TRENDS IN PROTECTED AREAS

Hum Bahadur Gurung
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National Library of Australia Cataloguing-in-Publication Entry

Author: Gurung, Hum Bahadur.

Title: Trends in protected areas / Hum Bahadur Gurung.

ISBN: 9781921785023 (pbk.), 9781921785528 (pdf)

Subjects: Protected areas—Australia—Management.
Biodiversity conservation—Australia.
Ecotourism—Australia.

Other Authors/Contributors: CRC for Sustainable Tourism.

Dewey Number: 333.720994

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First published in Australia in 2010 by CRC for Sustainable Tourism Pty Ltd

Cover images courtesy of Tourism Australia, Tourism WA (Margaret River), Tourism NT and SATC

Printed in Australia (Gold Coast, Queensland)

Acknowledgements

Sustainable Tourism Cooperative Research Centre (STCRC), established and supported under the Australian Government’s Cooperative Research Centres Program, funded this research. Thanks are extended to Professor David Simmons, Dr Patricia Geale and AJ Bromley from STCRC, and Professor Ralf Buckley, Associate Professor Catherine Pickering and Dr Guy Castley from Griffith School of Environment, for their assistance and constructive comments on the draft research project.
TRENDS IN PROTECTED AREAS

CONTENTS

ACKNOWLEDGEMENTS ___________________________________________________________ II

SUMMARY ________________________________________________________________ V
OBJECTIVES ______________________________________________________________ V
METHODOLOGY __________________________________________________________ V
KEY FINDINGS __________________________________________________________ V
FUTURE ACTION __________________________________________________________ VI

CHAPTER 1: INTERNATIONAL TRENDS ___________________________________________ 1
INTERNATIONAL TRENDS IN PROTECTED AREAS _______________________________________ 1
PARADIGM SHIFT IN PROTECTED AREA MANAGEMENT ___________________________________ 3
SUSTAINABILITY AND THE ROLE OF INDIGENOUS COMMUNITIES IN PROTECTED AREA MANAGEMENT _________________________________________________________________ 5
TRENDS IN PROTECTED AREA GOVERNANCE _______________________________________ 5
PROTECTED AREAS—TOURISM LINKAGES ________________________________________ 6
TRENDS AFFECTING TOURISM IN PROTECTED AREAS ___________________________________ 7
EMERGING TREND OF CLIMATE CHANGE IN PROTECTED AREAS ____________________ 8

CHAPTER 2: AUSTRALIAN TRENDS _____________________________________________ 9
TRENDS IN AUSTRALIA’S PROTECTED AREAS _________________________________________ 9
VISITATION TRENDS IN AUSTRALIA’S PROTECTED AREAS ___________________________ 10
EMERGING TREND OF CLIMATE CHANGE IN PROTECTED AREAS AND RECREATIONAL VALUES ____________ 13
WORK DONE BY STCRC ON PROTECTED AREAS __________________________________ 14
Visitation management models and frameworks __________________________________ 15
Visitor impacts and sustainability ____________________________________________ 15
Best practice benchmarks and sustainable marketing of tourism __________________ 16
Interpretation and education ________________________________________________ 16

CHAPTER 3: GAPS IN KNOWLEDGE ____________________________________________ 17
KNOWN AND UNKNOWN TRENDS IN PROTECTED AREAS ____________________________ 17
TRENDS IN VISITOR USE OF PROTECTED AREAS _________________________________ 18
VISITOR SATISFACTION AND HUMAN RESOURCES _____________________________________ 18
TRENDS IN MANAGEMENT AND GOVERNANCE __________________________________ 19
Shifting tourism market and immigration policy ________________________________ 20
Links of public private partnership in protected area tourism ____________________ 20
BIODIVERSITY RESOURCES AND CLIMATE CONSEQUENCES _______________________ 21
RESEARCH OUTPUTS TO OUTCOMES ___________________________________________ 21

CHAPTER 4: CONCLUSIONS __________________________________________________ 22
REFERENCES ________________________________________________________________ 23
AUTHOR ________________________________________________________________ 28
List of Figures

Box 1: The PA categories system advocated by IUCN since 1994 .................................................. 2
Box 2: The Durban Accord—a new paradigm for protected areas .................................................. 3
Box 3: Governance of protected areas ......................................................................................... 6
Box 4: Trends affecting tourism in protected areas (Eagles 2004) .................................................. 7
Box 5: Growth in Australia’s protected areas .............................................................................. 10
Box 6: Park visitation in Australia—a mixed bag of trends ......................................................... 10
Box 7: Global trends affecting tourism ....................................................................................... 12
Box 8: Emerging trends of climate change in protected areas and visitors ....................................... 13

List of Tables

Table 1: A trend of the paradigm shifts in Protected Area Management adapted from Phillips (2003) ...... 4
Table 2: Marine parks and protected areas, Australia and external territories .................................. 9
Table 3: Visitation to National Parks and Revenue Generated ...................................................... 11
Table 4: Numbers of Visitors to National Parks 1998–2002 .............................................................. 11
Table 5: Examples of STCRC research focused within protected areas in Australia .......................... 14
Table 6: ‘The IUCN protected area matrix’—a classification system for protected areas comprising both management category and governance type. ......................................................... 20

List of Boxes

Box 1: The PA categories system advocated by IUCN since 1994 .................................................. 2
Box 2: The Durban Accord—a new paradigm for protected areas .................................................. 3
Box 3: Governance of protected areas ......................................................................................... 6
Box 4: Trends affecting tourism in protected areas (Eagles 2004) .................................................. 7
Box 5: Growth in Australia’s protected areas .............................................................................. 10
Box 6: Park visitation in Australia—a mixed bag of trends ......................................................... 10
Box 7: Global trends affecting tourism ....................................................................................... 12
Box 8: Emerging trends of climate change in protected areas and visitors ....................................... 13

List of Plates

Plate 1: The average air temperature in Nepal has risen by one degree Celsius with elevation areas like Namche Bazaar (3440 metres) in Sagarmatha (Mt. Everest National Park) warming the most since the mid 1970s due to climate change. ......................................................... 8
TRENDS IN PROTECTED AREAS

SUMMARY

Objectives

Three primary objectives drive this research project:

- review literature on management and visitor trends in protected areas internationally
- review the work done by STCRC in Australian protected areas
- identify what is known about visitor trends in protected areas and what is not known.

Methodology

- This study relied mainly on secondary data sourced directly from previous research projects conducted by the STCRC in protected areas in Australia to review the management and visitor trends in national parks and other protected areas to review management practices, visitors, economic benefits, environmental impacts, education and interpretation and destinations marketing.
- An extensive literature review on the evolution of, and paradigm shifts in, management of protected areas and trends in visitation of domestic and international tourists in protected areas internationally.
- An expert consultation was conducted to identify the trends in protected areas in Australia and internationally.

Key Findings

Protected area agencies around the world have dual roles of ensuring the conservation of biodiversity and protection of natural and cultural heritage while providing opportunities for quality outdoor recreational experiences. Protected areas are major destinations for both domestic and international visitors for a wide range of tourism and recreational activities and play a crucial role in ensuring sustainability across the three primary sectors—environmental, socio-cultural and economic. Meeting this triple bottom line is the basis of sustainable human development. This has been demonstrated in many protected areas where biodiversity conservation has been ensured through the participation of multiple stakeholders, especially communities, private sector and Non-Governmental Organisations.

Governance of protected areas worldwide influences the conservation objectives and visitation in national parks and other protected areas. Currently, four different types of governance influence conservation objectives in protected areas. The multiple roles of national parks and other protected areas agencies worldwide and in Australia are complicated because they are managed not by single central governments, but are the responsibility of individual state and territory governments. However, all have the same objective to conserve biodiversity and the primary focus of all agencies has been increasingly on delivering quality services to both domestic and international visitors.

National parks and other protected areas exist within a dynamic social and political setting that is sometimes difficult to understand and challenging to predict. In view of the international trends in protected areas, 16 important trends will influence the planning and management of national parks and other protected areas internationally in the 21st century. Trends in visitation patterns in Australia and internationally is hampered by a lack of good quality time series visitor data in all protected areas. Unfortunately, very few national parks in Australia have an adequate level of detailed visitor data. At present, the extent to which visitor monitoring occurs in most parks is variable and is not a high priority for management agencies despite the availability of internationally well-tested visitor impact and monitoring tools, frameworks and processes.

Park visitation data in Australia’s protected areas highlight variable trends. Over 84 million people visit protected areas each year contributing significantly to the $70 billion tourism industry. Approximately 1.4 million international tourists visited protected areas in 2005–2006, where iconic sites such as Kakadu and Uluru-Kata Tjuta National Parks and the Great Barrier Reef Marine Park stand out as key destinations. However, visitation to the Great Barrier Reef has been relatively stable over the past ten years, as has visitation to Kakadu which peaked in 1999 at 183,483 visitors and declined to 148,903 visitors in 2002. Contrastingly, visitation to Uluru-Kata Tjuta has nearly doubled in the past 14 years, from 175,000 visitors in 1987 to just fewer than 400,000 visitors in 2002. A similar trend appeared in international visitation to Australian parks which declined from 49% in 1998 to 43% in 2002. However, identifying visitation trends in Australia’s protected areas is
problematical because there is no consistent system for collecting or analysing data or for gathering information on the revenue generation of visitation.

