VISITOR WILDLIFE VIEWING PREFERENCES AND EXPERIENCES IN MADIKWE GAME RESERVE, SOUTH AFRICA

by

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Submitted in partial fulfillment of the academic requirements for the degree of Master of Environment and Development in the Centre for Environment and Development, School of Applied Environmental Sciences, University of KwaZulu-Natal

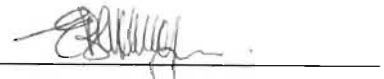
Pietermaritzburg

2004

PREFACE

The research described in this mini-dissertation was carried out at the Centre for Environment and Development, University of KwaZulu-Natal, under the supervision of Professor Rob Slotow from the School of Life and Environmental Sciences, University of KwaZulu-Natal, Durban.

This mini-dissertation represents the original work of the author and has not otherwise been submitted in any form for any degree or diploma at any university. Where use has been made of the work of others it is duly acknowledged in the text.



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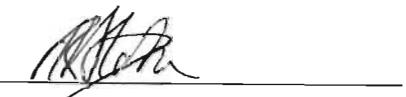

Professor Rob Slotow (Supervisor)

COMPONENT A: LITERATURE REVIEW

ABSTRACT

Wildlife viewing is a form of recreation that is becoming increasingly popular throughout the world, particularly in African protected areas. In order for protected area managers to cater for this demand effectively, managers need to incorporate wildlife viewing recreation into the planning and development of protected areas.

Protected area management has traditionally focused on the management of wildlife populations and habitats to the exclusion of visitor recreational needs. Where visitor needs have been incorporated into the planning and development of protected areas, this has been through the provision of inputs such as facilities and wildlife. The experience-based management (EBM) approach to recreation however proposes that people engage in particular recreation opportunities in order to attain certain desired benefits or outcomes.

Madikwe Game reserve provides visitors with the opportunity to view a wide variety of game. The aims of this study were to (1) provide an understanding of what visitors sought from their experiences regarding wildlife viewing in Madikwe Game Reserve (2) classify the types of experiences desired by visitors to the reserve using the EBM model as a framework and (3) examine management implications of results. A survey of visitors was conducted in the reserve using a Pre-visit and a Post-visit questionnaire.

Results from 178 respondents indicated that well-known species as well as rare/endangered species were the most popular among visitors. Respondents were generally very satisfied with their wildlife viewing experiences in terms of species abundance and variety, and information received about animals. The results also suggest that additional information about items other than wildlife could enhance the experiences of visitors to Madikwe. Three distinct wildlife viewing experiences desired by visitors were identified, namely a High Involvement Experience, which had the highest interest in almost all recreational opportunities, a Generalist Experience characterised by a moderate interest in recreational opportunities and an Occasionalist Experience that displayed the least interest. While the Occasionalist Experience is presently adequately catered for in Madikwe, lodge and park managers can provide for the High Involvement and Generalist Experiences more efficiently by expanding the

wildlife viewing experience that is currently offered in the reserve. This would be done primarily through the expansion of informational items provided, and the development of activities associated with wildlife viewing. The success of such measures would be dependent on the adoption of a cooperative strategy between lodge managers, park managers and other relevant stakeholders.

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Emelda Mbenga

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Professor Rob Slotow (Supervisor)

ACKNOWLEDGEMENTS

First and foremost, I would like to thank Almighty God for enabling me to conduct this project. I would also like to thank the following people for their contribution:

Professor Rob Slotow, my supervisor, for his guidance, patience and support.

Mr Malcolm Draper, my co-supervisor, for his input and support.

Professor Michael Manfredo for his input.

Steven Dell, for allowing me to carry out the study at Madikwe Game Reserve.

Carlien Eesterhuizen, for the hospitality she showed me during my stay at Twasa Base, Madikwe.

All the lodge managers and staff at Madikwe River Lodge, Mosetlha Bush Camp, Madikwe Bus House and Jaci's Safari Lodge for distributing questionnaires.

Dr Bernard Mbenga, my father, and Mrs. Mary Mbenga, my mother, for inspiration, motivation ar assistance.

My friends, Raili Hasheela and Sophinah Katende for their support and encouragement.

CONTENTS

COMPONENT A (LITERATURE REVIEW)

Page

Abstract ---- i

Preface ---- iii

Acknowledgements ---- iv

Contents ---- v

List of figures and tables ---- x

CHAPTER 1: OVERVIEW ---- 1

1.1. Introduction ---- 1

1.2. Problem statement ---- 4

1.3. Research purpose ---- 5

1.3.1. Research aims ---- 5

1.3.2. Research objectives ---- 5

CHAPTER 2: LITERATURE REVIEW ---- 6

2.1. Defining wildlife viewing ---- 6

2.2. Significance of wildlife viewing ---- 6

2.2.1. Cultural importance ---- 7

2.2.2. Trends in demand ---- 7

2.3. An experience-based management approach to wildlife viewing ---- 9

2.3.1. Experience opportunity ---- 11

2.3.2. Setting opportunity ---- 12

2.3.2.1. Resource attributes ---- 12

2.3.2.2. Social attributes ---- 12

2.3.2.3. Managerial attributes ---- 12

2.3.3. Activity opportunity ---- 13

2.4. Components of a wildlife viewing experience: what do visitors seek? ---- 14
2.4.1. Visitor perceptions of wildlife species ---- 14
2.4.2. Visitor preferences for wildlife species ---- 16
2.4.3. The visitor experience ---- 18
2.4.3.1. Service variables ---- 19
2.4.3.2. Context variables ---- 22
2.4.3.3. Visitor knowledge and experience ---- 22
2.5. Characteristics of wildlife tourists ---- 22
2.5.1. Demographic characteristics ---- 23
2.5.2. Level of interest in wildlife ---- 24
2.5.3. Motives for visiting wildlife destinations ---- 27
2.6. Wildlife viewing and impacts on natural resources ---- 30
2.7. Enhancing wildlife viewing experiences through management ---- 33
2.7.1. Wildlife viewing management ---- 33
2.7.2. Visitor management ---- 34
2.8. Conclusion ---- 40

CHAPTER 3: CONCEPTUAL FRAMEWORK FOR THE STUDY ---- 42

CHAPTER 4: STUDY AREA ---- 44
4.1. Site description ---- 44
4.1.1. Location ---- 44
4.1.2. Topography and geomorphology ---- 44
4.1.3. Soils ---- 44
4.1.4. Climate ---- 45
4.1.5. Vegetation ---- 45
4.2. History ---- 45
4.3. Socio-economic status of surrounding area ---- 46
4.4. Aims ---- 46
4.5. Present situation ---- 47
4.5.1. Proposed Pilanesberg National Park-Madikwe Game Reserve

Corridor (Heritage Park)---- 48

CHAPTER 5: METHODOLOGY---- 49

5.1. Sampling---- 49

5.1.1. Sampling unit---- 49

5.1.2. Sampling procedure ---- 49

5.1.3. Sample size ---- 49

5.2. Pre-visit survey ---- 50

5.2.1. Questions---- 50

5.3. Post-visit survey ---- 52

5.3.1. Questions---- 52

5.4. Attitude measurement scales ---- 52

5.5. Data analysis ---- 53

5.5.1. Descriptive statistics---- 53

5.5.1.1. Assessment of visitor preferences---- 53

5.5.1.2. Assessment of wildlife viewing experiences ---- 54

5.5.2. Inferential statistics ---- 54

5.5.2.1. Identification of wildlife viewing experience types ---- 54

5.5.2.2. Identification of wildlife viewing typology---- 54

5.6. Management implications---- 55

CHAPTER 6: LIMITATIONS OF THE STUDY---- 57

References ---- 58

Personal communications ---- 64

Appendix I. Some mammal species of Madikwe Game Reserve ---- 65

Appendix II. Pre-visit questionnaire ---- 66

Appendix III. Post-visit questionnaire---- 68

COMPONENT B (RESEARCH PAPER)

Page

List of figures and tables ---- xi

ABSTRACT ---- **1**

INTRODUCTION ---- **2**

METHODS ---- **3**

Study area ---- 3

Survey procedure ---- 4

ANALYSIS ---- **6**

RESULTS ---- **8**

General profile of visitors ---- 8

General visitor preferences and experiences ---- 9

Experience outcomes ---- 9

Activities ---- 9

Wildlife ---- 9

Information subjects ---- 10

Means of receiving information ---- 11

Tour guides ---- 11

Typology of wildlife viewing experiences ---- 11

Type I ---- 12

Type II ---- 13

Type III ---- 14

Generalising results ---- 15

DISCUSSION AND CONCLUSION ---------- **15**

Visitor wildlife viewing preferences and experiences ---------- 15

Management implications ---------- 18

References ---------- **37**

Appendix I. Some mammal species of Madikwe Game Reserve ---------- **40**

Appendix II. Pre-visit questionnaire ---------- **41**

Appendix III. Post-visit questionnaire ---------- **43**

LIST OF FIGURES AND TABLES: COMPONENT A

FIGURES **Page**

Figure 2.1. Perceived species of importance ---- 16
Figure 2.2. Main species desired to see on visit ---- 17
Figure 2.3. Perceived elements of importance ---- 28
Figure 2.4. Main reasons for visit to protected areas ---- 30
Figure 3. A proposed conceptual framework for the study ---- 42

TABLES

Table 2.1. Types of interpretive guides ---- 20
Table 2.2. Wildlife viewing typology for Denver Metro residents ---- 27
Table 2.3. Example of a zoning spectrum ---- 37
Table 5. Selected experience preferences for the study ---- 51

LIST OF FIGURES AND TABLES: COMPONENT B

FIGURES **Page**

Figure 1. Dendogram of hierarchical cluster analysis using Average Linkage ---------- 31
Figure 2. General profile of visitors to Madikwe Game Reserve---------- 32
Figure 3. Percentage of respondents ranking experience outcome ---------- 33
Figure 4. Species reported as being most preferred for viewing---------- 34
Figure 5. Differences between Post-visit and Pre-visit preferences for species ---------- 35
Figure 6. Percentage of respondents rating experience outcomes according to type ----- 36

TABLES

Table 1. Distribution and response rates for questionnaires amongst lodges ---------- 21
Table 2. Agglomeration schedule of cluster analysis ---------- 22
Table 3. Cluster solutions ---------- 23
Table 4. General visitor preferences ---------- 24
Table 5. General visitor experiences ---------- 25
Table 6. Comparison of interest in experience outcomes among types -------- ---------- 26
Table 7. Comparison of interest in activities and information among types--- ---------- 27
Table 8. Wildlife viewing typology for Madikwe Game Reserve ---------- 30

CHAPTER 1
OVERVIEW

1.1. INTRODUCTION

Conservationists throughout the world are increasingly recognising the need for people to play a greater role in the management of parks and reserves (Wells 1996; Decker & Chase 1997; McDonald 2002). In countries such as South Africa where a significant number of people are directly dependent on natural resources for their survival, public participation in protected area management is generally assumed to be the participation of rural communities (Wells 1996; McDonald 2002). Although this is a crucial human aspect of conservation, there are other social needs that must be taken into account by protected area managers. One of these needs is visitor satisfaction from recreational experiences in protected areas (Decker & Chase 1997). Managers need to be aware of visitor needs and factors affecting their recreational experiences within protected areas in order to make informed management decisions that would enable managers to achieve ecotourism objectives. All too often however, such awareness is lacking due to the traditional approach to protected area management.

The traditional approach to protected area management throughout the world is one that has been dominated by an exclusive focus on preserving biodiversity while neglecting social issues (Hammitt, Dulin & Wells 1993; Decker & Chase 1997; McDonald 2002; Manfredo 2002). This approach has been described as a 'top-down' approach to management; it is summarised by Decker and Chase (1997:789-790) as follows:

"This top-down approach is a vestige of the time when managers served a narrow constituency, with which they normally personally identified and shared values...Major differences seldom were at issue; whoever had the greatest knowledge about a people-wildlife interaction, with knowledge confined largely to biological expertise, usually carried the day. In this simple human dimensions system, an authoritative approach by wildlife managers (biological experts) could work because there were few recognised groups of stakeholders in decisions."

This situation has been changing over the past few decades, as Decker and Chase (1997:790) go on to show:

"Today several kinds of stakeholders are interested in most people-wildlife issues, they hold diverse values, and they are willing to advocate actively their preferred outcome in a management decision, through political and legal means if necessary".

The result is that protected area managers must work in a complex environment of biological and sociological forces; they are faced with the challenge of managing wildlife while simultaneously providing benefits to society (Decker & Chase 1997). These benefits range from the socio-economic upliftment of communities living near protected areas to recreation within protected areas (Lindberg & Hawkins 1993).

Wildlife viewing in protected areas is a form of recreation that has been gaining increasing popularity in recent years (Shackley 1996; Woods 1999; Goodwin & Leader-Williams 2000; Reynolds & Braithwaite 2001; Manfredo 2002), especially in Africa where the abundance and diversity of wildlife is a major tourist attraction (Shackley 1996). This increase in demand for wildlife viewing (and wildlife tourism in general) is particularly important for protected areas in Africa where revenue from this type of recreation is crucial for the continued existence of these areas. Sound management of wildlife tourism in protected areas should therefore be a priority, yet professional planning and management of wildlife viewing is largely underdeveloped (Shackley 1996; Manfredo 2002).

Traditionally, the management of recreation in protected areas has been largely restricted to regulatory mechanisms that control the behaviour of visitors and the provision of facilities (Manfredo 2002). Although these are important aspects of recreation management, they are no longer sufficient within today's context of protected area management because they do not take into account the needs of stakeholders. The decisions that are carried out by managers ultimately impact stakeholders, including tourists. In terms of wildlife viewing, various management actions that are undertaken will have an effect on the recreational experiences of visitors. Examples of such actions are the manipulation of habitats and wildlife populations,

infrastructural developments and visitor management. In order to determine whether the effects of such management actions are beneficial or otherwise, managers need to obtain information concerning wildlife viewing visitors: who they are and what their needs are. Such information is the primary focus of this study, although other relevant issues will be dealt with, namely the interactions between wildlife and wildlife viewers as well as the management of wildlife, habitats and visitors in protected areas, which are aimed at providing beneficial experiences to visitors without adverse impacts on wildlife and their environment.

1.2. PROBLEM STATEMENT

Wildlife viewing is an important component of wildlife tourism experiences amongst visitors to protected areas (Woods 2001). Wildlife tourism operators and protected area managers should therefore seek to provide high-quality wildlife viewing opportunities. In order to achieve this aim, management actions would be geared towards enhancing wildlife viewing opportunities (Manfredo 2002). However, in order to ensure that such actions are successful in achieving these objectives, managers need to understand the factors that contribute to quality wildlife viewing experiences amongst visitors.

Current understanding of these factors by protected area managers is poor largely due to the fact that protected area management has traditionally focused on the protection and management of habitats and species to the exclusion of visitor dimensions. (Hammitt *et al.* 1993). This situation is true with regard to Madikwe Game Reserve, where management programmes have focused on habitats and species without sufficient attention to visitor needs (Davies 1997; Madikwe Development Task Team 1997; David, Trieloff & Leitner 2003; Hofmeyr, Davies & Dell 2002; Mosetlha Bush Camp 2003). As a result, there is a lack of information concerning the motivations, preferences and experiences of visitors to the reserve. Such information is important because it is needed to direct and guide management decisions that would ultimately result in achieving the objectives of Madikwe Game Reserve.

1.3. RESEARCH PURPOSE

1.3.1. Research aims

To describe and provide an understanding of wildlife viewing preferences and experiences of visitors in Madikwe Game reserve, in order to provide managers with knowledge that will form the basis for actions that will contribute towards the enhancement of wildlife viewing experiences of visitors in Madikwe Game Reserve.

1.3.2. Research objectives

i. Assess visitor wildlife viewing preferences.

ii. Evaluate actual wildlife-viewing experiences and factors influencing these experiences.

iii. Identify and classify the different types of wildlife viewing experiences preferred by visitors to Madikwe Game Reserve.

iv. Examine management implications for enhancing wildlife viewing experiences of visitors in Madikwe Game Reserve.

CHAPTER 2
LITERATURE REVIEW

2.1. DEFINING WILDLIFE VIEWING

Because wildlife viewing may signify different activities to different people, it is necessary to define it in the context of this study.

The term 'wildlife viewing' encompasses a broad variety of behaviours. It may involve watching birds at a feeder by a person watching through a window; watching television programmes about wildlife; enjoying sights and sounds of wildlife during a hunting excursion; or travelling to places where one can watch wildlife in their natural habitat (Manfredo, Pearce & Teel 2002). This study focuses on the latter type of wildlife viewing.

Two primary forms of wildlife viewing can be distinguished, namely direct and indirect. These forms of wildlife viewing occur at two ends of a spectrum. Indirect wildlife viewing is the more common of the two. This form of wildlife viewing consists of outdoor activities that are not centred on wildlife as the primary interest, for example, camping and hiking can be enhanced by wildlife encounters (Federal-Provincial Task Force 2000 cited in Smith 2001; Manfredo 2002). Direct wildlife viewing on the other hand is conducted with wildlife being the primary or exclusive focus of interest.

This study will be useful in providing an indication of the proportion of visitors to Madikwe Game reserve that engage in direct and indirect forms of wildlife viewing. Since indirect wildlife viewing is more common than direct wildlife viewing, factors other than wildlife will also be examined with regard to the experiences of tourists in Madikwe Game Reserve. Such information would enable management to cater for the various needs of visitors in a more effective manner.

2.2. SIGNIFICANCE OF WILDLIFE VIEWING

Wildlife viewing is an increasingly important form of recreation among visitors in protected areas (Shackley 1996; Manfredo 2002). Protected area managers therefore need to understand

the importance of wildlife viewing amongst visitors when formulating and implementing management plans.

2.2.1. Cultural importance

Animals have always played an important role in the lives of people. For millennia, wildlife has been the source of food, shelter, commerce, art and spiritual identity across cultures; domestic pets have also provided companionship to humans (Orams 1996; Witter 2002). In comparison, visiting and viewing wildlife for recreational purposes is a relatively recent phenomenon.

The development of wildlife viewing has been attributed to the technological progresses that have fulfilled the material needs of people in industrialised societies. Because many people in these societies no longer focus on survival and basic human needs, wild animals are no longer regarded as a source of raw materials for uses such as shelter and clothing (Witter 2002). This trend is believed to have gained momentum during the nineteenth century, when an increased interest in pets and in animal protection emerged (Beinart 1999). It was during this period when zoological gardens were established as European explorers brought specimens back from their travels. At the same time, safaris to view and hunt wildlife in places such as Africa and India began (Orams 1996).

Since the late nineteenth century, growth of facilities that hold wildlife captive, as well as the management of locations that protect wildlife have increased (Yale 1991 cited in Orams 1996). Many countries manage national park systems that protect wildlife and facilitate various forms of wildlife viewing.

Wildlife tourism is a particularly important source of revenue for protected areas in Africa, which are threatened by a lack of funds (Breytenbach & Sonnekus 2001). The result is that protected areas are becoming increasingly dependent on wildlife tourism as a source of revenue. At the same time, wildlife tourism, and wildlife viewing in particular, has been gaining increasing popularity (Budowski 1976; Orams 1996; Woods 1999; Goodwin & Leader-Williams 2000; Manfredo 2002).

2.2.2. Trends in demand

Wildlife viewing is a form of ecotourism that is an increasingly popular form of recreation. In some countries such as Kenya, this is the principle source of foreign exchange. In North America, wildlife viewing is one of the fastest growing activities (Mol 2001). Flather and Cordell 1995 (cited in Smith 2001) reported that the number of people that travelled to observe, photograph or feed wildlife in the United States increased from 22.9 to 27.5 million from 1980 to 1990. The growth of the wildlife viewing industry can be illustrated through that of the whale watching industry: during the 1980s there were approximately 12 countries that hosted commercial whale-watching activities. By 1999, 295 communities in over 65 countries hosted whale watching (Smith 2001). At the same time, the number of operators in the industry increased by about 10 percent per year.

Africa is globally renowned for its diversity of wildlife, and the continent has been regarded as the most popular wildlife viewing destination in the world (Shackley 1996; Mouton 2003). South Africa is no exception in this regard, being a popular tourist attraction not only because of its diverse wildlife, but also its scenic environment and cultural diversity (Loubser, Mouton & Nel 2000). More wildlife tours are offered by multinational adventure tours such as Explore and Exodus in Africa than all other countries combined (Shackley 1996).

The most famous wildlife tourism destinations in Africa are East African reserves such as the Masai Mara and Amboseli in Kenya, and the Serengeti in Tanzania. The majority of visitors are attracted to these protected areas despite the fact that Kenya contains more than 50 parks and reserves. In recent years, this has resulted in overcrowding within these areas (the central circuit of Amboseli has been virtually reduced to a semi-desert by tourists) (Shackley 1996).

Over the past few years, there has been a significant increase in numbers of visitors to South African protected areas; this increase is expected to continue, especially as visitors opt for less crowded wildlife tourism destinations such as those in Kenya (Shackley 1996).

In spite of the growing popularity of wildlife viewing, little attention is directed towards professional planning and management aimed at enhancing the quality of wildlife viewing experiences in natural environments (Manfredo 2002). This is particularly important in protected

areas, where wildlife viewing demand is becoming increasingly significant as protected area managers place greater reliance on the revenue earned from visitors (Goodwin & Leader-Williams 2000). Furthermore, the demand for wildlife viewing is not well understood in South Africa. The result is that a technical and simplistic approach is taken with regard to supply at local, regional and national level (Hartley 2003 pers. comm.). Some people who are involved in the conservation field argue that perhaps the demand for wildlife viewing *is* understood in some places, yet no action is taken to meet this demand. This has led others to suggest that a framework for managing wildlife viewing in protected areas is needed (Vercuil 2003 pers. comm.).

We can reasonably conclude from the preceding text that demand for wildlife viewing will continue to increase in protected areas, particularly in South Africa. In order to effectively manage this demand, research such as that which forms the focus of this study, is needed to provide information that will form the basis for a wildlife viewing management framework.

2.3. AN EXPERIENCE-BASED MANAGEMENT APPROACH TO WILDLIFE VIEWING RECREATION

Protected area management has traditionally focused on the management of wildlife species and habitats. In recent years, researchers have recognised the need to manage wildlife viewing and other forms of recreation in protected areas. Such management requires a framework. This framework forms the basis of this study.

The management of wildlife for recreational purposes is not a new concept. In places such as North America and South Africa, game populations are actively managed for hunting and fishing purposes (Bothma 1996; Manfredo 2002). This type of recreation management has however been regarded to be based on a traditional form of management which emphasises the protection of resources rather than the provision of services to people. Decker and Chase (1997); Eagles (2001) and Manfredo and Driver (2002) have traced this recreational approach to the beginning of the previous century when wildlife populations were threatened with extinction as a result of over-exploitation; one of the ways in which mangers sought to safeguard these populations was by controlling/regulating hunting and fishing activities. The result was that a large component of

wildlife management was directed towards regulating these activities. This in turn led to the adoption of certain beliefs and practices regarding recreational pursuits such as wildlife viewing, hunting and fishing:

Firstly, management for recreation is directed at ensuring that healthy populations of wildlife are available for viewing, hunting and fishing. As long as these populations are available, 'the rest will take care of itself' (Manfredo & Driver 2002:3). The goal of this traditional approach to recreation is to provide inputs to the managerial system. Management thus focuses on inputs such as capital, personnel, wildlife and facilities. The provision of these inputs is regarded as the end of management. In other words, this approach does not seek to find out why people engage in specific activities, nor what they derive from those activities – it is not oriented towards the benefit/experience of recreationists.

