaymakers who chose not to stay in the park. Overall, more than a third of visitors on a holiday away from home chose to stay outside the national park, with the majority of these staying in some form of commercial accommodation in nearby towns.

Also see Archer, D., and Griffin, A. R. (2005). Study of Visitor Use and Satisfaction in Mungo National Park
Visitor attitudes, preferences and satisfaction
The results show that park visitors attached the greatest importance to the qualities of the natural environment, with attributes such as: the pristine condition of the environment; beautiful scenery and views; and unique natural features rated as most important. Shower facilities, the ability to see and talk with national park staff, and weather shelters were rated as the least important items.
Unruly behaviour of other visitors, litter/rubbish, and noisy people or activities and dirty toilets were rated as circumstances most likely to spoil visitors’ experiences. Overall, the vast majority of visitors are satisfied with their experiences in these parks.

Prioritising management actions and planning
Importance-performance analysis indicated where there was an apparent need for improvement in some parks if enhancing visitor satisfaction was to be pursued as a management objective.

Recommendations
The survey results reveal that the vast majority of visitors are satisfied with their experiences in these parks. However, in terms of meeting the specific expectations of visitors, each of the parks was revealed as having its own strengths and weaknesses. The appropriate management responses to these would normally be to build on, and maintain, the strengths while improving on the areas of weakness. This report makes no such precise recommendations, even though implications for action do emerge from the analysis. Where appropriate, these implications have been pointed out in the discussion of the results. This is particularly so in relation to importance-performance analysis presented in Chapter 9, which identified individual parks’ strengths and weaknesses. The results of this analysis indicated where there was an apparent need for improvement in some parks if enhancing visitor satisfaction was to be pursued as a management objective. The unresolved question, however, is what constitutes an appropriate performance target or set of targets? This is a question which the NPWS itself must resolve overall and/or in relation to specific parks, taking into account all other park management objectives and constraints. The setting of such targets will determine the extent to which the improvements or other actions implied by the results of this study should be undertaken.

The low levels of use of NPWS sources of information, even amongst first time visitors, could reveal an issue that needs to be addressed.
Objectives of Study
The objective of this study is to examine in part, the perspective of current and potential markets in undertaking a summer holiday in a Victorian mountain resort. The report is broken up into two sections:

- **Section 1** seeks to determine the profile of the summer mountain visitor, using Mt Buffalo as the study site.
- **Section 2** presents the perceptions of visitors and non-visitors to Victorian mountain resorts in the summer.

Methodology
The methodology for this study consisted of a survey conducted via face-face interviews with visitors to Mt Buffalo in 2000 over the Easter holiday period. A cluster analysis was used to determine a number of profiles of the summer visitor. A sample size of 200 was chosen and there was a 100% response rate.

Focus groups were used to determine the components that comprise the image of Victorian ‘alpine’ mountains as summer holiday destinations. Face-to-face interviews randomly administered to 260 respondents in the Melbourne CBD were used to determine how visitors and non-visitors to Victorian mountain resorts perceived this region as a possible summer holiday destination.

Key Findings
Almost half of the respondents were families or young couples who resided in the eastern and south eastern suburbs of Melbourne, the majority of whom were tertiary educated. The travel party consisted of groups of family or friends participating in a day excursion to Mt Buffalo (40%) or including the visit as part of a longer (week long) holiday. Motivations for visiting this alpine region were largely for the enjoyment of nature and for relaxation purposes.

The study identified the main feelings associated with mountain holidays, for both visitors and non-visitors, as ‘relaxing’ and ‘peaceful’. The uniqueness of the setting was another ‘pull’ factor. Importantly, the major deterrents for non-visitors were largely issues related to access to the mountains (too difficult, too far away), the cost of such a holiday (often equated with the cost of a winter holiday) and the perceived lack of activities at the destination.

Recommendations
The research indicates that efforts to increase summer visitation must:

- address the negative perceptions held by non-visitors;
- provide a suitable range of facilities and recreational amenities for their enjoyment; and
- promote the unique relaxing and peaceful nature of such destinations.
Tourism and Protected Area Management


Stewart Johnston and Andrew Growcock

Objectives of Study
During the summer of 1999–2000 this study was conducted in order to:

- identify non winter visitation and track use levels;
- identify the type of visitation in regards to visitor demographics, group size and activities undertaken;
- provide information on the level of satisfaction of visitors in regards to specific facilities and attitudes towards the alpine area and its management; and
- provide recommendations to allow for sustainable tourism to continue in the Kosciuszko alpine area.

Methodology
Sites were established at the top of the Crackenback chairlift in Thredbo Village and at Charlotte Pass. A total of 40 days were sampled with approximately equal numbers of sampling days allocated to 'peak, ‘intermediate’ and ‘low’ tourism demand days. Data recorded included the number of visitors, their time of arrival, estimates of age, gender, party size, activity, track utilised and a rating of the visitor’s level of preparation. Data was also collected from departing visitors through individual interviews. The responses for motivations, perceptions, attitudes, residential area and opinions of facilities are reported.

Key Findings

- Approximately 102,500 people visited the Kosciuszko alpine area during the non-winter period of 1999–2000, with around 47,250 visitors undertaking trips of a half-day or more.
- Party size is typically small—two people was the most frequent party size with more than four in a group uncommon.
- Public holidays, especially around New Year’s Day and Easter, have the highest visitation levels; and on average, weekends receive the highest visitation while mid week receives the least.
- Daily visitation to the summit of Mt Kosciuszko was greatest between 12 noon and 1.30 pm.
- More visitors access the Kosciuszko alpine area from Thredbo and the Crackenback chairlift than from Charlotte Pass.
- The predominant age of all visitors to the area is between 20 and 49, with a significant number of children below the age of 15 also present, indicating family groups are common.
- There is no difference in the proportion of male and female visitors.
- A range of activities are undertaken by visitors to the area and includes short and long distance walks, sightseeing, camping and cycling. Walking was the most popular activity.
- Groups departing on camping trips into the Kosciuszko alpine area are more likely to depart from Charlotte Pass than from Thredbo.
- Preparation levels (i.e. appropriate clothing, water) of day walking in the area tended to be poor.
- Satisfaction levels were high regarding the area as a destination, but concerns were raised about some of the facilities provided such as parking, toilets and signage.
- More choice of walks in the alpine area is desired (e.g. short loop walks).
- The dominant motivation for people to visit the Kosciuszko alpine area in summer was the area’s natural values.

Recommendations
Visitor information can benefit a range of management activities and has specific value in aiding visitor management initiatives for the Kosciuszko alpine area. This information provides a solid baseline for developing long term trends and allows for links to be developed between user levels and environmental impact monitoring. This information is beneficial in:

- justifying the allocation of resources;
- formulating policy and assisting management strategies; and
- focusing marketing and promotional opportunities.

By understanding who visitors are, where they are going and what their motivations are for coming to the area, management strategies can continue to be developed that suit both long term environmental needs and provide quality visitor experiences.
Report Four: Where Do They Go? Predicting Visitation Intensity at Focal Tourist Sites within Protected Areas (2008)

Wade Hadwen and Angela Arthington

Objectives of Study
This study’s main objective was the development and application of a Tourist Pressure Index (TPI), a predictive model of visitor numbers at key sites within a protected area developed by Hadwen, Arthington and Mosisch (2003), in protected areas in Australia. This model was developed for use in protected areas where visitor data are not collected, as a means of identifying sites that are likely to receive high visitor numbers. Specifically, the model is designed to determine the relative importance of multiple sites within a single protected area as focal destinations for visitors and, to this end, resource managers can use the model output to determine how and where to invest in management activities that can aid in the sustainable management of sites in light of visitor pressure.

Methodology
In this study, there were four key components to the continuing development of the TPI model, namely:

• developing TPI score thresholds for managers;
• redeveloping the TPI model to include additional factors that can influence visitor preference for particular sites;
• applying the revised TPI model to new protected areas; and
• collecting data on how the model might be further refined in the future, especially in relation to age and gender differences in visitor behaviour and perceptions.

Key Findings
The major findings from this study are outlined in brief below. Visit www.crctourism.com.au/bookshop for a full explanation of findings.

• TPI scores can be used to develop management trigger thresholds.
• Depending on the protected area, additional factors should be built into the TPI model.
• Demographic aspects may inform future TPI model developments, especially for protected areas with gender- and age-biased visitation.

Recommendations
Future protected area management and planning operations could utilise the TPI model to optimise their activities. This is likely to be an important cost-saving use of the TPI model, as scenarios run through the model can be evaluated in light of the limited budget and operational capacity of the agency staff in any given protected area, such that the best decisions relating to management and monitoring activities are made. In addition to modifications that have strengthened the Tourist Pressure Index (TPI) model, future planned actions include rigorous field-testing, or ground-truthing, of the model in heavily visited protected areas.

It is recommended that key future actions, to be undertaken collaboratively between protected area management agencies (World Heritage authorities, state national parks and wildlife services, state forestry services etc.) and research scientists are:

• the establishment and storage of visitor monitoring programs, both to collate total numbers of visitors within a protected area and also the number of visits, or visitors, at particular sites within a protected area
• the establishment of routine data collection strategies to examine the motivations, perceptions and issues that influence visitor use and intensity at focal sites within popular protected areas
• studies examining the influence of site infrastructure (including hardening) and impacts (visual degradation) on visitor perception and visitation levels within heavily visited protected areas
• studies examining the seasonality of visitation to a wide range of protected areas, to elucidate climate-driven patterns in visitation and visitor activities (and their potential ecological impacts)
• examination and development of relevant ecological indicators to provide information on visitor impacts in protected areas. This represents the necessary next step in determining the effects of activities (rather than visitor numbers) on natural ecosystems and species. This task is currently being undertaken in a series of STCRC-funded research projects that aim to develop terrestrial, aquatic, social and economic indicators of sustainable tourism and recreation for implementation in protected areas.

Kerry Bridle, Jamie Kirkpatrick and Julie von Platen

Objectives of Study
The objectives of this report were to:

- determine the degree of compliance with minimal impact bushwalking (MIB) guidelines around popular huts and campsites in back-country regions of Tasmania
- assess the impact of nutrient additions on vegetation and soils around hut sites, and the degree to which poorly buried faecal deposits impact on water and soil quality
- determine the longevity of faecal pathogens in the soil in order to assess whether there is any health risk associated with potential re-excavation of human toilet waste.

Methodology
The research was carried out in five main sites around Tasmania including: Newdegate Hut—Mt Field National Park; The Overland Track—Cradle Mountain—Lake St Clair National Park; The South Coast Track; Melaleuca (located in the South-West Conservation Area); and Pool of Bethesda (located in the Walls of Jerusalem National Park). Within these sites five key issues were investigated:

- bushwalkers’ adherence to minimal impact bushwalking (MIB) guidelines
- impacts of the burial of human toilet waste on vegetation and soils around huts and campsites
- visual assessment of the decay of faeces and toilet paper
- longevity of faecal pathogens in soil over a range of environments
- impacts of human waste disposal on water quality.