The emerging trend of climate change internationally has threatened mountain tourism in recent years. The use of resorts in mountainous national parks for adventure tourism and skiing is changing due to shorter and unpredictable winter snow falls and longer summers. Nevertheless, national parks and other protected areas present a best option for retaining natural ecosystem resilience, reducing threats, and protecting refuges and other critical habitats for wildlife to adapt to climate change.

**Future Action**

This report concludes that there are no systematic and consistent methods and processes to measure the visitation trends in protected areas internationally and in Australia. A number of recommendations are therefore proposed.

- A worldwide database to measure visitation trends in protected areas should be developed to inform policy makers and protected area management agencies globally because a lot of these ‘trends’ are not currently being monitored at a global level by the World Conservation Monitoring Centre (WCMC) or World Commission on Protected Areas (WCPA).
- A review of the current practice of information collection, analysis, publication and dissemination mechanisms of protected areas and tourism management agencies across Australia is essential for development of megatrends in visitor use of national parks and protected areas in Australia. It is imperative to develop a comprehensive, nationally consistent system for measuring the condition and trends with particular reference to how many visitors there are, which areas do they visit, and what activities are they engaged with in both terrestrial and marine parks.
- The close relationship between tourism marketing and immigration in Australia is not a particularly well-researched area in the tourism industry. Information on the emergence of new tourism markets and increasingly diversified products to cater for emerging markets should be developed.
- Both domestic and international visitors are concentrated in iconic protected areas in Australia. Additional research is needed to determine their carrying capacity and the required financial and human resources to cope with the increasing demands on parks services and recreational activities.
- Understanding visitor demand for parks and protected areas should be the focus of future systematic and strategic studies in collaboration with protected area management agencies, the tourism industry and STCRC to transfer research outputs into outcomes of economic, environmental and social benefit to Australia.
- There is a need to identify best practices of sustainably managed tourism destinations in Australia and worldwide to learn from the best practices in protected area tourism.
Chapter 1

INTERNATIONAL TRENDS

International Trends in Protected Areas

Protected areas are earth’s unique terrestrial and marine places devoted to biodiversity conservation and sustainable development. Biodiversity conservation in protected areas is not a new, but evolving concept. The idea of protecting natural or semi-natural areas dates back thousands of years where areas were set aside mainly as hunting reserves (Wright & Mattson 1996; Mulongoy & Chape 2004). However, McNeely (2005, p. 3) argues that “the fundamental point is that protected areas are not “set aside”, but rather are designated to provide or support a wide range of ecosystem services that benefit various interest groups”. Furthermore, protected areas have social, cultural and religious values particularly in indigenous societies. In many indigenous communities, many places were protected because they were considered as homes of gods, resting places for the dead or places for religious, spiritual and sacred sites (Mulongoy & Chape 2004; Gokhale 2005; McNeely 2005). It was only in the latter half of the 19th century that nature conservation or protection without hunting or for aesthetic values was recognised.

The World Conservation Union (IUCN) has defined a protected area as ‘an area of land and/or sea especially dedicated to the protection of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means’ (IUCN, 1994 p.7). The term ‘national park’ was first used in 1872 when the Yellowstone National Park was established in the United States and is seen as the start of the modern concept of protected area management in the world (Wright & Mattson 1996). Inspired by the establishment of the Yellowstone National Park, many other countries started protecting sites such as Royal National Park in Australia in 1879, Banff National Park in Canada in 1885, Tongariro National Park in New Zealand in 1887, Udjun Kulon National Park in Indonesia in 1915, Virunga National Park in Zaire in 1925 and Kruger National Park in South Africa in 1926 (Stevens 1997; Mulongoy & Chape 2004). In the decades that followed, what had started as a trickle rapidly became a ‘flood’ as new protected areas were established in numerous countries around the world; such that today more than 113 000 protected areas covering over 12 per cent of the earth’s terrestrial habitats have been established (Steiner 2003; Mulongoy & Chape 2004; Worboys 2007b) (Figure 1).
Figure 1: International trends in establishment of protected areas 1872–2006

The IUCN’s World Commission on Protected Areas (WCPA) has proposed six categories of Protected Areas (Box 1). Trends in biodiversity conservation and protected area management is changing significantly influenced by global political economies, economic development and community empowerment (Buscher & Whande 2007). Co-management or collaborative management (McNeely et al. 1990; Reid et al. 2004; Borrini-Feyerabend 2006; Borrini-Feyerabend et al. 2006; Schumann 2007) is widely discussed in recent protected area management literature.

Box 1: The PA categories system advocated by IUCN since 1994

Areas managed mainly for:

Category I: Strict protection—i.e. 1a) Strict Nature Reserve, and 1b) Wilderness Area
Category II: Ecosystem conservation and protection—i.e. National Park
Category III: Conservation of natural features—i.e. Natural Monument
Category IV: Conservation through active management—i.e. Habitat/Species Management Area
Category V: Landscape/seascape conservation and recreation—i.e. Protected Landscape/Seascape
Category VI: Sustainable use of natural resources—i.e. Managed Resource Protected Area


As the number of protected areas increased the conventional views of securing bastions of protection shifted profoundly, with important implications for both conservation and development. Much of the rhetoric on the fringes of mainstream development theory in the late 1970s and early 1980s, such as appropriate and small-scale technologies, local empowerment, popular participation, democratisation, and devolution of power, moved to centre stage (Naughton-Treves et al. 2005). These theories have influenced the conservation and development processes since the 1980s exemplified by the emergence of integrated conservation and development projects (ICDPs). The popular use of ICDPs has been applied to a diverse range of initiatives ranging from those with a common goal of linking biodiversity conservation and tourism across protected areas to those linking socio-economic development (Barrett & Arcese 1995; Johannesen 2004). In practice, ICDPs usually target both the protected areas and local communities to reduce pressure on natural habitats and resources (MacKinnon 2001).
The linkages established between conservation and community development were an innovative approach to find new solutions to the persistent problem of park/people conflicts.

Paradigm Shift in Protected Area Management

Blaikie and Jeanrenaud (1997) have concluded from an extensive review of the current approaches to biodiversity conservation and protected area management that three distinct intellectual paradigms are currently practised worldwide. The classic/authoritarian, the neo-populist and the new liberal approaches are said to have had a profound influence on both international conservation and development discourses, and on the actual policies in different countries (Vihemaki 2003). While the classical ‘top-down’ approach was popular during the beginning of the conservation movement, worldwide the ‘bottom-up’ neo-populist strategy is regarded as a participatory or community-based approach to conservation and protected areas management which is pro people (Geoghegan & Renard 2002; Borrini-Feyerabend et al. 2004; Nepal 2005).

The liberal paradigm has emerged in recent years to address the public-private partnership in protected area management which is gaining increasing momentum as an alternative strategy to expand conservation networks (Muir-Leresche & Nelson 2000; Roper 2000; Reid et al. 2004; Ipara et al. 2005). The paradigm shift away from exclusive or classic biodiversity conservation approaches to the neo-populist and liberal approaches has become a popular strategy since the 1980s in the light of contemporary social perspectives (Blaikie & Jeanrenaud 1997; Jeanrenaud 2002). This has resulted in an increasing number of community-based approaches to protected areas management in recent years (Murphree 1994; Kellert et al. 2000; Müller-Böker & Kollmair 2000; Mugisha 2002; Mogelgaard 2003; Pathak et al. 2004; e.g. Bajracharya et al. 2006).

The paradigm shift (Box 2) is the outcome of more than three decades of interaction between parks and people, including indigenous communities around the protected areas, globally and is supported by other studies demonstrating that local communities have the capacity to develop ingenious social and cultural mechanisms that foster sustainable use and mediate environmental impacts (Stevens 1997). Conservation seems more likely to be effective when protected areas are partnerships in which local communities and indigenous peoples share responsibility and where resource management reflects appreciation of the importance of local knowledge, values, and conservation practices and supports, maintains, and builds on these through dialogue rather than coercion (Stevens 1997, Ipara et al. 2005).

**Box 2: The Durban Accord—a new paradigm for protected areas**

In this changing world, we need a fresh and innovative approach to protected areas and their role in broader conservation and development agendas. This approach demands maintenance and enhancement of our core conservation goals, equitably integrating them with the interests of all affected people. In this way the synergy between conservation, the maintenance of life support systems and sustainable development is forged. We see protected areas as vital means to achieve this synergy efficiently and cost-effectively. We see protected areas as providers of benefits beyond boundaries—beyond their boundaries on a map, beyond the boundaries of nation-states, across societies, genders and generations.