Secondly, wildlife viewing is not considered to be acceptable if it interferes with the natural conditions of wildlife; furthermore, human presence and activity is *always* damaging to wildlife (Eagles 2001).

Finally, recreation management focuses on protecting habitats and species from the adverse effects of recreational impacts; the benchmarks for measurement are: no people, complete ecological integrity and no human uses or impacts (Eagles 2001). There is therefore little or no concern for enhancing the experiences of people.

These shortcomings of the traditional form of recreation management have led to the development of various recreational management models. No literature pertaining to recreation management models for South African was discovered during this study; examples will therefore be restricted to North America.

Professional planning and management of various forms of recreation began to receive attention in North America during the 1970s. During this time, leisure scientists and practitioners began to conduct investigations into the motivations of people who undertake recreational activities, with a view to providing desired recreational experiences through appropriate management techniques

(Manfredo & Driver 2002). The result of these studies was several recreational management models that have been applied to various types of recreational activities. The most widely recognised recreational management model is the experience-based management model (EBM).

According to the EBM model, managerial inputs are not in themselves the ends of management, but are instead means to an end. Managerial inputs are *translated* into outputs that are subjectively *experienced* by participants (Manfredo, Driver & Brown 1983; Wyman 1985; Noe 1987; Tinsley, Cobbs, Teaf & Kauffman 1987; Bengston & Xu 1993; Bruns, Driver, Lee, Anderson & Brown 1994 all cited in Prentice, Witt & Hamer 1998). Whereas the traditional recreational management model focuses on activities, the EBM approach proposes that people choose to participate in a particular recreation *activity*; and a specific type of *setting*, in order to attain a desired *experience*. All three of these elements are components of EBM and planning for recreation.

2.3.1. Experience opportunity

The primary output/benefit that EBM aims to provide is a satisfying psychological experience (Manfredo & Driver 2002). This is known as the *experience opportunity*; it is considered to be the primary component of a recreational activity. Manfredo and Driver (2002) define experience opportunities as satisfactions or psychological outcomes sought from participation in a recreational activity. For example, psychological outcomes that have been found to be important to wildlife viewing include developing and experiencing relations with nature, stress release, family bonding and exploration. Other psychological outcomes included by Prentice *et al.* (1998) are affiliation, cooperation, nurturance, security, supervision, advancement, exhibition, independence, play and understanding.

Two types of experience opportunities have been distinguished, namely short-term and long term. For example, a desired short-term outcome of a wildlife viewing opportunity may be expressed as a chance to be with family members, yet the actual desired long-term outcome is family 'bonding' (solidarity). Studies have shown that people who participate in wildlife viewing consider 'being with family' as an important outcome sought from this recreational activity (Manfredo & Driver 2002:48). Although there is no research that is applicable specifically to

wildlife viewing, studies have confirmed the importance of wildlife-associated recreation in improving family relations, which can be regarded as a long-term output. (Sofranko & Nolan 1972). Similarly, a reason such as 'to take the children out for the day' may actually be undertaken for the core reason of being a better parent (Prentice *et al.* 1998:3). Prentice *et al.* (1998:3) have described this link between reasons for undertaking recreational activities as a 'means-end chain'.

2.3.2. Setting opportunity

The setting opportunity refers to the broader context within which a recreation opportunity takes place. It comprises the natural resource, social and managerial attributes.

2.3.2.1. *Resource attributes* – include elements of the natural environment that facilitate a recreational experience. Wildlife attributes that are the main components of a wildlife viewing opportunity are: numbers of wildlife, diversity of wildlife species and frequency of wildlife sightings (Manfredo & Driver 2002).

2.3.2.2. *Social attributes* – include elements of the social environment that will facilitate a specific recreation opportunity. The social environment is the most difficult to manage, and is often the greatest source of conflict. Social problems that are frequently cited by wildlife viewers as having a negative impact on their recreational experiences include overcrowding, inappropriate/illegal behaviour and conflict between recreationists undertaking different activities (e.g. wildlife viewing versus consumptive forms of tourism such as hunting) (Manfredo & Driver 2002).

2.3.2.3. *Managerial attributes* – include the tools and techniques that are available for providing wildlife-viewing experiences, for example visitor centres, roadside rests, brochures, field guides, video tapes, guided tours, etc.). The specific type of management that is employed depends on the type of experience. For instance, visitor centres are inappropriate for experiences that emphasise wilderness qualities of an experience (Manfredo & Driver 2002).

2.3.3. Activity opportunity

This refers to a particular activity or set of activities that are associated with a particular recreational opportunity (this is the component that forms the sole focus of traditional recreational management). Manfredo and Driver (2002) determined that the activities most frequently combined with wildlife viewing were camping, hiking, picnicking and photography.

The three components of EBM, i.e. experience opportunity, setting opportunity and activity opportunity, are together referred to as a recreation opportunity. A specific recreation opportunity will consist of a set of, rather than a single, experience outcomes, a set of activities and a preferred setting.

The different recreation opportunities that are available to visitors in a protected area are referred to as a recreation opportunity typology for that area; where recreation is based on wildlife viewing, the typology is referred to as a wildlife viewing typology (Manfredo & Larson 1993).

EBM is distinguished from traditional recreation management by virtue of the fact that EBM advocates decision-making that is based on the benefits (outputs) to people engaging in recreational opportunities, rather than inputs (facilities, regulations, enforcements). If the EBM approach to wildlife viewing is adopted in Madikwe Game Reserve, managers will need to consider the specific benefits that management actions will provide to wildlife viewers.

Wildlife viewing underpins tourism in Madikwe Game Reserve, thus making the development of a wildlife viewing framework a necessity. Such a framework would be aimed at meeting the needs of tourists according to the EBM model. Madikwe Game Reserve currently lacks such a framework for managing wildlife viewing in the reserve (Madikwe Development Task Team 1997). The management approach that is followed with regard to wildlife viewing is according to the traditional method of management, where the provision of healthy populations of wildlife for viewing is regarded as sufficient; management emphasis is on maintaining habitats and species rather than providing tourists with desired experience opportunities.

Managers at Madikwe cannot assume whether or not certain outcomes are beneficial to wildlife viewers. This is because people will not necessarily perceive a given outcome as beneficial; even when they do, the degree of importance of specific benefits varies among people. Managers must therefore determine what the desired benefits of visitors to Madikwe are, as well as visitors' orderings of preferred benefits (Manfredo & Driver 2002). This study seeks to determine these benefits through a survey of tourists that visit the reserve.

2.4. COMPONENTS OF A WILDLIFE VIEWING EXPERIENCE: WHAT DO VISITORS SEEK?

This section discusses the various aspects of wildlife viewing that have been found to be significant in the experiences of wildlife tourists. The results of other researchers on this subject will provide an important basis for examining the wildlife viewing experiences of visitors to Madikwe Game reserve in two ways: firstly, this section will provide guidance as to which factors might be most important in influencing the wildlife viewing experiences of tourists in Madikwe Game Reserve; secondly, the research findings that are discussed in this section will be compared to the findings in Madikwe, and possible causes for any differences that are discovered will be examined once the survey is completed.

Before tourists visit a place, they often have stereotypical impressions and perceptions about that place, which are formed from books and television (Manuel, McElroy & Smith 1996). This leads to certain expectations about the place, which may or may not match the reality experienced. Although wildlife viewing experiences can be regarded as consisting primarily of the wildlife species component, other important factors contribute to the experience. Both the wildlife species component and other contributing factors are discussed below.

2.4.1. Visitor perceptions of wildlife species

The main or generic component of the wildlife viewing experience is fauna (Smith 2001). Various studies have been conducted in order to determine how visitors perceive particular species of wildlife. According to Reynolds and Braithwaite (2001), the two most important attributes of wildlife in terms of influence on visitor experiences are species popularity (or lack thereof), and species status. Species popularity is driven by various factors that include physical

attractiveness, size, danger and drama associated with a species, as well as the publicity that the species has enjoyed in the media (Woods 1999, Reynolds & Braithwaite 2001). Species status refers to the rarity of the animal. Species on rare and endangered lists appear to hold special appeal to tourists.

In a survey of wildlife tourists conducted by Woods (2001) in Flinders Chase National Park (South Australia), some of the features of wildlife that scored highest among tourists were seeing unique/unusual wildlife. In a separate study conducted in North Queensland (Australia), the same author investigated features of animals that people are drawn to and admire. Some of the animals that were listed as favourites were dolphins, tigers, koalas, kangaroos, elephants, lions and whales (Woods 1999). Some of the features that visitors admired in these animals were cited as intelligence, strength, loyalty, beauty, size and movement. The least favourite animals were snakes, spiders, crocodiles, toads, rodents and sharks. These animals were considered to be dangerous, ugly, unpredictable, sneaky, unfriendly and dirty.

Other aspects of wildlife that have been reported to enhance the wildlife viewing experiences of visitors are (Shackley 1996; Benefield, Bitgood, Landers & Patterson 1986 cited in Reynolds & Braithwaite 2001; Prism Environmental Consulting Services 1988 cited in Reynolds & Braithwaite 2001; Reynolds & Braithwaite 2001):

i. Predictability in activity or location
ii. Approachability
iii. Tolerance of human intrusion
iv. Presence of an infant
v. Giving birth
vi. Dying
vii. Ease of viewability

These perceptions of visitors towards various species of wildlife (whether positive or negative) are potentially useful to wildlife interpreters because they can be used to gain and maintain the

attention of visitors, which could in turn be directed towards important conservation and protected area management issues (Woods 1999).

2.4.2. Visitor preferences for wildlife species

In a study by Goodwin and Leader-Williams (2000), visitors to India were reported as desiring to see tigers and avifauna most, followed by elephants and leopards. In southern Africa, tour operators reported that visitors wished to see the 'Big Five' (elephant, rhino, lion, leopard and buffalo) (Figure 2.1). In a similar study, the interest of visitors in different species was investigated in protected areas in Madagascar and Zambia (Figure 2.2). There was believed to be little interest among those visiting southern Africa in seeing birds or other smaller mammals. A tour operator sums this up in the following description:

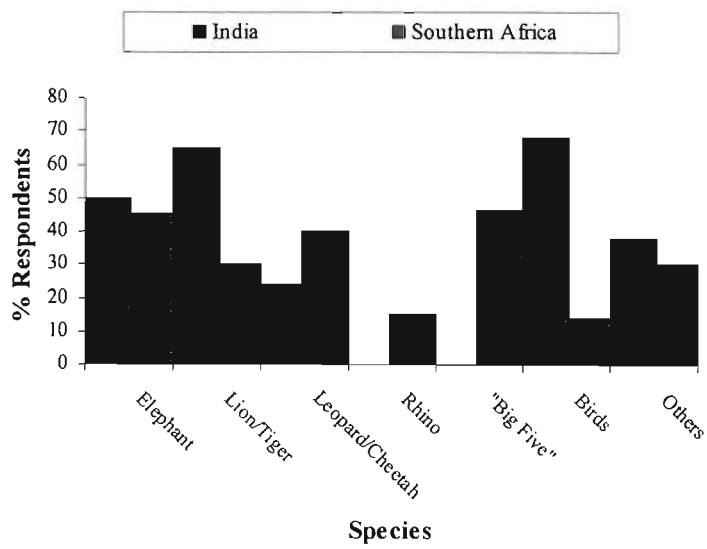

Figure 2.1. Perceived species of importance: Tour operators' perceptions of attractive species for wildlife tourists, based on questionnaires administered to UK-based tour operators sending tourists to India and southern Africa. Tour operators were asked, in their view, what species (or species groups in the case of southern Africa) of wildlife tourists to India and southern Africa most wished to see (Goodwin & Leader-Williams 2000).

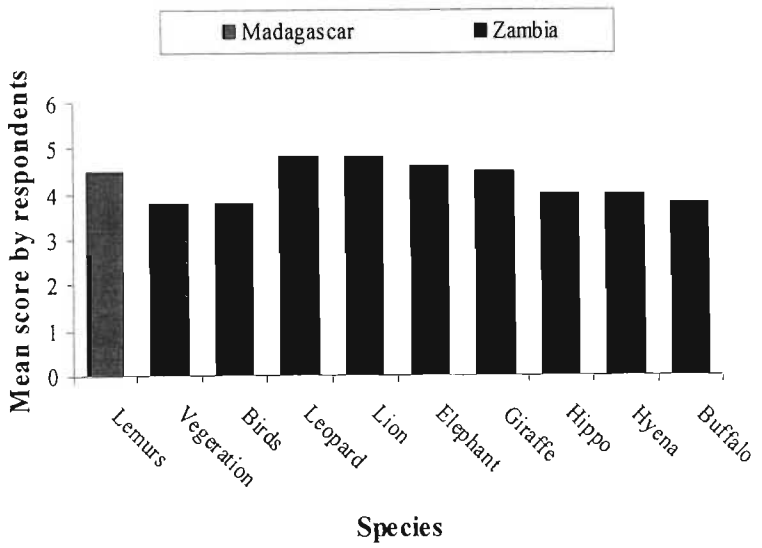

Figure 2.2. Main species desired to see on visit: the expressed species of interest for visitors to protected areas in Madagascar and Zambia. (Goodwin & Leader-Williams 2000).

"The vital word in wildlife tourism is 'big'. People who travel the world to see animals want them to be large, and preferably deadly, or they want to see huge numbers. There is another vital ingredient. You must be able to get close up. Distant wildlife does not sell..." (Goodwin & Leader-Williams 2000: 263).

Although tour operators and protected area managers in South Africa assume that most tourists wish to see the Big Five, this has not been ascertained through comprehensive research. In fact, some tourists visiting protected areas in South Africa from overseas are unaware of the meaning of the term 'Big Five', and have never even heard of the term. (Manfredo 2003 pers. com). Yet, if most tourists do in fact desire to see the Big Five when visiting protected areas in South Africa, is this out of their own personal desire or the result of publicity through television and other media? If, on the other hand, tourists are not necessarily focused on seeing the Big Five when they visit a game reserve or park, what other attractions can tour operators and managers offer to tourists?

In South Africa, under-appreciation of biodiversity amongst the public has been attributed to ecotourism that is based on large mammals as a wildlife viewing attraction, because tourists tend to narrow their focus on charismatic species (Kerley, Bev & Vial 2003). This has led some

authors to suggest that protected area managers and operators should shift away from the traditional strategy of marketing these areas primarily as Big Five attractions. Some researchers are currently investigating alternative approaches, for instance the emphasis of herpetofauna as an ecotourism attraction (Loubser *et al.* 2001; Mouton 2003). Some conservationists have even gone as far as to suggest that a change needs to be made altogether from publicising wildlife as the primary attraction in protected areas; instead, managers and tour operators should begin to emphasise the 'spirit of place' of a park or reserve. This means that all the components of that place i.e. landscape, people, culture, history as well as wildlife should be marketed as an inseparable entity (Breen 2003 pers. Comm.).

The available literature concerning experiences of visitors to protected areas in South Africa has focused on the general experiences of tourists with regard to what is provided by the protected area *as a whole*, i.e. natural aspects (including wildlife), facilities and services, rather than focusing on wildlife. One of the exceptions in this regard is a study by Vial published in 1996. This work focused primarily on the experiences of tourists concerning wildlife viewing. Unfortunately the paper was not available at the time of this literature study. This may be an indication that little research has been undertaken regarding preferences and experiences of tourists in protected areas specifically with respect to wildlife. This may be due to a widely held assumption that most visitors to protected areas that provide opportunities to view large mammals, do in fact visit the areas primarily for the purpose of viewing the Big Five (Goodwin & Leader-Williams 2000). One of the aims of this study is to test this assumption in Madikwe Game Reserve.

The availability of the expected generic wildlife viewing product alone does not guarantee satisfactory wildlife viewing experiences among visitors. Reynolds and Braithwaite (2001) have identified other components that affect the wildlife viewing experiences of visitors.

2.4.3. The visitor experience

In addition to wildlife, there are a wide variety of factors that can influence the wildlife viewing experience of a tourist. Due to the limited scope of this study, these factors will not be discussed

in their entirety, but will instead be restricted to three primary factors that have been identified, namely service variables, context variables and visitor knowledge and experience.

2.4.3.1. *Service variables* - variables such as knowledgeable guides (Almagor 1985), viewing platforms, certain types of accommodation and food services may enhance the experience of wildlife viewers (Smith 2001). The information that is received, as well as the manner in which guides communicate it, have been found to be significant factors in *directly* influencing the experiences of wildlife viewers. For this reason, the subject is discussed in greater detail.

Visitors who have an interest in wildlife and nature consider learning and education to be an important feature of their wildlife viewing experience (Preston & Fuggle 1988; Findlay 1997; Loubser *et al.* 2000; Knudson, Cable & Beck 1995 cited in Reynolds & Braithwaite 2001; Bryden 2002). Woods (1999) reported interpretation and education as being highly scored by visitors.

An important distinction between education and interpretation needs to be understood. Education is the communication of factual information, while interpretation reveals meanings and relationships through first hand experience, original objects and illustration media (Tilden 1982 cited in Worboys, Lockwood & de Lacey 2001).

In addition to enhancing visitor enjoyment and understanding, education of wildlife tourists serves to minimise the incidence of inappropriate visitor behaviour such as feeding, touching or getting close to animals (Orams 1996; Woods 1999). In spite of its benefits however, education has not been as widely used a tool for managing tourist-wildlife interaction as regulatory techniques. This is due to a number of limiting factors. One of these is the diversity of visitor groups with respect to size, age and educational levels, which means that the needs of each visitor are unique, thus making the designation of an appropriate educational programme extremely challenging. This is further complicated by the fact that wildlife tourists are usually free to come and go as they please, depending on what holds their interest (Orams 1996).

Interpretation has been regarded as being particularly important in influencing tourist experiences. Whether interpretation contributes positively or negatively to the experience is

determined largely by the interpreter. A guide leads most interpretive activities in protected areas. The characteristics of a good interpretive guide are sometimes indefinable and may vary from place to place and depend on the audience (Worboys *et al.* 2001). Some of the desirable and undesirable qualities of interpretive guides are presented in Table 2.1.

Table 2.1. Types of interpretive guides (Worboys *et al.* 2001)

Types of guides	**Traits**
Cops	Perceive visitors as threats to the environment. Tolerate audiences by issuing many rules for visitor behaviour.
Machines	Regurgitate the same performance without modification. No spontaneity, personal input or adaptation to different audiences. Disapprove of questions or requests to change their format.
Know-it-alls	Focus on imparting information to suggest superiority. Cannot admit lack of knowledge, prefer to pretend.
Hosts	Perceive audience as guests. Offer all clients the opportunity to speak and contribute to discussions. Happily take questions, chat and joke. Respond to audience needs even if it means deviating from planned interpretation.

The quality of tour guides is greatly influenced by the training that the guide has undergone, and by the level of commitment to his/her job as a guide (Slotow 2003 pers. Comm.; Vercuil 2003 pers. comm.).

In South Africa, protected areas are increasingly employing tour guides from previously marginalized communities, as part of the process of extending benefits from conservation to beyond the boundaries of protected areas. Some of these guides are from communities where access to relevant training and educational facilities is limited or non-existent; furthermore, some guides may accept employment as tour guides primarily to gain employment rather than out of a desire to pursue a career as a tour guide (Kelly 2003 pers. Comm.). Such guides may therefore not contribute satisfactorily to the educational/interpretational aspects of visitor experiences. In addition, South African tour guides in general are considered to be too narrow in their interpretation and education because they focus almost exclusively on plants, birds and animals (Breen 2003 pers. Comm.).

In certain situations however visitors may not desire any interpretation or education during their interactions with wildlife. An example of such a situation is described by Almagor (1985), in

which a group of tourists visited Moremi Wildlife Reserve (Botswana). Because the reserve management made the use of guides by visitors mandatory, the visitors had to allow themselves to be accompanied by guides, which they were not particularly pleased about. The reason was that "...the tourists were seeking a direct encounter with nature...the guide's presence threatened the tourists' chances of achieving the sort of experience that they sought" (Almagor 1985:45)

Several studies have been conducted in South Africa, which concern the experiences of visitors to protected areas in the country. These studies have revealed that education and interpretation are also important factors affecting the experiences of tourists in South Africa.

Preston and Fuggle (1988) conducted a study of visitor profiles and preferences in Hluhluwe Game Reserve, Giant's Castle and Londolozi Private Game Reserve. One of the most important findings from this study was that there was a lack of, or insufficient, information provided to tourists; this was perceived to diminish the experience of visitors. Visitors were provided potential options of amenities that could be offered in the reserves, from which they could select. The overwhelming majority selected interpretive facilities for better information. The most preferred interpretive facility amongst visitors at Hluhluwe was conducted walks with a ranger, followed by literature on the reserve.

Similarly, Finlay's study (1997) of whale watchers in Hermanus (Western Cape Province) revealed that both national and international visitors felt that information facilities were not sufficient. This was reflected by the fact that most visitors were unable to identify the species of whale they watched: only 44 percent of South African visitors were able to correctly identify the species of whale that they observed.

In addition, a survey of tourists in Namaqua National Park showed that 79 percent of all respondents thought that there was not enough information on either plants or animals (Loubser *et al.* 2001). When asked how they would prefer information to be made available to them, the most popular choice was by means of pamphlets, followed by an information centre. Seventy-one percent of respondents were willing to pay for brochures that provided good information at a reasonable price.

2.4.3.2. *Context variables* – these include space and time factors (for example time of day or time of year); although these factors affect the quality of wildlife viewing experiences, they are out of the direct control of management (Reynolds & Braithwaite 2001).

2.4.3.3. *Visitor knowledge and experience* – the amount of information that visitors have during their encounters with wildlife is thought to have an influence on the experience (Almagor 1985, Woods 1999, Reynolds & Braithwaite 2001), with higher levels of understanding corresponding to higher levels of enjoyment. Understanding of the wildlife viewing situation being experienced is determined by factors such as educational levels of observers, pre-reading by observers, on-site interpretation aids etc. The level of knowledge of wildlife viewers is closely related to the amount of tourism experience that they possess. Many tourism destinations that were previously inaccessible are being visited by more and more tourists due to cheaper and faster means of transport; tourists are thus generally more informed and experienced than in previous decades. Studies have indicated that these tourists tend to be more demanding than less experienced tourists, and they frequently place more pressure on tour operators to provide more rewarding tourism experiences (Shackley 1996).

Although wildlife is central to tourist wildlife viewing experiences, this review of the literature has revealed that other factors are important in determining the quality of the experience. One of the most important direct influences is education and interpretation. Because of its importance, the latter will be examined in order to determine its role in the experiences of visitors to Madikwe Game Reserve.

2.5. CHARACTERISTICS OF WILDLIFE-VIEWING TOURISTS

Tourism markets are becoming increasingly heterogeneous and complex. If the characteristics of a particular group of tourists within the market are known, managers can develop and promote their products more effectively in order to meet the demands of their target market (Andereck & Caldwell 1994). This process is known as tourism research. The particular group of tourists that is targeted is known as a market segment. Market segmentation involves the identification of homogeneous groups of tourists within a broader heterogeneous population (Smith 2001).

Visitors to Madikwe Game Reserve will have differing levels of experience and interest in wildlife. As a result, they will be likely to desire different wildlife viewing experiences. Information regarding the characteristics of visitors to the reserve would be useful for operators and protected area managers in catering for different types of tourists (Woods 1999; Manfredo 2002). Various characteristics can be used to identify a market segment; three primary categories for segmenting a wildlife viewing market are discussed in this section, namely demographic characteristics, levels of interest in wildlife and motivating factors in visiting protected areas.

