

1. INTRODUCTION

1.1 Objectives and conduct of the study

Objectives of the study

This study was commissioned by the Great Barrier Reef Marine Park Authority. It had two objectives. One was to update and present under one cover, all the available financial and economic information on the Great Barrier Reef World Heritage Area. This area encompasses the Great Barrier Reef Marine Park, which forms 95 per cent of the World Heritage Area (WHA), and also includes islands and some coastal waters within the boundaries of the Great Barrier Reef Region.

The other objective was to put these characteristics of the Great Barrier Reef WHA into perspective by presenting data of a similar kind for a number of other World Heritage Areas, Marine Protected Areas and National Parks in Australia.

The other areas included in this study are the Wet Tropics World Heritage Area, Kakadu National Park, Uluru National Park, the Tasmanian Wilderness World Heritage Area, Kosciuszko National Park, Ningaloo Marine Park and the Solitary Islands Marine Reserve.

Each of the eight protected areas considered has unique and valuable natural environment attributes and a number of the areas have significant Aboriginal cultural and contemporary use value. In each case, these special features have prompted designation of these areas as 'protected areas' with the primary aim of maintaining the natural environment and cultural attributes indefinitely. Each area is different in terms of its features and size, management objectives, permitted uses and management needs.

Economic and financial values

This study not only documents available information on the financial and economic values of these protected areas but it also draws attention to the important values not currently measured in dollar terms. This exercise illustrates the economic importance of these protected areas and emphasises the advantages of management to maintain these resource values.

The study explains that 'financial values', (that is measures of flows of dollar values from commercial activities), can differ from 'economic values'. Measures of economic values include, in most cases, the net financial values of commercial activities plus valued attributes of the natural environment which are not normally exchanged in the market place. Many of the range of values of natural environments fall within the latter category. Importantly, economic values recognise the costs of environmental damage often not accounted for in financial values. Both financial and economic data provide very useful information for resource management.

Reasons for being interested in financial and economic values of protected areas are numerous. Such information has been used to support decisions to designate protected status to areas.¹ Information on financial and economic values of existing protected areas can be a guide to decision makers evaluating whether other areas should be similarly protected, or dedicated to other land uses. Another use for such information arises from the fact that most protected areas are, in varying degrees, 'multiple-use' in that activities such as tourism, recreation and other uses are permitted. Managers of protected areas can better understand the costs and benefits of different mixes of these permitted uses with the aid of financial and economic data.

¹ Economic and financial information played a part in the decisions to protect at least four of the protected areas discussed in this study: the Great Barrier Reef Marine Park, the Tasmanian Wilderness World Heritage Area, the Wet Tropics World Heritage Area and the former Conservation Zone in Kakadu National Park.

Once an area has been deemed worthy of protected status, it has to be managed so that its attributes are not degraded over time. This is the prime function of management. The provision of adequate funds for this task is always a challenge. Management can be thought of as investment in maintaining the value of the resources of the protected areas. Economic analysis can help discover appropriate levels of investment in management.

Economic analysis can be applied at the program level or at the project level. It can be used to evaluate the cost-effectiveness of achieving a particular objective (for example, eradication of feral animals) by different means. There are two obvious sources of funds for management - taxpayers and users of protected areas. Financial and economic analysis can identify how costs and benefits are distributed between users and society as a whole, and the potential for raising funds for management from users may be assessed.

The pursuit of balancing development and conservation of natural resources to achieve Ecologically Sustainable Development (ESD) places emphasis on understanding the ecological and economic dimensions of resource uses. It is likely that financial and economic information will continue to play an important role in resource management in the future, but one that will pay more attention to the total economic values of natural environments over the long term.

Outline of this report

The protected areas studied include some of Australia's most well-known tourist attractions. The influence of these areas in attracting tourism and recreation extends well beyond their boundaries. The relative importance of tourism and recreation in all eight protected areas investigated demands that special attention be paid to these uses. The following section, 1.2, has a discussion about the relationship between tourism and natural environment attractions in Australia. The methodology used in this report to estimate financial values of tourism and recreation is included in appendix 2.

Each protected area is discussed in turn in a separate section. The brief for this report was to identify the financial and economic values of the eight protected areas and to report dollar values where available. For each protected area, indirect and direct uses have been identified, based on published materials and discussions with managers of the areas. These uses are listed in tables with qualitative and quantitative descriptions of the uses and values. See table 2.3 as an example. Where dollar values (financial and/or economic) are available, these are also listed in the tables.

All the World Heritage Areas, Marine Protected Areas and National Parks examined in this report have important values arising from nature conservation and conservation of cultural features. These conservation values have been classified under the heading *primary uses*. Also included as a primary use is contemporary Aboriginal use in a number of the protected areas. With two notable exceptions,² no attempt has been made to measure these primary use values in dollar terms.