Source: (www.iucn.org/wpc 2003)

The new conservation thinking and reconceptualisation of conservation are based on ideas of sustainable development, poverty reduction, utilisation and ecological dynamics (Brown 2003; Hazlewood et al. 2004; Lockwood & Kothari 2006). However, the complementarities and conflicts between environmental sustainability and human development continue to be the subject of heated academic and policy debates (Fabricius et al. 2001; Brown 2003; Naughton-Treves et al. 2005). Phillips (2004) has succinctly compared the past and current trends (Table 1).
Table 1: A trend of the paradigm shifts in protected area management adapted from Phillips (2003)

<table>
<thead>
<tr>
<th>Objective</th>
<th>As it was—protected areas were:</th>
<th>As it is becoming—protected areas are:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Established mainly for spectacular wildlife and/or scenic landscape protection</td>
<td>Often set up for scenic, economic, and cultural reasons</td>
</tr>
<tr>
<td></td>
<td>Managed mainly for visitors and tourists</td>
<td>Managed with local people in mind</td>
</tr>
<tr>
<td></td>
<td>Valued as wilderness</td>
<td>Valued for the cultural importance of so-called wilderness</td>
</tr>
<tr>
<td></td>
<td>About protection</td>
<td>Also about restoration and rehabilitation</td>
</tr>
<tr>
<td>Governance</td>
<td>Run by central government</td>
<td>Run by many partners</td>
</tr>
<tr>
<td>Local People</td>
<td>Planned and managed without regard to local opinions</td>
<td>Run with, for, and in some cases by local people</td>
</tr>
<tr>
<td>Wider Context</td>
<td>Developed separately managed as ‘islands’</td>
<td>Planned as part of national, regional, and international systems</td>
</tr>
<tr>
<td></td>
<td>Developed as ‘networks’ (strictly protected areas, buffered and linked by green corridors)</td>
<td></td>
</tr>
<tr>
<td>Perceptions</td>
<td>Viewed primarily as a national asset</td>
<td>Viewed also as a community asset</td>
</tr>
<tr>
<td></td>
<td>Viewed only as a national concern</td>
<td>Viewed also as an international concern</td>
</tr>
<tr>
<td>Management Techniques</td>
<td>Managed reactively within short timescale</td>
<td>Managed adaptatively in long-term perspective</td>
</tr>
<tr>
<td></td>
<td>Managed in a technocratic way</td>
<td>Managed with political considerations</td>
</tr>
<tr>
<td>Finance</td>
<td>Paid for by taxpayer</td>
<td>Paid for from many sources</td>
</tr>
<tr>
<td>Management Skills</td>
<td>Managed by scientists and natural resource experts</td>
<td>Managed by multi-skilled individuals</td>
</tr>
<tr>
<td></td>
<td>Expert-led</td>
<td>Drawing on local knowledge</td>
</tr>
</tbody>
</table>

The challenge to meet both conservation and development goals requires pro-people conservation initiatives since they are mutually interdependent (Jeanrenaud 2002) and this has supported the paradigm shift in the management of protected areas worldwide. People-oriented conservation projects have greater potential to reconcile biodiversity conservation interests with local communities’ livelihood needs if they are implemented holistically and in an integrated manner with a high level of transparency (Gurung 2006). Recent conservation approaches have focused on local participation and development as a means to establish community support, while still addressing the immediate need to curb ongoing species extinction and the shortcomings of the classic park model (Newmark & Hough 2000 in Spiteri & Nepal 2006). Participatory governance systems that embrace multiple stakeholder engagement in protected area management systems have been one of the most important developments in the toolbox of sustainable living as this adopts a balanced approach to strengthening a nation’s network of protected areas (McNeely et al. 2005).

Habitat fragmentation and degradation present significant barriers to wildlife species that need to move to new habitats (Taylor & Figgis 2007). The recent trend of protected area networks worldwide is connectivity conservation, linking existing national parks into a landscape-scale mosaic of conservation areas and corridors (Buckley et al. 2007). For example, the most notable policy formulation in recent years in Nepal has been based on building up regional cooperation and promoting ecoregional conservation through the creation of a single functioning landscape through the restoration and maintenance of forest corridors that will provide linkages to protected areas in Nepal and its neighbouring countries India and China (NPC & MOPE 2003; WWF 2003). No system of protected area can achieve its full potential if protected areas become isolated fragments surrounded by incompatible land uses (Sandwith & Lockwood 2006).
Sustainability and the Role of Indigenous Communities in Protected Area Management

The role of protected areas in protecting biodiversity and achieving simultaneous sustainable economic and social outcomes has been recognised in recent years. Sustainability science has emerged as a growing academic discipline since the globally accepted definition of sustainable development was coined as ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’ (WCED 1987). Protected areas play a crucial role in ensuring sustainability across three primary sectors - environmental, socio-cultural and economic. Meeting this triple bottom line is the basis of sustainable human development (HMG/NPC & UNDP 2005). This has been demonstrated in many protected areas where biodiversity conservation has been ensured through the participation of multiple stakeholders, especially communities and NGOs.

Indigenous people and their communities have vital roles in protected area management as they have traditional holistic resource management systems (Collins 2001). Howitt et al. (1996, p. 19) have argued that ‘it is increasingly imperative, in terms of social justice, equity, international legal standards, cultural diversity and ecological sustainability, that indigenous and tribal peoples have opportunities to at least influence, if not control, the resource management systems that affect their lives and traditional territories’. Local communities have traditionally embedded conservation principles as part of their indigenous environmental knowledge (Hunn 2006). Furthermore, cultural and religious values and beliefs are regarded as important elements of the conservation process (West & Brockington 2006). Thus, there is a need for greater understanding of cultural and religious values as well as their contribution in protected area management (Macdonald 2004). Cultural and religious values have also strong link to sustainable community development (Macleod & Gurung 1997). Any understanding of the relationship between culture and conservation must begin from an appreciation of the ways in which systems of beliefs and values are derived through experience (Macdonald 2004).

Conservation is concerned about maintenance and sustainability of the natural environment, however, many local communities who live in the rural areas of developing countries have suffered from the establishment of protected areas (Ghimire & Pimbert 1997). However, it is argued that conservation is able to respond to the social needs of people while maintaining ecological harmony, and is entirely compatible with the growing demand for ‘people-centred’ development that achieves a wider distribution of benefits to entire populations (IUCN/UNEP/WWF 1980). This proposition has been supported by researchers (e.g. Sharma & Wells 1996; Blaikie & Jeanrenaud 1997; Jeanrenaud 2002) who recognise that the synergy between biodiversity conservation and human welfare is unproblematic. The mission of protected areas, particularly in developing countries, has expanded from biodiversity conservation to improving human welfare over the past thirty years (Naughton-Treves et al. 2005). The conservation discourse at the local level has proven that human welfare can be addressed by adopting decentralised, flexible and locally negotiated programmes (Blaikie & Jeanrenaud 1997).

The debate surrounding poverty, livelihoods, environment and conservation draws mainly on local case studies, particularly on the impacts to protected areas (Lobe 2005; Cernea & Schmidt-Soltau 2006; Weber 2006; Upton et al. 2008). Poverty reduction and biodiversity conservation are fundamental goals and are part of the policy agenda of many international agencies and conservation authorities to make conventional protected areas relevant to first and third world countries (Agrawal & Redford 2006). Previous studies (Mishra 1982; McLean 1999; Müller-Böker 2000; Straede & Helles 2000; McLean & Straede 2003; Castley et al. in press-c) have outlined solutions to the potentially contradictory concepts of biodiversity conservation and socio-economic development as well as the strategies to resolve parks and people conflict in protected areas. While such studies are useful to draw the attention of park authorities, the social processes that make conservation efforts ‘work’ have often been overlooked. Innovative strategies to meeting biodiversity conservation and socio-economic objectives are therefore crucial to maintain both social and environmental sustainability (Castley et al. in press-b). Traditional fortress conservation, or ‘fences and fines’, approaches to protected area management are frequently ineffective in achieving both conservation objectives, and sustainable community development goals (Barrett & Arcese 1995; Brown et al. 2002).

Trends in Protected Area Governance

Governance exerts a major influence on the achievements of management objectives, effectiveness, equity and sustainability of protected areas. The IUCN/WCPA (2003) recognises at least four broad governance models applicable to all IUCN protected area categories (Box 3).
Box 3: Governance of protected areas

IUCN recognises four broad types of governance of protected areas, any of which can be associated with any management objective:

- governance by government
- shared governance
- private governance
- governance by indigenous peoples and local communities.

Participatory governance in developing countries, especially in Africa and Asia, has increasingly been promoted as providing varied approaches to protected area management including biodiversity conservation and poverty reduction (UNDP 2002). There is an emerging global trend that governments have entrusted the management/conservation of protected areas to the private sector and NGOs through a devolution of authority (Roper 2000; Secaira et al. 2005). This innovative and flexible approach to management has reduced the burden of governments investing limited resources to conservation (Plaut 2003). Over the past 30 years, African countries such as Zimbabwe, Namibia and South Africa have altered their legal frameworks to give full control over the use of wildlife to the private owners of the land on which the wildlife are located (Muir-Leresche & Nelson 2000). In South Africa, this has seen an increase in the establishment of private wildlife reserves through co-management for conservation and social objectives (Fay 2007; Lindsey et al. 2007). However, in many African countries (e.g. Kenya) wildlife conservation is still constrained by traditional top-down approaches and existing conservation laws and policies impact negatively on the communities’ indigenous rights as well as their participation in wildlife conservation (Ipara et al. 2005).