Key Results
Many people did not abide by MIB guidelines. They did not travel 100m away from campsites or from natural water supplies to go to the toilet, nor did they bury waste to the recommended depth of 15cm. Many deposits were toilet paper rather than faecal deposits, highlighting the need to educate users to discard all toilet waste products in an appropriate manner. The presence of a toilet was successful in reducing the number of deposits found in an area. While there was little evidence of faecal contamination of soils around huts and campsites, elevated nutrient levels were found in close proximity to the sites. The elevated nutrients did not result in an increase in the presence or cover of exotic plant species for two of the three sites studied. Inappropriately buried faecal deposits were concentrated within 50m of a hut at one study site. Water samples taken from a number of places around the hut site showed that water quality decreased after periods of heavy rainfall. Faecal sterol analyses determined that up to 30% of the contamination of the water body was from a human source. Clearly these results have major management implications for popular sites with limited facilities.

The decay rates of toilet paper and faeces depended on the environment in which they were buried. Toilet paper and faeces that had been buried to a depth of 15cm were visible after 12 months burial in the nutrient poor waterlogged peat soils of western Tasmania. However, three of the four faecal pathogens present in these deposits were in low numbers or undetectable after 12 months. By contrast, deposits buried in sand in a coastal eucalypt forest were invisible within months of being buried. However, faecal pathogens survived in the soil. Therefore there is a greater public health risk associated with the coastal eucalypt environment, even though there is no visible evidence of any faecal material. ‘Limits to acceptable change’ were developed to guide management agencies to prioritise management issues relating to the disposal of human waste.

Recommendations
Further research could be directed into:

- monitoring for sites that are perceived as a health risk. Pre and post monitoring should be undertaken for problem sites where management has been changed
- surveys of peoples’ behaviour, attitude and reaction to faecal waste disposal. This would provide valuable information as to why people do not follow MIB guidelines. The information would form the basis of the development of a new education campaign to inform walkers about the social, economic and physical impacts of their behaviour
- developing the ‘limits to acceptable change’ model of management with respect to this issue.


Jeremy Northcote and Jim Macbeth

Objectives of Study
The study’s main objective was to gather baseline data to assess potential socio-economic impacts from the expansion of sanctuary zones in Ningaloo Marine Park on visitors and residents in the Northern Gascoyne and to make a preliminary assessment of any short-term impacts.

Methodology
One hundred and thirty-five Shire of Exmouth residents were surveyed about their views on the sanctuary zones and the extent to which the changes might impact on their activities. The survey involved a mail-out procedure using a random sample of one in five resident adults in the Shire of Exmouth.

An additional survey was carried out with 358 wilderness campers along the Ningaloo coast (ten months after legislation enforcing the sanctuary zones had been introduced). In addition to surveying wilderness campers and Exmouth residents, a range of data from two 2002 visitor surveys of wilderness campers were re-analysed and reconstituted as baseline data over a longer time period. Finally, a range of visitor data (including vehicle counts to the national park, camping revenue, visitor centre door entry counts and aerial surveys of pastoral station camps) was collated and analysed in order to detect changes to visitation levels.

Key Findings
Statistics provided by Tourism Research Australia for 2004 to 2005 estimate that 90,000 visitors converge on the Shire of Exmouth per annum, although this volume fluctuates. Approximately 30,000 visitors participate in recreational fishing. A key finding of the project is that visitor experience is related to a general ‘wilderness experience’ in which recreational fishing is one of a constellation of activities that contribute to enjoyment of their holiday. The value placed on recreational fishing cannot be readily disentangled from other activities such as camping, swimming, enjoying nature and viewing wildlife that collectively forms the ‘Ningaloo experience’. What this probably means is that fishing visitors have some resilience to changes in fishing regulations.

The wilderness camping survey indicates that, in the case of a core group of long-term fishers at least, the sanctuary zone changes may have resulted in some modification of boat fishing activities and some localised displacement in terms of camping location. The results of the survey indicate that wilderness campers feel inconvenienced by the changes (with 80.1% of Ningaloo campers, for example, claiming to have been impacted by the changes), but not to the point that they do not wish to return to the region in the future, with 99% of campers indicating that they would visit the area again in the future. Visitor satisfaction among campers for the Ningaloo Coast was extremely high (98.2% for Ningaloo campers and 94.8% for Warroora campers). In the case of Ningaloo, wilderness campers seem to have undergone local redistribution but not regional dislocation, indicating that the magnitude of the sanctuary zone changes are, for the time being at least, within their threshold of tolerance.

The survey of residents of the Shire of Exmouth found that over half of the respondents (54.5%) were generally unhappy with the sanctuary zone changes and 57.6% felt that the activities of themselves or household members would be (or had been) affected, with some being forced to shift their boat fishing and cray diving activities. The resident survey indicates that, amongst those dissatisfied with the changes, the opposition is directed particularly to the perceived process by which the sanctuary zone management plan was devised and implemented, and not so much to the principle of sanctuary zone protection itself. It is suggested that such feelings are less derived from anti-environmental attitudes but more from an attitude (one might say an ‘ethos’) of rugged individualism in regional areas such as the Northern Gascoyne. The degree to which this mindset adapts to incremental regulatory controls such as those relating to recreational fishing is a key issue for protected area managers, and one of the reasons why visitors and community responses to sanctuary zone regulation need to be closely monitored.
Recommendations

Continued monitoring is important to understand long-term changes to visitor activity that may result from planning and management decisions concerning the Ningaloo coast. The impact assessment uncovered significant inadequacies in the level of understanding of visitor patterns in the Northern Gascoyne and the ability of agencies to monitor tourism activity and its social and economic impacts. It is recommended that the following matters be given strong attention by management authorities:

• recognition of the importance of robust research and evaluation in future management policies;
• promotion of stronger interagency collaboration;
• establishment of closer community partnerships in planning and management;
• implementation of compulsory and systematic data collection and reporting procedures; and
• provision of a central data collection and access point.

Such measures are seen to be the key for understanding not only impacts from management decisions such as sanctuary zones, but also other local and external factors that affect visitation to the region. The project team also suggests the following improvements be made to existing data gathering activities by agencies in the region:

• Aerial surveys should be conducted more regularly.
• Metro-count recordings in Cape Range National Park should be supplemented by random surveys of visitors by entry gate staff.
• Camping receipts need to be collected from both the national park and the pastoral stations. An electronic method of storing receipt data is required.
• Visitor centre bookings data need to be systematically collected and stored.
• Recreational fishing surveys by the Department of Fisheries need to report on fisher numbers and origins, not just fishing effort.
• Tourism satellite accounts need to be produced for the region.
• Visitor surveys of different market segments (such as those staying in commercial caravan parks and hotels/motels) need to be carried out.
• Residential surveys need to be conducted periodically.
• Comparison data for Shark Bay should be collected to distinguish local effects from regional effects.
Interpretation and Communication

Guided Tour, Seal Bay Conservation Park, Kangaroo Island
South Australian Tourism Commission
Interpretation and Communication

Overview
The essence of interpretation is to provide insights for visitors about what is special and how and why resources are valued and protected. It sets out to explain the nature, importance, and purpose of historical, natural, or cultural resources, using a variety of personal or non-personal media.

Interpretation and communication represent the direct interface between park management and visitor experience. It is the most direct interface between visitors and park management. Well designed, focused and presented interpretation has a critical role in:

• enhancing visitor experiences and satisfaction;
• mitigating visitor impacts; and
• encouraging positive nature towards nature conservation and park agencies.

“Interpretation and communication is the sharp end of the tourism industry. Research into the rapidly changing visitor preferences for information and interpretation delivery is critical to providing outstanding experiences in protected areas and cultural heritage destinations.”

Colin Ingram, Assistant Director, Parks and Visitor Services, Department of Environment and Conservation, Western Australia

Research Integration
Interpretation and communication in parks and protected area management can be powerful tools to shape human behaviour. To be successful, such programs need to be well integrated into park management objectives and broader agency goals. Communication messages focusing on behavioural (as opposed to normative) beliefs were found to be most effective at shaping visitor behaviour.

The research in report 10 demonstrates that theoretically informed communications were successful in influencing visitor behaviour at Russell Falls track, Mt Field National Park (Tasmania), Badger Weir Picnic Area, Yarra Ranges National Park (Victoria); and Yellagonga Regional Park, (Western Australia). At Russell Falls, the ‘belief-based’ messages increased rubbish pickup by nearly 20%; more than 90% of first time visitors at Badger Weir did not feed the birds; and at Yellagonga Regional Park the belief-based message led to a 19% increase in walkers keeping their dogs on-lead. In the wider management context it is suggested that a combination of communication and direct management has potential to address the problem.

The conclusion is that communication that identifies the salient beliefs of visitors, isolates a subset of these beliefs that have optimal persuasion potential and targets those beliefs can increase compliance with management goals. The implication is that strategic communication and interpretation programs need to be carefully designed, researched and implemented to be effective and ensure alignment with management goals. The research also notes the need for such programs to embody ethical dimensions and be realistic and responsible.

The suite of STCRC research projects also contains specific tools for the evaluation of a face-to-face interpretation programs and identifies the opportunities to develop such tools, self-guided and non-personal media such as signs, exhibits, brochures, websites etc.

The research indicates that:
• Interpretation and communication can be a powerful tool to mitigate the effects of visitor use and support management goals.
• Interpretation and communication programs are not ‘add-ons’ to management tasks, rather they need to be integrated within management goals, and need to be well designed, researched and resourced.
• As with all aspects of park management, it is necessary to effectively monitor and evaluate interpretation programs.

Stephen Wearing, David Archer, Gianna Moscardo and Stephen Schweinsberg

Objectives of Study
The objective of this study was to develop a framework for a new agenda for interpretation research to aid in the sustainability of tourism in Australia’s national parks and other protected areas.

Methodology
The study comprised a desktop review and collation of existing literature, research and knowledge. The report includes an examination of:

- the relevance of behavioural theory in interpretative research;
- objectives for interpretation, particularly in relation to sustainable tourism; and
- the relationship between interpretation and corporate and strategic planning.

Key Findings
The framework for a new research agenda is presented as a series of questions and recommendations to stimulate debate and provide direction for future research focusing on interpretation to facilitate sustainable tourism in protected areas.