2.5.1. Demographic characteristics

Demographic characteristics refer to the profiles of visitors with regard to characteristics such as age, sex, family, occupation and educational status. The study by Woods in Flinders Chase National Park, South Australia (2001) found the mean age of wildlife tourists to be 44 years, while a similar study by Bryden (2002:10) cites wildlife tourists as being generally "older". These findings are in contrast to those of Pearce and Wilson in New Zealand (1995) where 60 percent of whale watchers and 45 percent of other wildlife viewers were 20 to 34 years old. This may be because these (latter) wildlife tourism activities appeal more to the younger age segments, but other unknown factors may be involved.

Some researchers have suggested that younger wildlife viewers demand more challenging excursions than elderly people (Smith 2001). Whale watching at the time of the study by Pearce and Wilson was conducted in small boats that bump up and down at high speeds, making them less suitable for elderly tourists. Similarly, the physical activity required for some forms of wildlife watching in other natural settings may also affect the age structure. In contrast, visitors to wildlife parks and zoos have been found to have a much more balanced age structure and a higher proportion of tourists over 65 (Pearce & Wilson 1995).

Studies by HLA Consultants and the ARA Consulting Group (1994 cited in Smith 2001), and Shackley (1996) have indicated that wildlife viewing demands are evenly divided along gender lines, but with slightly more males than females participating in wildlife viewing. These results differ from those of Woods (2001) where 47 percent of wildlife tourists were male and 53

percent female, and Pearce and Wilson (1995) where males were 45 percent and females 55 percent.

The studies by HLA Consultants and ARA Consulting Group also found that wildlife viewers tend to be better educated than general tourists and have middle to high-income levels. Similarly, Pearce and Wilson's study of wildlife viewing tourists in New Zealand revealed that tourists were well educated and affluent. Nearly 15 percent of the respondents held a postgraduate university degree and 30 percent possessed bachelor's degrees; another third had some other tertiary qualification such as a diploma or certificate. Almost one-third were employed in either professional or managerial positions; 11 percent were students; and 17 percent were retired. It is uncertain whether people with higher incomes are more interested in wildlife viewing or simply more able to afford such visits (for example, whale watching is relatively expensive) (Pearce & Wilson 1995).

Preston and Fuggle's study of visitor profiles and preferences in Hluhluwe Game Reserve, Giant's Castle and Londolozi Private Game Reserve found the mean age of visitors to be 30 to 39 years in all three reserves, with an equal proportion of males and females. A high proportion of the visitors were English-speaking, and all were white. Forty-nine percent of respondents at Hluhluwe, 60 percent at Giant's Castle and 64 percent at Londolozi held tertiary qualifications.

2.5.2. Level of interest in wildlife

The degree of interest in wildlife differs amongst wildlife viewers. Researchers have consequently categorised wildlife viewers into groups that reflect these variations in interest (Bryan 1979 cited in Woods 2001; Woods 2001; Manfredo 2002; Bryden 2002). This distinction of various categories of wildlife tourists is not only useful for segmenting wildlife-viewing markets, but it is also important in understanding the experiences sought by different groups: if there are different types of wildlife viewing tourists, then the features they are seeking in wildlife viewing experiences will differ.

Bryan (1979 cited in Woods 2001) distinguishes two broad categories of wildlife tourists, namely 'Generalists' and 'Specialists'. Manfredo (2002) refers to the latter as a 'High

Involvement' market. These two groups occur at the extreme ends of a continuum, with Generalists being those who merely have a general interest in wildlife and therefore devote less time to wildlife viewing. These people take trips to wildlife sites in order to experience a change of environment, to get out with friends/family, or just to see new scenery. Generalists have less specific needs regarding their visits to wildlife sites (Woods 2001; Manfredo 2002).

Specialists on the other hand are tourists who are highly interested in wildlife viewing. They take several trips throughout the year, and they enjoy opportunities to study wildlife and behaviour, and opportunities to teach and lead others (Manfredo 2002). Specialists tend to have more specific preferences regarding the setting in which they view wildlife (Bryan 1979 cited in Woods 2001). Wildlife viewing Specialists will frequently be members of organisations such as clubs and associations for people who have a high interest in wildlife (Woods 2001).

While Bryan (1979 cited in Woods 2001) identified levels of interest in wildlife according to two categories i.e. Generalists and Specialists, Manfredo (2002) included two further categories:

Creative – like Specialists, this is a market of wildlife viewers who are very active and interested in wildlife. Unlike Specialists however, Creative wildlife viewers place the greatest value on the opportunity to photograph, paint or sketch wildlife. These people often invest highly in equipment such as cameras.

Occasionalists – these are wildlife viewers who have only a slight interest in trips specifically to view wildlife. As the term suggests, Occasionalists take wildlife viewing trips only occasionally. The primary means by which they enjoy wildlife is when it is associated with other types of activities such as camping, hiking, hunting or fishing.

Studies of wildlife viewing markets in North America by Manfredo (2002) indicated that the highest proportion of the public is either Occasionalist (51 percent) or Generalist (35 percent), while six percent are in the Creative group and eight percent in the High Involvement (Specialist) group.

In a wildlife tourism survey by Bryden (2002), levels of interest in wildlife were determined as part of an overall goal to determine levels of interest in *nature*. Visitors were asked to describe their interest in nature by categorising themselves as one of the following:

i. Gazers – those who enjoyed looking at the scenery
ii. Beginners - those who had an interest but lacked any knowledge
iii. Dabblers – those who had an interest and recognised a few birds and flowers
iv. Studiers – those with a real interest in knowledge of wildlife (Studiers can be regarded as the equivalent of Specialists/High Involvement wildlife viewers).

Bryden's results revealed that certain sites within the study area, which had a clear species attraction (e.g. otters and dolphins), tended to attract a higher percentage of Studiers. Studiers were also much more likely to be members of a conservation organisation.

According to Manfredo (2002), there is an important distinction between viewer markets and opportunity preferences. The term 'viewer market' describes the characteristics of market segments of wildlife viewers on the basis of their viewing interests. 'Opportunities' (i.e. experiences, setting and activity) describe the characteristics of a single wildlife-viewing event. A person's classification into one type of market does not necessarily mean that they have interest in only one type of opportunity. For example, a person grouped in the 'High Involvement' (Specialist) category might participate in highly specialised viewing opportunities with friends who share that interest. But, when choosing a family outing, the same person might choose to participate in a low-specialisation, general-interest type of activity (Table 2.2).

Table 2.2. Summary of empirically derived wildlife viewing typology for Denver Metro residents. Description of experience opportunity preference and highlights of attributes associated with the experience (Manfredo 2002).

	Recreation Opportunity Label			
	High Involvement	**Creativity**	**Generalist**	**Occasionalist**
Experience Opportunity[1]	A wide range of desired outcomes is highly valued. Compared to other experiences, emphasis placed on developing spiritual values, teaching outdoor skills to others, nostalgia, privacy/solitude, friendship, stimulation, being near others who are considerate, developing skills and abilities.	High on experiencing nature, escaping life's demands, tranquillity, nostalgia, exploration, family togetherness. Very high on creativity. Low on solitude/privacy.	High on experiencing nature, tranquillity, and escaping life's demands, family togetherness, exploration.	Overall, low level of importance to outcomes associated with viewing. Highest on nature experience, nostalgia, tranquillity, family togetherness.
Setting Opportunity[2]	Wide interests, including rare and endangered species, eagles, and large mammals. Strong interest in information including information about threatened and endangered species, how to be successful at viewing, natural history, and management activities.	Unique due to emphasis placed on seeing animals in the wild and interest in seeing many different animals in a single outing	Interested in rare and endangered species, symbolic species (e.g. eagles), and large mammals. Responsive to designated viewing areas, visitor centres, trails with signs, brochures at visitor centres.	Low specific interest. Items of greatest interest include rare and endangered species, symbolic species (e.g. eagles), and large mammals. Responsive to designated viewing areas, visitor centres, trails with signs, brochures at visitor centres.
Activity Opportunity[3]	Viewing is combined with a wide array of activities, especially camping, hiking, picnicking, and fishing.	Camping, hiking, picnicking; unique due to emphasis placed on photography.	Emphasis on camping, hiking, picnicking.	Camping, hiking, and picnicking.

2.5.3. Motives for visiting wildlife destinations

One of the objectives of surveys of wildlife viewing tourists is to determine the extent to which wildlife is a motivating factor for visiting an area (Pearce & Wilson 1995; Goodwin & Leader-Williams 2000; Woods 2001; Bryden 2002).

In Pearce and Wilson's study (1995), respondents were questioned about the importance of wildlife viewing in their decision to visit South Island (New Zealand); only 19.4 percent of respondents cited wildlife viewing as the sole reason for their visit, although 52 percent rated wildlife second and 19 percent rated it third along a scale of importance. In a different study, 56 percent of wildlife tourists to the Highlands and Islands of Scotland cited wildlife as their main

[1] Desired psychological outcome from a recreational activity
[2] Context in which a recreation opportunity takes place. Includes natural and social context, and managerial techniques used to facilitate the experience.
[3] Particular activity or set of activities associated with a recreational opportunity.

reason for visiting the area, while 31 percent said their aim was to "visit a nice place" (Bryden 2002:2); 14 percent indicated participation in activities such as walking and cycling as their reason for visiting the site. In some instances where tourists have only a casual interest in wildlife viewing, visitors devote a considerable amount of time on other activities related to cultural/historic attractions, as shown in studies by Pearce and Wilson 1995 and Goodwin & Leader-Williams 2000.

Visitors to Flinders Chase National Park (Australia) reported that wildlife and wilderness experiences were the main reasons for wanting to visit the site (Woods 2001). The opportunity to see wildlife was at least 'somewhat important' for 95.2 percent of visitors, and 'very important' for 69 percent.

Goodwin and Leader-Williams (2000) investigated various features of places in India and southern Africa that tourists considered to be the most significant features in motivating their visit. In India, encounters with wildlife and 'authenticity' ranked highest, while encounters with wildlife was the most highly ranked element in southern Africa (Figure 2.3).

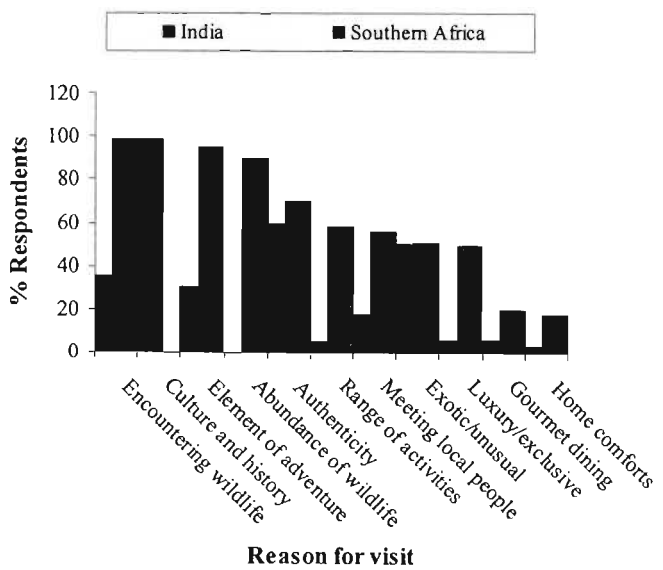

Figure 2.3. Perceived elements of importance in India and southern Africa (Goodwin & Leader-Williams 2000).

When asked about their motives for visiting the three reserves in South Africa mentioned in section 2.4.3.1, the majority of respondents in Giant's Castle and Londolozi cited "the atmosphere of being in nature" (Preston & Fuggle 1988:2). In a similar study by Kepe (2001), which was conducted in Mkambati Nature Reserve in the Eastern Cape Province of South Africa, a large proportion of respondents indicated a similar reason for visiting the reserve i.e. the opportunity to experience a natural/unspoilt environment. Seventy-five percent of visitors in Hluhluwe and Londolozi indicated that game viewing was 'extremely important' as a motive for visiting the reserve (Preston & Fuggle 1988:3). This may indicate the importance of game viewing as a motivating factor among tourists who visit areas that are known to contain traditionally popular species of wildlife, i.e. the Big Five. (In both studies by Preston and Fuggle, 1988 and Kepe, 2001, the majority of tourists to protected areas were found to be national rather than international tourists).

Studies have revealed that the degree of importance that visitors attach to viewing wildlife varies depending on the place. For instance, surveys of tour operators conducted by the Durrell Institute of Conservation and Ecology (DICE) indicated that visitors to protected areas in India are attracted primarily by culture and history with less emphasis on wildlife (cited in Goodwin & Leader-Williams 2000) (Figure 2.4). On the other hand, visitors to protected areas in southern Africa cited wildlife as the primary reasons for visiting protected areas (Goodwin & Leader-Williams 2000).

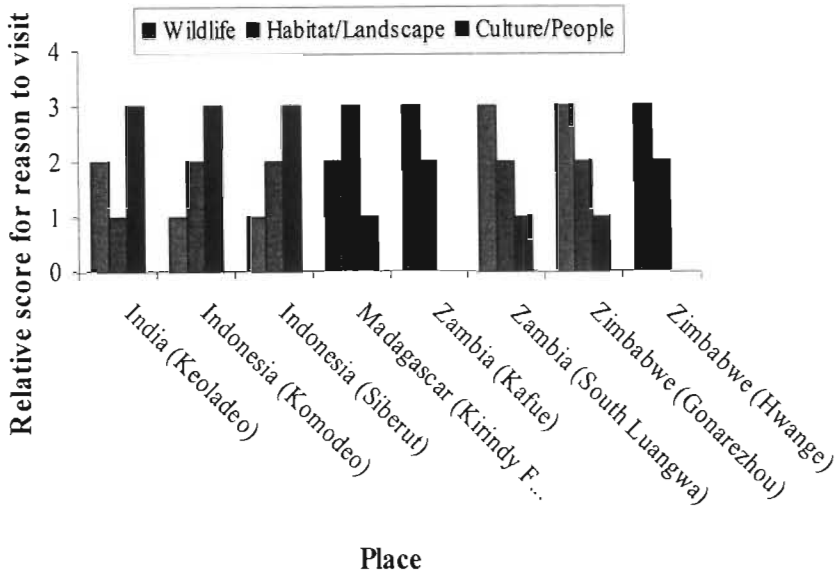

Figure 2.4. Main reasons for visit to protected areas. The expressed elements of interest for visitors to protected areas in India, Indonesia, Madagascar, Zambia and Zimbabwe. The interest of visitors in wildlife, habitat and landscape, and culture and people for the eight sites are given relative scores by order of importance, with 3=most important, 2=second important, and 1=least important (Goodwin & Leader-Williams 2000).

2.6. WILDLIFE VIEWING AND IMPACTS ON NATURAL RESOURCES

Surveys of wildlife tourists to protected areas have shown that one of the most desired features among tourists is the wilderness quality experienced in the area. The main factors that are considered to contribute to this wilderness quality are an absence of noise, crowding and environmental damage. At the same time, however, visitors seek other conflicting features, namely easy and cheap access and adequate visitor facilities. Furthermore, visitors often want to maximise the possibility and closeness of encounters with wildlife. This may result in detrimental effects on wildlife and their habitat, which in turn results in a diminished wildlife viewing experience among visitors (Shackley 1996). Protected area managers are thus faced with the challenge of providing visitors with satisfying wildlife experiences, while maintaining the quality of the environment.

Wildlife viewing is often regarded as being in conflict with wildlife conservation (Manfredo 2002). The sustainability of wildlife tourism has been widely questioned due to its actual and

potential impacts on wildlife species and habitats (Goodwin & Leader-Williams 2000). Knight and Cole (1995 cited in Reynolds and Braithwaite 2001) have classified these impacts into four broad categories, namely harvest (i.e. hunting and fishing), habitat modification, pollution and disturbance of animals. Wildlife viewers may cause disturbance to wildlife when they approach animals closely for the purposes of identification or photography. The potential for disturbance is particularly high during sensitive times in the life cycle of animals, for example during breeding.

Little is known about the actual impacts of wildlife tourism on the wildlife and habitats in question. This is partly due to the difficulty involved in identifying impacts in the absence of baseline data, and the complexity of ecological systems (Goodwin & Leader-Williams 2000). Furthermore, the responses of animals to human disturbances differ between individuals. Nonetheless, some studies have quantified environmental impacts arising from wildlife tourism (Goodwin & Leader-Williams 2000).

In most African protected areas, the observation of wildlife is carried out from vehicles. In their desire to see animals, particularly the big cats, large numbers of tourist vehicles often congregate around these animals. This has been regarded as being potentially or actually harmful to wildlife. Shackley (1996:66) describes an example of such as incident:

"The writer once watched 23 minibuses converge at a single location in Samburu National Park, Kenya, after the reported sighting of a cheetah and cubs. The clouds of dust generated by speeding drivers frightened off much of the game and thickly coated roadside plants. The drivers ignored track boundaries and parked anywhere (engines running) so that their passengers could get a good view. The cheetah, who had been in the process of making a kill, was frightened off and unable to feed its cubs, one of whom was limping and probably injured. A few more missed meals and its survival would be in doubt. The mother was therefore forced to expend useless energy without being rewarded by a meal. Did the visitors feel satisfaction that they had seen a cheetah or guilt that their presence had deprived the cheetah family of a kill?"

Large numbers of vehicles in protected areas result not only in negative impacts on wildlife and their habitat, but also lessen the perceived quality of the wildlife viewing experience among

visitors. A study by Henry Wesley in 1982 revealed that approximately 80 percent of visitors in Amboseli National Park were concentrated in a 15 km^2 area because this was the area where the cats were located. This type of situation has resulted in complaints by visitors to Kenyan parks that they "came to see animals, not other visitors" (Shackley 1996:67). Many wildlife tourists are subsequently opting for other less crowded protected areas in Botswana, Namibia and South Africa. Etosha National Park (Namibia) for instance reportedly never appears crowded, and it is possible to spend a day in the park without seeing anyone (Shackley 1996). Whereas the East African protected areas are viewed as overcrowded and commercialised, Etosha provides the visitor with a feeling of a satisfying wilderness experience while at the same time visitors have access to adequate infrastructure and facilities.

Another example of tourist impacts on wildlife is that concerning primates. Studies have shown primates to be sensitive to human disturbance (Grieser 1996 cited in Grossberg, Treves & Naughton-Treves 2003; Grossberg *et al.* 2003). The presence of tourists can stress primates and cause long-term behaviour modifications. Tourists may also hinder primates' access to important food resources. Vigilance of humans conflicts with the search for food or other activities requiring visual attention. As a result, the ability of primates to detect predators or other threats may be reduced. High noise levels due to heavy tourism were associated with lowered reproductive success in breeding marmosets by *de la* Torre, Snowdon and Bejarano 2000 cited in Grossberg *et al.* 2003. In addition, contact between tourists and primates carries the risk of disease transmission; in a study of tourism impacts on howler monkeys by Grossberg *et al.* (2003), monkey groups exposed to high levels of tourism were found to have higher rates of infant mortality and disappearances of non-infants than groups exposed to less tourism.

The above examples clearly illustrate that wildlife viewing in any protected area has the potential to negatively affect natural resources. These resources however form the basis upon which wildlife viewing is dependent; emphasis should thus be placed on protecting these resources by incorporating ecological sustainability principles when developing wildlife viewing (Smith 2001). These principles are an important part of protected area management.

2.7. ENHANCING WILDLIFE VIEWING EXPERIENCES THROUGH MANAGEMENT

In order to achieve a high quality of visitor experience while minimising the impact of that experience, it is necessary to manage the environment and wildlife as well as visitors. (Lindberg & Hawkins 1993; Shackley 1996; Worboys *et al.* 2001). This requires knowledge of visitor preferences. To date, no study has been conducted in Madikwe Game Reserve for the purpose of determining the wildlife viewing preferences of visitors (Slotow 2003 pers. comm).

2.7.1. Wildlife viewing management

Wildlife-viewing management is an emerging discipline that is still in its infancy. This discipline is defined as the management of wildlife biology for the purpose of producing ecologically sustainable wildlife-viewing opportunities and benefits (Gill 2002). It is a multidisciplinary profession that requires the integration of various skills and practices from related fields such as wildlife management and conservation biology. The ultimate aim of wildlife viewing however is to provide people with exceptional benefits, while conserving natural resources.

The manipulation of wildlife and habitats has been opposed on the basis that it is 'unnatural' or even unethical. Some conservationists have suggested that the best approach to providing beneficial wildlife viewing opportunities is to first determine what a particular protected area has to offer (not just wildlife but the nature experience as a whole), then determine which sectors of the public they can cater for. In other words, managers should "rather manipulate the people and not the wildlife" (Kelly 2003 pers. comm.). In response, one could argue that firstly no protected area can be regarded as natural in the sense that it is free from human manipulation. The manipulation of wildlife and habitats occurs in all protected areas, albeit to varying degrees (Draper 2003 pers. comm.). For example, even in the most unaltered protected area, roads and facilities are necessary to cater for the needs of staff, if not tourists. Secondly, it is possible to manipulate wildlife and habitats to the benefit of both wildlife and tourists, *provided that the resultant benefits exceed ecological, social and economic costs* (Gill 2002).

Etosha National Park is a good example of a protected area where careful habitat manipulation is carried out in order to facilitate wildlife viewing. Artificial waterholes have been constructed in

the park for the purpose of attracting game and providing visitors with good viewing opportunities. These waterholes have been placed in such a way that the most heavily utilised are those closest to rest camps. Each camp has a "sightings" book that indicates the best places to view popular species; waterholes are monitored by nature conservators (Shackley 1996:70).

In order to provide wildlife viewing opportunities and benefits, wildlife-viewing managers actively seek to manipulate wildlife distribution, abundance, diversity and behaviour (Bothma 1996, Manfredo 2002). For instance, some wildlife-viewers prefer to see abundant wildlife and are attracted to areas where wildlife is numerous. Management for these viewers should therefore focus on manipulating wildlife abundance. Other viewers however are satisfied simply with predictable wildlife viewing opportunities i.e. it is important to them that the likelihood of seeing wildlife on a given occasion is high. For these viewers, management should focus on manipulating animal distribution (Gill 2002).

2.7.2. Visitor management

Education of wildlife tourists is often regarded as a powerful means of minimising harmful impacts on wildlife, the reasoning being that the more people know concerning a species and its habitat, the more likely they are to undertake necessary measures for its protection (Orams 1996; Shackley 1996; Woods 1999). This approach appears to have been successful in some protected areas in places such as Costa Rica. In many instances however education may not be a deterrent. For example, many people are willing to see a rare or endangered wildlife species, even if they are aware that doing so is potentially harmful to the animal (Shackley 1996). As a result, educating visitors may not be a sufficient measure for minimising impacts on wildlife. In some situations, it may be necessary to include regulatory measures.

Minimal disturbance to wildlife can be achieved through regulations such as absence of/minimal tourist facilities (e.g. in camping areas); the use of animals (for example horses or elephants) or hiking as a means of transport; and imposing fines for tourists that do not abide by regulations. These measures alone however are more likely to succeed in small remote areas than large multi-access areas with different ecological zones (Shackley 1996). For example, although moving through a protected area on foot or horse results in less disturbance to wildlife as well as a higher

quality of visitor experience, this may not be possible in some large areas. In addition, motorised transport enables a visitor to cover more ground, thereby maximising their chances of seeing a broad range of species (a traveller on foot runs the risk of not seeing anything). These factors have caused many planners and managers of protected areas to resort to zoning of areas as a means of managing visitors in order to minimise environmental impacts and enhance tourist experiences. Education and regulation are important components of zoning systems.