All of the protected areas examined allow a select range of direct uses which are managed on the basis that they are consistent with the primary objective of conservation. The direct uses include; private recreation, commercial tours and, in the marine areas, commercial fishing. These are termed *compatible direct uses* in the study. Measures of financial value are available for many of these direct uses. In fewer cases, economic values have been calculated.

In some of the protected areas, activities which have occurred historically are presently being phased out in order to afford a higher level of conservation. This is most evident in the most recently declared protected areas. In the case of the Wet Tropics WHA, several existing uses are under review at the time of writing.

² These are protecting the Great Barrier Reef from the Crown of Thorns Starfish (Hundloe et al. 1987), and the Kakadu Conservation Zone Contingent Valuation Study (RAC 1991). These studies are discussed in the relevant sections of this report.

The conservation values associated with the primary uses arise in the absence of any direct use of the natural environment. Direct use may add further financial and economic value. The expansion of direct uses and their associated values may only be positive up to the point where they do not reduce, through environmental impacts, the primary use values. Beyond that point, trade-offs occur between the increase in the value of the direct use and decreases in primary use values. It should also be noted that where more than one direct use is allowed, it is possible that trade-offs will be involved in getting the mix of uses that generates the highest value. It would not therefore be proper to extrapolate increasing levels and real values of direct uses into the future as the point at which these uses may begin to reduce primary use conservation values is unknown. It is possible, however, that even where physical limits are placed on direct uses, the dollar values of these uses could continue to increase as people are willing to pay more for these scarce natural environment resources.

It is unknown whether the combination of uses currently allowed in any of the protected areas examined maximises the net benefits in economic terms that could arise from the area. There are no cases where the appropriate economic analysis has been undertaken to try to address this complex question. It is not the task of this study to undertake such an analysis. It can be observed that a thorough economic analysis would need to pay much more attention to valuing the positive and negative impacts of alternative direct uses on primary uses, and on each other, and the trade-offs involved, than has occurred to date.

It is important to point out that the financial values reported are in almost all cases **gross** financial values. These really give no idea of the magnitude of any unpriced environmental costs arising as a consequence of producing these values or the sustainability of the level of production. For this reason, resource managers should treat financial values as important indicators of the magnitude of activities, but as less important than economic values as information for resource management decisions.

Regional output multiplier effects of gross financial values have been presented where the information is available. These should be interpreted carefully as unpriced environmental costs are not taken into account. All direct use activities have multiplier effects, but only those for which multipliers are published have been acknowledged in this report. In most cases, the size of the multiplier is similar across types of activity and regions.

The descriptions of the eight protected areas are followed by a summary of key points in the Conclusions.

More detail on how financial and economic values are defined and measured is presented in appendix 1. This appendix includes a glossary of economic terms. The approach taken in describing the financial and economic values of the eight protected areas included in this report is presented in appendix 2. Appendix 3 includes detail on measurement of economic and financial values of tourism and conservation for the Great Barrier Reef WHA.

Information sources

This report has been compiled from available published information (Annual Reports, Management Plans, research papers, tourism survey reports) as well as unpublished information supplied by the many agencies involved in the management of the protected areas. No new data were collected for this study. The available published and unpublished measures and estimates fall short of measuring the total financial and economic values of these protected areas. This report presents new estimates of financial values of tourism, made in the course of this study.

It is obvious that a significant effort in data collection and analysis would need to be undertaken in order to illuminate in dollar values the full financial and economic values arising from these protected areas. It is also clear that the information that is available has been collected and analysed in a variety of ways. A uniform approach to this task would allow more accurate comparisons of information. Suggestions for a more consistent approach are included in appendix 2 of this report.

As a final introductory comment, it must be said that it remains questionable whether the discipline of economics will ever be able to adequately address measurement of all the important but non-market values of natural and cultural heritage in dollars. In this report, the full range of values from each area is described qualitatively and quantitatively, complemented by dollar values where possible.

1.2 Tourism and the environment

'it is important to recognise that a major motivation for tourism activities in Australia, both domestic and international, is to experience aspects of our natural and cultural environment' (Ecologically Sustainable Development Working Group on Tourism 1991, p. 7).

There is no doubt that Australia's natural environment is a major tourist attraction for visitors from overseas and for Australians travelling within this country. The Ecologically Sustainable Development Working Group on Tourism found that, 'data from the IVS [International Visitor Survey] and from Australian Tourist Commission (ATC) segmentation studies suggest that international tourists rank issues such as beautiful scenery, vastness, cleanliness, natural wonders and wildlife, and good beaches as major attributes influencing their choice of Australia as a travel destination' (1991, p. 8).

The tourist industry is now one of Australia's most significant economic sectors, contributing 5.4 per cent of Gross Domestic Product and 5.8 per cent of employment in 1990-91. Gross expenditure by tourists was \$25 billion in 1990-91 (BTR 1992b). Inbound tourism to Australia is particularly important in earning foreign exchange. In 1990-91, this industry contributed 10 per cent to Australia's current account credits, exceeding earnings from coal exports (CDT 1992).