Recommendations
A major role of researchers is to identify ways to minimise the negative affects of tourism in natural areas, such as national parks. To assist in this, it is necessary to develop interpretation strategies that are relevant to the organisational objectives of park management agencies. For this to occur it is recommended that future research should focus on four main areas:

- Interpretation to mitigate visitor impacts
  Research in this area could focus on cognitive responses (learning, knowledge acquisition or information processing) and behavioural responses (actions or inactions of target audiences).

- Interpretation to enhance tourists’ experiences and satisfaction
  Research in this area will likely focus upon the effectiveness of various local industry-based interpretation strategies in satisfying visitor expectations. A common topic of discussion concerns whether high satisfaction necessarily translates into a positive learning (interpretation) experience.

- Interpretation to encourage positive attitudes toward nature conservation
  Research in this area will focus on the ability of interpretive programs to influence existing behavioural tendencies regarding nature conservation. Consideration must be given to the existing social norms regarding interaction with the environment and the appropriateness of interpretive strategies for influencing different groups in society.

- Interpretation to link outcomes to corporate/strategic objectives
  Research in this area will focus on how interpretation (and education) is defined and used in corporate and strategic planning. This will involve research on the development of interpretive services, based on evaluation studies, which relate to organisational objectives.

Sam H Ham and Betty Weiler

Objectives of Study
The objective of this research project was to develop, test and refine an evaluation tool kit for assessing the impacts of interpretation on visitors at heritage, nature, and food and beverage tourism sites. The development of a package that was user-friendly and practical for operators to use, yet based on theory and rigorous research methods, was of importance.

Methodology
A series of steps was undertaken to identify interpretation outcomes that reflected the priorities of industry partners. These desired outcomes were then used to construct a set of indicators. The process began with a structured facilitation process at two sites (Port Arthur in Tasmania and Sovereign Hill in Victoria) where a wide variety of face-to-face interpretive programs were offered, to learn what staff felt were the most important indicators of ‘successful’ or ‘effective’ interpretation at those sites.

A draft questionnaire was developed using a well established method for measuring the kinds of responses sought by indicators for each type of setting. Three slightly different versions of the questionnaire were eventually produced (one for food and beverage sites, one for heritage sites and one for nature sites).

The results were then statistically analysed to ensure each indicator was valid and the data from the field tests was subjected to rigorous reliability testing.

Key Findings
A set of methods and instruments were produced for assessing the outcomes of interpretation with respect to the suite of eleven indicators. The final product, the Interpretation Evaluation Tool Kit, provides three evaluation packages customised for three types of setting and includes:

- an Interpretation Evaluation How-To Manual; and
- a Tool Kit CD, which includes the software and files needed to conduct evaluations of face-to-face interpretation programs and activities.

The Tool Kit is self-contained and has easy to follow explanations of all aspects of an evaluation. It has been designed to be used to evaluate overall site interpretation but can evaluate a specific product or program.

Recommendations
While the Tool Kit provides a valid, reliable, easy-to-use and rapid-response measure of ‘how well’ or ‘how much’ is being achieved, it does not provide information about the longer-term impacts of interpretation on visitors once they have returned home. Nor does it provide answers as to why interpretation is or is not achieving an organisation’s desired outcomes. A more complex research design is required to assess cause-and-effect relationships. Indicators for each type of setting cover food and beverage, heritage and nature settings.

The Tool Kit is designed to evaluate face-to-face interpretation, not self-guided or non-personal media such as signs, exhibits, websites, brochures etc. Thus there is scope for follow-up research to develop an Evaluation Tool Kit for non-personal interpretation media. The Interpretation Evaluation Tool Kit: Methods and Tools for Assessing the Effectiveness of Face-To-Face Interpretive Programs is available from the STCRC online bookshop via www.crctourism.com.au/bookshop.

Sue Beeton, Betty Weiler and Sam Ham

Objectives of Study
The objective of this short term scoping project was to design a theoretically-based research strategy and associated instruments that assess the effectiveness of various interpretive communication strategies aimed at enhancing visitor experiences while managing risk to the environment and risk to visitors. The project, drawing predominantly on the Theory of Planned Behaviour (TPB) and related research, will identify variables that can be measured and manipulated (‘salient’ beliefs) in constructing persuasive messages for non-personal risk communication devices in national park settings.

Methodology
The research team developed a set of instruments that were then trialled at selected sites in Port Campbell National Park (PCNP). These included an inventory of messages relating to ‘staying on the track’ found in signs, brochures and other interpretive media, together with conducting a belief elicitation study related to the behaviour of staying on the track. The methodology for the study can effectively be separated into two parts:

• the methods for developing an inventory of existing interpretation aimed at getting visitors to ‘stay on the track’ at PCNP and for analysing the readability of this interpretation
• the methods for eliciting visitors’ salient beliefs, which underpin their behaviour to stay on or go off the track while walking at PCNP.

Key Findings
Fifteen unique messages were analysed for their reading ease and human interest level; and the analysis reveals that messages generally scored high on reading ease, but low on human interest. A pool of 26 potentially salient beliefs were held by those surveyed, of which eight were behavioural beliefs, 11 were normative beliefs, and seven were control beliefs.

A large proportion of respondents cited two behavioural beliefs (i.e., that staying on the track reduces environmental impact and that it is safer), indicating that the outcomes they describe may either be obvious or considered as politically correct. Notably, just one of the other behavioural beliefs, and none of the 11 normative or seven control beliefs, are addressed in existing communication efforts to keep Port Campbell visitors on designated walking tracks.

Recommendations
The instruments for assessing beliefs, communication reach and effectiveness established by this research are now available to be used to assess and enhance interpretive communication. This in turn presents opportunities to influence visitor beliefs that underpin problem behaviours related both to visitor safety and environmental protection. Follow-up research is required in order to benefit fully from this scoping study. Such research involves first identifying which beliefs are salient, and then implementing experimental message ‘treatments’ designed to assess attention-paying behaviour in relation to on-site signage. The outcomes of this analysis can provide baseline data for assessing the effectiveness of interpretive measures aimed at simultaneously enhancing both visitor safety and environmental conservation.
Tourism and Protected Area Management


Sam H Ham, Betty Weiler, Michael Hughes, Terry Brown, Jim Curtis and Mark Poll

Objectives of Study

The overarching objective of the project was to enhance recognition among protected area management agencies of the role of strategic communication in managing visitors in protected areas and to work closely with managers in Victoria, Tasmania and Western Australia to define researchable problem behaviours relevant to their states. The project also aimed to foster recognition among protected area managers and tour operators that communication backed by good research can be used strategically and effectively to address on-site visitor management problems. A final objective was to produce both tools and capacity for protected area managers, tour operators, and university researchers to jointly undertake behaviour modification research that is directly aligned with protected area managers’ goals, particularly those relating to minimising visitors’ negative impacts on the environment and protecting visitors from hazards.

Methodology

Studies in three protected areas were carried out with each of these studies focusing on a different visitor behaviour that was determined by the collaborating management agency to be of high priority. The following behaviours were selected by the respective agencies for study:

- **Parks and Wildlife Service Tasmania**: The goal was to persuade walkers to pick up rubbish encountered on the Russell Falls track, Mt Field National Park.
- **Parks Victoria**: The goal was to persuade visitors not to feed birds at Badger Weir Picnic Area, Yarra Ranges National Park.
- **WA Department of Environment and Conservation**: The goal was to persuade dog walkers to keep their dogs on a lead in Yellagonga Regional Park, Perth.

The research in each park was carried out in three phases:

- **Phase 1**: Identification of visitors’ salient beliefs underlying the target behaviour (called a ‘beliefs elicitation’) and determination of which beliefs are most prevalent in visitors’ minds;
- **Phase 2**: Measurement of the most prevalent salient beliefs in order to compare their strength and importance among compliers and non-compliers and to identify those that differ most between the two groups. Messages are then developed to target these most distinguishing beliefs;
- **Phase 3**: Evaluation of the messages in terms of their impact on visitor behaviour and the beliefs they targeted.

Key Findings

The primary conclusion to be drawn from the project is that the theory and methodology were successful in influencing visitor behaviour at the three study sites. At Russell Falls, the belief-based messages increased rubbish pickup by nearly 20%; more than 90% of first time visitors at Badger Weir did not feed the birds; and at Yellagonga the belief-based message led to a 19% increase in walkers keeping their dogs on-lead. While circumstances at Yellagonga suggest the behavioural impact might be at least partially due to non-message factors (such as the authoritative presence of researchers), the increase in dog walkers who kept their pets on a lead is encouraging since it suggests that a combination of communication and direct management has potential to address the problem.

The Theory of Planned Behaviour (TPB) proved to be a useful guide to the development of effective messages. Following widely applied TPB procedures, we were successful at each site in: (1) identifying the salient beliefs of visitors underlying the target behaviour, (2) isolating a subset of these beliefs that had optimal persuasion potential, and (3) targeting those beliefs in messages designed to increase compliance with the target behaviour. In at least two of the three field experiments, we found that the interventions containing these messages were effective in increasing compliance with the target behaviour and were able to link this behavioural outcome to a corresponding impact on the targeted beliefs.
Results from these studies produced a number of lessons learned about the types of behaviours that lend themselves to communication treatment, and about the messages that might be used to address them successfully. In addition, protected area managers and selected tour operators in three states received practical training and plain-language ‘how-to’ guides pertaining to the research process.

**Recommendations**

We strongly recommend that research institutions capitalise on the growing interest in using communication in protected area management. Key ways they might do this include supporting continued research that strengthens our understanding of the persuasive communication process; offering workshops focused on communication and protected area management for in-service professionals and formal subjects for university students; and applying research results in the field where visitor behaviours threaten protected features.

Despite the encouraging results of the three studies with respect to increasing behavioural compliance through persuasive communication, none of the messages we tested completely eliminated the problem behaviour. This should tell us that there is more to do. Human behaviour and the internal psychological processes that govern it are complicated. While decades of research guided by theories like the TPB have advanced significantly our understanding of the factors involved, we still have much to learn about using persuasive communication in the complex social milieu of a protected area. The growing popularity of nature-based tourism worldwide means that pressure on fragile landscapes will not subside anytime soon. Because communication interventions have the potential to reach diverse communities with compelling messages, their future role in protected area management is likely to be even more important than it is today.

Stephen Wearing, David Archer and Sue Beeton

Objectives of Study
The specific objectives of the study were to:
- define and characterise marketing and its alternative approaches including demarketing;
- outline their use in Australian and overseas national parks and other protected areas in order to achieve management goals;
- develop a set of guiding principles for the sustainable marketing of natural areas; and
- present examples of successful marketing techniques including those related to product design and quality, capacity, the distribution process, information flow etc. from park management agencies in Australia and overseas.

Methodology
The study was predominantly a desktop review and collation of existing literature, research and knowledge.