In many protected areas, zoning is done not only to protect resources, but also to provide diversity in terms of experiences available to visitors. Two factors are used to establish management objectives for each zone within a protected area: resource constraints (e.g. soil type, altitude, precipitation landscape/ecosystem features and wildlife needs); and the distribution of recreational opportunities sought by visitors. (Lindberg & Hawkins 1993). According to Worboys *et al.* (2001), environmental/ecological objectives as opposed to recreational, need to be established as the primary management objectives for each zone.

One of the most important aspects of zoning is the setting attributes of zones (setting is one of the components of EBM described in section 2.3.2). The distribution of setting attributes in a protected area has been referred to as the recreational opportunity spectrum (ROS) by other researchers. Various setting attributes are possible, which range from remote natural wilderness through to urban settings. The more developed an area becomes, the more it is said to "hardened" (Worboys *et al.* 2001:289).

In order to determine the distribution of setting attributes desired by visitors in a zone, it is necessary to assess the views and perceptions of visitors. In addition to the types of wildlife that visitors desire to see, managers can also determine visitor perceptions of crowding. This is particularly important for setting psychological carrying capacities for zones. Shackley (1996:31) defines psychological carrying capacity as "the level beyond which visitor satisfaction drops as a result of overcrowding". At the same time, psychological carrying capacity should remain within the ecological carrying capacity for the area. The latter can be determined by experienced rangers and other experts using their theoretical and practical knowledge of a site, which includes an understanding of ecological processes and potential visitor impacts. Estimated visitor

use limits are likely to be cautiously set well above current visitor use levels (Worboys *et al.* 2001).

Maximum visitor numbers determined for each zone will eventually be a function of:

1. Physical capacity of the site.
2. Psychological capacity.
3. Ecological capacity.

Once management objectives have been set for each area, zones should be managed according to the setting attributes that correspond to the management objective. Examples of setting attributes are visitor density, remoteness, level of infrastructure, type of travel, level of regulation/visitor freedom. Table 2.4 is a hypothetical illustration of possible zones for a protected area, with the management objectives and setting attributes for each zone. The three zones described in the table represent three zones along a spectrum from intensive use to minimal use.

Table 2.3. Example of a zoning spectrum and its associated management objectives and setting attributes (after Lindberg & Hawkins 1993).

		SETTING ATTRIBUTE /RECREATIONAL OPPORTUNITY SPECTRUM (ROS)			
ZONE	**OBJECTIVE**	**Physical**	**Social**	**Managerial setting (i.e. how zone is managed to achieve objective)**	**Tourist activity**
Intensive/recreational	To provide easily accessible recreational, educational and administrative areas that accommodate large numbers of people (e.g. Skukuza in Kruger National Park)	High degree of development (site hardening); many roads, trails, visitor facilities and amenities such as lodges, restaurants and entertainment centres.	High visitor density	Almost no restrictions on party size. Hours of operation and other regulations are well posted. Admission fees are charged to some activities.	Visiting displays and educational exhibits. Socialising with other visitors. Making purchases related to the park/reserve. Swimming, picnicking etc.
Semi-primitive	To provide visitors with the opportunity to achieve a more self-directed/individualised experience (using outdoor skills in a natural setting). To provide visitors access to areas of the park/reserve where many natural features occur.	Remote. Generally several kilometres from usual visitation sites or transport routes. Little evidence of human activity.	Groups of 5-18 people. All trails and campsites will have quotas.	Permits required. Length of stay is restricted. Contacts between visitors and reserve personnel are brief.	Wildlife viewing, hiking, camping, nature study.
Pristine/scientific	To protect areas of the reserve, which have high scientific value, and to conduct scientific research in these areas e.g. King Edward Islands.	Remote and uninhabited	Visits are very limited. Usually restricted to scientists.	Strict regulations apply to zone. Visits require permits in advance. Guides specially trained in low impact techniques.	Research

Effective visitor management according to a zoning strategy requires regular monitoring of visitors and their motivations, experiences and preferences for experience opportunities.

(Lindberg & Hawkins 1993; Worboys *et al.* 2001). In addition, it is important that concessionaires understand and help to manage the zoning system.

The relationship between protected area managers and concessionaires is one that has the potential to be mutually beneficial to both parties, if kept in balance. Managers need concessionaires to provide visitors with the best possible quality of services to tourists in terms of accommodation, food, transport and so forth; concessionaires on the other hand need protected area managers to ensure that the natural 'products' sought after by tourists are in good condition (Lindberg & Hawkins 1993). In many places however, this relationship is frequently out of balance. Concessionaires operate primarily out of the desire to make a profit, sometimes at the expense of the environment – for instance when tour operators drive off roads in order to allow tourists to view rare animals (Shackley 1996). On the other hand, protected area managers who are overly protective of the place they manage may be reluctant to allow concessionaires to operate effectively. Such managers should keep in mind that "ultimately, protected areas will not survive without constituents who know and love those places" (Lindberg & Hawkins 1993:63).

Protected area managers can strive for an optimum balance in their relationship with concessionaires by including tour operators in the planning process and ensuring that visitor preferences, group size, behaviour and activities are appropriate to a particular zone. It is important for tour operators to realize that a properly managed zoning system provides quality visitor experiences; at the same time it will enable operators to adapt to market changes. For example, adventure tours rely on low density and remote zones to provide quality experiences, but if zoning is not present or properly managed the distinction between zones will disappear, resulting in increased visitation throughout the protected area (Worboys *et al.* 2001). Visitors will subsequently begin to look for "undiscovered" experiences elsewhere (Lindberg & Hawkins 1993:71). Finally, protected area managers can direct concessionaires to strive for ecologically sustainable levels of visitor use by prescribing that the number of tourists accommodated by each tour operator in a zone must be a proportion of the total number of visitors established for a site (Worboys *et al.* 2001).

One of the most important managerial tools for maintaining the distinction between different zones in a protected area is monitoring of impacts within each zone. This should be done in order to make changes in visitor management if unacceptable limits of negative impact are reached. One of the ways in which managers accomplish this is through the Limits of Acceptable Change process (LAC) (Lindberg & Hawkins 1993). Worboys *et al.* (2001) have referred to this process as Visitor Impact Management (VIM). This process consists of three parts (Lindberg & Hawkins 1993):

1. *Managers select indicators* that are related to the activities of visitors, such as soil erosion or stress on a particular species of wildlife.
2. *The limit of acceptable change is established for each indicator*. For instance, a standard for the aggressiveness of a particular species of wildlife might be set at three incidents per month for six consecutive months.
3. *Conditions are monitored.* If established standards are exceeded, management changes are made in order to bring resource or social conditions back to the desired state. For example, if the aggressiveness of the species mentioned above exceeds the set limit, then managers might reroute a trail, or ask visitors to behave differently.

In South Africa, priorities for protected areas often change depending on circumstances and on the inclinations of individual managers: managers frequently make and implement decisions without regard to management plans for the area, for example building guest facilities in a zone not meant to have any developments (Hartley 2003 pers. com). In addition, political concerns may override the decisions of managers even when managers seek to manage a protected area according to the zoning system for the area (Nxumalo 2003 pers. com). When managers carry out infrastructural developments that are not in accordance with the zoning system of the area, the nature of the recreation setting changes. Planned developmental changes are acceptable; unplanned, incremental developments on the other hand gradually change the setting towards the developed end of the ROS spectrum (Table 2.3). This ultimately results in the displacement of visitors that desire a more natural setting.

Wildlife viewing preferences vary among visitors. Before wildlife-viewing mangers can undertake any actions aimed at providing viewing opportunities, they need to understand these preferences. Efficient visitor management will not only result in the protection of natural resources, but will also result in the availability of diverse experiences that can suit the different preferences of visitors (Lindberg & Hawkins 1993). This is possible only through the development of unique research foundations (Manfredo 2002). One of these research avenues is determining what motivates people to visit a particular protected area, and the outcomes that they seek from the visit. Once this information is obtained with regard to Madikwe Game Reserve, it will be possible for managers to determine what opportunities to offer visitors while protecting natural resources.

2.8. CONCLUSION

Various studies in recent years have revealed the increasing popularity of wildlife viewing. African protected areas in particular, are an important draw card for wildlife tourists. In spite of the increasing importance of wildlife viewing to visitors in protected areas, protected area managers often do not take the needs of visitors into management considerations. In order to effectively manage the demand for wildlife viewing in protected areas, visitor preferences and experiences should be incorporated into protected area planning, development and management. The success of such incorporation however requires that the needs of visitors be extended beyond the provision of inputs, to the experience outcomes which visitors desire from wildlife viewing recreational opportunities. The experience-based management model for recreation provides a framework for the incorporation of visitor needs into the management of protected areas, with the ultimate aim of providing desired psychological experience outcomes. In order to determine these outcomes, information is needed which pertains to the preferences of visitors regarding resources (particularly in relation to wildlife), social settings, activities and management techniques. The application of such knowledge however must be according to ecological sustainability principles, which prevent or mitigate negative visitor impacts on wildlife and their environment.

The available literature concerning wildlife tourism in South African protected areas suggests that this is a subject that requires greater investigation before demand for, and the nature of

wildlife viewing amongst visitors, can be accurately assessed in the South African context. This work provides the opportunity to conduct this investigation in Madikwe Game reserve.

CHAPTER 3

CONCEPTUAL FRAMEWORK FOR THE STUDY

This study will be based on a survey of visitors to Madikwe Game Reserve. The conceptual framework for the survey is illustrated in the diagram below (Figure 3), followed by a discussion of the framework.

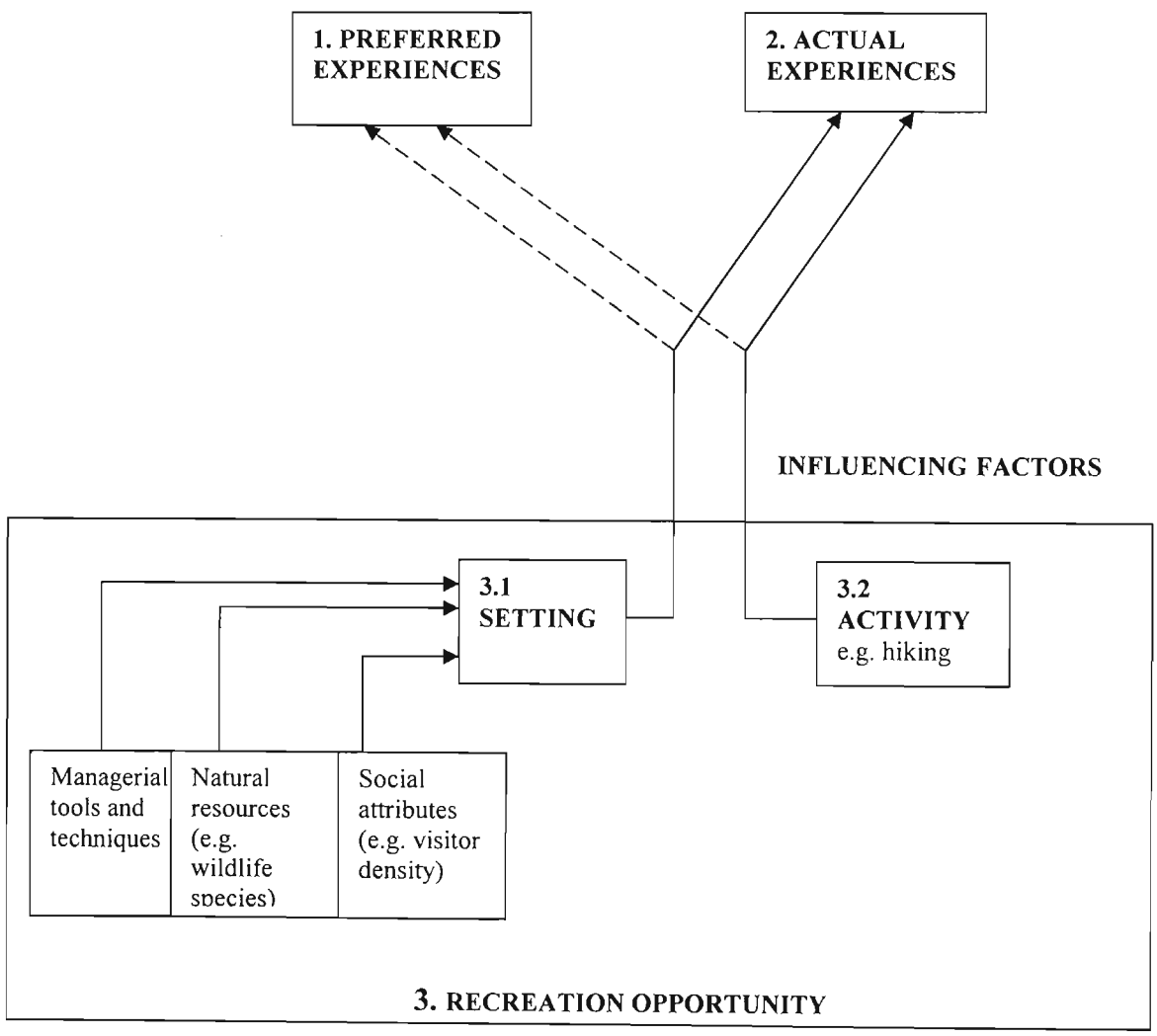

Figure 3. A proposed conceptual framework for the study.

1. The preferred experience outcomes of visitors to Madikwe Game Reserve will be determined using a Pre-visit survey questionnaire (refer to section 2.3.1. for details).
2. Preferred experiences will be compared to actual experiences; the latter will be determined using a Post-visit questionnaire.
3. Preferred (1) and actual (2) experiences will be influenced by the various recreation opportunities available to visitors, namely:
    3.1. Setting attributes of the reserve, such as managerial, resource and social attributes (section 2.3.2)
    3.2. Activities such as camping.

The preferred and actual setting attributes and activities will be determined using both the Pre- and Post-visit questionnaires.

The preferred experiences of visitors to the reserve are likely to vary; following the outcome of such variations, visitors will be profiled accordingly in order to determine a recreation typology for Madikwe Game Reserve.

CHAPTER 4
STUDY AREA

This study will be conducted in Madikwe Game Reserve. Because this reserve differs significantly from most protected areas in South Africa in certain important aspects, a background to the reserve will be provided as a context.

4.1. SITE DESCRIPTION

4.1.1. Location

Madikwe Game Reserve is approximately 70 000 hectares in size and located in the North West Province of South Africa. Botswana in the north, the Marico River in the east, the Dwarsberg range of hills in the south and the Zeerust-Gaborone road in the west border the reserve (Davies 1997). Madikwe has five entrance gates, namely Abjaterskop, Molatedi, Wonderboom, Tau and Derdepoort.

4.1.2. Topography and geomorphology

The reserve is divided into roughly two equal parts by a low range of quartzite hills known as the Rant van Tweedepoort that run in an east-west direction. Madikwe consists largely of gently sloping extensive plains, which are much flatter in the northern half of the reserve than in the southern portion. The northern plains are underlain by granite, gneiss and andesite while the southern plains are underlain by dolomite. The highest point in the reserve is found at Tshwene Tshwene in the centre of the reserve (1 328 m above sea level) (Davies 1997).

4.1.3. Soils

The hills of Madikwe are largely overlain by shallow soils while those at the base of the hills are either fairly well drained red to brown loamy soils or less well-drained darker clay soils. The soils found on the southern plains are predominantly shallow and stony, and those of the northern section are similar. (Davies 1997).

4.1.4. Climate

Madikwe Game Reserve has been described as an arid area where mean annual rainfall varies between 475 mm in the north east of the reserve to 520 mm in the south (Davies 1997). Most of the rain falls in summer between October and April. The coldest period of the year occurs between June and August with frosts being restricted to lower-lying areas. Humidity is generally low throughout the year, although summer is more humid than winter.

4.1.5. Vegetation

The vegetation in the reserve consists mainly of broad-leaved plant communities dominated by *Combretum* species, and microphyllous communities dominated by *Acacia* species. (Game populations are discussed in section 4.5).

4.2. HISTORY

The land on in which Madikwe Game Reserve is situated was historically used for farming. By the 1940s, a combination of overgrazing and desertification had transformed the place to such an extent that farming was no longer an economically viable activity (the region is however a naturally low rainfall and agriculturally marginal area). In 1991, Madikwe Game Reserve was proclaimed after a study revealed that ecotourism would be an economically more rewarding form of land use than agriculture (Davies 1997).

A significant amount of the vegetation in the reserve has been influenced by past agricultural practices. For example, it has led to a marked increase in the distribution and density of *Dichrostacys cinerea*, which has had a negative effect on the vegetation communities of the reserve. On the other hand, the presence of old cultivated lands in the reserve provides more areas that provide very good game viewing opportunities for visitors. This is important in Madikwe, which is a fairly densely wooded environment. If left alone and allowed to re-vegetate naturally these lands would probably evolve into dense thickets with little grass cover and poor game viewing potential. For this reason, the management of the reserve has decided to keep these areas open (Davies 1997).

4.3. SOCIO-ECONOMIC STATUS OF SURROUNDING AREA

The population surrounding Madikwe Game Reserve is made up mostly of commercial and subsistence farmers. Commercial farms are found in the eastern and southern boundaries of the reserve where cattle farming is the dominant land use (Davies 1997; Boonzaaier & Lourens 2002). There are three villages in the area, namely Supingstad and Lekgophung (west of the reserve) and Molatedi (south east of the reserve). Due to low household incomes and unemployment, these village communities surrounding the reserve are regarded as particularly important beneficiaries of economic returns from the reserve; as a result, the reserve is managed jointly by the North West Parks and Tourism Board (NWPTB), the private sector and the community, with the NWPTB as the lead agent (Madikwe Development Task Team 1997).

4.4. AIMS

Unlike other protected areas in South Africa, Madikwe Game Reserve was established *solely* for the purpose of providing economic benefits to the region through wildlife tourism (Davies 1997). Conservation is therefore not an end for Madikwe Game Reserve, but rather it is a means to an end, the end being economic benefits.

Madikwe Game Reserve seeks to achieve its aim i.e. generating economic benefits, through wildlife tourism which places emphasis on wildlife viewing. Wildlife viewing by visitors in Madikwe is thus the focus of this study.

In order to achieve the reserve's aim, management set the goal of enhancing the wildlife viewing experiences of tourists. To attain this goal, the reserve had to be restored to its natural state. Prior to the establishment of Madikwe in 1991, the land on which the reserve is located was used for cattle farming. When the land was acquired by NWPTB, it was in a degraded state, with virtually no game. Thus management declared: "the ecological management will be focused on restoring Madikwe Game Reserve to its former state with a view to enhancing the visitor experience" (Madikwe Development Task Team 1997:8).

Since 1992, the restoration of Madikwe Game Reserve has been carried out through game re-introductions and habitat management. During the game reintroduction program, dubbed

Operation Phoenix, more than 8 000 head of game (both herbivores and predators) were reintroduced into the reserve. In addition, programs aimed at rehabilitating the habitat were implemented, for instance the control of bush encroachment that had resulted from overgrazing during the days of cattle farming, and the removal of alien plant species (Davies 1997; Madikwe development Task Team 1997). These programs have been a crucial part of the process of achieving the reserve goal of providing desired wildlife viewing experiences to visitors.

4.5. PRESENT SITUATION

At present, management actions in Madikwe Game Reserve are directed towards maintaining wildlife populations and habitats. This is done through annual game counts. In addition, special monitoring programs are in place for selected species such as elephant (*Loxodonta africana*), buffalo (*Syncerus caffer*), black rhino (*Diceros bicornis*) and African wild dog (*Lycaon pictus*). Prior to Operation Phoenix, only a few mammal species occurred in low numbers in the area. Following the reintroduction programme, almost all the large mammal species that are historically indigenous to the area have been reintroduced (Madikwe Development Task Team 1997)(Appendix I).

Because the goal of the reserve is to enhance wildlife viewing experiences of tourists, ultimately with the aim of generating economic returns to the region, management actions should be directed towards enhancing visitor experiences. This however is not the case. Emphasis is presently on *maintaining* wildlife populations and habitats, but not necessarily with the wildlife viewing experiences of tourists in mind. Conservation has become the *ends* rather than the *means* to the reserve's stipulated ends. Where management actions do contribute to enhanced visitor experiences, this occurrence is incidental rather than deliberate or, at best, it is achieved in an unplanned and haphazard manner (Madikwe Development Task Team 1997). This situation may be a carry over from the early days of conservation when the sole focus of managers was on wildlife and habitats.

4.5.1. Proposed Pilanesberg National Park – Madikwe Game Reserve Corridor (Heritage Park)

Madikwe Game Reserve has been earmarked for inclusion into a conservation corridor that is planned to extend from Madikwe Game Reserve to the Pilanesberg National Park (Boonzaaier & Lourens 2002). This area will be known as a Heritage Park because it includes the Heritage Route, which offers tourist attractions such as the Sterkfontein Caves, a designated World Heritage Site. The purpose of the corridor is to generate economic benefits and promote conservation through ecotourism activities (NWPTB 2003).

Different parts of the proposed corridor will be zoned according to different uses, namely recreational (e.g. picnic sites, restaurants, curio shops etc); breeding game; resource use (mainly hunting); and game viewing (Boonzaaier & Lourens 2002). The Pilanesberg and Madikwe areas will play an important role in providing momentum to this conservation initiative, because these are the parts of the proposed corridor, that already have an established tourism infrastructure and client base. For example, the Sun City complex and various lodges and farms surrounding Pilanesberg.

The success of Madikwe Game Reserve in achieving its aim of being an economic stimulant to the region will become even more important if the proposed Heritage Park is established in the region. In order for Madikwe Game Reserve to achieve its goals, management actions should be actively directed towards enhancing the wildlife viewing experiences of visitors in a planned manner and on the basis of reliable information. This can only be achieved by determining visitor preferences and their experiences in the reserve. Such information would not only be useful to management in the short-term, but it would also form a baseline for monitoring visitor needs in the future, for the purpose of determining whether the reserve goal is being achieved.

CHAPTER 5
METHODOLOGY

The methodology for this study will be based on a survey of visitors to Madikwe Game Reserve. The survey will consist of two components, namely a Pre-visit questionnaire (Appendix II) and a Post-visit questionnaire (Appendix III). The former will include questions relating to the preferences of visitors, while the latter will be used to evaluate the wildlife viewing experiences of tourists in the reserve. Data will be analysed using SPSS.

5.1. SAMPLING

5.1.1. Sampling unit

Questionnaires will be distributed to each group of tourists that arrives at each lodge; each group will thus constitute a sampling unit. A group may consist of friends, family members, co-workers etc. or a combination of these. An example of a sampling unit is a group of friends that arrives in South Africa on the same plane.

5.1.2. Sampling procedure

A nonprobability sampling method will be used instead of probability sampling because the latter requires a sampling frame, i.e. a complete list of all possible person visits per day to Madikwe, which is not possible (Horneman, Beeton & Hockings 2002).

Each group of tourists will be provided with a Pre-visit questionnaire on arrival. Each group will then be asked to answer a Post-visit questionnaire during their stay in the reserve or on departure. In instances where visitors are travelling in a group, respondents may be biased towards older males. As a result, questionnaires include instructions to respondents to answer if their birthday is the closest one in the group, in order to increase randomness and prevent bias. This sampling technique is known as quota sampling, where the population is subdivided into sub-groups according to certain characteristics (Horneman *et al.* 2002). In addition, respondents are instructed to provide their own personal answers rather than those of any other group member.