The protected area management transition from centrally planned government management to active community participation started as a ‘fences and fines’ approach and gradually moved toward social conservation creating buffer zones which are largely designed to provide direct resource benefits to local communities around conservation areas (Heinen & Shrestha 2006). Local communities have been encouraged to participate in the management roles since the mid 1980s to bring a synergy between tourism, national parks and local communities (Nepal 2000).

Protected Areas—Tourism Linkages

Maintaining biodiversity and using protected areas as economic tools through recreation and tourism have proven particularly challenging. Two key areas require attention, firstly reconciling the needs and aspirations of local people with protected area management and secondly, reconciling the economic opportunities offered by nature tourism with their associated ecological threats (Wells & Sharma 1998, p. 226). Protected areas have high economic value and provide ecological services. However, identifying a protected area’s goods and services, determining who values those goods and services, and measuring these values is not always a straightforward process (WCPA/IUCN 1998). Protected areas provide a wide range of goods and services including recreation and tourism, biodiversity (forest, wildlife, non-timber forest products), water resources that are not always possible to measure in financial terms. However, the ‘user pays’ philosophy for use of protected area services has been increasingly applied in recent years (Fuest & Kolmar 2007). This could generate a significant financial capital to manage and maintain parks and other protected areas.

There is a strong linkage between protected area management and tourism. Nature-based tourism has become increasingly significant not only protecting biodiversity but also generating financial capital from a range of services. Wearing and McDonald (2002) have emphasised that ecotourism appears to have global appeal as a means of securing sustainable income for many rural communities. It will also benefit protected areas and associated communities when meaningful participation and enterprise development is incorporated to secure their livelihoods (Goodwin & Roe 2001; IUCN 2003). Tourism in protected areas therefore offers significant opportunities to indigenous and local communities in the developing world acting as a useful tool to reduce poverty (Morris & Vathana 2003; Chok et al. 2007) while integrating conservation and development (Godde 1989; Kollmair et al. 2005). For example, the lower Mekong region—Cambodia, Laos, Thailand and Vietnam (Carew-reid 2003), Annapurna region in Nepal (Pobocik & Butalla 1998; Nepal 2007) and Saint Katherine in Egypt (Grainger 2003) have some of the largest protected areas linked to sustainable tourism efforts and are recognised as regional engines for sustainable rural development.
Trends Affecting Tourism in Protected Areas

Protected area management agencies are facing a number of issues in managing tourism and visitor use in national parks and reserves (Gilligan & Allen 2004). National parks and protected areas exist within a dynamic social and political setting that is sometimes difficult to understand and challenging to predict (Eagles 2004). In view of the international trends in protected areas, Eagles (2004) identified 16 important trends affecting tourism that will influence the planning and management of parks and protected areas internationally (Box 4).

<table>
<thead>
<tr>
<th>Trend</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trend 1:</td>
<td>Park visitation will increase.</td>
</tr>
<tr>
<td>Trend 2:</td>
<td>Park tourism leads to increased public participation and collaboration.</td>
</tr>
<tr>
<td>Trend 3:</td>
<td>Increasing education levels in society lead to demands for increasing sophistication in park management and park services.</td>
</tr>
<tr>
<td>Trend 4:</td>
<td>A population shift in the developed world towards increasing numbers of older citizens results in significant change in activities, settings and experiences sought by visitors.</td>
</tr>
<tr>
<td>Trend 5:</td>
<td>Increased accessibility of information technology means that potential, current and past visitors will be better informed and knowledgeable about what leisure opportunities exist, the current state of management and the consequences of management actions.</td>
</tr>
<tr>
<td>Trend 6:</td>
<td>Increasing availability of information technology profoundly influences park visitation.</td>
</tr>
<tr>
<td>Trend 7:</td>
<td>Advances in the technology of travel and reductions in costs result in increased demand for park and protected area opportunities distant from one’s residence.</td>
</tr>
<tr>
<td>Trend 8:</td>
<td>The increase in park area, number of parks, and park visitation exceeds the capability of many park management institutions.</td>
</tr>
<tr>
<td>Trend 9:</td>
<td>Park management shifts gradually from government agency structures, with centralised financial control, to parastatal forms, with flexible financial management.</td>
</tr>
<tr>
<td>Trend 10:</td>
<td>Park management funding increasingly shifts from government grants to park tourism fees and charges. This results in higher levels of visitor focus in management.</td>
</tr>
<tr>
<td>Trend 11:</td>
<td>Parks and park agencies develop increased sophistication in their understanding and management of park visitation and tourism.</td>
</tr>
<tr>
<td>Trend 12:</td>
<td>Foreign aid and grants from NGOs increasingly fund biodiversity conservation and sustainable tourism development in developing nations in order to promote sustainable development that provides both conservation and economic benefit.</td>
</tr>
<tr>
<td>Trend 13:</td>
<td>Park tourism may be damaged by war and civil unrest, especially in Africa and parts of Asia.</td>
</tr>
<tr>
<td>Trend 14:</td>
<td>The world’s international travel will be strongly affected by decreasing supplies of oil and gas and large increases in energy cost in the second decade of the 21st century.</td>
</tr>
<tr>
<td>Trend 15:</td>
<td>Global climate change will affect many parks and much park tourism. Global climate change will be one the most important environmental issues affecting parks and tourism in the 21st century.</td>
</tr>
<tr>
<td>Trend 16:</td>
<td>Parks further develop as cultural icons.</td>
</tr>
</tbody>
</table>
Emerging Trend of Climate Change in Protected Areas

Climate change will affect many aspects of the world’s biodiversity and ecosystems (see Trend 15 in Box 4). The emerging international trends reveal that warming of the climate system is now considered unequivocal, with observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global mean sea level. Average global temperatures have increased 0.74°C over the last century (1906–2005) and consistent with global trends, average maximum temperature across Australia has increased 0.6°C (Hyder Consulting 2008). The immediate impacts are seen in tourism and outdoor recreation activities particularly in mountainous regions. For example, Mt. Everest is reverting to a rocky mountain landscape as opposed to one characterised by snow capped peaks (Shahi 2008). According to a study carried out by the International Centre for Mountain Development (ICIMOD), the glacier cover in mountain regions worldwide has decreased significantly in recent years as a result of warming (Ibid).

Snow-based tourism has been the principle activity and economic contributor in most alpine regions in Australia and internationally. However, more recently there is an increasing focus on summer tourism in these regions and the associated activities being undertaken. The weather is becoming increasingly unpredictable due to changes in climate bringing shorter winter periods with variable snowfalls and extended summer periods (Becken & Hay 2007). As a result snow-based tourism is in an extremely vulnerable position. Nonetheless, there are both risks and opportunities in mountain tourism due to the emerging changes in global climate. Recreational activities and visitation trend in protected areas will change significantly due to the unavoidable climate change.

Plate 1: The average air temperature in Nepal has risen by one degree Celsius with elevation areas like Namche Bazaar (3440 metres) in Sagarmatha (Mt. Everest National Park) warming the most since the mid 1970s due to climate change.
Chapter 2

AUSTRALIAN TRENDS

Trends in Australia’s Protected Areas

Australia is believed to be the most diverse of the 17 recognised mega diverse countries for vertebrates and the fifth most diverse for plants (Sattler & Taylor 2008). Australia is also the driest inhabited continent in the world. Recognising the need to protect and conserve the natural and cultural heritage, Australia set up a nationwide network of parks and reserves called the National Reserve System (DFAT 2008). At present the National Reserve System includes over 9000 parks and other protected areas both marine and terrestrial covering over 900 000 square kilometres, or more than 11 per cent of the continental land mass (Department of Environment and Heritage 2002 cited in Wardell & Moore 2004a; Tonge et al. 2005; Worboys 2007a).