Key Findings
This study developed five guiding principles for the sustainable marketing of national parks and other protected areas. The guiding principles were developed from relevant literature. The five guiding principles are:
- Responsible: Sustainable marketing of protected areas should be designed and undertaken in a responsible and ethical manner.
- Realistic: To be sustainable, marketing of protected areas should be done in a manner that disseminates realistic images and information to existing and potential visitors.
- Regional: Sustainable marketing of protected areas should be designed and used in a regional context.
- Research: Research is a fundamental building block of sustainable marketing and should be carried out and integrated into marketing planning and strategies.
- Relationships: Cooperative relationships between relevant land management, industry and community stakeholders can benefit all.

Recommendations
The report identifies ways in which protected area managers and the tourism industry can work together to more effectively market and promote protected areas:
- The marketing and promotion of visitation to national parks and other protected areas should be responsible and ethical.
- It is important that visitor expectations are realistic, as this contributes to visitor satisfaction.
- Sustainable marketing of natural protected areas should be designed and used in a regional context, taking into account the spectrum of settings and experiences.
- Market research should be carried out and integrated into marketing strategies and planning initiatives.
- Sustainable marketing of natural protected areas should recognise that cooperative marketing strategies and campaigns between protected area agencies, tourism operators, state, regional and local tourism organisations, and community representatives can benefit natural resources as well as society.
Tourism and PROTECTED AREA Management

Economic Evaluation

Boat cruise on Yellow Water Billabong, Kakadu National Park
Parks Australia and Sally Greenslade
Economic Evaluation

Overview
Tourism to protected areas contributes significantly to local, regional, state and national economies. The resources to manage natural areas are however limited and at the same time the extent of natural areas is increasing to satisfy community expectations for environmental conservation. It has been recognised for some time that managers can exploit the demonstrable economic benefits of tourism to natural areas to argue for better management of resources, but all too often, arguments founder on the inability to collect primary data and to reach consensus over data collection methods and reporting criteria.

“Among their many other values, protected areas provide a major resource for nature-based tourism. Continuing research into the economic values of parks is vital to identify their substantial value to the tourism industry and highlight a measure of their worth to the community and broader economy.”

Guy Thomas, Manager, Tourism and Visitor Management Branch, Queensland Parks and Wildlife

Research Integration
The economic ‘trail’ that visitors leave behind is but one of the important impacts of tourism. STCRC has been moving to produce an ‘atlas’ of values attributed to, and generated by, visitation to national parks. An introductory suite of constituent studies is reported in this section.

Generally two approaches have been used in assessing national park related expenditure.

• National park-generated expenditure: This estimates the proportion of total tourist spending that can be attributed to the existence of, and accessibility to national parks. This expenditure covers spending by those visitors that featured the national park predominantly in their holiday.

• National park-associated expenditure: This refers to all direct tourist spending by those who included one or more visits to a national park on their holiday itinerary. This expenditure covers spending by those visitors where a national park visit was only a part of their holiday experience.

Various studies are reported in this section, but for Queensland, (the most recent of the regional studies) the expenditure of visitors, where visiting a Queensland national park was central to their trip, (national park-generated spending), amounted to over $749 million per annum, which in turn generated an annual contribution of around $345 million to Queensland’s gross state product (GSP). This represents 4.97% of the whole tourism sector’s contribution to GSP. The broader ‘associated’ spending (by those tourists who visited Queensland national parks ‘as part of’ their overall holiday) was estimated at approximately $4.42 billion annually, or 28% of total tourist spend in the state.

The research indicates that:

• National park visitation is a significant generator of regional economic (and employment) benefits.

• Economic benefits can be attributed to both specific and general patterns of park visitation.

David Wood, John Glasson, Jack Carlsen and Diane Hopkins

**Objectives of the Study**
The key objective of the study was to develop a ‘toolkit approach’ to assess the economic value of tourism to parks and natural areas. The toolkit is to be based on a critical appraisal of selected evaluation methods and techniques that have been implemented in Australia and abroad and will enable natural area managers, such as national and marine park administrators and rangers to easily gauge the economic contribution of tourism to localities and regions by measuring the level of direct expenditure brought by tourism to natural areas.

**Methodology**
Data was collected in Exmouth between 1997 and 2004 as part of an ongoing longitudinal study. The primary data collection period is April each year but data sets are also available from February, July and September since 2002. Specifically, the project includes:

- desktop research to identify methods to assess the economic evaluation of tourism to natural areas;
- a critical analysis of survey data collected at two sites in Western Australia, between 1997 and 2003, to assess key variables in direct tourist expenditure; and
- the development, assessments and modification of a survey instrument that addresses the key variables of tourism expenditure.

**Key Findings**
The study finds that the most appropriate measure of assessing the contribution of tourism to a local/regional economy is tourism direct expenditure given the resource constraints of survey users. The key explanatory variables of tourism direct expenditure are:

- place of origin
- accommodation
- activities
- household income
- age

Consequently a survey can be restricted to questions related to expenditure and these five key variables.

The survey instrument developed can be used to successfully collect direct expenditure data; sample sizes can be small provided they are representative of the key variables. Consequently, it is recommended that surveys be conducted in all accommodation types and or places visited by all tourists such as beaches and shopping centres. This conclusion is reached after analysing a longitudinal survey conducted in all tourism seasons and over a nine-year period. The best results are achieved when surveys are completed face-to-face followed by mail back surveys conducted by researchers/natural area managers. Surveys that rely on accommodation providers achieve inconsistent results and data can be analysed simply and without the use of computers at a local level for reporting purposes. Centralised storage systems provide the capacity to analyse and compare data during different seasons and over time clearly demonstrating trends and changes in tourist activity.

**Recommendations**
The toolkit approach consists of a series of steps, with a ‘core’ survey which can be extended with ‘supplementary’ questions to collect additional information relevant to management and promotion of natural areas, instructions for survey delivery and options for analysis and reporting tourism direct expenditure data. Commercialisation of the toolkit should be explored with the product being promoted for use by natural area managers, tourism agencies, tourism associations, local government and other interested parties.
Tourism and Protected Area Management


Roy Ballantyne, Richard Brown, Shane Pegg and Noel Scott

Objectives of Study
The main objective of this project was to assess the direct economic contribution to the Queensland economy of visitor spending to the Queensland Parks system. Achieving this objective will facilitate and inform decision making to provide:
• better coordination of services; and
• enhancements to the planning, on both a state and regional level, of visitor infrastructure.

Methodology
Following consultation with key stakeholders of the study, a research team collected primary visitor survey data in four regions of the State of Queensland with a view to determining an estimate of the visitor spend attributable to the national parks (NPs) in these regions. These regions were selected as examples of the four different types of protected area region (urban, iconic, remote and outback) to be found in Queensland. The data collected in the survey were then used to infer a value for national park-generated expenditure for all national park regions in Queensland. In developing the study methodology to allow for estimation of NP related expenditure at the state level, the following factors were recognised as essential to ensure the generation of reliable estimates:
• a consistent methodology for obtaining, interpreting, and extrapolating data on visitor expenditure attributable to NPs
• a strategic NP sampling logic
• reliable estimates of annual visitor numbers for the regions that contain NP (as per the International Visitor Survey and the National Visitor Survey)
• a method for calculating state-level expenditure and contribution to gross state product based on individual expenditure estimates from sampled NPs.

The two approaches used to assess national park related expenditure are:
• National park-associated expenditure is a broad term which refers to all direct tourist spending by those who included a visit to a national park as part of their itinerary. National park-associated spending refers to the total amount spent by a tourist, who during their visit to the locality paid a visit to a national park for one or more activities, although it cannot be concluded that all of this spending would not have occurred in the absence of the national parks.
• National park-generated expenditure is a narrower and more conservative measure which estimates the part of total tourist spending that can be attributed to the existence of, and accessibility to, national parks. By asking visitors about the significance of their park visit it is possible to estimate the expenditure which would have either not been spent in Queensland by tourists or, alternatively, spent in another state or overseas had the current parks system not been accessible to tourists. Importantly, it is only this national park-generated spending that should be used in estimating the contribution of national parks to the Queensland economy.

Key Findings
The study results reveal that direct expenditure generated by national parks is a significant contributor to the Queensland economy in that visitors were highly influenced by the availability of, and access to, parks and forests and the experiences available in them when making decisions about where to travel. The study did not include tourism related day-trips and as such the results are smaller than the maximum possible total. ‘Best estimate’ findings indicate that:
• The expenditure of visitors where visiting a Queensland national park was a central feature of their trip (national park-generated spending) amounted to over $749 million per annum, which in turn generated an annual contribution of around $345 million to Queensland’s gross state product (GSP). This represents 4.97% of the whole tourism sector’s contribution to GSP.
• Spending by tourists who visited Queensland national parks as part of their overall holiday (national park-associated spending) amounted to approximately $4.42 billion annually or 28% of total tourist spend in the state.

Recommendations
It is recommended that further attention be given specifically to the determination of the indirect effects of the direct spend of visitors to national parks.

Pascal Tremblay

Objectives of Study
This study evaluates the economic value of Kakadu National Park (KNP) based solely on the park’s worth as a tourism asset. This assessment is based on the park’s ability to motivate a visit and corresponding expenditure from interstate and overseas. In addition, the park’s ability to retain Territorians within the state for their holiday expenditure is also considered. The main objectives were to:
- estimate the contribution of KNP to the region through tourism expenditures using the Carlsen and Wood (2004) approach;
- compare and contrast the profile of visitors to the Kakadu sub-region of the Top End using both the Northern Territory Travel Monitor (NTTM) and Kakadu National Park Visitor Economic Survey data; and
- provide a general picture of historical and current tourism markets within the sub-region and the broader Top End region of the Northern Territory.

Methodology
The research plan was based on a combination of collecting information from visitors to KNP in 2004 specifically for this project as well as leveraging the historical data available from the NTTM surveys.

Key Findings
The study found that reported visitor numbers have been higher than sub-regional estimates originating from the NTTM. When comparing multiple data sources, it was found that all showed a declining trend in visitor numbers. Specifically, this study found:
- The proportions of holiday-pleasure visitors in the Top End that visited KNP have been fairly stable.
- The decline has been from international markets from 1998–99.
- This deterioration in visitor numbers may not be due to anything the park is or is not doing but rather be the consequence of external factors, including contraction of air access to the Top End.

The NTTM visitor values were used to establish the lower boundary of visitation in KNP. The information suggests that KNP ought to be considered as a major driver for tourists; visitors appreciate the Park’s values and fundamental attributes in terms of a landscape that incorporates culture, nature, wilderness, wildlife and other important attributes.

Tourism contributes around $58.1 million to the Top End and Northern Territory regions, and KNP contributes approximately $15 million to the Top End region. This value, while conservative, represents a yearly additional financial injection in the region due purely to KNP, and authorities in charge of tourism in the sub-region would be justified in investing significant capital to maintain the tourism assets within the park.