5.1.3. Sample size

The size of a sample is determined by the statistical method employed, and by the amount of power required (Hair, Anderson, Tatham & Black 1998). The statistical method in this case refers specifically to the acceptable levels of statistical error (Type I/alpha or Type II/beta). Whether a given level of statistical error is acceptable or not is determined by what is termed the power of the statistical inference test, i.e. the probability of correctly rejecting a null hypothesis when it should be rejected. The power of a statistical test is in turn influenced by effect size, which is the magnitude of the effect being studied in a population. The greater the effect size, the greater the power of the statistical test. Furthermore, as the size of a sample increases, so does the power of the statistical test employed. The size of the sample determined by a researcher should thus simultaneously take into account the corresponding alpha, effect size and power (Hair *et al.* 1998).

Some researchers have estimated an acceptable power level of 80 percent, which can be achieved at various sample sizes and alpha levels at a given effect size (Cohen 1977 cited in Hair *et al.* 1998). For example, given a moderate effect size of 0.35, a power level of 80 percent can be achieved when the alpha level is 0.05 and the size of the sample is 130. At an alpha level of 0.01, the same magnitude of power would still be obtained, but at a larger sample of 190.

The estimation of an effect size for this study would have necessitated successive sampling of the population, which would in turn have required more time than was available for the study. As a result, the sample size for this study was based on studies by Horneman *et al.* (2002), where a sample size of 100 to 500 respondents is considered to be sufficient for this type of study (a sample size of less than 100 is associated with too many errors).

5.2. PRE-VISIT SURVEY

5.2.1. Questions

Questions 1 – 4 will be used to obtain information about demographic characteristics of visitors, specifically sex, age, origin and length of stay at Madikwe Game Reserve.

The purpose of the Pre-visit survey is to determine the preferences of visitors to Madikwe Game Reserve, with emphasis on wildlife viewing. This will be done according to the experience-based

model of recreation management (EBM). According to this model, wildlife viewing managers in protected areas would manage wildlife viewing for visitors with the aim of providing satisfying psychological experiences to visitors (section 2.3). In order to do this successfully, managers need to know the different types (spectrum) of recreation opportunities sought by visitors (Manfredo 2002). Each recreation opportunity is a mix of:

i. Experience preference – this is the valued psychological outcome derived from the recreation experience.
ii. Activity/activities engaged in during the recreation experience.
iii. The setting in which the experience occurs (this results from a combination of physical resources, social conditions and management tools and techniques).

Question 5 will be used to determine the experience preferences (i) of visitors. The question contains possible desired psychological experiences of visitors to Madikwe. The items included in this survey were subjectively considered to be the most appropriate out of 108 selected by Manfredo, Driver and Tarrant (1996). Thirteen preference items have been selected, which can be classified into broad categories as illustrated in Table 5.2.

Table 5. Selected experience preferences for the study (after Manfredo, Driver & Tarrant 1996).

CATEGORY	EXPERIENCE PREFERENCE
1. Social outcomes	To spend time with family/friends
	To get away from other people
	To meet new people
2. Learning/exploration	To learn new things
	To experience new/different things
3. Enjoying nature	To view the scenery
	To be close to nature
	To experience wilderness
4. Introspection	To reflect on spiritual/religious values
5. Physical fitness	To get physical fitness
6. Physical rest/escaping social-physical pressures	To experience peace and quiet
	To relax mentally
7.Creativity	To do something creative e.g. paint/take photographs

Question 6 will be used to determine the preferred activities (ii) of visitors, and the importance of wildlife viewing to visitors.

Question 7 will be used to determine the species that visitors wish to see most.

Question 8 will be used to determine the frequency of participation of each respondent in wildlife viewing.

Question 9 and 10 will be used to determine the information needs of tourists, i.e. what subjects visitors desire information about, and the manner in which they desire to have information communicated to them. The desired experience, activity, wildlife and information preferences will provide an indication of the preferred setting (iii) for each respondent.

5.3. POST-VISIT SURVEY

5.3.1. Questions

Question 1 and 2 will be used to gain an understanding of actual visitor wildlife viewing experiences. The same questions will also be used to identify factors other than wildlife, which influence the experiences of tourists. The emphasis of this study is on species seen by tourists. Although wildlife is expected to be central to the experiences of tourists, the quality of visitor experiences will be influenced by the context in which wildlife viewing takes place. As a result, items related to the context are included in question 1.

Because information received by visitors has been identified as an important factor in the experiences of visitors, it will be examined in question 3 and 4.

Question 5 will be used to evaluate the interpretational and educational role of tour guides in the experiences of visitors. Finally, an open section has been included in the post visit survey in order to obtain more information concerning visitor experiences.

5.4. ATTITUDE MEASUREMENT SCALES

The survey contains questions with different response categories along a scale. Scaled-response measurements are used to measure closed-response answers in surveys. The highest level of measurement is generally considered to be the most desirable because this permits more sophisticated analyses. In some cases however it is neither possible nor desirable to include all possible alternatives. Generally the range of opinion of respondents can be best determined with five or 7 categories. Although a seven-point or nine-point category scale allows greater precision for discrimination, it may cause respondents to become confused (Horneman *et al.* 2002).

The Likert scale has been employed in the questionnaires used in the study. Various modifications of the Likert scale can be employed by a researcher in order to achieve certain goals. Two types of Likert scales have been employed in this study. One consists of categories along a single direction; for example question 5 (Appendix II) while the other includes a neutral category ('not important') for example question 9 and 10 (Appendix II). This was done in order to avoid 'response set' among respondents, i.e. the tendency of some people to provide the same responses to several questions. In addition, researchers often use Likert scales with different numbers of categories in a single survey (Wayne undated).

5.5. DATA ANALYSIS

5.5.1. Descriptive statistics

5.5.1.1. Assessment of visitor preferences

The ratings given by visitors for each experience outcome (question 5 Appendix II) will provide an indication of the importance of the experience during their visit in Madikwe Game Reserve. The percentage of respondents who give each item a particular rating will be determined.

The percentage of respondents who give each activity (question 6 Appendix II) in the reserve a particular rating will be determined. The ratings given by visitors for each activity will provide an indication of the importance of different recreational activities in the reserve.

All the species that visitors prefer to see, which they list in the Pre-visit questionnaire, will be compiled into a comprehensive species list. The frequency of tourist selection of each species

will be determined. These frequencies will provide an indication of relative visitor preferences for each species.

5.5.1.2. Assessment of wildlife viewing experiences.

The percentage of respondents who rate the various features in the survey will be determined as in 5.5.1.1.

5.5.2. Inferential statistics

5.5.2.1 Identification of wildlife viewing experience types

The Pre-visit survey will be used to determine visitor experience preferences i.e. psychological motivations for visiting Madikwe Game Reserve. This information will then be used to develop a typology of wildlife viewing experiences. Respondents will be classified into different groups according to the experience outcomes described in Table 1, for example learning, family togetherness and enjoying nature. Object cluster analysis will be used to determine types of wildlife viewing experiences.

Object cluster analysis is a technique that is used to subdivide a heterogeneous sample into homogeneous subgroups on the basis of subjects' responses across a set of selected variables (Lorr 1983; Manfredo & Larson 1993; Hair *et al.* 1998).

The homogeneous groups that are identified through cluster analysis will be referred to as experience types. Manfredo and Larson (1993) identified four types of wildlife viewing experience preferences amongst respondents in Colorado: Type 1 respondents placed greater importance on all experience preferences than Type 2 respondents, Type 2 placed greater importance than Type 3, and Type 3 placed greater importance than Type 4 (refer to 'experience opportunity' in Table 2.2).

5.5.2.2. Identification of wildlife viewing typology

Once the experience types for Madikwe Game Reserve have been identified, the types will be examined in order to determine whether significant differences exist between experience types. The variables that will be used to test for these differences are wildlife preferences, activity preferences, and informational preferences. These variables have been selected because they will

provide information regarding the setting and activities preferred by visitors, which together with the preferred experience, make up a recreation opportunity. Experience types will also be examined for differences in demographic characteristics and frequency of participation in wildlife viewing. Differences between experience types will be examined using chi-square analysis.

Following the chi-square analysis, respondents will be distinguished further on the basis of differences discovered through the chi-square analysis. Manfredo and Larson (1993) identified four recreation opportunity classes for Colorado, namely High Involvement, Creative, Generalist and Occasionalist. Each opportunity class was characterised by a distinct experience preference, setting attribute preference and activity preference. All the recreation opportunities together constitute what is referred to as a wildlife viewing typology. For a full description of this typology, refer to Table 2.2.

5.6. MANAGEMENT IMPLICATIONS

The identification of a recreation opportunity spectrum/wildlife viewing typology for Madikwe Game Reserve can facilitate planning by guiding allocation of human and natural resources when providing wildlife viewing opportunities for visitors; this can be accomplished in the following ways:

i. Managers can decide which parts of the reserve can provide visitors with the experiences that are identified in this study.
ii. Comparing which experience opportunities are available and which are preferred in order to determine whether there is an overabundance (opportunities > preferences), or if there is a shortage (opportunities < preferences). The Post-visit survey will be useful in providing an indication of the current situation.
iii. Determining what actions are currently being undertaken to provide for each experience type.

The recreation opportunity spectrum can also be used by managers in the planning of developments, facilities, interpretation and education in order to increase the likelihood that

opportunities for specific experiences are available to visitors. For instance, management could enhance recreation experiences of the High Involvement and Creative recreation classes identified by Manfredo and Larson (1993) by providing information about wildlife viewing (e.g. how and when to conduct it); recreation sites that are targeted at these classes would be characterised by low levels of development. On the other hand, management could seek to enhance the experiences of the Generalist and Occasionalist classes by developing specific sites within the reserve, for example visitor centres and interpretive centres. The sites that are developed for particular classes in a protected area should correspond to the zoning spectrum for the area, as illustrated in Table 2.3.

CHAPTER 6
LIMITATIONS OF THE STUDY

The most limiting factor that was encountered during the study was time. Only a period of approximately ten weeks was available for data collection as well as data analysis and report writing.

Due to the time constraint, certain components that were discussed in the literature review could not be included in Component B. These were mainly aspects related to sections 2.6 and 2.7. As a result, visitor impacts on the environmental quality of Madikwe Game Reserve and the incorporation of ecological sustainability principles such as Limits of Acceptable Change (LAC) into visitor management in Madikwe were not included in Component B. The inclusion of such factors would have required data pertaining to the ecology of the reserve and how visitors affect it; this in turn would have required a longer period of time than was available for the study.

Another limitation that was encountered during the research component of the study was that the researcher was not able to administer questionnaires personally to visitors. This is due to the fact that virtually all visitors to Madikwe are overnight visitors (as opposed to day-visitors) who are guests of a particular lodge; furthermore, there are no common visitor reception points or visitor centres in the reserve. The researcher therefore had no direct access to visitors other than indirectly through lodge owners and personnel, and attempted to overcome this limitation by providing lodge staff with clear instructions concerning the administration of questionnaires. The result nonetheless is that lodge personnel might not necessarily have applied the sampling procedure that was selected for the study.

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3. Jill Kelly. Tourism Officer. Ezemvelo KwaZulu Natal Wildlife
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APPENDIX I: SOME COMMON MAMMAL SPECIES OF MADIKWE GAME RESERVE (HOFMEYR, NEL & DELL 2003; MOSETLHA BUSH CAMP 2003)

Scientific Name	Common Name	Number (2001)
Acinonyx jubatus	Cheetah	25
Aepyceros melampus	Impala	3200
Alcelaphus buselaphus	Hartebeest, Red	500
Antidorcas marsupialis	Springbok	50
Canis mesomelas	Jackal, Black-Backed	-
Ceratotherium simum	Rhinoceros, White	-
Cercopithecus aethiops	Monkey, Vervet	-
Civettictis civetta	Civet, African	-
Connochaetes taurinus	Wildebeest, Blue	3500
Crocuta crocuta	Hyaena, Spotted	35
Damaliscus lunatus	Tsessebe	30-50
Diceros bicornis	Rhinoceros, Black	-
Equus Burchelli	Zebra, Burchell's	2500
Felis caracal	Caracal	-
Felis serval	Serval	-
Genetta genetta	Genet, Small-Spotted	-
Genetta tigrina	Genet, Large-Spotted	-
Giraffa camelopardalis	Giraffe	200
Hippopotamus amphibius	Hippopotamus	-
Hippotragus niger	Antelope, Sable	15
Hyaena brunnea	Hyaena, Brown	20-40
Kobus ellipsiprymnus	Waterbuck	600
Loxodonat Africana	Elephant	320
Lycaon pictus	Dog, Wild	19
Oryx gazella	Gemsbok	500
Otocyon megalotis	Fox, Bat-Eared	-
Panthera leo	Lion	50
Panthera pardus	Leopard	25
Papio ursinus	Baboon, Chacma	-
Phacochoerus aethiopicus	Warthog	-
Potamochoerus porcus	Bushpig	-
Proteles cristatus	Aardwolf	-
Raphicerus campestris	Steenbok	-
Redunca arundinum	Reedbuck, Common	-
Redunca fulvorufula	Reedbuck, Mountain	-
Sylvicapra grimmia	Duiker, Common	-
Syncerus caffer	Buffalo	236
Taurotragus oryx	Eland	700
Tragelaphus scriptus	Bushbuck	50
Tragelaphus strepsiceros	Kudu	1700

APPENDIX II: PRE-VISIT QUESTIONNAIRE

MADIKWE GAME RESERVE TOURISM SURVEY

Dear Visitor,

This survey is being conducted through the University of Natal to determine your motivations and preferences when visiting Madikwe Game Reserve. We would be very grateful if you can take a few minutes of your time to complete this short questionnaire. The results of this study will be useful for planning and managing tourism activities to the benefit of reserve managers, tour operators and visitors. Your responses will be completely anonymous and confidential.

If you came to Madikwe Game Reserve in a group, let the person (16 years or more) whose birthday is nearest, answer the questions. Please provide your own personal answers and not those of any other member in the group. Please do not put your name or that of any group member on the questionnaire. Please answer all questions. Tick boxes where appropriate.

1). What is your gender?
Male □ Female □

2). What is your age?
<20□ 20 – 35□ 35 - 55□ >55□

3). What is your usual place of residence? (Indicate country and province)
.....

4). Please indicate the length of your stay at Madikwe Game Reserve (number of days and number of nights).....

5). Please indicate how important you think the items below are to you as part of your experience in the reserve. **Please circle one number for each feature.**

	Very important	Moderately important	Not very important	Not important at all
To spend time with friends/family	1	2	3	4
To learn new things	1	2	3	4
To meet new people	1	2	3	4
To experience new/different things	1	2	3	4
To view scenery	1	2	3	4
To be close to nature	1	2	3	4
To experience wilderness	1	2	3	4
To reflect on spiritual/religious values	1	2	3	4
To get physical fitness	1	2	3	4
To experience peace and quiet	1	2	3	4
To relax mentally	1	2	3	4
To get away from other people	1	2	3	4
To do something creative e.g. paint/photograph	1	2	3	4

6). Please indicate how interested you are in participating in the activities below. **Please circle one number for each feature.**

	Very interested	Moderately interested	Not very interested	Not interested at all
Scenic drives	1	2	3	4
Camping	1	2	3	4
Wildlife viewing	1	2	3	4
Picnics	1	2	3	4
Swimming	1	2	3	4
Hiking	1	2	3	4
Bird watching	1	2	3	4
Photography	1	2	3	4
Hot-air ballooning	1	2	3	4
Horse riding	1	2	3	4
Hunting	1	2	3	4
Other (please specify)	1	2	3	4

7). Please list one animal that you would like to see during your visit in Madikwe Game Reserve.

.....

8). How many trips have you taken in the past year especially to see wildlife? (This includes trips to places other than Madikwe). Select from options below.

0 □ 1-3 □ 3-6 □ > 6 □

9). Please indicate how interested you are in receiving information about different features of the reserve listed below while touring the reserve. **Please circle one number for each feature.**

	Very interested	Moderately interested	Not important	Slightly interested	Not interested at all
Animals in general	1	2	3	4	5
Certain animals (list one).....	1	2	3	4	5
Plants	1	2	3	4	5
Birds	1	2	3	4	5
How the reserve is managed	1	2	3	4	5
Current issues facing the reserve	1	2	3	4	5
History of the reserve	1	2	3	4	5
Past cultures that lived in the area of the reserve	1	2	3	4	5
Other (please specify).....	1	2	3	4	5

10). The table below contains methods in which information can be provided to you. How do you rate each method?

	Very desirable	Moderately desirable	Not important	Slightly desirable	Not desirable at all
Signs in the reserve about things of interest	1	2	3	4	5
Guidebooks	1	2	3	4	5
Pamphlets	1	2	3	4	5
Guides	1	2	3	4	5
Video tapes	1	2	3	4	5
Audio tapes	1	2	3	4	5
Other (please specify)	1	2	3	4	5

THANK YOU FOR YOUR TIME

APPENDIX III: POST-VISIT QUESTIONNAIRE

MADIKWE GAME RESERVE TOURISM SURVEY

Dear Visitor,

This survey is being conducted through the University of Natal to evaluate your experiences during your visit in Madikwe Game Reserve. We would be very grateful if you can take a few minutes of your time to complete this short questionnaire. The results of this study will be useful for planning and managing tourism activities to the benefit of reserve managers, tour operators and visitors. Your responses will be completely anonymous and confidential.

If you came to Madikwe Game Reserve in a group, let the person (16 years or more) whose birthday is nearest, answer the questions. Please provide your own personal answers and not those of any other member in the group. Please do not put your name or that of any group member on the questionnaire. Please answer all questions.

1). Please indicate how satisfied you were with the following features of your experiences in Madikwe Game Reserve. **Please circle one number for each feature.**

	Very satisfied	Moderately satisfied	Not important	Slightly satisfied	Not satisfied at all
The number of wildlife seen	1	2	3	4	5
The variety of wildlife seen	1	2	3	4	5
How easy the wildlife were to see	1	2	3	4	5
Seeing rare/endangered wildlife	1	2	3	4	5
Accommodation facilities	1	2	3	4	5
Level of service among staff	1	2	3	4	5
Food	1	2	3	4	5
Other (please specify)	1	2	3	4	5

2). Please list one species that you enjoyed seeing the most when you toured the reserve.

.....

3). Please indicate your satisfaction concerning the **amount of information** you received about different features of the reserve listed below while touring the reserve. **Please circle one number for each feature.**

	Very satisfied	Moderately satisfied	Not important	Slightly satisfied	Not satisfied at all
Animals	1	2	3	4	5
Certain animals (list one).....	1	2	3	4	5
Plants	1	2	3	4	5
Birds	1	2	3	4	5
How the reserve is managed	1	2	3	4	5
Current issues facing the reserve	1	2	3	4	5
History of the reserve	1	2	3	4	5
Past cultures that lived in the area of the reserve	1	2	3	4	5
Other (please specify)	1	2	3	4	5

4). Please list one item from the table above that you would have liked to receive more information about.....

5). Tour operators and managers are interested in how tour guides contribute to your experience in the reserve. Please indicate how satisfied you were with your guide/s in terms of the features below. (If different guides during your visit guided you, rate the most recent guide). **Please circle one number for each feature.**

	Very satisfied	Moderately satisfied	Not important	Slightly satisfied	Not satisfied at all
Information about plants, birds and animals	1	2	3	4	5
Information about interesting things other than plants, birds and animals	1	2	3	4	5
Enthusiasm	1	2	3	4	5
Response to questions from tourists	1	2	3	4	5

6). Please provide any other comments that you have concerning your experience in Madikwe Game Reserve.

THANK YOU FOR YOUR TIME

COMPONENT B: RESEARCH PAPER

Visitor wildlife viewing preferences and experiences in Madikwe Game Reserve, South Africa

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Abstract

Increasing demand for wildlife viewing has resulted in a growing interest in studies involving wildlife tourists. Madikwe Game Reserve provides visitors with the opportunity to view a wide variety of game. The aims of this study were to provide an understanding of desired and actual visitor experiences regarding wildlife viewing in Madikwe Game Reserve, and to classify these experiences using the experience-based management model. A survey of visitors was conducted using a Pre-visit and a Post-visit questionnaire; results from 178 respondents indicated that well known and rare/endangered species were the most popular. Respondents were generally very satisfied with their wildlife viewing experiences in terms of species abundance and variety. The results also suggest that information about items other than wildlife could enhance the experiences of visitors to Madikwe. Three experiences desired by visitors were identified, namely a High Involvement Experience, which had the highest interest in most recreational opportunities; a Generalist Experience characterised by a moderate interest in recreational opportunities; and an Occasionalist Experience that displayed the least interest. While the Occasionalist Experience is presently adequately catered for in Madikwe, managers can provide for the High Involvement and Generalist Experiences more efficiently by expanding the wildlife viewing experience opportunities that are currently offered in the reserve.

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INTRODUCTION

Wildlife viewing is an increasingly popular form of recreation throughout the world (Smith 2001; Manfredo 2002). Africa in particular has been regarded as the most popular wildlife viewing destination in the world (Shackley 1996; Mouton 2003). Over the past few years, an increasing number of visitors have been attracted to South African protected areas due to the country's diverse wildlife and scenic environment (Shackley 1996; Loubser, Mouton & Nel 2000).

In spite of the growing popularity of wildlife viewing, little attention has been directed towards professional planning and management aimed at enhancing the quality of wildlife viewing experiences in protected areas (Manfredo 2002). The profiles, preferences and experiences of visitors to protected areas should be an integral part of the development, management and planning of wildlife viewing recreation in protected areas (Preston & Fuggle 1988; Manfredo & Larson 1993).

This study was conducted within the framework of the experience-based management model (EBM). The traditional approach to recreation management in protected areas has focused on the provision of inputs such as wildlife and facilities (Manfredo 2002). The provision of such inputs is regarded as the end of management. This approach has been regarded as being inadequate because it does not take into account why people engage in specific activities, nor what they derive from these activities. The EBM model on the other hand proposes that people undertake recreation in order to achieve certain desired psychological outcomes, for example learning or family togetherness (Manfredo & Larson 1993; Manfredo, Driver & Tarrant 1996; Manfredo 2002).

Preferred recreation opportunities of visitors to Madikwe Game Reserve were thus identified according to a mix of (1) valued psychological outcomes (experience outcomes) derived from the recreation opportunity (2) the activities preferred and (3) the types of settings that are necessary for achieving the activity and experience (management actions and natural resources).

According to EBM, the experience outcomes (1) are the ultimate goal desired from the recreation opportunity, while activities (2) and settings (3) are means of achieving this goal. These three components together comprise what is referred to as a recreation opportunity; different recreation opportunities in an area are referred to as a recreation opportunity typology (Manfredo and Larson 1993).

The aims of this study were to describe the profiles, preferences and experiences of visitors to Madikwe Game Reserve; and to develop a wildlife viewing typology of visitors to the reserve, which could be a useful tool in guiding development and management of wildlife viewing recreation in Madikwe Game Reserve.

The objectives of the study were to:

1. Determine the preferences of visitors with regard to specific aspects of their wildlife viewing experiences in Madikwe Game Reserve i.e. wildlife species, activities and information. Although wildlife was the central focus when determining visitor preferences, other factors were addressed, which were likely to influence the wildlife viewing experiences of visitors, for example food and accommodation facilities.
2. Evaluate the actual experiences of visitors concerning the factors in (1), in order to identify those that have an important influence on the experiences of visitors.
3. Develop a wildlife viewing typology of visitors to Madikwe Game Reserve that is based on the preferred experiences of visitors.
4. Examine possible means by which the reserve management can integrate the above results in the planning and development of the park for the purpose of enhancing the wildlife viewing experiences of visitors.