The protected areas included in this report include prime natural environment and Aboriginal culture tourist attractions in Australia. All have experienced significant increases in visitor numbers over the last decade (data for some are shown in table 3.1). This increase is against a background of continuing significant growth in the number of overseas tourists coming to Australia. The number of arrivals doubled between 1985 and 1988 to reach 2.2 million. In 1991 Australia hosted 2.4 million overseas tourists (CDT 1992). The Bureau of Tourism Research has published projections for an eight per cent per annum growth in arrivals which would result in 5.15 million visitors in 2001 (BTR 1992a). These projections are naturally subject to uncertainty and should be interpreted cautiously. Domestic tourism has also been growing, but at a more modest rate and prospects for future growth are strongly related to conditions in the Australian economy. There were 49 million overnight trips within Australia by Australians in 1991 (BTR 1992b).

'Ecotourism' is a term that has been coined to cover tourism that has the natural environment and cultural features as its main focus. All the tourism and recreation in the protected areas covered in this report would come under a broad interpretation of this definition.³ This segment of the tourist industry has been observed to be growing strongly in the world; Boeger (1992) quotes a study that estimates that internationally tourism is growing at 8 to 10 per cent per annum, the adventure and cultural tourism component of this is growing at 10 to 15 per cent and nature based tourism is growing at 30 per cent per annum. There is as yet no comprehensive database on ecotourism in Australia but many indicators point to the importance of nature based tourism in Australia (Allcock et al. 1994).

The conservation status of an area is often publicised by commercial tour operators in their advertising material, signifying their belief in the drawing power of such status. Management agencies and State and Commonwealth government Tourist Commissions promote protected areas as tourist attractions. The promotion of enjoyment of the protected area is usually amongst the goals of management agencies and there is a

³ The National Ecotourism Strategy (Allcock et al. 1994) gives the following definition of ecotourism: 'Ecotourism is nature based tourism that involves education and interpretation of the natural environment and is managed to be ecologically sustainable'. It is possible that not all current tourism in protected areas would qualify as educational and ecologically sustainable.

community expectation that people will be allowed to visit these areas. Management agencies also understand that visitors who appreciate a protected area will be supporters of continued conservation management of the area.

It is clear that natural environment features are important in attracting tourists to Australia and attracting visits to protected areas by tourists and day trippers. The demand for visits to natural environment areas is expected to grow, possibly at a faster rate than tourism generally. However, while well-known protected areas are major attractions with influences beyond their boundaries, it is difficult to say how much overall financial and economic value should be attributed to the attraction of any particular protected area. In this report, only the financial values directly attributable to visits to the protected areas are considered.

Tourism via commercial tour operations and private recreation are permitted activities in all the protected areas covered in this report. In all the areas, tourism and recreation are significant relative to other direct uses in terms of the numbers of people involved and financial impacts.

Table 1.1 Visitor Numbers Protected Areas

	Great Barrier Reef Marine Park	Kakadu National Park	Uluru National Park
1982, 1982-83		45 800	87 871
1984, 1984-85	1 119 000 ⁴	75 200	110 160
1986		131 000	141 219
1988		220 000	175 536
1990		238 000	218 160
1992	2 291 000	205 000	

Sources: Driml 1987a, unpublished data Great Barrier Reef Marine Park Authority, Australian Nature Conservation Agency, pers. comm.

Definitions

The use in this report of terms used to describe tourism and recreation needs some clarification. The potential for confusion arises because there are two data sets used in this report and each set adopts different terminology and covers different populations. The first data set is the major tourism surveys (the Domestic Tourism Monitor, International Visitor Survey and surveys carried out by state tourism authorities). These surveys define tourists as people on trips involving at least an overnight stay away from home. The majority of data reported in this section is drawn from those surveys.

The other data set is the records kept by management agencies of visitor numbers to the protected areas, which include both tourists and local people travelling on day trips (day trippers). The information that has been recorded for the protected areas included in this study has largely been in terms of the number of 'visits' or 'visitors' and 'visitor-days'. Annual figures on 'visits' and 'visitors' measure the same thing, the number of entries into the protected areas regardless of how long the people stay. Visitor-days record the total number of days spent in the protected areas. Records of visit/visitor numbers and visitor-days are rarely detailed enough to distinguish between tourists and day trippers.

The term 'tourism and recreation' is used at times more broadly to refer to activities by all visitors to protected areas. Later in this report, financial values of tourism are presented for each protected area. These values include expenditure by all visitors - tourists and day trippers.

⁴ Passengers on commercial passenger vessels. Recreation in the GBR also includes recreational fishing and boating from private boats and the number of trips (recreational fishing trips only) per year has remained relatively steady at 266 000 trips per year in 1984/85 and 210 000 to 270 000 trips per year in 1990.