Recommendations
The value estimates derived in this report must be contrasted with KNP’s budgetary history, in particular by investigating the split between activities supported by past KNP budgets and the extent to which the latter support appropriate and sustainable tourism activity benefiting selected stakeholders. This would likely suggest some redirection of public funds towards the maintenance of tourism assets. Furthermore, the analysis suggests a need for enhanced coordination between the Northern Territory and the Director of National Parks to maintain tourism activities that contribute to the livelihoods of traditional owners of the park; preserve the heritage at the core of its attractiveness; and provide net economic tourism injections on a regional scale.

Pascal Tremblay and Dean Carson

Objectives of Study
While the objective of the research was to apply the Carlsen and Wood approach to Watarrka National Park (WNP) to estimate the contribution of the park to the region through tourism, it also aimed at providing a broad picture of past and existing markets, and contrasting some of the secondary data sources available to comment on improved estimates of traffic and visitation by tourists.

Methodology
The research plan was conceptually based on the combination of existing sources of information related to WNP, mainly:

- historical data about visitation in WNP, provided by the Parks and Wildlife Service (Department of Natural Resources, Environment and The Arts)
- basic visitor survey materials (collected) March and June 2005, provided by the Parks and Wildlife Service (Department of Natural Resources, Environment and The Arts) and compiled by the Strategic Research Unit (Northern Territory Tourist Commission, NTTC).
- historical data (1998–2004) originating from the Commercial Accommodation Survey (CAS) of the Northern Territory Travel Monitor (NTTM) produced by the NTTC. The latter includes indicators of visit to WNP and of intention to visit WNP, which can be combined with other visitor survey information to assess those markets.

Key Findings
Computations lead to a value of $40.55 million for total direct and attributed expenditures. This leads to an estimated retained value in the Centre of the Northern Territory of $2.84 million, which represents the injections in the regional economy that would not have taken place if WNP did not exist.

Funding agencies responsible for WNP would be justified to invest significantly to maintain the value of the natural, cultural and infrastructure assets which generate this activity through tourism. It would also be possible to argue that the value of WNP will strategically increase in the context of proposed developments in the region. This also implies increased value in monitoring adequately the positioning of that park and its contribution to the local economy.

Recommendations
It was found that funding agencies responsible for WNP would be justified to spend as much to maintain the value of the natural, cultural and infrastructure assets which generate this activity through tourism as the value of WNP will strategically increase in the context of proposed developments in the region. This also implies increased value in adequately monitoring the positioning of that park and its contribution to the local economy.

Recommendations appear in the report as to the needed primary data and complementary information that would be needed to provide empirically grounded estimates to monitor WNP’s performance over time.

Trevor Mules, Pam Faulks, Natalie Stoeckl and Michele Cegielski

Objectives of Study
The objective of the study was to provide information on the value of tourism, both in terms of economic impact of visitor expenditure to the Australian Alps on the economies of the Australian Capital Territory (ACT), New South Wales (NSW) and Victoria (VIC) and the environmental value of the Alps (namely the recreation use value). The study also provides managers of protected areas with useful data on the demographics and behaviour of visitors to the Australian Alps.

Methodology
Self-completion surveys were distributed over a 12-month period throughout the ACT, NSW and VIC commencing March 2001. A total of 4,791 surveys were returned.

Key Findings
• Domestic visitation to the regions appears to be largely dictated by proximity, with approximately 50% of all visitors to each region coming from within the same state/territory. Visitors to the ACT Alps are most likely to be regular visitors to the Australian Alps, with over two-thirds of respondents indicating that they visit at least twice a year. Visitors to the NSW and VIC Alps are less likely to be frequent visitors to the Alps, with more than one third of respondents indicating they were either visiting for the first time or visit less than once a year. A cross tabulation table was calculated to identify if a significant relationship exists between frequency of visit and a visitor’s destination (NSW and VIC Alps only). A significant relationship was found to exist, with those visiting the VIC Alps more likely to visit more frequently compared to those visiting NSW Alps.
The size of the economic impacts on gross state profit (GSP) is a function of how many interstate visitors go to each of the Alps destinations. The ACT economy receives an annual boost to GSP of $29.64 million, of which $2 million represents increased tax revenue going to the ACT Treasury. For NSW the GSP boost is $150.21 million per year, of which $10.5 million is increased tax revenue to NSW Treasury on account of expenditure by visitors to the NSW Alps. For VIC, the boost to GSP is $145.02 million annually, of which $10 million is extra state tax revenue.

Table 2. Economic impact of visitors to the Australian Alps, 2001

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<th>GSP $m.</th>
<th>Employment FTE</th>
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<tr>
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</tr>
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<tr>
<td>NSW summer</td>
<td>52.57</td>
<td>809</td>
</tr>
<tr>
<td>NSW Total</td>
<td>150.21</td>
<td>2,311</td>
</tr>
<tr>
<td>Victoria winter</td>
<td>102.97</td>
<td>1,654</td>
</tr>
<tr>
<td>Victoria summer</td>
<td>42.06</td>
<td>675</td>
</tr>
<tr>
<td>Victoria Total</td>
<td>145.02</td>
<td>2,329</td>
</tr>
</tbody>
</table>

The seasonality of economic impacts on NSW and VIC has changed over the past decade, in line with the growth in summer tourism in each state’s alpine areas.

The Travel Cost Method (TCM) was used to estimate the consumer surplus attributable to tourism in the Alps and found that per person consumer surplus estimates are higher in the ACT and VIC than in NSW. Part of this is due to different travel patterns, and part is due to different expenditure patterns. The higher aggregate consumer surplus estimates in Victoria are due to this and to the fact that there were roughly 2.5 times more visitors to the Victorian Alps than to the NSW Alps.

Finally, the range of the estimates is seemingly large—but in many circumstances a broad range of estimates will be better than no estimate at all. For example, the aggregate recreation use value of the Australian Alps lies somewhere between $9 billion and $190 billion; most likely somewhere close to $40 billion. This figure does not include other user-values such as water, electricity or research, or non-use values such as option value and existence value. Therefore, the environmental value of the Australian Alps is most likely well in excess of that.

**Recommendations**

The data on economic impacts and value of the Alps for tourism and recreation could be regarded as part of the benefits of tourism to the Alps. It is recommendations that the Australian Alps Liaison Committee could compare these benefits with the costs of tourism, including environmental costs, in making decisions about the merits or otherwise of increased tourism.
Partnerships

Overview
Commercial partnerships between park managers and licensees are likely to remain a contested area in both policy and practice. Park managers have a legal mandate to allow recreation and tourism subject to the requirements of nature conservation and other legislation. Commercial operators are seeking to ensure access to these specially designated places as a basis to sustain their businesses and livelihoods. While the relationships may seem inevitably contested there is much that applied science can do to support the development of enduring partnerships around the provision of world class business and environmental practice.

“Tourism operators and protected area managers must be innovative and collaborate to provide sustainable visitor experiences and to manage ecotourism investment opportunities.”

Tourism Queensland, Queensland Tourism Strategy 2006

Research Integration
Taken together the research identifies a number of features of partnership relationships that can result in difficult dynamics between protected area managers (PAMs) and commercial tourism operators (CTOs). Both PAMs and CTOs generally recognise a common set of values for protected areas, including the conservation of biodiversity and recreation and enjoyment. However, perceptual biases, stereotyping, misunderstandings and unmet expectations all influence what could be positive collaboration built around more effective communication. Importantly other power brokers in the tourism sector, including pro-development state tourism organisations and cultural groupings, were shown at times to be an impediment to effective collaboration.

The research indicates that:
• There are numerous steps that both park agencies and operators can take to improve collaboration and licensing processes.
• There is a need for further research to develop enduring relationships, monitoring the effects of use, while supporting the place of national parks and protected areas in tourism.

Sabrina Genter, Jo Ann Beckwith and David Annandale

Objectives of Study
The main objective of the study is to review the current nature tourism licensing framework in Western Australia in order to:
• determine whether the licensing framework creates impediments to tour operator businesses
• identify means of mitigating impediments and improving the effectiveness of the framework.

Methods
The primary sources of study data were a literature review and interviews with licensing agency staff and selected industry operators. The literature review was used to review previous studies, identify potential business impediments resulting from tourism licensing, and develop an overview of the tourism licensing framework in Western Australia.

Interviews were conducted with representatives of each of the five Western Australian government agencies involved in licensing nature tourism operators. A small number of nature tourism operators were also interviewed. The face-to-face interviews provided the researchers with a deeper understanding of the nature and underlying causes of the perceived impediments to commercial nature tourism operations attributed to the licensing framework.

Key Findings
Although many of the licensing agencies have embraced collaborative resource management approaches in other parts of their organisations, the licensing functions have retained the older command and control management model. A shift in approach from a one-way communication dominated model to a more collaborative problem solving approach would result in tour operators being treated more as partners rather than adversaries or problem makers. A requirement of collaborative approaches is that all parties are willing to invest the time and energy required to build and maintain strong working relationships. Some of the licensing agencies have already started to embrace two-way communication and relationship building with nature tour operators. Further development of these agency – industry relationships is encouraged.

Licensing will no doubt play an important role in ensuring that increased pressure from nature tourism does not unacceptably impact on conservation values. If conflict is to be minimised, decisions regarding the number of licences and how they will be allocated will need to be transparent, equitable, and supported by good science. Western Australia has the opportunity to be proactive and learn from other jurisdictions in Australia and overseas that are already addressing similar challenges.

Recommendations
The following nine recommendations aim to help agencies reduce compliance costs for tour operators:
• review of compliance costs
• higher levels of engagement
• breaking down stereotypes
• develop informal working relationships
• better use of IT to reduce information costs
• proactive stance on allocation issues
• use accreditation cautiously
• develop operator incentives
• develop business management training programs.

Noah Nielsen, Erica Wilson and Jeremy Buultjens

Objectives of Study
This research study aimed to examine the relationships between NSW National Parks and Wildlife Service (NPWS) and its private visitor service providers (‘lessees’). It has focused on five lease arrangements from across the state: Conservation Hut, Blue Mountains National Park; Athol Hall Café/Function Centre, Sydney Harbour National Park; Smoky Cape Lighthouse, Hat Head National Park; Trial Bay Kiosk, Arakoon State Conservation Area; and Rainforest Café, Sea Acres Nature Reserve.

Methodology
This study uses in-depth, semi-structured interviews with NPWS staff and lessees involved in the five partnerships to get insight into the workings of these relationships—their challenges and successes.

Key Findings
Analysis of interviews revealed seven key issues of importance to relationship management between NPWS and its commercial lessees which were then developed into ‘best-practice’ principles to aid NPWS to take their relationships ‘from lessees to partners’:

Principle 1: Lease Management Bureaucracy
A strategic, coordinated and organisation-wide approach is taken to the identification and development of lease arrangements.