METHODS

Study Area

The study was conducted in Madikwe Game Reserve, which is located in the North West Province of South Africa. The reserve is approximately 70 000 hectares in size, predominantly bushveld and is host to the 'Big Five', i.e. lion (*Panthera leo*), leopard (*Panthera pardus*),

elephant (*Loxodonta africana*), buffalo (*Syncerus caffer*) and both species of rhino (*Ceratotherium simum* and *Diceros bicornis*). Madikwe is situated on land that was historically used for farming. Following a study, which revealed that ecotourism was a more economically viable form of land use for the area, the reserve was established in 1991 (Davies 1997). Madikwe is distinguished from other protected areas largely by the fact that it was established primarily for the purpose of providing economic benefits to the region through wildlife tourism, particularly wildlife viewing (Davies 1997; Madikwe Development Task Team 1997; Koch & Massyn 2003). Biodiversity conservation is not the primary aim of the reserve, but a means of achieving its economic objectives. The main attraction of the reserve is therefore game; in addition to the Big Five, Madikwe also contains the endangered African wild dog (*Lycaon pictus*), and a variety of rare and common antelope species (Appendix I). Virtually all of Madikwe's game populations were re-introduced into the reserve during the largest game translocation operation in the world (dubbed *Operation Phoenix*), which was initiated in 1992, and during which 8 200 animals were translocated (Hofmeyr, Davies, Nel & Dell 2003).

Madikwe is run as a three-way partnership between the North West Parks and Tourism Board, local communities and the private sector (Davies 1997). The latter is responsible for the operation of lodges within the reserve; these lodges cater for upmarket local, and mid- to upmarket international, visitors (Boonzaaier & Lourens 2002). There are currently 29 lodges in Madikwe; 21 are operational and eight are under construction; three are planned for construction and there are two for which no agreement has been reached at yet. Half of the operational lodges are commercial while the rest are corporate. For the purposes of this study, commercial lodges were selected for the survey. The capacity of lodges in Madikwe varies from approximately 16 to 70 beds; about 9 000 visitors to the reserve were recorded in 2000 (Boonzaaier & Lourens 2002). Peak periods for visitor arrivals are from November to January.

Survey Procedure

The study consisted of a Pre-visit survey (Appendix II) and a Post-visit survey (Appendix III). The former was designed to determine the demographic characteristics and preferences of visitors to Madikwe, while the latter included questions relating to visitor satisfaction with

respect to their experiences in the reserve. The emphasis of both questionnaires was on wildlife viewing preferences and experiences respectively. In addition, the Pre-visit questionnaire was designed to obtain the three components necessary for identifying a wildlife viewing typology:

1. Experience outcomes – were to be determined from a list of 13 possible psychological outcomes desired by visitors from the experience, e.g. 'to spend time with family/friends' or 'to relax mentally'. These outcomes were based on those identified by Manfredo, Driver and Tarrant (1996).
2. Settings – were to be determined from the types of information preferred (e.g. about animals or the history of the reserve), the preferred means of receiving information (e.g. through guides or pamphlets), and the interpretive approach adopted by tour guides.
3. Activities – were to be determined using a list of possible activities in which visitors could participate.

The Post-visit questionnaire was designed to provide additional information about the setting preferences of visitors, e.g. aspects of actual wildlife viewing experiences such as the number or variety of wildlife seen by visitors in the reserve.

Most questions were closed questions that required respondents to rank items according to a scale from 'very interested/desirable/satisfied' to 'not interested/desirable/satisfied at all'. A few questions required respondents to list their responses rather than ranking provided options, e.g. their preferred species. This was done in order to avoid prompting respondents.

Surveying was conducted from 01 November to 22 December 2003. Two hundred and twenty-eight questionnaires (114 Pre-visit and 114 Post-visit) were distributed amongst five lodges: Madikwe River Lodge, Jaci's Safari Lodge, Jaci's Tree Lodge, Mosetlha Bush Camp and Madikwe Bush House (Table 1).

All of the lodges, with the exception of Mosetlha Bush Camp, are commercial lodges that serve a clientele that is fairly representative of the lodges in the reserve as a whole i.e. upmarket local, and mid- to upmarket international, visitors (Boonzaaier & Lourens 2002). Mosetlha Bush Camp was included in the survey because it differs from all other lodges in Madikwe by providing more rustic accommodation; the camp does not have electricity and generally emphasises wilderness/bush experiences. For this reason, more questionnaires were distributed to the camp than to the other four lodges in order to ensure a sufficient sample of visitors from the camp.

Lodge staff administered Pre-visit questionnaires to guests upon their arrival, and Post-visit questionnaires shortly before their departure. A single questionnaire was handed out to each group of tourist arrivals. A total of 178 questionnaires (98 Pre-visit and 80 Post-visit) were collected from the lodges on 22 December 2003. The percentage response rates from the lodges are indicated in Table 1. Following the distribution of the questionnaires, lodges were visited and contacted regularly in order to monitor the administration of questionnaires by lodge staff and responses to the questionnaires by guests. In the case of Madikwe River Lodge, Mosetlha Bush Camp and Madikwe Bush House, personnel were particularly efficient and consistent in their administration of the questionnaires. The relatively high response rate may be attributable to these factors.

ANALYSIS

Data were grouped into contingency tables and analysed using SPSS for Windows (release 11.0). Frequencies of visitor responses to each question, and visitor characteristics were determined for both the Pre-visit and Post-visit questionnaires.

Object cluster analysis of data from the Pre-visit survey was used to determine types of wildlife viewing experiences desired by respondents. Cluster analysis is a method used to identify homogeneous groups or clusters of certain objects or observations (in this study, respondents) (Lorr 1983; Hair, Anderson, Tatham & Black 1998). Using this technique, the total sample of respondents was segmented into smaller groups, each group characterised by different preferences for experience outcomes.

In cluster analysis, homogeneous subsets are determined according to selected criterion variables. All 13 experience outcome preferences were selected as criteria for clustering because they were all considered to be important in identifying clusters. Cluster analysis is a process that basically consists of two procedures: firstly, measuring the proximity (distance) between the observations under study and secondly, the clustering process i.e. the formation of homogeneous groups or clusters. Observations are placed into a single cluster according to how near or far the proximity is between the observations (Wolfgang, undated). There are two types of clustering methods used by researchers, namely divisive and agglomerative (Stockburger, undated). In the latter each observation (case) is initially treated as a cluster on its own but the cases are combined in subsequent steps to form new clusters, resulting in a smaller number of clusters at each step. In divisive methods of clustering, all the cases form a single cluster at the outset; smaller clusters are then separated from this single cluster (Hair *et al.* 1998).

The proximity matrix used in the analysis was squared Euclidean distances; the clustering method used was agglomerative because this is the method that was in the statistical package used. There are three types of agglomerative techniques that are most frequently used i.e. Single Linkage, Complete Linkage and Average Linkage. The Single Linkage method of agglomeration places cases with the shortest distance between them into a single cluster ('nearest neighbour') (Gebotys 2000). The disadvantage of this technique is that it tends to result in the formation of relatively large clusters that are consequently heterogeneous. Complete Linkage on the other hand is an agglomerative technique that clusters cases with the greatest distance between them into a single cluster ('farthest neighbour'). One of the disadvantages of this technique is that outliers can hardly be identified (Gebotys 2000). Average Linkage however uses information about all pairs of distances (Gebotys 2000), not only the nearest or the farthest; hence it was the preferred method for clustering in this study.

A manageable number of two to five clusters was decided upon because the purpose of the study was to identify types of visitors that may form the bases for differing management strategies (Hair *et al.* 1998). Out of these possible cluster solutions, three clusters were selected. The agglomeration schedule, and two-to-five cluster solutions are displayed in

Tables 2 and 3 respectively. The three-cluster solution was selected using the agglomeration coefficients and dendogram (Figure 1). The coefficients in Table 1 are relatively small from stage 1 to stage 74, signifying homogeneity among cases. Relatively large increases however are apparent from nine to eight clusters (13.000 – 11.972); from three to two clusters (20.342 – 17.778); and from two to one clusters (25.130 – 20.342), signifying heterogeneity among cases. Although the coefficient difference is greatest from two to one clusters, three clusters were selected because three groupings are distinct in the dendogram: from case 65 to 83, 28 to 46 and 42 to 40. The total number of cases in all three clusters was 78; cases 80, 96, 94 and 71 were regarded to be outliers and subsequently excluded from further analysis, while the remaining twenty-four cases had been automatically excluded from the clustering process due to incomplete data supplied by respondents.

The three clusters and cases belonging to each cluster are shown in Table 3, fourth column from the left. The cases belonging to each cluster were eventually decided according to the clusters in the dendogram. Most of the cases in the three-cluster solution from Table 3 were the same as those in the three clusters from the dendogram. In some instances however, cases in the three-cluster solution from Table 3 were changed in order to reflect those in the dendogram. For example, the three-cluster solution in the table indicates that cases one, two and three belong to cluster one, but in the dendogram, only case two belongs to cluster one while one and three belong to cluster two.

Following the identification of clusters (referred to as experience types), the differences between types were described in terms of the following variables: activity preferences, wildlife preferences, frequency of participation in wildlife viewing and information preferences. The relationship between these variables and experience types was determined using chi-square tests.

RESULTS

General Profile of Visitors

A relatively large percentage (63%) of the respondents were international visitors. Thirty-seven percent of respondents were from South Africa, of whom 85% were from Gauteng Province; 9% from North West Province; 3% from Free State Province and 3% from the

Western Cape Province. Of the international visitors, a notable proportion was from England (19%) and Germany (13%) (Figure 2a). Most of the respondents (56%) were 35-55 years of age (Figure 2b); 48% were male and 52% were female.

General Visitor Preferences and Experiences

Experience outcomes

The experience item that was rated as being 'very important' by the greatest number of visitors was 'experiencing wilderness' (88%), followed by 'being close to nature' (87%). The experience items that were regarded to be 'very important' by the least number of respondents were 'getting physical fitness' (6%) and 'reflecting on spiritual/religious values' (8%). These two items were considered to be 'not very important' and 'not important at all' by 75% and 18% of respondents respectively (Figure 3).

Activities

The majority of respondents indicated that they were 'very interested' in wildlife viewing (91%) and scenic drives (75%) while 43% were 'very interested' in photography (Table 4). Hunting and horse riding were the least preferred activities (78% of respondents indicated that they were 'not interested at all' in hunting while 59% were 'not very interested' or 'not interested at all' in horse-riding).

Wildlife

The species of animals that most respondents desired to see, and also reported having enjoyed seeing most, were predators (Figure 4a and b). For the Pre-visit survey, 29% of respondents desired to see lion, 27% percent desired to see leopard and 13 % desired to see wild dog. Although a relatively large number of respondents (28%) still preferred lion in the Post-visit survey, the second-most preferred species Post-visit was cheetah (*Acinonyx jubatus*), which was preferred by 15% more respondents Post-visit than Pre-visit. Only 1% of respondents reported having enjoyed seeing leopards; this difference between Pre-visit and Post-visit results may be due to the comparatively lower frequency of leopard sightings (Figure 5).

Elephant, rhino and giraffe (*Giraffa camelopardalis*) were the most preferred herbivorous species for wildlife viewing both Pre- and Post-visit, although more visitors reported having enjoyed seeing these species in the Post-visit study compared to those who desired to see them in the Pre-visit study (Figure 5). This was particularly true for rhino, which was preferred by 6% more respondents Post-visit than Pre-visit.

Most respondents indicated that they were 'very satisfied' with the variety of wildlife seen (76%) and the number of wildlife seen (76%) (Table 5). The number of respondents who indicated that they were 'very satisfied' with seeing rare/endangered wildlife, and how easy the wildlife were to see, was relatively low (65% and 60% respectively).

Information subjects

The item which most respondents were interested in receiving information about was animals in general (74% were 'very interested') (Table 4), and 76% of respondents were 'very satisfied' with the amount of information they had received about animals in the reserve during their visit (Table 5). Forty-two percent of respondents were 'very interested' in information regarding specific animals. Again, the species for which information was preferred were mostly predators, particularly lion and wild dog. In addition to wild dog, information was desired about elephant and rhino; the difference in this case is that warthog (*Phacochoerus aethiopicus*), rather than giraffe, was listed more frequently. Forty-six percent of respondents indicated that they were 'very satisfied' with information received about specific species of wildlife. Relatively few respondents were 'very interested' in receiving information about plants (20%) and birds (33%).

Forty-six percent of respondents were 'very interested' and 38% were 'moderately interested' in receiving information about past cultures that lived in the area of the reserve (Table 4); in contrast, fewer respondents were 'very satisfied' (19%) and 'moderately satisfied' (28%) with the amount of information received about past cultures that lived in the area of the reserve (Table 5). Thirty-six percent of respondents were 'very interested' and 39% were 'moderately interested' in information regarding current issues facing the reserve; 30% of respondents indicated that they were 'very satisfied' with information received on this subject. Thirty-five

percent of respondents were 'very interested' and 38% were 'moderately interested' in the history of the reserve, yet only 23% indicated that they were 'very satisfied' with information received about this subject. When asked which item they would have liked to receive more information about, most respondents indicated past cultures that lived in the area of the reserve, and the history of the reserve. Some respondents even listed items that were not amongst the options provided on the questionnaire, namely the future development of the reserve, lodge time-shares and the geology of Madikwe.

Means of receiving information

The use of tour guides as a means of receiving information was considered to be 'very desirable' by 67% of respondents; guidebooks were 'very desirable' to 40% of respondents; 31% of respondents regarded pamphlets as a 'very desirable' and 47% as a 'moderately desirable' means of receiving information (Table 4). The use of audiotapes and videotapes was considered to be 'very desirable' by the least number of respondents (3% and 6% respectively. Audiotapes and videotapes were considered slightly desirable/not desirable at all by 23% and 47% of respondents respectively). In addition to the options provided in the questionnaire, some respondents indicated that they would like to receive information personally from lodge owners, websites and in the form of compact discs and newsletters.

Tour guides

Most respondents (73-89%) indicated that they were 'very satisfied' with the interpretation they had received from tour guides with respect to information about plants, birds and animals; and also with tour guides' enthusiasm; and responses to questions (Table 5). Relatively few (55%) respondents were 'very satisfied' with the amount of information received from tour guides concerning interesting aspects of the reserve other than animals, birds or plants.

Typology of Wildlife Viewing Experiences

Three experience types were identified following cluster analysis. Differences between these three groups are highly pronounced in terms of the 13 experience preference items; differences between types with respect to experience outcomes were highly significant across all

outcomes except 'spending time with family/friends' (Table 6). Differences between experience types generally followed a pattern where Type I respondents placed greater importance on experience preferences than did Type II and Type III respondents (Table 6; Figure 6a, b and c).

The experience items that were 'very important' to the greatest number of respondents across all types were 'experiencing new/different things', 'viewing scenery', 'being close to nature' and 'experiencing wilderness'. The least desired experience outcomes across all three types were 'reflecting on spiritual/religious values' and 'getting physical fitness'.

No significant differences were observed between types with respect to wildlife species preferences; respondents across all types indicated similar preferences for rare or endangered and charismatic species such as lion, leopard, wild dog and elephant. Similarly, respondents across all three types were 'very interested' in wildlife viewing (93% Type I, 90% Type II and 100% Type III); and scenic drives (82% Type I, 80% Type II and 60% Type III). In contrast, most respondents were 'not interested at all' in hunting (75% Type I, 90% Type II and 70% Type III).

The three experience types are described below in terms of their distinguishing characteristics/significant differences with respect to experience outcomes, demographics, activity preferences, and information preferences (refer to Table 7a, b and c for chi-square results and percentage figures concerning the three experience types).

Type I

Type I respondents displayed the highest ratings across the greatest number of psychological/experience outcomes (Figure 6a). The most valued outcomes to respondents in this type were experiencing nature: 'being close to nature' and 'experiencing wilderness' were 'very important' to 97% of Type I respondents respectively and 'viewing scenery' was 'very important' to 90% of them. In addition, 'learning new things' was 'very important' to 93% of Type I respondents and 90% of Type I respondents considered 'relaxing mentally' to be 'very important' while 86% of them considered 'experiencing new/different things' to be 'very

important'. Experience items that were 'moderately important' to Type I respondents were getting away from other people' (48%) and 'doing something creative' (48%).

Similarly for the remaining variables, Type I respondents had the greatest percentage of respondents who expressed interest in most variables.

Type I had significantly more respondents that were 'very interested' or 'moderately interested' in camping (66%), picnics (77%), bird-watching (93%) and hot-air-ballooning (54%) than the other three types (Table 7a). Type I respondents were also characterised by more interest in information about current issues facing the reserve (100% Type I respondents were 'very interested' or 'moderately interested' in this subject) than the other two types (Table 7b). In addition, more Type I respondents considered the use of tour guides to be 'very desirable and moderately desirable' in comparison to the other two types (97% Type I).

Type II

Respondents in this category also placed a high emphasis on experiencing nature, but not to the same extent as Type I respondents (Figure 6b); 'being close to nature' and 'experiencing wilderness' was 'very important' to 92% of Type II respondents. Experience outcomes that were 'moderately important' to a significant percentage of Type II respondents were 'experiencing peace and quiet' (67% Type II) and 'getting away from other people' (51% Type II). These outcomes were 'moderately important' to only 21% and 48% of Type I respondents respectively. This may be an indication that solitude and escaping social/physical pressures were important outcomes to Type II respondents. Unlike Type I respondents, there were no respondents in Type II who indicated that they were 'very interested' in 'reflecting on spiritual/religious values' and 'getting physical fitness'. In fact, more Type II respondents indicated that these outcomes were 'not important at all' than Type I respondents (49% and 39% Type II respectively, 7% and 14% Type I respectively). This is a reflection of the trend whereby Type I respondents had a greater interest in all outcomes than Type II respondents.

Type II consisted of a significantly high percentage of South African respondents in comparison to the other two types. In addition, Type II consisted of the highest percentage of American respondents (67% Type II, 20% Type III and 0% Type I).

The percentage of Type II respondents expressing interest in each activity was generally higher than Type III, but less than Type I. This was also observed with regard to information preferences on various subjects.

A significantly high percentage of Type II respondents were 'very interested' or 'moderately interested' in bird-watching (70%), but this was not as high as for Type I respondents (Table 7a). Similarly, 51% of Type II respondents were 'very interested' or 'moderately interested' in picnics, while the percentage was higher for Type I. The same trend was observed with respect to camping and hot-air ballooning.

A significantly high percentage of Type II respondents were 'very interested' or 'moderately interested' in receiving information about how the reserve is managed, but once again, the percentage was not as high as for Type I. The only item for which more Type II than Type I respondents were 'very interested' or 'moderately interested' in receiving information about was specific animals. A significantly high percentage of Type II respondents were 'very interested' or 'moderately interested' in receiving information through tour guides, but once again, this was not as high as for Type I respondents (Table 7c).

Type III

Respondents in Type III generally expressed the lowest interest in experience outcomes across the three types (Figure 6c); the outcome in which the greatest percentage of Type III respondents were 'very interested' in were 'experiencing new/different things' (68%) and 'viewing scenery' (60%). This is in marked contrast to Type I and II, where the highest number of respondents were 'very interested' in 'being close to nature' and 'experiencing wilderness'. Interestingly, Type III had the greatest percentage of respondents who considered 'reflecting on spiritual/religious values' and 'getting physical fitness' as being 'not important at all' (80% and 90% respectively). It is evident that the percentage of respondents who consider these two outcomes to be unimportant increases from Type I to Type III.

Type III consisted of the least percentage of respondents who were 'very interested' or 'moderately interested' in almost all activities, information items and means of receiving

information. Type three respondents were significantly fewer with respect to: camping (0%), picnics (20%), bird-watching (50%) and hot-air ballooning (30%), information about specific animals (25%), and how the reserve is managed (38%). Although a relatively high percentage of Type III respondents were 'very interested' or 'moderately interested' in receiving information from tour guides (60%), this was significantly less than for Type I and II respondents.

Generalising Results

The experiences desired by visitors to Madikwe surveyed in this study can be broadly classified into three groups. These groups are similar to those identified by Manfredo & Larson (1993), namely High Involvement Experience (Type I), Generalist Experience (Type II) and Occasionalist Experience (Type III). The level of interest in wildlife viewing recreation decreases from the High Involvement group to the Occasionalist group. High Involvement respondents placed the greatest importance on all experience items; Generalist respondents had a moderate level of interest and Occasionalist respondents had the least. High Involvement respondents participated the most frequently in wildlife viewing and they displayed the highest interest for all informational items. Generalist respondents participated in wildlife viewing to a lesser extent than High Involvement respondents, but to a greater extent than Occasionalist respondents. The latter had the least interest in information. None of the three groups had an interest in hunting; all three groups had a preference for rare/endangered and charismatic species. These results are summarised in Table 8. (In Manfredo and Larson's study, a further group known as a Creativity experience was identified, which was characterised by a high interest in creative activities such as painting and photography).

DISCUSSION AND CONCLUSION

Visitor Wildlife Preferences and Experiences

The survey results from Madikwe Game Reserve indicate that wildlife and nature based experiences were the most desired experiences amongst visitors.

The most popular species amongst visitors to Madikwe were lion, leopard, wild dog, elephant, cheetah, and rhino. This supports results from other studies that have revealed that species that

hold the most attraction for tourists are those that are rare, unusual, large and/or associated with danger (Woods 1999; Woods 2001; Reynolds & Braithwaite 2001). With regard to Africa and South Africa in particular, these results serve to emphasise the appeal of large, African mammals to wildlife tourists. Other protected areas in places such as India may attract visitors primarily as a result of features such as history and avifauna (Goodwin & Leader-Williams 2000), but the large mammals of Africa appear to be one of the primary attractions. Such visitors are typically European, as revealed in this and similar studies (Goodwin & Leader-Williams 2000).

Some researchers have suggested that the emphasis of charismatic species such as the Big Five in protected areas may contribute to an under-appreciation of biodiversity because other species are disregarded in the process (Kerley, Bev & Vial 2003); biodiversity conservation is however not a primary objective for Madikwe, but secondary to the goal of economic benefits through wildlife tourism. The presence of the Big Five and endangered species such as the wild dog in Madikwe are emphasised by lodges in their marketing (Mosetlha Bush Camp 2003). Furthermore, wildlife managers in the reserve have developed special monitoring programmes for a select group of species that include elephant, buffalo, rhino, wild dog, lion and leopard. As stated by management: "the philosophy behind Madikwe was to restore the area to its previous ecological status and offer visitors the 'Big Five' experience. This has led to the re-introduction of the major African predators to the park...lions are important tourist species and were therefore considered essential for introduction into Madikwe to attract prospective investors" (Hofmeyr *et al.* 2003:15, 16). The emphasis of the Big Five and other rare/endangered and widely publicised species in the marketing and management of Madikwe is therefore likely to continue being one of the most effective means of achieving the goal of generating maximum economic income through wildlife tourism.

In terms of activities, a notable percentage of respondents was very interested in only three out of the 11 activities provided in the Pre-visit questionnaire i.e. wildlife viewing, scenic drives, and photography. The rest of the activities were rated highly by few respondents. This is to be expected because of the fact that some of these activities, for example camping, hiking and picnics, are associated with the lower end of the price strata in the South African wildlife

tourism sector (where guests opt for tented/hutted accommodation, are self-contained and access the park or reserve in private vehicles). Madikwe however targets the fully-catered market, providing guests with all meals, accommodation and guided game drives (Davies, Trieloff & Leitner 2003).