In 1994, Australia adopted the IUCN definition of a protected area as well as the internationally recognised IUCN six tier system of categories to describe the management intent as a basis for documenting Australia's various types of protected areas (Table 2). As noted earlier, the general worldwide trend is occurring towards greater decentralisation (Inglis et al. 2005).

| Table 2: Marine parks and protected areas, Australia and external territories |
|------------------|------------------|------------------|------------------|
| Category         | 1997             | 2002             | 2004             |
|                  | no. | ha.          | no. | ha.          | no. | ha.          |
| Category I A     | 16   | 2 779 192    | 18  | 15 207 232   | 26  | 14 689 494   |
| Category I B     | 0    | 0            | 0   | 0            | 0   | 0            |
| Category II      | 16   | 69 080       | 24  | 2 151 068    | 47  | 15 072 908   |
| Category III     | 0    | 0            | 0   | 0            | 9   | 345          |
| Category IV      | 80   | 586 334      | 106 | 12 045 534   | 99  | 17 347 773   |
| Category V       | 7    | 4 716 993    | 0   | 0            | 0   | 0            |
| Category VI      | 23   | 35 426 842   | 38  | 35 236 024   | 29  | 24 715 160   |
| Category not specified | 6   | 46 910       | 0   | 0            | 0   | 0            |
| Total            | 148  | 38 908 358   | 188 | 64 640 060   | 212 | 71 825 882   |

Note: Includes marine, national oceanic islands and external territory protected areas

Under the Australian constitution, the creation and management of public protected areas are the responsibility of state governments. However, six national parks, two botanic gardens and twenty seven marine parks are managed by the Australian government (DFAT 2008). Partnerships and co-management in Australia’s protected areas are emphasised particularly with aboriginal communities in recent years for effective management. A growing number of state government managed parks and reserves are now being managed with their indigenous owners. In addition, indigenous people have voluntarily declared 24 Indigenous Protected Areas on their lands, covering more than 200 000 square kilometres (DFAT 2008).

According to Sattler and Taylor (2008) only modest growth in extent occurred over the period 2004 to 2006 with the protected area system growing by 1.1%, from 10.5% to 11.6% of Australia’s total land area. Almost all of this growth (0.97%) was in interim protected areas that have yet to be gazetted. For strictly protected areas within this total, there was an increase of 1%, from 7.3% to 8.3% over the same period. Growth was highly variable among jurisdictions (Box 5) over the period 2004 to 2006 (Sattler & Taylor 2008).
Box 5: Growth in Australia’s protected areas

> **The Australian Capital Territory** increased its protected areas by 869 hectares (0.7%) as a result of new nature reserves and small additions to existing reserves. The Collaborative Australian Protected Areas Database (CAPAD) 2006 figures show a net decline, but this was entirely due to boundary realignments resulting in removal of areas that were mistakenly included in 2004.

> **In New South Wales**, the Western Regional Assessment has led to the reservation of a further 350 000 hectares in the poorly conserved Brigalow Belt South bioregion. Despite this progress, New South Wales still has several bioregions that are a high priority for reservation.

> **The Northern Territory** showed a small increase in strictly protected areas, and tied with New South Wales in having the third highest growth in extent of all protected areas, primarily due to the Australian Government Indigenous Protected Areas Programme.

> **South Australia** showed significant growth in strictly protected areas. However, the total area protected actually decreased due to corrections of boundaries of two large protected areas in the northeast.

> **Tasmania** reported an increase largely due to the inclusion of covenanted private protected areas in CAPAD 2006 for the first time.

> **Western Australia** was the top performer in terms of growth of total extent of protected areas, with strictly protected areas increasing by 2% from 6.8% to 8.8% of the state’s area, and all protected areas increasing by 2.4%. However, this growth was mostly due to the fact that many new protected areas created before 2004 were withheld from CAPAD 2004 awaiting resolution of legal uncertainties.

> **Queensland** showed small decline in categories V-VI which was due to transfer of Category VI Forest Reserves to Category II National Parks under the State Forests process.

Visitation Trends in Australia’s Protected Areas

Australia now receives over 84 million visitors to its protected areas each year making up a significant proportion of its $70 billion tourism industry (DITR 2003 cited in Wardell & Moore 2004a). The multiple roles of national parks and other protected area agencies in Australia is complicated because they are managed not by a single federal agency, but are the responsibility of individual state and territory governments (Wearing *et al.* 2007). However, the primary focus of all agencies has been increasingly on delivering quality services to the public and visitors.

Being definitive about trends is problematical because there is no consistent system for collecting or analysing data on visitation to national parks or other protected areas in Australia, or for gathering information on the revenue generation of visitation. Visitor data are currently collected by various agencies through entry permits, camping fees and other sources. A mixed bag of trends (Box 6) in park visitation have been noted in recent years (Steffen 2004).

Box 6: Park visitation in Australia—a mixed bag of trends

Park visitation data display highly variable trends. Visitation to the Great Barrier Reef has been relatively flat over the past ten years, as has visitation to Kakadu which peaked in 1999 at 183 483 and declined to 148 903 in 2002. But visitation to Uluru-Kata Tjuta has nearly doubled in the past fourteen years, from 175 000 in 1987 to just under 400 000 in 2002. National Visitor Surveys by the Bureau of Tourism Research show that the percentage of domestic overnight trips to parks has declined from 14 % in 1998 to 11.5% in 2002.

A similar trend is evident from International Visitor Surveys, which show a decline in international visitors going to parks and bushwalking from 49% in 1998 to 43% in 2002. In contrast, anecdotal information from park managers indicate that most parks are seeing increased numbers of visitors and that these visitors expect higher levels of service, including interpretation and education.
According to Steffen (2004) in 2001/02 there were an estimated 84 million visits to national parks, including the Great Barrier Reef, generating an estimated $54 million in direct revenue for protected area management agencies (Table 3).

Table 3: Visitation to National Parks and Revenue Generated

<table>
<thead>
<tr>
<th>State</th>
<th>Visitation to National Parks (Millions)</th>
<th>Revenue from visitation ($ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commonwealth, Parks Australia</td>
<td>1.5</td>
<td>9.76</td>
</tr>
<tr>
<td>Commonwealth, Great Barrier Reef (GBR)*</td>
<td>1.6</td>
<td>6.46</td>
</tr>
<tr>
<td>New South Wales</td>
<td>22.0</td>
<td>12.50</td>
</tr>
<tr>
<td>Northern Territory</td>
<td>5.2</td>
<td>0.00+</td>
</tr>
<tr>
<td>Queensland</td>
<td>13.0</td>
<td>7.96</td>
</tr>
<tr>
<td>South Australia</td>
<td>2.2</td>
<td>6.55</td>
</tr>
<tr>
<td>Tasmania</td>
<td>1.3</td>
<td>2.10</td>
</tr>
<tr>
<td>Victoria</td>
<td>27.0</td>
<td>5.00</td>
</tr>
<tr>
<td>Western Australia</td>
<td>9.8</td>
<td>3.21</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>83.6</strong></td>
<td><strong>53.54</strong></td>
</tr>
</tbody>
</table>

(Source: Parks agencies December 2002)
* GBR- Great Barrier Reef Marine Park Authority
** No entrance fee

A similar study by Griffin and Vacaflores (2004) provided some indicative visitation statistics for national parks and other protected areas over the period 1998 to 2002 (Table 4) but it is difficult to discern any general trends within these data. Consistent data over this period was only available for national parks in Western Australia, Northern Territory and the Australian Capital Territory and those under the control of the Australian Department of the Environment and Heritage and the Great Barrier Reef and in these areas there has been a general increase in visitor numbers over this period.

Table 4: Numbers of Visitors to National Parks 1998–2002

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>1998</th>
<th>2000</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT</td>
<td>95 052</td>
<td>146 928</td>
<td>175 760</td>
</tr>
<tr>
<td>Kakadu and Uluru-Kata Tjuta</td>
<td>526 943</td>
<td>560 583</td>
<td>532 376</td>
</tr>
<tr>
<td>New South Wales</td>
<td>20 000 000 (1997)</td>
<td>22 000 000</td>
<td>n/a</td>
</tr>
<tr>
<td>Northern Territory</td>
<td>2 956 648</td>
<td>3 098 426</td>
<td>3 048 421</td>
</tr>
<tr>
<td>Queensland</td>
<td>n/a</td>
<td>n/a</td>
<td>13 000 000</td>
</tr>
<tr>
<td>South Australia</td>
<td>n/a</td>
<td>3 747 400 (2001/2)</td>
<td>3 799 350 (2002/3)</td>
</tr>
<tr>
<td>Tasmania</td>
<td>n/a</td>
<td>1 240 000 (2001)</td>
<td>1 350 000</td>
</tr>
<tr>
<td>Victoria</td>
<td>n/a</td>
<td>26 800 000 (2001/2)</td>
<td>24 900 000 (2002/3)</td>
</tr>
<tr>
<td>Western Australia</td>
<td>8 100 185</td>
<td>8 293 875</td>
<td>8 354 050</td>
</tr>
<tr>
<td>Great Barrier Reef Marine Park</td>
<td>1 628 647</td>
<td>1 667 407</td>
<td>1 833 777</td>
</tr>
</tbody>
</table>

According to Griffin and Vacaflores (2004) the following trends in visitation to national parks and protected areas across Australia have been noted:

- The bulk of visitors are domestic tourists (i.e. Australians residents)
- A high proportion of international visitors do include national parks on their travel itinerary in Australia—but there is evidence that this proportion has dropped
- Different parks have different visitor profiles
- Parks that offer an iconic experience have a greater ability to draw international and interstate visitors.
Over the period from 1997 to 2007, international visitor arrivals in Australia grew at a compound annual growth rate of 5.2% a year to reach 5.6 million (TFC 2008). However, a trend that could be of some concern is that the proportion of international visitors visiting protected areas has been declining since 1998, when 49% of international visitors visited national parks. The numbers of international visitors to national parks peaked at 1.97 million in 2000, which represented 45% of all international visitors. Griffin and Vacaflories (2004) revealed that the major factors influencing international visitors’ decision to visit Australia are to experience Australia’s 1) nature, landscape and wildlife (46%), and 2) coastline and beaches (39.5%). It has also been revealed that the propensity to visit protected areas varies greatly between different international visitors. Generally, European, North American and North-East Asian visitors have a greater tendency to visit national parks than visitors from other countries, particularly South-East Asian. Wildlife tourism plays an important role in the Australian domestic market where the majority of encounters with wildlife were in national parks (44.3%) or in other natural settings (12.9%) (Fredline 2007). Today, a key challenge of a successful tourism industry is the ability to recognise and deal with a change across a wide range of behavioural, environmental and technological factors and the way they interact (Dwyer et al. 2008). Global trends (Box 7) affecting tourism are globalisation and long-term economic, social, political, environmental and technological change which bring both opportunities and challenges (Dwyer et al. 2008).