Principle 2: Sourcing and Selecting Lessees
The sourcing and selection of potential lessees is facilitated in a manner which is clear, inviting and encouraging, and provides applicants with good insight into the nature of partnerships with NPWS.

Principle 3: Public Recognition of Partnerships
Partnerships with lessees are publicly and openly recognised and promoted, on an ongoing basis.

Principle 4: Responding to Simple Requests
Lessees’ simple requests are responded to in a timely and efficient way, so that their businesses can continue to operate in a professional manner.

Principle 5: Negotiating Complex Requests
NPWS is proactive in strategically predicting lessees’ more complex requests and provides a clear structure for their resolution.

Principle 6: Working Together
NPWS capitalises on their lessees’ skills, knowledge and services, and utilises these assets.

Principle 7: Succession Planning
The personal commitment of lessees to their businesses is recognised, and their long-term business goals facilitated.

Recommendations
To build upon the findings of this exploratory report, a number of other research questions could also be pursued by NSW NPWS in their efforts to better improve their relationships with private visitor service operators:

• How do NSW national park visitors make use of and support lessee businesses?
• Do national park visitors and lessee business visitors actually overlap? Are they even the same people?
• Further, are these visitors local, regional, domestic or international?
• How does the public perceive, use and support lessees’ private operations?
• Which NPWS sites or buildings are seen to be most appropriate for commercial lease partnerships?
• What strategies can national parks use to better inform and promote the benefits of these partnerships?
Tourism and PROTECTED AREA MANAGEMENT

PARTNERSHIPS

Report Nineteen: Understanding Partnerships for Protected Area Tourism: Learning from the Literature (2008)

Jennifer Laing, Aggie Wegner, Susan Moore, Betty Weiler, Sharron Pfueller, Diane Lee, Jim Macbeth, Glen Croy and Michael Lockwood

Objectives of Study
This report had two main objectives:
• to review the literature to:
  – provide a clear working definition of partnership
  – explore a broad body of research dealing with ‘successful’ partnerships and the factors that contribute to this success
  – describe and critique a number of theoretical perspectives potentially contributing to an understanding of partnership success or failure.
• to use this review to recommend directions for future research and subsequent management.

Methodology
The approach taken to reviewing the literature involved consultation of a broad range of disciplines and research areas, including tourism, natural resource management, environmental science, conservation, protected areas, watershed management, general management, health, social services and engineering disciplines, and using a variety of databases.

Key Findings
• Previous research exploring successful protected area tourism partnerships has been limited in scope but provides a practical starting point for a more extensive study.
• A number of key concepts required clarification, including a working definition of partnership, based on elements identified in the literature; a definition of protected areas, as a context for further study; and exploration of the diverse meanings of success.
• Success factors identified in the literature can be categorised as partner-related, process-related or context-related. Partner-related factors revolve around partner characteristics, while process-related factors are linked to the way that the partnership operates or is managed. Context-related factors include issues related to the background, or framework within which the partnership is located.

• A number of success factors which might be intuitively relevant in a partnership context, such as administrative setting or availability of resources, have not been explored in-depth in past studies, perhaps because they are difficult to measure or because the partners were not asked for their views on partnership success, allowing the more mundane factors to slip through the net. Attention to the administrative setting seems particularly important.

• Research in this area to date has been largely theoretical. A number of theoretical constructs have therefore been examined for their ability to shed light on and assist with the analysis of the factors behind successful protected area tourism partnerships.

• There are a number of special characteristics of protected area tourism partnerships that warrant particular examination through a discrete study, including the nature of land tenure, level of control over land use and the necessity of some partners’ involvement, all of which relate to the power balance within a partnership.

**Recommendations**

• Further research is essential to explore successful protected area tourism partnerships, which have only been the subject of limited research to date. This research should be based on a strong theoretical foundation.

• One or two theoretical constructs could clearly be selected as a basis of a future study of protected area tourism partnerships. Social capital theory and EDR theory appearing the most useful, given they cover most of the success factors previously identified in the partnerships literature and have been applied in a broader partnerships context.

• The findings of this review provide a robust, logical platform for the development of research designs and methodologies to study sustainable protected area tourism partnerships.

• Taking these learnings forward, the broader project of which this review formed an integral first part will rely on these eight theoretical constructs, and especially social capital and EDR theory, to design, conduct and report on a study of partnerships in Australia between protected area managers, the tourism industry and others (e.g. local government).
Planning and Management
Planning and Management

Overview
Strategic planning and management of parks and protected areas is a complex process. Planners need to take into account the seemingly conflicting roles of nature conservation and public use and enjoyment. There are pressing short term pressures arising from society’s current needs that need to also be set against the compelling arguments for supporting longer term natural processes. Park managers are often focused on day to day activities in meeting society’s immediate needs—the most palpable of which are needs for rest and relaxation, and the enjoyment of nature.

“Effective park management requires a thorough knowledge of park values, the risks to them and processes in place to learn and adapt new management strategies.”
Mark Stone, CEO, Parks Victoria

Research Integration
Our research covers specific indicators of recreational use through to reviews of management systems. At the site level our researchers have examined the effects of tourism on plants and report a wide range of direct (e.g. trampling) and indirect (e.g. spread of weed species, fungi) impacts. This work is currently being complemented by work on aquatic environments. As users and managers both change over time the possibility of ‘impact creep’ has to be recognised. Establishing firm baseline indicators, including social and environmental elements, and taking care over design and location of facilities have emerged as key responses to managing increasing visitor pressure.

In the wider context, park management in Australia has been found to be lagging in the development and deployment of specific management tools. This is, in part, attributed to the range of land management agencies and socio-political pressures across the Australian Parks Management System. STCRC is undertaking a major project to support integration by developing a common visitor monitoring scheme (due December 2009).

The research indicates that:
• There is a need for ongoing social science models and data to support management practice across the park – tourism interface.
• Appropriate infrastructure, education, regulation and monitoring are tools that can be used to mitigate visitor impacts.
• Visitors and community members are more responsive to management actions when they are aware of park management goals and processes.
• There is a need for greater integration of visitor management across the protected area system within Australia.
Tourism and PROTECTED AREA MANAGEMENT
PLANNING AND MANAGEMENT

Report Twenty: Impacts of Recreation and Tourism on Plants in Protected Areas in Australia (2007)

Catherine Pickering and Wendy Hill

Objectives
The main objectives of this study were to review the impacts of tourism and recreation on vegetation in Australian protected areas, and to identify priority areas for further research.

Methodology
There were two main stages to this study: specifically, a comprehensive literature review of Australian and overseas research on tourism and recreation impacts on vegetation in protected areas; and discussions with industry including staff from park agencies, as well as researchers in recreational ecology.

Key Findings
• Australian flora is internationally significant.
• Protected areas are a major way of conserving biodiversity.
• Recreational ecology in protected areas has focused on environmental impacts of tourism infrastructure and activities, principally trampling, camping and off-road vehicles.
• Tourism and recreation in protected areas have a wide range of direct and indirect impacts on vegetation.
• Strong associations exist between tourism and recreation and the introduction and spread of weeds through disturbance of natural vegetation which provides habitat.
• Spread of weeds and pathogens such as the root rot fungus P. cinnamoni in protected areas are of particular concern because impacts are severe and self-sustaining (i.e. continue even without further use). Some rare and threatened plants and communities in protected areas are affected by tourism and recreational use.
• Impacts on vegetation are influenced by type of infrastructure, amount of use, type of activity and behaviour of tourists, timing/ seasonality of activities and the characteristics of the vegetation communities and local environment.
• There is limited research on recreation and tourism impacts in Australian protected areas particularly indirect impacts.

Recommendations
It is recommended that research be continued to examine:
• less obvious but ecologically significant indirect impacts of tourism and recreation including limiting the spread of invasive weed species
• dispersal of dieback fungus, P. cinnamoni, by tourist vehicles and infrastructure
• restoration ecology—how far and how fast can impacted sites recover if closed to visitors, and how can this recovery be accelerated
• how to design monitoring programs to detect impacts of visitors in protected areas in different ecosystems
• the extent and degree of ‘impact creep’—the gradual cumulative increase in impacts associated with increasing visitor numbers through incremental hardening of sites or displacement of activities from high intensity tourism nodes into backcountry areas.

Other management recommendations include:
• Infrastructure—in some high use areas it might be appropriate to introduce/upgrade tourism infrastructure to minimise damage to vegetation. The type of infrastructure should be selected to minimise direct damage to vegetation during construction and use, and to limit the spread of environmental weeds.
• Education—continuing and increased emphasis on educating visitors to minimise impacts.
• Regulation—regulation/restriction of activities in some sensitive areas. For example, there is a clear need for increased recognition and emphasis on preventing or limiting the spread of pathogens such as Phytophthera.
• Monitoring—effective monitoring of visitor use and evaluation and reporting of effectiveness of visitor management.

Amanda J Smith and David Newsome

Objectives of Study
The key objectives of this study were to:
- define and explore the nature of impact creep
- understand impact creep in the context of two contrasting case studies (Monkey Mia and Tree Top Walk)
- explore what processes and strategies are employed in the decision making process in relation to site hardening
- determine if management actions of site hardening detract from the visitor experience
- determine how visitors feel about highly developed sites such as those that contain permanent accommodation facilities and infrastructure
- provide a management perspective on impact creep.

Methodology
The methods applied in undertaking this study consisted of a literature review and development and distribution of questionnaires to visitors at Monkey Mia and an interview of managers at Monkey Mia and Tree Top Walk. The project considered impact creep relevant to both public and private facility developments.

Impact creep can be defined as a temporal sequence of changes that lead to a site being more developed. These changes confer both negative and positive impacts. Each impact creep situation may be deemed unique according to different tourism situations and attractions.

Key Findings
Both Tree Top Walk and Monkey Mia have a history of increasing visitation which has increased the potential for further impacts. Management has responded accordingly and the ensuing actions have reduced negative environmental impacts through site hardening and associated developments. The resultant development in turn appears to have contributed to an increased attractiveness for a wider visitor profile. The Monkey Mia survey revealed that visitors generally prefer natural landscapes with limited facilities but the facilities provided were not seen as being detractive and had no influence on the quality of the visit. Moreover, facilities may be considered as a positive influence because of the convenience they offer.

A major difference between the two case studies is that impact creep has occurred according to different policy directives. Tree Top Walk was developed under a management plan that had clear guidelines. Monkey Mia had no management plan and joint management with the Shire of Shark Bay. When accommodation facilities were developed at Monkey Mia, Western Australia’s Department of Conservation and Land Management recommendations were ignored in favour for economic returns and political pressure. A significant difference between the two sites, therefore, is that Tree Top Walk has no accommodation facility so the visitation period is short. Monkey Mia has accommodation which means that limiting visitor use is problematic because as many as 600 people stay in the vicinity of the interaction area overnight.