Most visitors to Madikwe were very satisfied with the variety and number of wildlife seen, although a large percentage were not as satisfied with how easy the wildlife were to see, or seeing rare/endangered wildlife. Other features of their experiences, i.e. accommodation facilities, level of service among staff and food were also found to be very satisfactory by most visitors.

A large percentage of visitors was very satisfied with information received about animals while touring the reserve, but those who indicated that they were very satisfied with information received about the history of Madikwe, current issues facing the reserve and past cultures that lived in the area of the reserve, were notably fewer. The number of visitors who indicated that they were not satisfied at all with information was greatest for the history of the reserve and past cultures that lived in the area of the reserve. This is supported by the fact that the item for which the greatest number of visitors preferred additional information was the history of the reserve and past cultures, and relatively few respondents (55%) were very satisfied with the amount of information received from tour guides about aspects of interest other than animals, birds or plants. These results appear to support the findings of other studies, which indicate that tour guides are often narrow in their interpretation, which over-emphasises animals, birds and plants to the exclusion of other items that have the potential to enhance the wildlife viewing experiences of visitors considerably (Lindberg & Hawkins 1993).

Other studies similar to the present one have produced the same results where wildlife viewing tourists tend to fall into groups along a continuum. For example, Bryan (1979) identified a spectrum of visitors from Specialists who had a high level of interest and participation in wildlife viewing and related activities, to Generalists who spent less time and had less specific needs regarding wildlife viewing recreation opportunities. Another study of wildlife tourists in

Flinders Chase National Park, Australia, revealed that interest in various features of wildlife experiences increased from a General group of respondents who displayed the least interest, through an Interested group with moderate interest, to an Enthusiast group that had the greatest interest (Woods 2001).

A Creativity group of wildlife viewers was identified by Manfredo and Larson (1993). The absence of such a group in this study may be due to the smaller sample size of this study relative to that of Manfredo and Larson, which consisted of 385 respondents, or simply due to the absence of a distinct category of respondents that would belong to such a group in this study.

Management Implications

The results of this study can be used to provide for different types of experiences sought by visitors in Madikwe more efficiently. Furthermore, the wildlife viewing typology is also potentially useful to managers and lodge operators as a guide in the planning and development of facilities in the reserve for visitors.

Because High Involvement respondents gave the highest ratings on the greatest number of experience outcomes, and generally expressed the highest interest in most items, this study concludes that a greater variety of recreational opportunities would enhance the wildlife viewing experiences of the High Involvement Experience in Madikwe. In order to achieve this, management needs to expand and develop the wildlife viewing product that is currently offered.

The first way in which this can be accomplished is with regard to the information that is provided, and the way in which it is provided: although wildlife (specifically game) is central to the experiences of visitors in the reserve, and visitors are generally satisfied with information received on the subject, the results of this study suggest that information on other subjects, in addition to wildlife, would enhance the experiences of visitors. Possible subjects identified in this study include past cultures, the history of the reserve, geology, management of the reserve, issues faced by the reserve and the future development of the reserve. The High

Involvement Experience could access this information in a variety of ways such as tour guides, a visitor center and/or museum, websites, compact discs and videotapes. In addition, lodge and park managers could also provide this information verbally. Lodge managers would need to find means of ensuring that tour guides are adequately informed on these subjects. This could for example be accomplished by making arrangements with specialists on these subjects, who would conduct courses for tour guides on these subjects (tour guides could travel outside the reserve to attend the courses, or specialists could travel to the reserve).

This presentation of information in a variety of ways is important for visitors who are not inclined to reading a plethora of material on a subject, albeit one in which they have a strong interest. The use of visually attractive methods such as exhibits would be effective in capturing and holding the attention of such visitors, thus enabling them to obtain the information they desire.

Secondly, additional activities associated with wildlife viewing would expand the recreation opportunity available to the High Involvement Experience. For example, managers could provide visitors with opportunities to paint or opportunities for photography by providing the necessary facilities and information, and informing visitors that such opportunities are available prior to their arrival in Madikwe. For example, lodge operators could drive visitors to specific places such as hides or waterholes, which have outstanding photographic/painting opportunities, at specific times such as sunset.

The Generalist Experience places a moderate emphasis on most experience outcomes, which is not as high as the High Involvement Experience. For this reason, the provision for these two experiences by managers would be similar. Differences in providing for High Involvement and Generalist Experiences would primarily be in the method of providing information; like the High Involvement Experience, the Generalist Experience considered the use of tour guides, guidebooks and pamphlets as a desirable means of receiving information (Table 4). Unlike the High Involvement Experience however, the Generalist Experience places less emphasis on the use of videotapes and audiotapes. Provision for the Generalist Experience would thus exclude the use of such methods (and possibly compact discs and websites). In

addition, certain subjects may not be relevant to the Generalist Experience when providing information; for example, this experience type displayed a lower level of interest in plants than the High Involvement Experience (Table 8).

The Occasionalist Experience has the least interest in all experience outcomes; as a result, a ready-made product is suited to this experience because it would require little effort by participants desiring this experience. This is the product currently being offered in Madikwe where visitors are provided relatively few opportunities for self-discovery. The continued provision of the current wildlife viewing experience in Madikwe would thus cater for the Occasionalist Experience.

At present, virtually all aspects concerning the experiences of visitors in the reserve are the sole responsibility of concessionaires, while the wildlife species and habitat are considered to be the sole responsibility of park management (Madikwe Development Task Team 1997). The provision of the High Involvement and Generalist Experiences in Madikwe would require a cooperative strategy between park and lodge managers, where tourism and park management are no longer viewed as being separate and unrelated to one another. Lodge owners would be responsible for the development of facilities such as the visitor center and museum mentioned at the outset, while park managers could provide input regarding information for visitors on subjects related to the management of the park, particularly wildlife species and habitats. Park personnel could provide visitors with such information either indirectly through lodge personnel, or through direct interaction with visitors. Certain aspects of park management might be very appealing to the High Involvement Experience, for example game capture. Visitors could thus be provided the opportunity to participate in various aspects of park management, for example conservation projects or observing game being captured. These cooperative strategies would necessitate the establishment of formal mechanisms and procedures within the existing framework of Madikwe Game Reserve, which would involve park managers, lodge managers, tourism officials and other relevant stakeholders.

Table 1. Distribution and response rates of questionnaires amongst lodges surveyed in Madikwe Game Reserve.

	Pre-visit			Post-visit		
Lodge	Distributed	Returned	% Response	Distributed	Returned	% Response
Madikwe River Lodge	30	24	80	30	20	67
Jaci's Safari Lodge	35	4	11	35	11	31
Jaci's Tree Lodge	8	0	0	8	0	0
Mosetlha Bush Camp	40	29	73	40	21	53
Madikwe Bush house	1*	41	-	1*	28	-

* Lodge staff made photocopies of the two questionnaires.

Table 2. Agglomeration schedule for hierarchical cluster analysis

Stage	Cluster Combined		Coefficient	Stage Cluster First Appears		Next Stage
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	65	66	.000	0	0	31
2	12	57	.000	0	0	8
3	28	61	1.000	0	0	13
4	25	51	1.000	0	0	12
5	8	95	2.000	0	0	19
6	35	76	2.000	0	0	22
7	11	75	2.000	0	0	43
8	12	58	2.000	2	0	14
9	29	45	2.000	0	0	34
10	19	26	2.000	0	0	19
11	1	10	2.000	0	0	20
12	25	64	2.500	4	0	14
13	28	44	2.500	3	0	37
14	12	25	2.889	8	12	44
15	49	87	3.000	0	0	22
16	62	82	3.000	0	0	35
17	34	73	3.000	0	0	54
18	24	31	3.000	0	0	23
19	8	19	3.000	5	10	41
20	1	17	3.000	11	0	38
21	5	6	3.000	0	0	36
22	35	49	3.500	6	15	42
23	3	24	3.500	0	18	50
24	79	98	4.000	0	0	52
25	18	97	4.000	0	0	55
26	52	92	4.000	0	0	49
27	22	89	4.000	0	0	50
28	42	81	4.000	0	0	40
29	7	77	4.000	0	0	31
30	47	67	4.000	0	0	39
31	7	65	4.000	29	1	43
32	36	54	4.000	0	0	64
33	30	50	4.000	0	0	59
34	29	48	4.000	9	0	41
35	39	62	4.500	0	16	54
36	5	14	4.500	21	0	53
37	28	93	4.667	13	0	45
38	1	56	4.667	20	0	46
39	47	68	5.000	30	0	70
40	37	42	5.000	0	28	72
41	8	29	5.167	19	34	51
42	15	35	5.250	0	22	52
43	7	11	5.250	31	7	55
44	2	12	5.333	0	14	51
45	28	59	5.500	37	0	61
46	1	55	5.560	38	0	57
47	33	85	6.000	0	0	63
48	27	63	6.000	0	0	60
49	52	53	6.000	26	0	67
50	3	22	6.000	23	27	60
51	2	8	6.184	44	41	62
52	15	79	6.400	42	24	57
53	5	70	6.667	36	0	61
54	34	39	6.833	17	35	58
55	7	18	6.833	43	25	58
56	4	91	7.000	0	0	63
57	1	15	7.257	46	52	65
58	7	34	7.550	55	54	67
59	30	90	8.000	33	0	65
60	3	27	8.000	50	48	69
61	5	28	8.100	53	45	71
62	2	46	8.214	51	0	64
63	4	33	8.500	56	47	72
64	2	36	8.533	62	32	70
65	1	30	8.611	57	59	68
66	80	96	9.000	0	0	78
67	7	52	9.051	58	49	73
68	1	83	9.400	65	0	69
69	1	3	9.688	68	60	74
70	2	47	9.804	64	39	71
71	2	5	10.533	70	61	76
72	4	37	10.583	63	40	77
73	7	72	10.813	67	0	74
74	1	7	11.972	69	73	76
75	9	40	13.000	0	0	82
76	1	2	13.303	74	71	78
77	4	84	14.857	72	0	81
78	1	80	15.601	76	66	79
79	1	94	16.423	78	0	80
80	1	71	17.778	79	0	81
81	1	4	20.342	80	77	82
82	1	9	25.130	81	75	0

Table 3. Two-to-five-cluster solution for hierarchical cluster analysis

Case	5 Clusters	4 Clusters	3 Clusters	2 Clusters
1	1	1	1	1
2	1	1	1	1
3	1	1	1	1
4	2	2	2	1
5	1	1	1	1
6	1	1	1	1
7	1	1	1	1
8	1	1	1	1
9	3	3	3	2
10	1	1	1	1
11	1	1	1	1
12	1	1	1	1
14	1	1	1	1
15	1	1	1	1
17	1	1	1	1
18	1	1	1	1
19	1	1	1	1
22	1	1	1	1
24	1	1	1	1
25	1	1	1	1
26	1	1	1	1
27	1	1	1	1
28	1	1	1	1
29	1	1	1	1
30	1	1	1	1
31	1	1	1	1
33	2	2	2	1
34	1	1	1	1
35	1	1	1	1
36	1	1	1	1
37	2	2	2	1
39	1	1	1	1
40	3	3	3	2
42	2	2	2	1
44	1	1	1	1
45	1	1	1	1
46	1	1	1	1
47	1	1	1	1
48	1	1	1	1
49	1	1	1	1
50	1	1	1	1
51	1	1	1	1
52	1	1	1	1
53	1	1	1	1
54	1	1	1	1
55	1	1	1	1
56	1	1	1	1
57	1	1	1	1
58	1	1	1	1
59	1	1	1	1
61	1	1	1	1
62	1	1	1	1
63	1	1	1	1
64	1	1	1	1
65	1	1	1	1
66	1	1	1	1
67	1	1	1	1
68	1	1	1	1
70	1	1	1	1
71	4	4	1	1
72	1	1	1	1
73	1	1	1	1
75	1	1	1	1
76	1	1	1	1
77	1	1	1	1
79	1	1	1	1
80	1	1	1	1
81	2	2	2	1
82	1	1	1	1
83	1	1	1	1
84	2	2	2	1
85	2	2	2	1
87	1	1	1	1
89	1	1	1	1
90	1	1	1	1
91	2	2	2	1
92	1	1	1	1
93	1	1	1	1
94	5	1	1	1
95	1	1	1	1
96	1	1	1	1
97	1	1	1	1
98	1	1	1	1

Table 4. General visitor preferences

	Very Interested	Moderately Interested	Not Very Interested	Not Interested At All	
ACTIVITIES			% Respondents		
Scenic drives	75	16	3	2	
Camping	18	21	25	29	
Wildlife viewing	91	6	0	1	
Swimming	19	38	28	10	
Picnics	20	34	32	8	
Hiking	25	40	18	11	
Bird watching	29	44	19	4	
Photography	43	37	12	4	
Hot-air ballooning	11	27	26	32	
Horse riding	9	26	29	30	
Hunting	1	5	11	78	
	Very Interested	Moderately Interested	Not Important	Slightly Interested	Not Interested At All
SUBJECTS			% Respondents		
Animals in general	74	18	1	2	1
Certain animals	42	11	1	3	1
Plants	20	53	12	5	4
Birds	33	43	10	4	3
How the reserve is managed	20	13	5	5	3
Current issues of the reserve	36	38	6	7	3
History of reserve	35	38	10	5	4
Past cultures of reserve	40	38	9	3	3
	Very Desirable	Moderately Desirable	Not Important	Slightly Desirable	Not Desirable At All
METHODS OF RECEIVING INFORMATION			% Respondents		
Signs in the reserve	28	35	11	2	8
Guidebooks	40	43	9	2	1
Pamphlets	31	47	12	4	1
Guides	67	18	5	2	1
Videotapes	6	33	31	12	10
Audiotapes	3	27	37	13	10

Table 5. General visitor experiences

	Very satisfied	Moderately satisfied	Not important	Slightly satisfied	Not satisfied at all
FEATURES OF THE EXPERIENCE			% Respondents		
Number of wildlife seen	76	21	0	3	0
Variety of wildlife seen	76	19	3	3	0
How easy the wildlife were to see	60	25	9	3	1
Seeing rare/endangered wildlife	65	19	5	8	1
Accommodation facilities	76	19	1	3	1
Level of service among staff	91	9	0	0	0
Food	70	28	3	0	0
INFORMATION RECEIVED					
Animals in general	76	16	1	1	0
Certain types of animals	46	14	1	1	0
Plants	28	31	25	8	3
Birds	45	38	9	3	1
How the reserve is managed	46	26	10	6	4
Issues facing the reserve	30	38	10	9	4
History of the reserve	23	43	10	8	8
Past cultures in the area of the reserve	19	28	19	11	8
RATING OF TOUR GUIDES					
Information about animals, birds and plants	73	19	0	4	0
Information about things of interest other than animals, birds and plants	55	21	9	9	1
Enthusiasm	83	11	0	1	0
Response to questions	89	4	0	0	1
ITEM FOR WHICH MORE INFORMATION WAS DESIRED	% Respondents				
Animals	9				
Birds	7				
Trees	2				
History of the reserve	25				
Past cultures	32				
How the reserve is managed	5				
Current issues facing the reserve	20				

Table 6. Comparison of interest in experience outcomes among types identified in the study. I - Type I, II – Type II, III – Type III.

Experience outcome	Comparison between types ('very interested')	χ^2	df	p
To spend time with friends/family	I>II>III	10.80	6	0.095
To meet new people	I>II>III	23.01	6	0.001
To get away from other people	II>I>III	22.27	6	0.001
To learn new things	I>III>II	21.67	4	0.000
T experience new/different things	I>III>II	13.49	4	0.009
To view scenery	I>III>II	8.14	2	0.017
To be close to nature	I>II>III	16.92	2	0.000
To experience wilderness	I>II>III	16.92	2	0.000
To reflect on spiritual/religious values	I>II=III	36.53	6	0.000
To get physical fitness	I>II=III	39.45	6	0.000
To experience peace and quiet	I>II>III	50.37	6	0.000
To relax mentally	I>II>III	53.67	6	0.000
To do something creative	I>II>III	12.39	6	0.054

Table 7a. Preferred activities according to experience types

Variable	Experience Type	Very Interested	Moderately Interested	Not Very Interested	Not Interested At All	χ^2	df	p
			% Respondents					
Scenic drives	I	82	11	7	0			
	II	80	20	0	0			
	III	60	40	0	0	7.11	4	0.130
Camping	I	33	33	26	7			
	II	18	21	20	41			
	III	0	0	22	78	19.10	6	0.004
Wildlife viewing	I	93	7	0	0			
	II	90	10	0	0			
	III	100	0	0	0	1.19	2	0.551
Picnics	I	23	54	23	0			
	II	23	28	39	10			
	III	10	10	50	30	14.57	6	0.024
Swimming	I	33	44	15	7			
	II	18	39	33	10			
	III	10	20	50	20	8.38	6	0.212
Hiking	I	39	42	12	8			
	II	18	36	31	15			
	III	10	60	20	10	8.19	6	0.224
Bird watching	I	41	52	7	0			
	II	26	44	28	3			
	III	0	50	30	20	16.24	6	0.013
Photography	I	48	44	7	0			
	II	56	33	8	3			
	III	30	30	30	10	8.74	6	0.188
Hot air ballooning	I	25	29	29	18			
	II	5	36	31	28			
	III	10	20	0	70	15.57	6	0.016
Horse riding	I	19	26	37	19			
	II	8	26	29	37			
	III	10	20	30	40	4.04	6	0.670
Hunting	I	4	4	18	75			
	II	0	3	8	90			
	III	0	10	20	70	5.25	6	0.512

Table 7b. Visitor preferences for receiving information about different subjects

Variable	Experience Type	Very Interested	Moderately Interested	Not Important	Slightly Intereste d	Not Interested At All	χ^2	df	p
				% Respondents					
Animals in general	I	79	18	4	0	0			
	II	79	18	0	3	0			
	III	60	30	0	0	10	10.33	8	0.242
Certain animals	I	83	11	0	6	0			
	II	68	27	0	5	0			
	III	25	0	25	25	25	25.98	8	0.001
Plants	I	37	52	11	0	0			
	II	11	57	19	8	5			
	III	0	70	10	10	10	13.59	8	0.093
Birds	I	48	41	11	0	0			
	II	28	53	11	6	3			
	III	0	60	20	10	10	11.76	8	0.162
Reserve management	I	67	27	7	0	0			
	II	38	38	6	13	6			
	III	25	13	25	25	13	10.71	8	0.219
Current issues	I	63	37	0	0	0			
	II	29	51	6	14	0			
	III	20	20	40	10	10	32.27	8	0.000
History of reserve	I	52	44	4	0	0			
	II	35	38	16	8	3			
	III	11	44	22	11	11	11.62	8	0.169
Past cultures	I	52	37	7	4	0			
	II	39	44	11	6	0			
	III	20	40	30	0	10	12.11	8	0.147

Table 7c. Preferred methods of receiving information

Variable	Experience Type	Very Desirable	Moderately Desirable	Not Important	Slightly Desirable	Not Desirable At All	χ^2	df	p
				% Respondents					
Signs in the reserve	I	44	35	22	0	0			
	II	32	32	12	3	21			
	III	10	60	20	10	0	14.08	8	0.080
Guidebooks	I	44	41	11	4	0			
	II	38	46	14	3	0			
	III	30	50	10	0	10	7.48	8	0.486
Pamphlets	I	22	59	11	7	0			
	II	32	54	11	3	0			
	III	20	20	40	10	10	15.51	8	0.050
Guides	I	78	19	0	4	0			
	II	84	8	5	3	0			
	III	30	30	30	0	10	22.74	8	0.004
Videotapes	I	8	46	35	0	12			
	II	3	27	35	24	11			
	III	0	44	33	11	11	9.66	8	0.290
Audiotapes	I	4	42	35	4	15			
	II	6	19	44	22	8			
	III	0	22	44	22	11	8.11	8	0.422

Table 8. Wildlife viewing typology for Madikwe Game Reserve. Description of level of interest in experience opportunity, setting and activities associated with the experience (after Manfredo 2002).

	Recreation Opportunity Label		
	Type I High Involvement	Type II Generalist	Type III Occasionalist
	Level of Interest		
Experience Opportunity ('very interested')			
	Medium	Medium	Medium
To spend time with friends/family	Medium	Low	Low
To meet new people	Medium	Medium	Low
To get away from other people	High	Low	Medium
To learn new things	High	Medium	High
To experience new/different things	High	Medium	Medium
To view scenery	High	High	Medium
To be close to nature	High	High	Medium
To experience wilderness	Low	Low	Low
To reflect on spiritual/religious values	Low	Low	Low
To get physical fitness	High	Medium	Low
To relax mentally	High	Medium	Low
To experience peace and quiet	Medium	Low	Low
To do something creative			
Subjects of interest ('very interested' / 'moderately interested')			
Animals in general	High	High	High
Certain animals	High	High	Low
Plants	High	Medium	High
Birds	High	High	Medium
How reserve is managed	High	High	Low
History of the reserve	High	High	Medium
Past cultures	High	High	Medium
Means of receiving information ('very desirable/moderately desirable')			
Signs in the reserve	High	Medium	High
Guidebooks	High	High	High
Pamphlets	High	High	Low
Guides	High	High	Medium
Videotapes	Medium	Low	Low
Audiotapes	Low	Low	Low
Activity ('very interested/moderately interested')			
Scenic drives	High	High	High
Camping	Medium	Low	Low
Wildlife viewing	High	High	High
Picnics	High	Medium	Low
Swimming	High	Medium	Low
Hiking	High	Medium	High
Bird watching	High	High	Medium
Photography	High	High	Medium
Hot-air ballooning	Medium	Low	Low
Hunting	Low	Low	Low

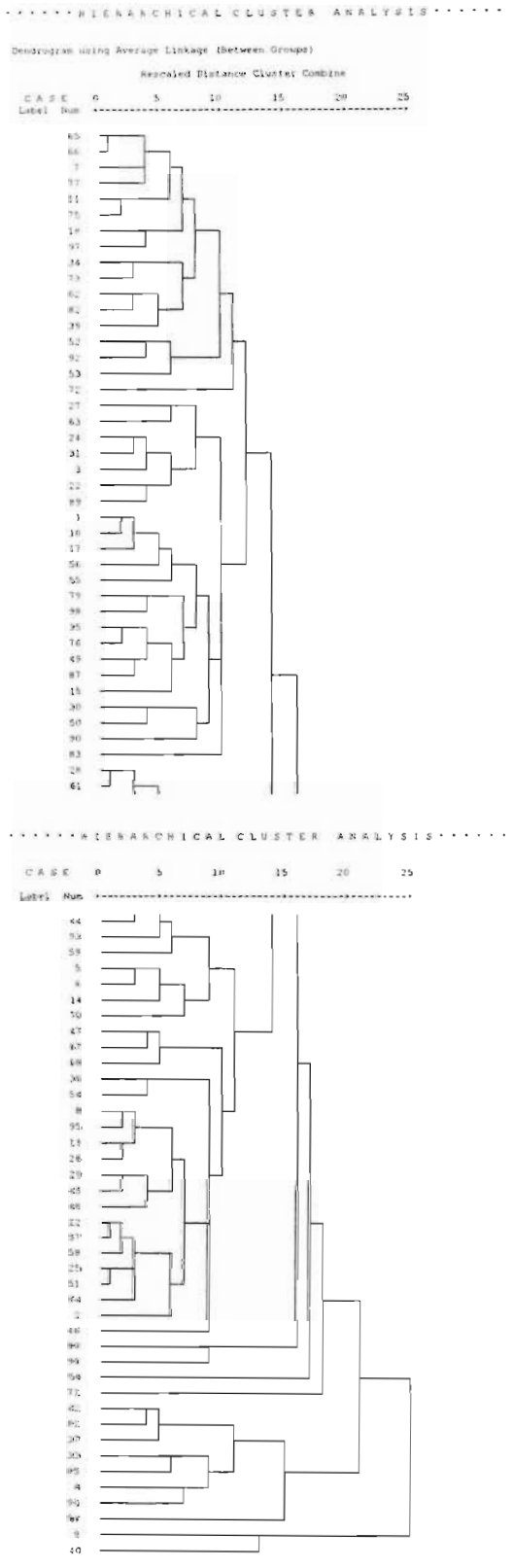
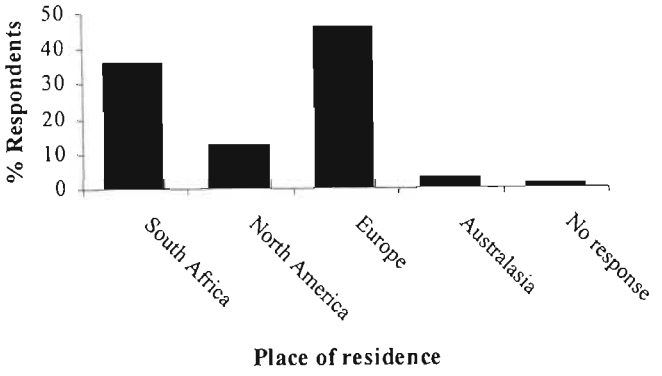
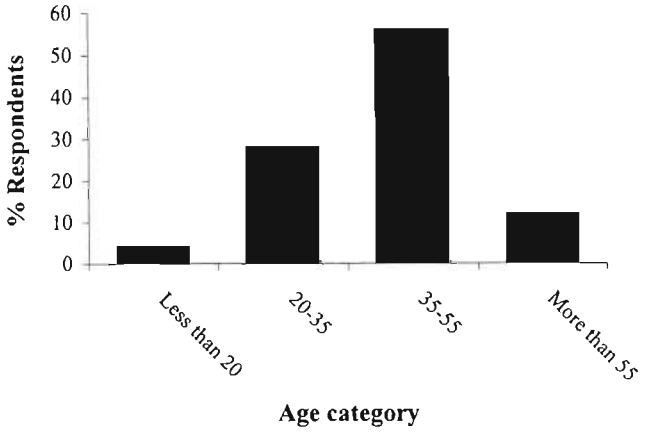


Figure 1. Dendogram for hierarchical cluster analysis using Average Linkage Between Groups



(a)



(b)

Figure 2. General profile of visitors to Madikwe Game reserve. (a) Place of residence of respondents(b) Age categories of respondents.