**Box 7: Global trends affecting tourism**

**Globalisation and long-term economic trends**
- A growing world economy
- Globalisation
- Possible breaks to growth (what does this mean?)
- What about global marketing?

**Social trends**
- Ageing populations
- Urbanisation
- Changing social structures in developed economies
- Health
- Aspirations and expectations
- Values and lifestyles
- Changing work patterns
- Gender
- Education

**Political trends**
- Existing and emerging global players
- Terrorism
- Health risks and security
- Haves vs have nots
- Governance
- Political Islam
- Impact of climate change

**Environmental trends**
- Climate change
- Depletion of natural resources
- Loss of biodiversity

**Technological trends**
- Competitive strategy and information and communication technology
Emerging Trend of Climate Change in Protected Areas and Recreational Values

National parks and other protected areas present a best option for retaining natural ecosystem resilience, reducing threats, and protecting refuges and other critical habitats that will be needed by Australia’s native animals and plants to adapt to climate change (Sattler & Taylor 2008). They are major tourist destinations for recreation and tourism with around 1.4 million international tourists visiting in 2005–2006, including approximately 193,000 at Kakadu and more than 350,000 at Uluru-Kata Tjuta (Director of National Parks 2006 cited in Hyder Consulting 2008). The development of protected areas as major destinations for different recreational activities will have significant impacts due to the emerging trend of climate change. A number of passive and active recreational activities are popular while visiting national parks and protected areas including:

- Sightseeing
- Camping
- Socialising with friends and family/picnic
- See wildlife/experience nature
- Canoeing
- Horse riding
- Bush walking (both short walk and long walk)
- Mountain biking
- Swimming
- Skiing
- Fishing

The understanding of visitation patterns is important when assessing social and environmental impacts of visitor use of protected areas (Pickering 2008). Systematic recording of visitor trends including determining how many visitors, when they come, where they go, and what they do in parks and protected areas is found to be problematic in both developed and developing countries. However, a growing numbers of policy documents and reports suggest that climate change represents a major threat for the maintenance of biodiversity and natural eco systems. Hyder Consulting (2008) have forecast the potential impacts of climate change on recreational and socio-cultural values (Box 8).

Box 8: Emerging trends of climate change in protected areas and visitors

Impacts of climate change on recreational values

As an example, climate change may impact on the recreational values of protected areas in the following ways:

- an increase in temperatures and the incidence of hot days (over 35°C), negatively affecting visitor comfort, including increased incidence of heat stress in visitors and staff
- an increase in the frequency and intensity of fire, resulting in closure of park areas (for visitor safety) and damage to infrastructure
- increases in rainfall events leading to flooding will restrict access to some park areas, and may therefore reduce visitor satisfaction.

Impacts of climate change on socio-cultural values

As an example, climate change may impact on the socio-cultural values of protected areas in the following ways:

- an increase in extreme rainfall, temperatures and extreme events may exacerbate natural erosive processes on cultural values such as rock art
- increasing temperatures and changing rainfall patterns may increase the transmission of mosquito borne diseases
- climate change may indirectly disadvantage traditional practices, including fishing and hunting through changes to flora and fauna.
Work Done by STCRC on Protected Areas

A wide range of studies on tourism and protected areas has been carried out by STCRC. Over 50 studies on protected areas alone have been carried out since 2004. This report briefly summarises (Table 5) the major research areas under different themes that reflect the management frameworks, issues, park visitation, impacts, interpretation and education, best practice and marketing in Australia’s protected areas.

Table 5: Examples of STCRC research focused within protected areas in Australia

<table>
<thead>
<tr>
<th>Issues/Themes</th>
<th>Research in Protected Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governance/Management</td>
<td>(Griffin &amp; Vacaflores 2004; Laing et al. 2008)</td>
</tr>
<tr>
<td>- Partnership and collaboration</td>
<td>(Genter et al. 2007)</td>
</tr>
<tr>
<td>- Licensing nature tourism operators</td>
<td>(Griffin &amp; Vacaflores 2004; Laing et al. 2008)</td>
</tr>
<tr>
<td>Parks Visitation</td>
<td>(Hadwen &amp; Arthington 2008)</td>
</tr>
<tr>
<td>- Predicting visitation intensity</td>
<td>(Brown et al. 2006)</td>
</tr>
<tr>
<td>- Tourism Pressure Index (TPI)</td>
<td>(Wardell &amp; Moore 2004b)</td>
</tr>
<tr>
<td>- Visitor management models, frameworks and processes</td>
<td>(Johnston &amp; Growcock 2005)</td>
</tr>
<tr>
<td>- Visitor use data in protected areas, guiding principles of visitor monitoring systems</td>
<td>(Tonge et al. 2005)</td>
</tr>
<tr>
<td>- Visitor characteristics and activities in alpine area</td>
<td>(Thomas et al. 2005)</td>
</tr>
<tr>
<td>- Sustainable management of visitor use of protected areas</td>
<td>(Archer &amp; Griffin 2004)</td>
</tr>
<tr>
<td>- Visitor monitoring in mountain parks/impact of climate change on mountain tourism</td>
<td>(Dwyer et al. 2008)</td>
</tr>
<tr>
<td>- Visitor use and satisfaction</td>
<td></td>
</tr>
<tr>
<td>- Megatrends understanding tourism to 2020</td>
<td></td>
</tr>
<tr>
<td>Impacts/ Benefits/Sustainability</td>
<td>(Wood et al. 2006)</td>
</tr>
<tr>
<td>- Development of a ‘toolkit’ to assess economic value</td>
<td>(Cairns 2003; Carlsen &amp; Wood 2004; Mules et al. 2005; Tremblay &amp; Carson 2007)</td>
</tr>
<tr>
<td>- Economic values/benefits of tourism in protected areas</td>
<td>(Northcote &amp; Macbeth 2008)</td>
</tr>
<tr>
<td>- Socio-economic impacts</td>
<td>(Pickering &amp; Hill 2007)</td>
</tr>
<tr>
<td>- Environmental/Vegetation impacts</td>
<td>(Tonge et al. 2005)</td>
</tr>
<tr>
<td>- Sustainable management of visitor use</td>
<td></td>
</tr>
<tr>
<td>Interpretation and Education</td>
<td>(Ham &amp; Weiler 2005)</td>
</tr>
<tr>
<td>- Interpretation evaluation kit</td>
<td>(Beeton et al. 2005)</td>
</tr>
<tr>
<td>- Applying persuasive communication theory</td>
<td></td>
</tr>
<tr>
<td>Best Practice Benchmarks</td>
<td>(Inglis et al. 2005)</td>
</tr>
<tr>
<td>- Integrated park management models</td>
<td></td>
</tr>
<tr>
<td>- Sustainable design in remote areas—‘low-impact nature-based tourism’</td>
<td>(Beyer et al. 2005)</td>
</tr>
<tr>
<td>- Technology use</td>
<td></td>
</tr>
<tr>
<td>Sustainable Marketing</td>
<td>(Inglis et al. 2005; Wearing et al. 2007)</td>
</tr>
<tr>
<td>- Ecological marketing</td>
<td></td>
</tr>
<tr>
<td>- Social marketing</td>
<td></td>
</tr>
<tr>
<td>- Demarketing</td>
<td></td>
</tr>
</tbody>
</table>
Visitation management models and frameworks

Brown et al. (2006) and Castley et al. in press-a reviewed a wide range of management models, frameworks and processes to assist with the management of visitors and their impacts in protected areas available both in Australia and worldwide. These frameworks, models and processes differ in the extent to which they:

- use behaviour regulation—carrying capacity
- use site modifications—Recreation Opportunity Spectrum (ROS)
- determine standards, then monitor sites and adjust management accordingly—Limits of Acceptable Change (LAC)
- understand the relationships between ecological impacts and visitors—and Visitor Experience and Resource Protection (VERP) and Visitor Impact Management (VIM)
- understand visitors—Visitor Activities Management Process (VAMP)
- understand visitor experience in planning and use of stakeholder involvement—Tourism Optimisation Management Model (TOMM)

Furthermore, tourism specific models such as the Tourism Futures Simulator (TFS) have been developed as a framework for visitor management. Brown et al. (2006) revealed that Australian protected areas agencies appear to be less familiar with, and use protected area management tools less than their North American counterparts. One of the challenges to the adoption of various models within Australia is the diversity of protected area designations, jurisdiction, and management authorities.