For Tree Top Walk a dispersal strategy in the form of a visitor centre may help to focus attention away from the main attraction during busy periods and during wait times if restrictions are operating due to heavy demand. Because of the potential for increased visitation, crowding, conflicts and reduced visitor satisfaction at Monkey Mia, limitations on use may have to be applied. Previous work has shown that use/access restrictions, in the form of a reservation or permit system, may be the best approach.
**Recommendations**

The two case studies presented in this report give rise to several avenues of further research. The first avenue involves an exploration of the question as to why limiting use has not been applied at Monkey Mia. Additional comparative studies that explore politico-social, cultural and environmental differences and similarities to sites such as Monkey Mia will help us to understand such situations further. A suitable comparative study could include the Phillip Island Penguin Parade where the creep process has extended to a form beyond that currently seen at Monkey Mia. Following on from this and particularly applicable to the Tree Top Walk facility in Western Australia is the question as to why site hardening has been a favoured visitor management strategy. There are no doubt good reasons as to why both Monkey Mia and the Tree Top Walk have evolved in the way they have but the process of change over time (impact creep) needs to be understood better in the wider Australian context.

Concurrent with the above would be additional data collection on what the main driving force is in the management decision-making process in choosing to harden a particular site. Connected with this is the managerial perspective on the relative utility and effectiveness of ‘hard’ versus ‘soft’ approaches. Further case studies are also required in order to explore how hard approaches and impact creep might lead to new tourism facility proposals and subsequent government approval of developments such as tourist resorts.

There remains the important question of whether site hardening makes an attraction more appealing to certain/more types of tourists and how different types of tourists can be targeted for soft visitor management approaches such as interpretation and adherence to codes of conduct. Moreover, at what stage (or what is the main controlling factor) does the evolving site become more attractive to developers who may wish to submit proposals for accommodation and/or other facilities? Alternatives to impact creep and over development need to be explored at the regional level in Australia. The viability and relative success of soft versus hard visitor management approaches requires further study especially where the management preference and society’s choice would be to ‘develop’ and maintain a variety of nature based experiences in the more remote parts of Australia.
Report Twenty-Two: Developing Indicators for the Sustainable Management of Visitor Use of Protected Areas in Australia (2005)

Joanna Tonge, Susan A Moore, Marc Hockings, Graeme Worboys and Kerry Bridle

Objectives of Study
This scoping project’s main objectives were to:
• identify significant management issues in relation to visitor use of protected areas
• list indicators currently in use by management agencies relevant to the sustainable management of visitor use of protected areas
• identify potential indicators for the sustainable management of visitor use of protected areas for issues of the greatest importance
• progress indicator development and adoption by placing indicators within the IUCN WCPA evaluation framework and commenting on their suitability for further development as part of the Earthcheck™ benchmarking system
• develop detailed research proposals jointly with protected area managers to progress the development and adoption of suitable indicators.

Methodology
Three main approaches were used to conduct this scoping study:
• review of protected area websites and documents as well as research literature
• survey of protected area agencies across Australia conducted via email to identify issues relating to visitor use of protected areas as well as indicators currently in use
• one-day workshop where the identified issues and indicators were presented and discussed.

Given the widespread view that indicators are best located and activated from within a conceptual or management framework, the recently developed IUCN World Commission on Protected Areas evaluation framework was used in this study to assist with indicator development.

Key Findings
The literature review and email survey showed that the central ecological concerns, and the associated indicators, were physical disturbance and the effects of visitors on the natural heritage of protected areas. Both concerns are predominantly at the site level. This result can be attributed in large part to the strong influence of the work of North American recreation ecologists on both research and monitoring activities here and globally.

The workshop, on the other hand, generated larger scale issues such as ecological integrity and the ‘naturalness’ of protected areas. The three ecological issues of highest priority identified by workshop participants were: impacts on ecological communities; perceptions of naturalness; and the use of tourism resource units (ecological elements that attract visitors to an area) as a basis for monitoring.

For ecological communities most interest centred on the condition, structure and function of ecological communities and how these features could be understood and protected in the context of visitor use of protected areas. Indicators for naturalness focused on the visual extent of human alteration of the landscape and identifying the proportion of the protected area system in different naturalness categories. No indicators were proposed for tourism resource units.

The three highest priority issues identified by the workshop participants were measurement of visitor satisfaction, local communities and Indigenous heritage. Most of the social indicators are, or can be, measured at all three management levels—site, park and corporate (e.g. visitor satisfaction). Indicators were generated for local communities and Indigenous heritage but not visitor satisfaction. Workshop participants expressed concerns about the adequacy of current approaches to measuring satisfaction. For local communities, measures of employment, tourism operators and the extent of volunteering were proposed. A number were also proposed for Indigenous heritage—satisfaction, employment, place names, vandalism and co-management.
Economic concerns and associated indicators identified from all sources were the contribution of protected area tourism to the economy and the costs and revenue associated with management. Most of the economic focus was at the corporate and to a lesser extent park level. Indicators and associated measures were generated for all key economic issues and the suggested measure for economic value was the value of visitor use relative to GDP. For cost and revenue, a simple equation was proposed: the total cost of visitor services minus the revenue generated, divided by the total number of visitors per annum. For profitability and satisfaction of tourism operators the suggested measure was the level of satisfaction compared with a baseline level.

Recommendations
An integrated research project and three complementary sub-projects are recommended to progress the development of indicators for the sustainable management of visitor use of protected areas:

- **Integrated project**—Developing, field-testing and benchmarking a core and supplementary set of indicators for sustainably managing visitor use of protected areas
- **Sub-project 1**—Developing ecological indicators for the sustainable management of visitor use
- **Sub-project 2**—Standardising and refining the measurement of visitor satisfaction
- **Sub-project 3**—Evaluating and reporting on the economic value of visitor use of protected areas.

Greg Brown, Barbara Koth, Glenn Kreag and Delene Weber

Objectives of Study
The main objectives of the study were to:

- review the effectiveness of various visitor impact modelling approaches and their future direction as determined by an international panel of academic experts
- identify the primary modelling approaches used in Australia to identify, inform and manage visitor impacts in protected areas
- determine priorities for developing and/or implementing future visitor impact models for protected areas in Australia.

Methodology
This project had three main steps including: conducting a review of visitor impact modelling efforts in Australia and elsewhere; convening a Delphi panel of academic ‘experts’ to collect expert opinion on approaches to visitor impact modelling effectiveness to vision the future of protected areas planning methods; and assembling an Industry Reference Group (IRG) of state and commonwealth agency representatives in Australia. The IRG assisted in assessing agency familiarity with different protected area models; identifying the primary models and methods approaches used to identify, inform and manage visitor impacts in protected areas; and evaluating agency perceptions of future needs.

Key Findings
The expert Delphi panel failed to find consensus on whether it is realistic to create an integrated ecological, economic and social sustainability model for protected area management.

The level of sophistication in impact model usage worldwide is generally low so that attempts to integrate models are premature and likely to violate a desire for simplification and low-cost application in current agency environments.

Australia protected area managers use impact management tools less than their North American counterparts, but different overarching structure of land management at the federal agency level, as well as more university partnerships may account for some of the higher adoption rates overseas.

The adoption and diffusion of protected area management tools in Australia are likely to be slow due to limited staff and financial resources.

Recommendations
Recommendations are to:

- develop a more extensive case history of protected area modelling applications in Australia
- develop appropriate national training program and reference materials on the topic of the application of protected area visitor impact management models
- examine potential ways to standardise protected area models and methods in Australia
- leverage Australia’s current world leadership in incorporating Aboriginal perspectives in protected areas management.
Report Twenty-Four: Best Practice in Strategic Park Management: Towards an Integrated Park Management Model (2005)

Judi Inglis, Paul Whitelaw and Michael Pearlman

Objectives of Study
Park agencies worldwide are faced with increasing demand for their facilities and services coupled with declining finances and human resources, which poses many management challenges. The ability to develop a more comprehensive and relevant park management system to meet these challenges has become increasingly important. The main aims of the project are:

• to describe, analyse and evaluate best practices and management benchmarks for the strategic management of protected areas
• to develop a framework that will guide park management agencies in the strategic management of protected areas.

The overall objective is to develop a template for the development of an integrated park management model, which has the potential to be operationalised by park management agencies worldwide. It will assist park management agencies in understanding the implications of their strategic decisions and with the development of relevant park management systems.

Methodology
A thorough literature review was conducted to identify the most relevant park management themes. Their purpose and effectiveness was compared and documented and benchmark examples identified. Consultation with agencies and academics were conducted to confirm and validate the findings as well as examining policies and/or best practice examples from 16 countries including Australia, New Zealand, Canada and the United Kingdom. Seven main themes in park management were addressed in the literature review:

• park classification systems
• park management models
• staff skills and training
• funding
• tourism and visitor management
• asset management
• marketing and distribution.

Key Findings
The key findings were broken down into the seven main themes as identified above.

Park classification systems
While most park agencies use the uniform World Conservation Union (IUCN) global classification system to classify national parks and protected areas, there is a lack of consistent sub-classifications or specific use purposes identified for parks with high visitor use such as urban, regional and recreational parks and some national parks. The classification system underpinning each park should be based on sound scientific research to ensure a sustainable park system is maintained.

Park management models
Developing models that suit the unique circumstances of each park is relevant to maintaining sustainable park systems. Choosing the correct model depends on the political, social, cultural demographic and ecological environment. A trend is occurring towards models that will allow a degree of financial independence from the reliance on government funding as well as partnerships with stakeholders and businesses.
Staff skills and training
Expertise in areas of ecological management is required but expertise in areas such as visitor management is becoming more important as parks explore ways to increase revenue while ensuring the sustainability of parks. Staff training must form part of management planning and be linked to defined goals for the park with funding and key performance indicators identified.

Funding
The opportunity exists to generate funds from a variety of innovative initiatives sourced through government, private companies, community involvement, trusts and royalties. Revenue raised through tourism can fund maintenance in parks through user fees, sale of goods and licenses. Revenue can be reinvested into park management and maintenance but requires appropriate legislation to be introduced.

Tourism and visitor management
While data on visitor numbers is often collected there is an absence of visitor impact data to assess appropriate visitor management practices. Visitor management is intrinsically linked to both asset management and risk management and cannot be considered in isolation. Agencies have used a variety of strategies to manage visitors with some considering closing parks to the public that put either the environment or visitor safety at risk. With sound research, businesses will be more willing to invest in parks, and visitor management can provide the vehicle to do so through park tourism. Measuring and articulating the economic impact of tourism is a strategy that can be used to raise the profile of parks to secure funds, however this is not a regular practice for many parks.