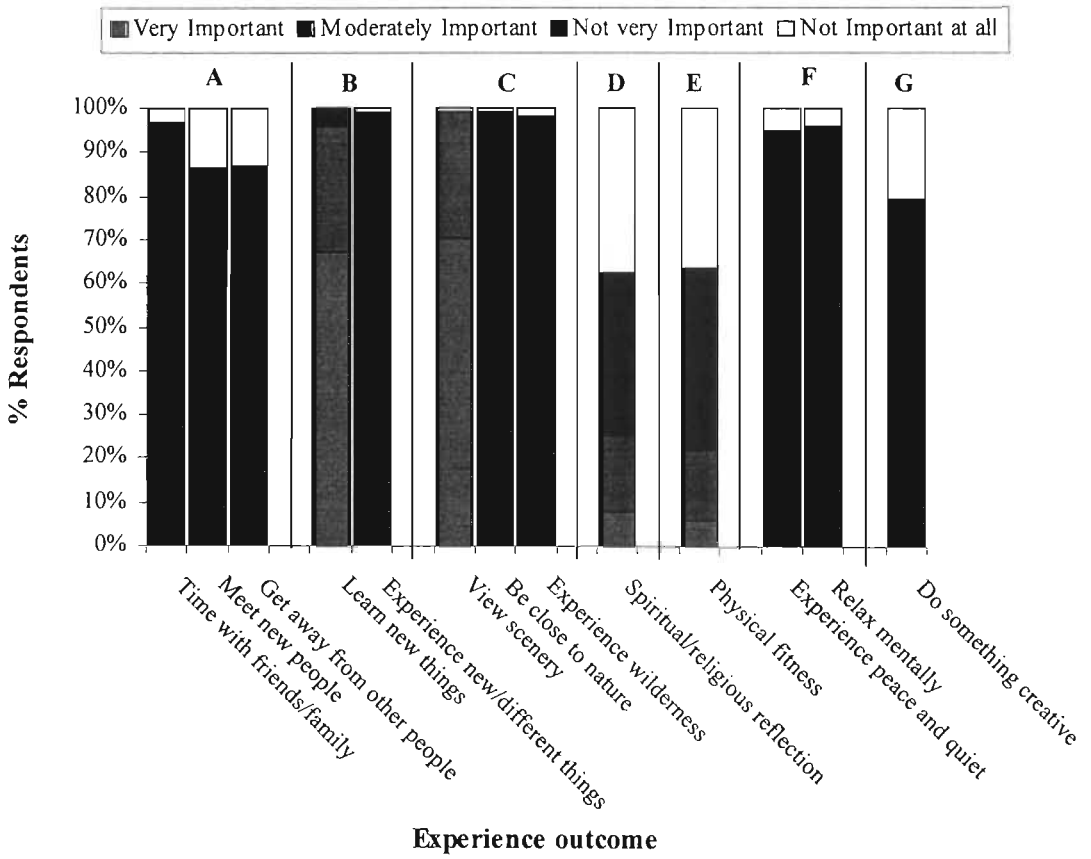
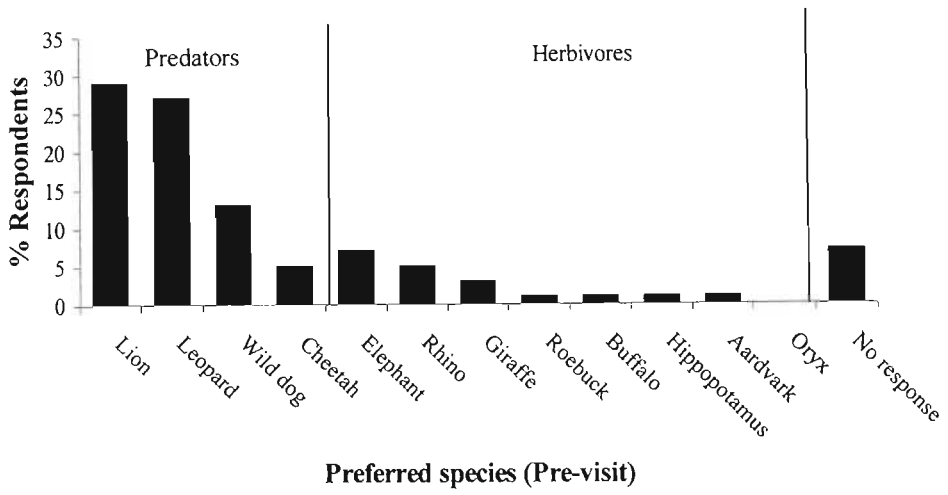
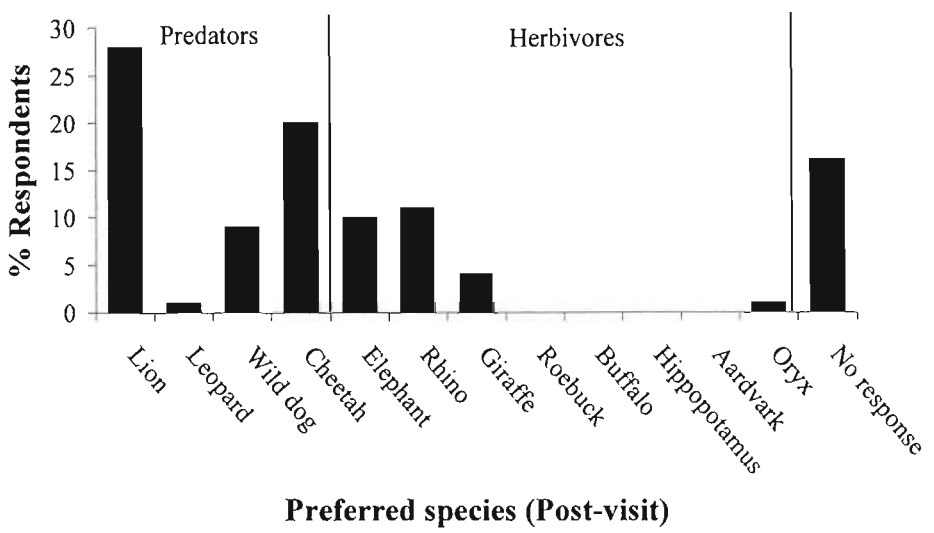


Figure 3. Percentage of respondents ranking experience outcomes (n=78). Experience categories: A – Social outcomes, B – Learning/exploration, C – Enjoying nature, D – Introspection, E – Physical fitness, F – Physical rest/escaping social-physical pressures, G – Creativity.



(a)



(b)

Figure 4. Species reported as being the most preferred for viewing. (a) Pre-visit (b) Post-visit.

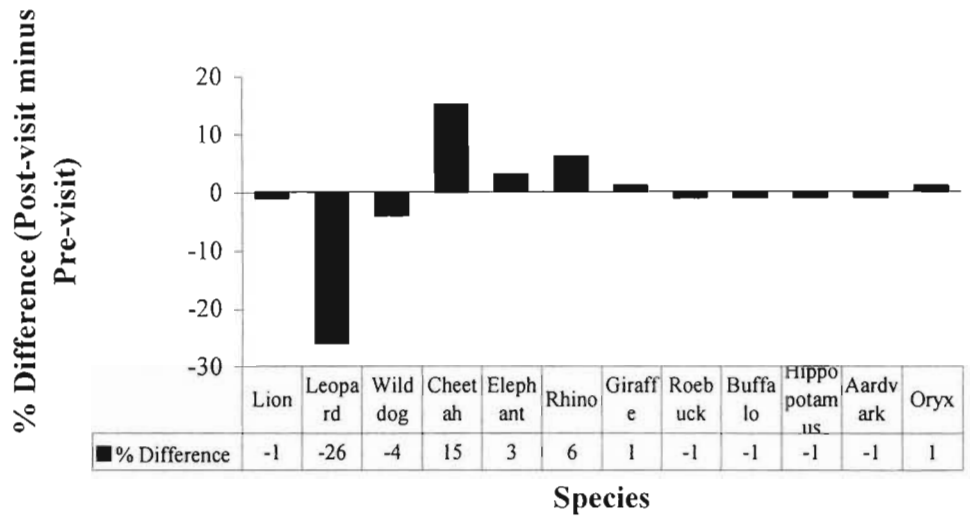


Figure 5. Differences between Post-visit and Pre-visit preferences for species. (Respondents listing 'roebuck' were likely referring to 'reedbuck')

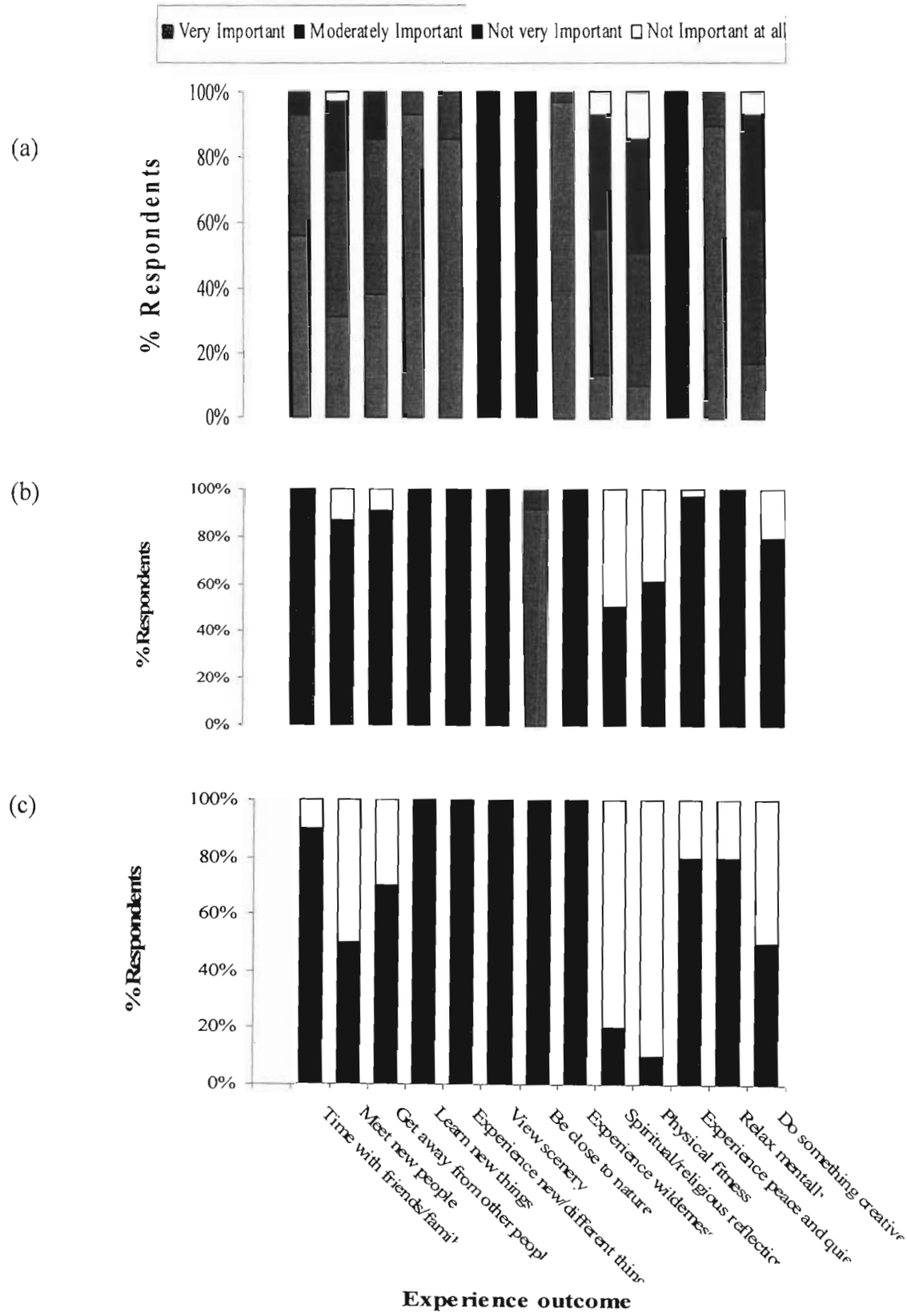


Figure 6. Percentage of respondents rating experience outcomes according to type. (a) Type I (n=29) (b) Type II (n=39) (c) Type III (n=10).

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APPENDIX I: SOME COMMON MAMMAL SPECIES OF MADIKWE GAME RESERVE (HOFMEYR, NEL & DELL 2003; MOSETLHA BUSH CAMP 2003)

Scientific Name	Common Name	Number (2001)
Acinonyx jubatus	Cheetah	25
Aepyceros melampus	Impala	3200
Alcelaphus buselaphus	Hartebeest, Red	500
Antidorcas marsupialis	Springbok	50
Canis mesomelas	Jackal, Black-Backed	-
Ceratotherium simum	Rhinoceros, White	-
Cercopithecus aethiops	Monkey, Vervet	-
Civettictis civetta	Civet, African	-
Connochaetes taurinus	Wildebeest, Blue	3500
Crocuta crocuta	Hyaena, Spotted	35
Damaliscus lunatus	Tsessebe	30-50
Diceros bicornis	Rhinoceros, Black	-
Equus Burchelli	Zebra, Burchell's	2500
Felis caracal	Caracal	-
Felis serval	Serval	-
Genetta genetta	Genet, Small-Spotted	-
Genetta tigrina	Genet, Large-Spotted	-
Giraffa camelopardalis	Giraffe	200
Hippopotamus amphibius	Hippopotamus	-
Hippotragus niger	Antelope, Sable	15
Hyaena brunnea	Hyaena, Brown	20-40
Kobus ellipsiprymnus	Waterbuck	600
Loxodonat africana	Elephant	320
Lycaon pictus	Dog, Wild	19
Oryx gazella	Gemsbok	500
Otocyon megalotis	Fox, Bat-Eared	-
Panthera leo	Lion	50
Panthera pardus	Leopard	25
Papio ursinus	Baboon, Chacma	-
Phacochoerus aethiopicus	Warthog	-
Potamochoerus porcus	Bushpig	-
Proteles cristatus	Aardwolf	-
Raphicerus campestris	Steenbok	-
Redunca arundinum	Reedbuck, Common	-
Redunca fulvorufula	Reedbuck, Mountain	-
Sylvicapra grimmia	Duiker, Common	-
Syncerus caffer	Buffalo	236
Taurotragus oryx	Eland	700
Tragelaphus scriptus	Bushbuck	50
Tragelaphus strepsiceros	Kudu	1700

APPENDIX II: PRE-VISIT QUESTIONNAIRE

MADIKWE GAME RESERVE TOURISM SURVEY

Dear Visitor,

This survey is being conducted through the University of Natal to determine your motivations and preferences when visiting Madikwe Game Reserve. We would be very grateful if you can take a few minutes of your time to complete this short questionnaire. The results of this study will be useful for planning and managing tourism activities to the benefit of reserve managers, tour operators and visitors. Your responses will be completely anonymous and confidential.

If you came to Madikwe Game Reserve in a group, let the person (16 years or more) whose birthday is nearest, answer the questions. Please provide your own personal answers and not those of any other member in the group. Please do not put your name or that of any group member on the questionnaire. Please answer all questions. Tick boxes where appropriate.

1). What is your gender?

Male □ Female □

2). What is your age?

<20□ 20 – 35□ 35 - 55□ >55□

3). What is your usual place of residence? (Indicate country and province)

.....

4). Please indicate the length of your stay at Madikwe Game Reserve (number of days and number of nights).....

5). Please indicate how important you think the items below are to you as part of your experience in the reserve. **Please circle one number for each feature.**

	Very important	Moderately important	Not very important	Not important at all
To spend time with friends/family	1	2	3	4
To learn new things	1	2	3	4
To meet new people	1	2	3	4
To experience new/different things	1	2	3	4
To view scenery	1	2	3	4
To be close to nature	1	2	3	4
To experience wilderness	1	2	3	4
To reflect on spiritual/religious values	1	2	3	4
To get physical fitness	1	2	3	4
To experience peace and quiet	1	2	3	4
To relax mentally	1	2	3	4
To get away from other people	1	2	3	4
To do something creative e.g. paint/photograph	1	2	3	4

6). Please indicate how interested you are in participating in the activities below. **Please circle one number for each feature.**

	Very interested	Moderately interested	Not very interested	Not interested at all
Scenic drives	1	2	3	4
Camping	1	2	3	4
Wildlife viewing	1	2	3	4
Picnics	1	2	3	4
Swimming	1	2	3	4
Hiking	1	2	3	4
Bird watching	1	2	3	4
Photography	1	2	3	4
Hot-air ballooning	1	2	3	4
Horse riding	1	2	3	4
Hunting	1	2	3	4
Other (please specify)	1	2	3	4

7). Please list one animal that you would like to see during your visit in Madikwe Game Reserve.

.....

8). How many trips have you taken in the past year especially to see wildlife? (This includes trips to places other than Madikwe). Select from options below.

0 □ 1-3 □ 3-6 □ > 6 □

9). Please indicate how interested you are in receiving information about different features of the reserve listed below while touring the reserve. **Please circle one number for each feature.**

	Very interested	Moderately interested	Not important	Slightly interested	Not interested at all
Animals in general	1	2	3	4	5
Certain animals (list one).....	1	2	3	4	5
Plants	1	2	3	4	5
Birds	1	2	3	4	5
How the reserve is managed	1	2	3	4	5
Current issues facing the reserve	1	2	3	4	5
History of the reserve	1	2	3	4	5
Past cultures that lived in the area of the reserve	1	2	3	4	5
Other (please specify).....	1	2	3	4	5

10). The table below contains methods in which information can be provided to you. How do you rate each method?

	Very desirable	Moderately desirable	Not important	Slightly desirable	Not desirable at all
Signs in the reserve about things of interest	1	2	3	4	5
Guidebooks	1	2	3	4	5
Pamphlets	1	2	3	4	5
Guides	1	2	3	4	5
Video tapes	1	2	3	4	5
Audio tapes	1	2	3	4	5
Other (please specify)	1	2	3	4	5

APPENDIX III: POST-VISIT QUESTIONNAIRE

MADIKWE GAME RESERVE TOURISM SURVEY

Dear Visitor,

This survey is being conducted through the University of Natal to evaluate your experiences during your visit in Madikwe Game Reserve. We would be very grateful if you can take a few minutes of your time to complete this short questionnaire. The results of this study will be useful for planning and managing tourism activities to the benefit of reserve managers, tour operators and visitors. Your responses will be completely anonymous and confidential.

If you came to Madikwe Game Reserve in a group, let the person (16 years or more) whose birthday is nearest, answer the questions. Please provide your own personal answers and not those of any other member in the group. Please do not put your name or that of any group member on the questionnaire. Please answer all questions.

1). Please indicate how satisfied you were with the following features of your experiences in Madikwe Game Reserve. **Please circle one number for each feature.**

	Very satisfied	Moderately satisfied	Not important	Slightly satisfied	Not satisfied at all
The number of wildlife seen	1	2	3	4	5
The variety of wildlife seen	1	2	3	4	5
How easy the wildlife were to see	1	2	3	4	5
Seeing rare/endangered wildlife	1	2	3	4	5
Accommodation facilities	1	2	3	4	5
Level of service among staff	1	2	3	4	5
Food	1	2	3	4	5
Other (please specify)	1	2	3	4	5

2). Please list one species that you enjoyed seeing the most when you toured the reserve.

.....

3). Please indicate your satisfaction concerning the **amount of information** you received about different features of the reserve listed below while touring the reserve. **Please circle one number for each feature.**

	Very satisfied	Moderately satisfied	Not important	Slightly satisfied	Not satisfied at all
Animals	1	2	3	4	5
Certain animals (list one).....	1	2	3	4	5
Plants	1	2	3	4	5
Birds	1	2	3	4	5
How the reserve is managed	1	2	3	4	5
Current issues facing the reserve	1	2	3	4	5
History of the reserve	1	2	3	4	5
Past cultures that lived in the area of the reserve	1	2	3	4	5
Other (please specify)	1	2	3	4	5

4). Please list one item from the table above that you would have liked to receive more information about.....

5). Tour operators and managers are interested in how tour guides contribute to your experience in the reserve. Please indicate how satisfied you were with your guide/s in terms of the features below. (If different guides during your visit guided you, rate the most recent guide). **Please circle one number for each feature.**

	Very satisfied	Moderately satisfied	Not important	Slightly satisfied	Not satisfied at all
Information about plants, birds and animals	1	2	3	4	5
Information about interesting things other than plants, birds and animals	1	2	3	4	5
Enthusiasm	1	2	3	4	5
Response to questions from tourists	1	2	3	4	5

6). Please provide any other comments that you have concerning your experience in Madikwe Game Reserve.

THANK YOU FOR YOUR TIME