Hadwen and Arthington (2008) have stated the broad applicability of the Tourist Pressure Index (TPI), a predictive model of visitor numbers at key sites within a protected area. The attraction of protected areas has increased dramatically over the last few decades. Wardell and Moore (2004b) developed guiding principles for visitor monitoring systems, data collection, data storage and data application with a recent review of visitor monitoring by protected area agencies in Australia and New Zealand. This review acknowledged that there are always a number of constraints, such as human resources, finances and politics, in developing appropriate monitoring systems.

Previous studies (e.g. Griffin & Vacaflores 2004) have also acknowledged that a thorough examination of trends in visitation levels and patterns in Australia is hampered by the lack of good quality time series visitor data in all states and territories. Unfortunately, very few parks in Australia or overseas have an adequate level of detailed visitor data (Newsome et al. 2002a; Cole and Wright 2004; Leung and Monz 2006 cited in Pickering and Hill 2007). At present, the extent to which visitor data collection occurs in most parks is variable and depends on the staff and financial resources of the park, its popularity and the degree to which visitation is seen as either a threat or an opportunity to meeting the management objectives for the park (Buckley 2003). Indeed, parks are generally short on financial resources and are often understaffed. In addition, staff can often lack the skills to design and implement visitor monitoring programmes.

Visitor impacts and sustainability

Evaluation of economic, social and environmental benefits of tourism in protected areas is vital for sustainable development. Wood et al. (2006) developed a ‘toolkit approach’ to assess the economic value of tourism to protected areas. Case studies (e.g. Cairns 2003; Tremblay & Carson 2007) reveal that tourism generates significant revenue in both the Top End and Northern Territory regions, where about $58.1 million is generated annually from the Watarrka and Kakadu National Parks which are regarded as the major destinations for international visitors. Furthermore, the economic value of tourism in the Australian alps (e.g. Mules et al. 2005) and in Western Australia’s national parks, marine parks and forests (e.g. Carlsen & Wood 2004) suggest that tourism and recreation could be regarded as a benefit to the protected areas.

Protected areas are a key mechanism to conserve biodiversity (Pickering & Hill 2007). However, tourism and recreation in protected areas have both direct and indirect impacts on the natural environment that may ultimately compromise biodiversity conservation objectives. The environmental impacts are generally focused on the impacts of tourism infrastructure and activities, principally trampling, camping, introduction of exotic species and off-road vehicles. The impacts are influenced by the type of infrastructure, amount of use, type of activity and behaviours of tourists, timing/seasonality of recreational activities and the characteristics of the vegetation communities and local environment (Pickering & Hill 2007). For example, horse riding has biophysical impacts that can affect the amenity and environmental quality of protected areas (Pickering 2008).
Visitor monitoring in the high mountains and alpine areas are crucial to assess the negative impacts created by human use. A study in the Kosciuszko alpine area has revealed that most visitation to the region was unevenly distributed throughout the non-winter period, with public and school holidays being the peak periods (Johnston & Growcock 2005). However, the emerging trend of climate change internationally could threaten future mountain tourism, particularly during peak winter periods (Pickering 2007). The use of national parks in the mountains and resorts has traditionally been closely tied to the ski industry with many businesses relying heavily on visitation by skiers (Thomas et al. 2005).

**Best practice benchmarks and sustainable marketing of tourism**

Environmentally sustainable development principles and practices generally guide remote area sustainable tourism facilities (Beyer et al. 2005). A sustainable marketing strategy is required to attract both domestic and international visitors to reverse the declining trend particularly prevalent in international visitors. The guiding principles for the sustainable marketing of visitation in protected areas are developed based on the ‘Five Rs’ model (Wearing et al. 2007, p. 14) 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.

**Interpretation and education**

Effective interpretation, education and communications tools and strategies are essential for visitor management in protected areas. Ham and Weiler (2005) designed a toolkit to evaluate site interpretation which could also be used to evaluate specific interpretative programmes. In Australian protected areas, messages delivered via on-site signage, brochures, websites and other non-personal interpretive media have developed to managing visitors’ behaviours and activities that may damage the natural environment (Beeton et al. 2005).
Chapter 3

GAPS IN KNOWLEDGE

Known and Unknown Trends in Protected Areas

Chapter three draws together the key trends from chapters one and two discussing what is known and what is not known about trends in protected areas. This does not represent a comprehensive review but reflects trends which are indicative of the recent trends in protected areas in Australia and internationally. Protected area managers worldwide face the challenge of conserving natural and cultural heritage for future generations, ensuring that conservation values are not degraded by the present generation’s use and appreciation of these areas (Gilligan & Allen 2004) and to ensure a sustainable environmental and socio-economic future. The review of related literature in the previous two chapters revealed that protected area agencies are generally focused on delivering parks services to visitors and implementing the day-to-day management activities and there is a huge information gap among these agencies because there is no formal mechanism to share information. The current trends in protected areas show that visitation is concentrated in a few iconic sites. Information is needed to sustainably manage these iconic destinations to monitor visitation trends, their satisfaction and impacts on the natural environment.

Trends of visitor use, satisfaction, management and governance, and biodiversity conservation in protected areas in Australia are vital in the decision-making processes. Environmental education and professional parks interpretation is a key agent for sensitisation and education of park visitors. Education and interpretation are known to be a crosscutting management tool for the long-term integration of these issues for the development of sustainable tourism destinations in Australia’s protected areas (Figure 2).

Figure 2: Relationship among visitation use, satisfaction, governance and resource conservation and the role of environmental education (EE)
Trends in Visitor Use of Protected Areas

As indicated in Box 4 current visitation trends in national parks and other protected areas are expected to increase worldwide. However, the limited data (Table 3 and 4) from Australia shows that despite some areas showing increased visitation others are relatively stable or decreasing. More importantly though is the lack of a nationally consistent mechanism for measuring trends in tourist visitation. Meaningful trends can be identified and the significance of protected areas to national leisure and tourism activities can be more accurately determined if nationally agreed standardised monitoring tools are used. Sharing of information between protected area management agencies is problematic due to the lack of coordination mechanisms. However, the Tourism in Australia’s Protected Areas Forum (TAPAF) which is an informal information-sharing collaboration between representatives of protected area management agencies and tourism agencies across Australia (Hillman 2004) has been an encouraging step forward for improving information sharing.

A comprehensive, nationally consistent system for measuring the condition and trends of visitation in national parks and protected areas, its coasts and ocean ecosystems is not in place. As with many other environmental issues, Australia seems to have adopted a strange and ambiguous blend of developed and developing country politics, policies and practices (Buckley 2004). To date visitors from New Zealand, USA, JAPAN, UK and its close political and cultural allies dominate international visitors to Australia. However, the strong economy in developing countries such as China, India, Korea, Malaysia, Indonesia, Thailand and other developing countries are emerging as a new market for the Australian tourism industry. This trend is likely to grow rapidly as the largest inbound growth market is expected to be China with an annual average growth of 15.7% which is followed by other Asian countries (7.2%) and the USA (5.4%) (Tourism Australia 2006a cited in Dwyer et al. 2008).

The expected growth of tourism in Australia’s protected areas also could bring a change in existing trends in the characteristics of its growth. The emerging trend is that an increasing and aging Australian population (Australian Bureau of Statistics 1998 cited in Gilligan & Allen 2004) will have an impact on patterns of visitor use and demands on protected areas.

McDougall et al. (2004) stated that understanding demand affects the ability to deliver high quality products to meet market demand and the issue of the inconsistent approaches to collecting data within and between states hinders comparative analysis. An integrated national plan with a more accurate and consistent approach to measuring visitor numbers is not in place and should be developed and implemented in all states and territories.

Visitor Satisfaction and Human Resources

Protected areas in Australia, from the outback to mountains and along the coasts are major attractions for international, interstate and local visitors. The visitor trends in protected area indicate that the highest numbers of international and domestic tourists visit certain iconic protected areas. For example, Kakadu and Watarrka National parks and the Great Barrier Reef Marine Park attract many more international visitors compared to other national parks and protected areas. Similarly, New South Wales (NSW) protected areas attract more than 20 million visitors each year which are dominated by NSW residents exploring their own state.

Quality tourism experiences with a wide range of recreational services can only be delivered with significant investment of both financial and human resources. Most national parks and other protected areas lack the logistics and trained human resources. Surprisingly, few parks have up to date, accurate records on visitor numbers. In many cases this deficiency relates to institutionalised and/or logistical constraints on data collection, collation and analysis (Eagles et al. 2000; Watson et al. 2000; Marion and Farrell 2002 cited in Pickering and Hill 2007).