Asset management
The lack of information on the condition of natural and historic assets cannot be considered in isolation as it can pose a risk to both the visitor and to the environment. The need for visitor impact studies and asset classification systems to be developed is of critical importance. The lack of well-developed classification systems is evident across many agencies although planning is underway to rectify this.

Marketing and distribution
A shift in the marketing of parks is gaining momentum as park agencies recognise the importance of the electronic media in educating and informing the visitor. A strategy to inform visitors prior to their visit through social marketing requires advanced technology systems, while de-marketing strategies are being adopted in some instances to control visitor numbers and activities.

The report draws together the key themes into an integrated park management framework within the context of the type of parks being managed. The model incorporates environmental and human values and identifies four prototype parks and the management implications for each:

- High Use Urban Parks, with a high emphasis on servicing visitors and less emphasis on ecological integrity
- Low Use Urban Parks, with a low emphasis on both servicing visitors and ecological integrity
- High Use Protected Areas, with a high emphasis on both ecological integrity and servicing visitors
- Low Use Protected Areas, with a high emphasis on ecological integrity and less emphasis on servicing visitors.

Recommendations
There is an opportunity to build on existing work towards the second stage development of a holistic conceptual park management framework. This conceptual framework has the potential to be operationalised by classifying and locating all parks within a management framework that will assist park managers with strategic decision-making in regard to managing each individual park or protected area.
Objectives of Study
The overall objectives for this study were to:

- examine the similarities and differences among Otways residents and visitors toward tourism growth, development and conservation along the Otway Coast, and in hinterland and plains sub-regions
- determine whether proportional differences exist between Otways resident and visitor tourism development preferences (acceptable vs. inappropriate) within selected Otways tourism destinations
- identify, map and compare perceived landscape values in Otways national parks and state forests
- identify the landscape values that best differentiate national park lands from other lands
- assess whether the proposed expanded Great Otway National Park is consistent with resident and visitor held values and preferences
- examine community activity preferences in the proposed expanded park system
- assess whether proposed tourism development nodes in the Otway Hinterland tourism plan are consistent with resident and visitor preferences
- determine whether place identity and dependence emerge as distinct constructs of place attachment in Australia
- identify respondent variables that are most predictive of place attachment
- determine what relationship, if any, exists between place attachment constructs and the types of landscape values that respondents map using the spatial survey methodology.

Methodology
The project used a survey technique where participants were asked to map place-specific landscape values and development preferences with the goal of identifying priority areas for conservation, development and resource management in the region. The mapping methods, when combined with a sound sampling plan, provide a multi-dimensional view of the Otways region from a social-ecological perspective. The method generates a series of GIS maps that show various perceived landscape values (e.g. aesthetic, recreation, biological diversity and life sustaining) and their locations on the regional landscape. Because the survey accessed a representative sample of Otways residents, the spatial data can be used to examine whether existing or proposed government initiatives are consistent for publicly held values in the region.

Key Findings
Otways region residents and visitors are divided over threats posed by tourism and natural resource management to their quality of life or visitor experience. Overall, tourism has not changed the desirability of the Otways as a place to live or visit (52.8% indicated it has stayed the same), but more coastal residents believe that tourism has made the Otways a less desirable place (38.4%) compared with hinterland residents (22.9%), plains residents (17.1%) and visitors (16.1%).

Of the major economic sectors, Otways residents in general perceive that tourism development is most likely to contribute to the future economic prosperity and community well-being of the Otway Hinterland (35.8%). Both residents and visitors would prefer slow growth in visitor numbers (defined as +1% annually) in the hinterland (56.3%). All residents perceive that tourism would most likely contribute to the Otway Coast’s future economic prosperity and community well-being (71.1%). However, further analysis indicates a high proportion of coastal (42.8%), hinterland (52.5%) and plains (38.1%) residents perceive the current level of coastal development is too much—a perception also shared by visitors to the region (39.8%).
Otways residents support tourism development at Lavers Hill and Melba Gully (66.8% favour); Otway Fly, Triplet Falls and Victree (64.9% favour); Cape Otway Lighthouse Station (62.5% favour); and around Forrest, Barwon Dam and Elizabeth (61.8% favour); but there is not majority support for tourism development at Glenaire/Aire River Estuary (48.0% favour).

Residents and visitors generally support tourism development at the tourism nodes proposed in the Otway Hinterland tourism plan, but not in the specific areas identified by the nodes. Residents would prefer development be restricted to existing townships and not infringe on more natural areas as suggested in the tourism plan.

**Recommendations**

The study results and spatial data should be distributed to local government and resource management agencies for use in future land use planning efforts. The survey results provide important baseline information about the views, attitudes and socioeconomic characteristics of Otways region residents and visitors. The landscape values of both residents and visitors to contribute to improved tourism planning and natural resource management outcomes were mapped. The establishment of these baseline data provides an important opportunity to be able to track changes over time and contribute to the monitoring and evaluation of natural resource management and tourism activities across the region.
STCRC Protected Area Management Snapshot Research

The following 25 research reports were profiled in this snapshot. To access the full technical reports relating to this research please refer to www.crctourism.com.au/bookshop.

**Visitors**
- Visitor Study 1999–2000: Northern New South Wales National Parks (2005), Tony Griffin and David Archer
- Visitor Monitoring in Mountain Parks and Reports: Summer Mountain Tourism (2005), Philippa Thomas, Roslyn Russell and Petra Triandos
- Visiting the Kosciuszko Alpine Area: Visitor Numbers, Characteristics and Activities (2005), Stewart Johnston and Andrew Growcock
- Where do they go? Predicting Visitation Intensity at Focal Tourist Sites within Protected Areas (2008), Wade Hadwen and Angela Arthington
- Human Waste Contamination at Huts and Campsites in the Back Country of Tasmania (2006), Kerry Bridle, Jamie Kirkpatrick and Julie von Platen
- Socio-Economic Impacts of Sanctuary Zone Changes in Ningaloo Marine Park: A Preliminary Investigation of Effects on Visitation Patterns and Human Usage (2008), Jeremy Northcote and Jim Macbeth

**Interpretation and Communication**
- Best Practice Interpretation Research for Sustainable Tourism – A Framework for a New Research Agenda (2007), Stephen Wearing, David Archer, Gianna Moscardo and Stephen Schweinsberg
- Development of a Research-Based Tool for Evaluating Interpretation (2006), Sam Ham and Betty Weiler
- Contextual Analysis for Applying Persuasive Communication Theory to Managing Visitor Behaviour: A Scoping Study at Port Campbell National Park (2005), Sue Beeton, Betty Weiler, Sam Ham
- Asking Visitors to Help: Research to Guide Strategic Communication in Protected Area Management (2008), Sam Ham, Betty Weiler, Michael Hughes, Terry Brown, Jim Curtis and Mark Poll
- Sustainable Marketing of Tourism in Protected Areas: Moving Forward (2007), Stephen Wearing, David Archer and Sue Beeton

**Economic Evaluation**
- Valuing Tourism Spend Arising from Visitation to Queensland National Parks (2008), Roy Ballantyne, Richard Brown, Shane Pegg and Noel Scott
- Economic Contribution of Kakadu National Park to Tourism in the Northern Territory (2007), Pascal Tremblay
- Tourism and the Economic Valuation of Parks and Protected Areas: Watarrka National Park, Northern Territory (2007), Pascal Tremblay and Dean Carson
- Economic Value of Tourism in the Australian Alps (2005), Trevor Mules, Pam Faulks, Natalie Stoeckl and Michele Cegielski

**Partnerships**
- Licensing Nature Tourism Operators in Western Australia: Business Impediments and Recommendations (2007), Sabrina Genter, Jo Ann Beckwith and David Annandale
- Understanding Partnerships for Protected Area Tourism: Learning from the Literature (2008), Jennifer Laing, Aggie Wegner, Susan Moore, Betty Weiler, Sharron Pflueller, Diane Lee, Jim Macbeth, Glen Croy and Michael Lockwood
Planning And Management

- Impacts of Recreation and Tourism on Plants in Protected Areas in Australia (2007), Catherine Pickering and Wendy Hill
- An Investigation into the Concept of and Factors Leading to Impact Creep and its Management (2006), Amanda J. Smith and David Newsome
- Developing Indicators for the Sustainable Management of Visitor Use of Protected Areas in Australia (2005), Joanna Tonge, Susan A. Moore, Marc Hockings, Graeme Worboys and Kerry Bridle
- Best Practice in Strategic Park Management: Towards an Integrated Park Management Model (2005), Judi Inglis, Paul Whitelaw, Michael Pearlman

STCRC Protected Area Management Upcoming Publications

- Community Values for the Murray River Reserves, Sharron L. Pfueller, Xuan Zhu, Paul Whitelaw and Caroline Winter
- Detecting Visitor Impacts in and Around Aquatic Ecosystems within Protected Areas, Wade Hadwen, Angela Arthington and Paul Boon
- Developing Place Attachment to Parks, Judi Inglis, Margaret Deery and Paul Whitelaw
- Ecologically Sustainable Visitor Use of Australia’s World Heritage Areas, Wendy Hill and Catherine Pickering
- Enhancing Visitor Experience through Interpretation: An Examination of Influencing Factors, Stephen Wearing, Paul Edinborough, Lesley Hodgson and Elspeth Frew
- Good Practice User-Pays Systems for Protected Areas, Michael Hughes, Jack Carlsen, Gary Crilley, Samantha King, Diane Lee and Gail Kennedy
- High Impact Activities in Parks: Conservation through Cooperation, Carl Cater, Ralf Buckley, Robert Hales, David Newsome, Catherine Pickering and Amanda Smith
- Impact of Bushfires on Tourism and Visitation in Alpine National Parks, Dale Sanders, Jennifer Laing and Meg Houghton
- Integrated Framework for Developing Ecological Indicators of Visitor Use of Protected Areas, J. Guy Castley, Wendy Hill, Catherine Pickering, Wade Hadwen and Graeme Worboys
- Marketing of Protected Areas as a Tool to Influence Visitors’ Pre-Visit Decisions, Mike Reid, Stephen Wearing and Glen Croy
- Monitoring Visitor Use in Australian Terrestrial and Marine Protected Areas: Practical Applications of Technologies, Jan Warnken and Michael Blumenstein
- Promoting Persuasion in Protected Areas (Guide), Sam Ham, Betty Weiler, Michael Hughes, Terry Brown, Jim Curtis and Mark Poll
- Understanding Demand For High Quality ‘Track/Trail’ Experiences In National Parks, Stephen Wearing, Stephen Schweinsberg, Simone Grabowski and Kirsty Tumes
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