It is unknown if the management capacities of national parks and other protected areas will be able to respond to the growing and complex park management issues. However, advancement in information, communication and technology provide park visitors with a great deal of information and flexibility in deciding among various destinations.
Growing visitor numbers in national parks and other protected areas can influence the ecological integrity across a wide range of natural ecosystems. Predictive visitor models such as the Tourist Pressure Index (Hadwen & Arthington 2008) might be able to identify affected destinations/sites before deleterious impacts occur. Currently, the existing park level assessments do not provide adequate details of the importance (and consequences) of high and/or variable visitation (and associated impacts) to specific sites. By generalising visitation across the entire park, managers are left with insufficient information as to where impacts might be occurring and when, how often and why. Roads, trails, waterways and campsites (in addition to different management zones) focus visitor activities within key sites (Watson et al. 2000; Eagles et al. 2002 cited in Pickering and Hill 2007). It is at these sites that visitor impacts are most likely to occur and, therefore, where they are most effectively monitored.

However, for the most part visitor monitoring programmes are not in place, which make it difficult to measure the magnitude of visitation impacts. Whilst visitor numbers, timing and distributions can give an idea of the magnitude of visitation as an environmental pressure, information on the activities undertaken by visitors provides us with the greatest opportunity to design targeted monitoring programmes. Although a wide range of studies would have their own significance, an integrated study from the perspective of recreation ecology is required to monitor the visitor impacts on the natural environment and ecosystems.

**Trends in Management and Governance**

Governance and resource use policies in protected areas significantly influence the visitation use pattern and the delivery of different recreational activities in Australian and global protected areas. Governance and management regimes across Australia are diverse which influences the management plans of the 9000 parks and protected areas. However, the institutional mechanism with regard to both vertical and horizontal policy linkages and coordination among different states and territories in terms of monitoring domestic and international visitors in protected areas are not known.

Indigenous protected areas are growing worldwide and in Australia in recent years. Indigenous community cultures are regarded as important tourism products in protected areas especially in global world heritage sites. The participation of indigenous communities to promote culturally sustainable tourism is seen as a key driver to sustain the tourism industry while collaborative indigenous management strategies are vital to cope with the global climate change consequences. The economic benefits from protected area tourism to the indigenous communities as stakeholders in management of protected areas are unknown.

The IUCN protected area definition and management categories are ‘neutral’ about type of ownership or management authority. In other words, the land, water and natural resources in any management category can be owned and/or directly managed by governmental agencies, NGOs, communities, indigenous peoples and private parties—alone or in combination. To date no specific study has been carried out in Australia to identify the four governance types outlined earlier in this report. There is an urgent need for a review of the governance of protected areas, which will influence the policies and recreational activities in national parks, and other protected areas in consideration with the management categories in the following matrix (Table 6). Protected area agencies need to categorise the governance models, which might benefit future tourism and conservation efforts within these areas.
Table 6: ‘The IUCN protected area matrix’: a classification system for protected areas comprising both management category and governance type.

<table>
<thead>
<tr>
<th>Governance types</th>
<th>A. Governance by government</th>
<th>B. Shared governance</th>
<th>C. Private governance</th>
<th>D. Governance by indigenous peoples &amp; local communities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protected area categories</td>
<td>Federal or national ministry or agency in charge</td>
<td>Sub-national ministry or agency in charge</td>
<td>Government-delegated management (e.g. to an NGO)</td>
<td>Transboundary management (various forms of pluralist influence)</td>
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<tr>
<td>Ia. Strict Nature Reserve</td>
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<tr>
<td>Ib. Wilderness Area</td>
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<td>II. National Park</td>
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<td>III. Natural Monument</td>
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<td>IV. Habitat/Species Management</td>
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<tr>
<td>V. Protected Landscape/Seascape</td>
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<td>VI. Managed Resource Protected Area</td>
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Source: adapted from Borrini-Feyerabend et al. 2004

**Shifting tourism market and immigration policy**

International tourism grew at around 5% during the first four months of 2008—one percent above the long-term trend (www.unwto.org 2008). All subregions had positive results with fastest growth in the Middle East, Northeast and South Asia, and Central and South America. Australia has a forecast for a high potential market from newly industrialised countries but international tourism was relatively insignificant compared to Australia’s 12.5 billion education export industry. The arrival of international students in Australia has significantly boosted Australia’s economy due to the changes in immigration policy.

Furthermore, compared to the rest of the world, Australia is highly dependent on immigration for population growth. The estimated resident population of Australia is currently at 20.9 million and in 2006, almost 24% of the Australian population was born overseas (Seetaram 2008). This reflects a multi-cultural Australian population and will certainly demand diverse tourism products. The close relationship between tourism marketing and immigration in Australia is not a particularly well researched area in the tourism industry and future research in this area is urgently needed to provide valuable information on the emergence of new tourism markets to promote increasingly diversified products to cater for those markets.

**Links of public private partnership in protected area tourism**

There is a growing interest in stakeholder collaboration in tourism planning and protected area management. Information is unavailable on the growing trend of public private partnerships (PPP) to explore partnerships and links with state governments, private sector, conservation agencies and communities for the establishment of nationally recognised protected areas and acceptable visitation monitoring frameworks. Visitor oriented approaches to tourism and visitor management, with a focus on monitoring and researching visitor motivations and satisfaction, can impact upon the way communities value and regard protected areas.
Biodiversity Resources and Climate Consequences

Chapter one outlined the potential trends likely to affect tourism in protected areas as a result of global climate change. The world’s international travel will be strongly affected by decreasing supplies of oil and gas and large increases in energy cost in the second decade of the 21st century. The emerging trend of climate change will further affect travel costs internationally and could result in decreased visitation by international visitors. This suggests that visitation by domestic visitors may increase significantly.

As discussed previously, global climate change will affect biodiversity and parks resources but also the potential of these protected areas to provide for recreational opportunities. Global climate change will be one of the most important environmental issues affecting parks and tourism particularly in alpine and mountains in the 21st century. The climate change consequences pose a serious threat to human wellbeing and protected areas but it is unknown how well the parks and protected area agencies are prepared to respond to the changing social needs and environmental conditions.

Becken and Hay (2007) stated that climate change is anticipated to lead to a new pattern of Favoured and disadvantaged ski tourism regions in the alpine Europe. Similar trends are expected in the Australian Alps. This has the potential to significantly change the visitation patterns and recreational activities but more information is needed to predict the future trends. The emerging trend of impacts of climate change in protected areas and buffering nature against climate change should also be focus of future research efforts.

Research Outputs to Outcomes

A wide range of case studies commissioned by the STCRC (Table 5), provide area specific findings that are useful for protected area managers. However, they appear to be poorly disseminated academic works and it is unknown to what extent the various protected area management agencies have integrated and incorporated the research outputs for the improvement of park management effectiveness. Previous studies have identified internationally practised and well tested visitor impact and monitoring tools, frameworks and processes such as ROS, LAC, VIM, VAMP, VERP and TOMM but there is a need to assess how well they are practised by the parks authorities in Australia.
Chapter 4

CONCLUSIONS

This report concludes that there are currently no systematic and consistent methods and processes to measure the visitation trends in protected areas internationally and in Australia. Protected area management agencies are often poorly funded and commonly concentrate their activities towards park management and give less priority to research and integrated park monitoring. The tourism industry and tour operators are largely driven by commercial market forces, and there appears to be little coordination or linkages among protected area management agencies and other stakeholders engaged in tourism and park management. Furthermore, several constraints have influenced the collation of regular and systematic visitation monitoring in protected areas. Protected areas and tourism trends influence the selection of target markets, decisions on product development, and the overall market positioning of the destinations. Human pressures on protected areas are continuing to intensify, because of global population growth and associated economic and political changes. Reviewing tourism and protected area linkages and trends are therefore a crucial step for the maintenance of biodiversity conservation and economic prosperity. The emerging climate change trends and the associated impacts in national parks and other protected areas bring many unanswered questions and tend to be the greatest challenge for management agencies in the 21st century. The current knowledge and information gaps are influenced by many factors including the management strategies and governance models of parks and protected areas. This review of recent trends in protected areas and tourism provides useful information for research institutions, government agencies and industry partners engaged in tourism and protected area management and encourage greater study in the assessment of the sustainable use of national parks and protected areas by tourists.

This study is a snapshot of general trends of protected area in Australia and internationally. There is a need for further studies on the trends of visitors across the national parks and other protected areas worldwide and Australia to find the current information gaps, challenges and megatrends.
REFERENCES


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Introduction
STCRC has grown to be the largest dedicated tourism research organisation in the world, with $187 million invested in tourism research programs, commercialisation and education since 1997.

STCRC was established in July 2003 under the Commonwealth Government’s CRC program and is an extension of the previous Tourism CRC, which operated from 1997 to 2003.

Role and responsibilities
The Commonwealth CRC program aims to turn research outcomes into successful new products, services and technologies. This enables Australian industries to be more efficient, productive and competitive.

The program emphasises collaboration between businesses and researchers to maximise the benefits of research through utilisation, commercialisation and technology transfer.

An education component focuses on producing graduates with skills relevant to industry needs.

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 searchers and industry or other users; and
- efficiency in the use of intellectual and other research outcomes.